Versar INC.

FOURTH ROUND GROUNDWATER MONITORING REPORT
DECEMBER 29, 1995

PACIFIC DRY DOCK AND REPAIR COMPANY
YARD II FACILITY
OAKLAND, CALIFORNIA

Prepared for:

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Versar Project No. 2463-103

April 10, 1996

SUMMARY

On December 29, 1995, Versar conducted the fourth round of quarterly groundwater sampling at the site. Prior to collecting samples, all monitoring wells were purged following Versar's standard procedures, presented in Appendix E of the "Groundwater Monitoring Well Installation and Monitoring Report-March 13, 1995." Monitoring well purging data are included in Appendix A. Groundwater samples were submitted to Trace Analysis Laboratory, Inc., a state-certified analytical laboratory. Using the appropriate state or EPA methods, the samples were analyzed for the following constituents: total petroleum hydrocarbons as gasoline (TPH-G); total petroleum hydrocarbons as diesel (TPH-D); total oil and grease (TOG); benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl-tert-butyl ether (MTBE); chlorinated hydrocarbons; copper; lead; mercury; and zinc. The laboratory report and chain-of-custody record are included in Appendix B. Groundwater sampling analytical results are summarized in Tables 1 through 3 and Figures 1 through 6.

Depth to groundwater measurements were collected on January 18, 1996. These depths were corrected to a common elevation datum and used to calculate an approximate hydraulic gradient of 0.015 to the northwest, as shown on Figure 3. This result is consistent with previous measurements. Groundwater level data are summarized in Table 4.

The purpose of the groundwater monitoring program is to conduct regularly scheduled sampling events at the Site. Each sampling event includes (1) measurement of groundwater levels from all monitoring wells, (2) collection and laboratory analysis of groundwater samples from all monitoring wells, (3) calculation of the hydraulic gradient, and (4) production of a report summarizing the results of the sampling event.

Mr. Philip Cox, Geologist, prepared this report under the guidance of Mr. Paul Graff, Registered Geologist.

A summary of the results of the current groundwater sampling event is as follows:

- On January 18, 1996, the calculated groundwater gradient was 0.015 in a northerly direction. Groundwater samples were collected on December 29, 1995.
- TPH-G, benzene, ethylbenzene, chlorobenzene, copper, zinc, and lead were detected in MW1.
- TPH-G and TPH-D, benzene, ethylbenzene, chlorobenzene, copper, and zinc were detected in MW2.
- Copper and zinc were detected in MW3.
- TPH-G and TPH-D, TOG, benzene, toluene, ethylbenzene, chlorobenzene, copper, and zinc were detected in MW4.
- TPH-G and TPH-D, TOG, benzene, toluene, ethylbenzene, chlorobenzene, copper, and zinc were detected in MW5.
- TOG, copper, mercury, and zinc were detected in MW6.
- TPH-D, copper, and zinc were detected in MW7.

Prepared by:

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FOR Staff Geologist

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STATE OF CALIFORNIA

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California Registered Geologist No. 5600

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1.0 INTRODUCTION

Crowley Marine Services, Inc. (Crowley) has retained Versar, Inc. (Versar) to assist in conducting an environmental investigation, including a program of groundwater monitoring, at the former Pacific Dry Dock and Repair Company Yard II Facility (the Site), located at 321 Embarcadero in Oakland, California (Figure 1). The investigation is being conducted in accordance with the policies of the San Francisco Bay Regional Water Quality Control Board and the Alameda County Health Care Services Agency (ACHCSA). This report describes the procedures and results of the fourth round of groundwater monitoring and sampling.

1.1 Site Description and History

The Site occupies approximately 1.5 acres of shoreline property between the Embarcadero and Oakland Inner Harbor. The property is bounded by Oakland Inner Harbor on the south and west, the Embarcadero on the north, and industrial property on the east (Figure 2). The Site use and environmental investigation history are presented in the "Preliminary Investigation and Evaluation Report," dated March 19, 1996. Based on initial soil sampling results and other areas of interest, the Site has been divided into six investigation areas, as shown on Figure 2.

2.0 GROUNDWATER SAMPLING ACTIVITIES

The general objectives of the fourth round of groundwater monitoring and sampling were as follows:

- To measure groundwater levels in all monitoring wells (MW1, MW2, MW3, MW4, MW5, MW6, and MW7).
- To purge and collect groundwater samples from all monitoring wells.
- To submit the groundwater samples to a certified laboratory for analysis for TPH-G, TPH-D, TOG, BTEX, chlorinated hydrocarbons, copper, lead, mercury, and zinc.
- To prepare this groundwater monitoring and monitoring well installation report.

Groundwater samples were collected on December 29, 1995. Groundwater level measurements were collected on January 18, 1996.

The groundwater level measurements were converted to elevations and used to calculate the hydraulic gradient. The gradient on January 18, 1996 was 0.015 in a northerly direction, as shown in Figure 3. Groundwater level data for all monitoring and sampling events are presented in Table 4.

Prior to collecting samples, all monitoring wells were purged following Versar's standard procedures, presented in Appendix A of Versar's "Groundwater Monitoring Well Installation and Monitoring Report-March 13, 1995." Monitoring well purging data are included in Appendix A.

Following purging, groundwater samples were collected from each monitoring well using a bailer. Sampling containers were labeled with the date collected and a unique sample identification and stored at approximately 4° C in an insulated cooler. All groundwater samples were picked up by a representative from Trace on December 29, 1995. Groundwater samples were submitted for the following analyses: TPH-G, TPH-D, TOG, BTEX, chlorinated

hydrocarbons, lead, mercury, copper, and zinc. The analyte MTBE was also reported with BTEX, as required by the San Francisco Bay Regional Water Quality Control Board. The samples were prepared following accepted agency methods and were accompanied by Versar's chain of custody record.

3.0 GROUNDWATER SAMPLE RESULTS

During the sampling event, seven groundwater samples (one from each monitoring well) were collected and submitted for laboratory analysis. Analytical results of groundwater samples are summarized and shown in Tables 1, 2, and 3. A copy of the laboratory analytical report and chain of custody record from the sampling event are included as Appendix B.

4.0 REFERENCES

Keiley, Enea, Piunti, & Hamilton. San Jose, California, July 31, 1995. *Status of Subsurface Investigation at Pacific Dry Dock Yard II, 321 Embarcadero, Oakland, California 94606.*

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

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Versar, Inc., Fair Oaks, California. September 1995. Addendum to Work Plan for Site Investigation, 321 Embarcadero, Oakland, California.

Versar, Inc., Fair Oaks, California, October 2, 1995. *Groundwater Sampling Report-June 21, 1995, Former Pacific Dry Dock and Repair Company Yard II Facility, Oakland, California*

Versar, Inc., Fair Oaks, California, December 1, 1995. *Monitoring Well Installation and Third Round Groundwater Monitoring Report - October 2, 1995. Former Pacific Dry Dock and Repair Company Yard II Facility, Oakland, California.*

Versar, Inc., Fair Oaks, California, March 21, 1996. *Preliminary Investigation and Evaluation Report, Former Pacific Dry Dock and Repair Company Yard II Facility, Oakland, California.*

SOURCE: USGS TOPO 1959

Scale (miles) 0 0.25 0.50	Site Location	Figure 1
Project No. 2463-103	Former Pacific Dry Dock & Repair Company Yard II Facility Oakland, California	Versar, Inc.

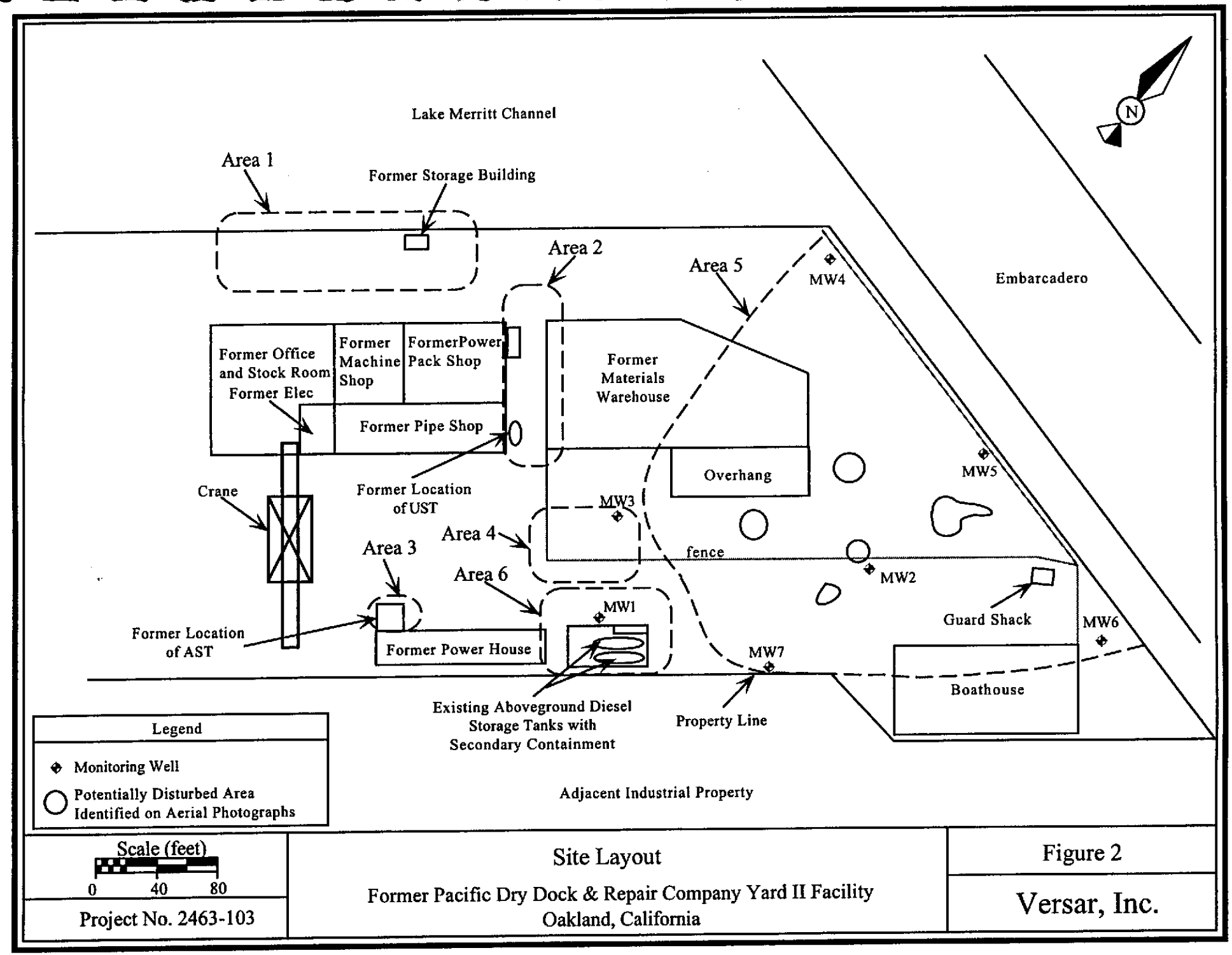

Lake Merritt Channel
Area 1
Former Storage Building
Area 2
Area 5
MW4
Embarcadero
Former Office and Stock Room
Former Elec
Former Machine Shop
FormerPower Pack Shop
Former Pipe Shop
Former Materials Warehouse
Overhang
MW5
Crane
Former Location of UST
MW3
Area 4
Area 3
Area 6
fence
MW2
MW1
Guard Shack
MW6
Former Location of AST
Former Power House
MW7
Boathouse
Existing Aboveground Diesel Storage Tanks with Secondary Containment
Property Line
Adjacent Industrial Property
N
Legend
Monitoring Well
Potentially Disturbed Area Identified on Aerial Photographs
Scale (feet)
0
40
80
Project No. 2463-103
Site Layout
Former Pacific Dry Dock & Repair Company Yard II Facility
Oakland, California
Figure 2
Versar, Inc.

Table 1

Monitoring Well Groundwater Sampling Results - Petroleum Hydrocarbons

Former Pacific Dry Dock and Repair Company Yard II Facility
321 Embarcardero
Oakland, California

Groundwater Monitoring Well Date	TOG[1]	TPH-MO[2]	TPH-D[3] (µg/L)	TPH-G[4] (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE[5] (µg/L)
MW1									
/13/95	---[6]	---	220	ND[7]	ND	ND	ND	ND	---
/21/95	---	---	160	ND	ND	ND	1.0	5.3	---
9/29/95	---	ND	ND	ND	ND	ND	ND	ND	ND
2/29/95	ND	---	ND	55	3.6	ND	1.4	ND	ND
MW2									
3/13/95	---	---	2,500	1,600	77	ND	ND	850	---
6/21/95	---	---	3,300	2,300	65	0.74	1.3	810	---
/29/95	---	ND	870	1,400	41	ND	ND	ND	ND
12/29/95	ND	---	2,600	1,600	36	ND	14	ND	ND
MW3									
/13/95	---	---	ND	ND	ND	ND	ND	ND	---
/21/95	---	---	140	ND	ND	ND	ND	ND	---
9/29/95	---	ND	ND	ND	ND	ND	ND	ND	ND
2/29/95	ND	---	ND	ND	ND	ND	ND	ND	ND

[1] TOG = Total Oil & Grease
[2] TPH-MO = Total Petroleum Hydrocarbons as Motor Oil
[3] TPH-D = Total Petroleum Hydrocarbons as Diesel
[4] TPH-G = Total Petroleum Hydrocarbons as Grease
[5] MTBE = Methyl tert-bertyl ether
[6] --- = Not Analyzed
ND = Not Detected

Table 1

Monitoring Well Groundwater Sampling Results - Petroleum Hydrocarbons

Former Pacific Dry Dock and Repair Company Yard II Facility
321 Embarcardero
Oakland, California

Groundwater Monitoring Well Date	TOG[1]	TPH-MO[2]	TPH-D[3] (µg/L)	TPH-G[4] (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE[5] (µg/L)
MW4									
10/2/95	---[6]	880	1,900	1,400	33	ND[7]	3.0	ND	ND
12/29/95	9,500	---	800	960	35	5.5	13	ND	ND
MW5									
10/2/95	---	ND	840	300	3.7	ND	ND	ND	ND
12/29/95	40,000	---	650	860	8.5	0.85	0.77	ND	ND
MW6									
10/2/95	---	ND	ND	ND	ND	ND	ND	ND	ND
12/29/95	7,300	---	ND	ND	ND	ND	ND	ND	ND
MW7									
10/2/95	---	ND	900	ND	ND	ND	ND	ND	ND
12/29/95	ND	---	130	ND	ND	ND	ND	ND	ND

[1] TOG = Total Oil & Grease
[2] TPH-MO = Total Petroleum Hydrocarbons as Motor Oil
[3] TPH-D = Total Petroleum Hydrocarbons as Diesel
[4] TPH-G = Total Petroleum Hydrocarbons as Grease
[5] MTBE = Methyl tert-bertyl ether
[6] --- = Not Analyzed
[7] ND = Not Detected

Table 2

Monitoring Well Groundwater Sampling Results - Chlorinated Hydrocarbons[1]

Former Pacific Dry Dock and Repair Company Yard II
321 Embarcadero
Oakland, California

Groundwater Monitoring Well Date	Chlorobenzene	Chloroform	cis and trans-1,2-Dichloroethene
MW1			
3/13/95	4.6	ND	ND
6/21/95	ND[2]	0.73	ND
9/29/95	1.5	ND	ND
12/29/95	9.1	ND	ND
MW2			
3/13/95	790	ND	ND
6/21/95	290	ND	1.6
9/29/95	940	ND	ND
12/29/95	370	ND	ND
MW3			
3/13/95	0.51	ND	ND
6/21/95	ND	ND	ND
9/29/95	ND	ND	ND
12/29/95	ND	ND	ND
MW4			
10/2/95	390	ND	ND
12/29/95	210	ND	ND

[1] EPA Method 8010
[2] ND = Not Detected

Table 2

Monitoring Well Groundwater Sampling Results - Chlorinated Hydrocarbons[1]

Former Pacific Dry Dock and Repair Company Yard II
321 Embarcadero
Oakland, California

Groundwater Monitoring Well Date	Chlorobenzene	Chloroform	cis and trans-1,2-Dichloroethene
MW5			
10/2/95	35	ND[2]	ND
12/29/95	240	ND	ND
MW6			
10/2/95	ND	ND	ND
12/29/95	ND	ND	ND
MW7			
10/2/95	ND	ND	ND
12/29/95	ND	ND	ND

[1] EPA Method 8010
[2] ND = Not Detected

Table 3

Monitoring Well Groundwater Sampling Results - Metals

Former Pacific Dry Dock and Repair Company Yard II
321 Embarcadero
Oakland, California

Groundwater Monitoring Well Date	Copper	Lead	Mercury	Zinc
MW1				
3/13/95	---[1]	---	---	---
6/21/95	---	---	---	---
9/29/95	ND[2]	ND	0.28	56
12/29/95	50	110	ND	24
MW2				
3/13/95	---	---	---	---
6/21/95	---	---	---	---
9/29/95	ND	ND	ND	51
12/29/95	55	ND	ND	38
MW3				
3/13/95	---	---	---	---
6/21/95	---	---	---	---
9/29/95	ND	ND	ND	60
12/29/95	100	ND	ND	30
MW4				
10/2/95	20	210	0.6	440
12/29/95	55	ND	ND	68

[1] --- = Not Analyzed
[2] ND = Not Detected

Table 3

Monitoring Well Groundwater Sampling Results - Metals

Former Pacific Dry Dock and Repair Company Yard II
321 Embarcadero
Oakland, California

Groundwater Monitoring Well Date	Copper	Lead	Mercury	Zinc
MW5				
10/2/95	ND[2]	ND	0.91	240
12/29/95	100	ND	ND	68
MW6				
10/2/95	ND	ND	2.3	140
12/29/95	95	ND	0.53	110
MW7				
10/2/95	20	310	11	380
12/29/95	60	ND	ND	80

[2] ND = Not Detected

Table 4

Monitoring Well Groundwater Level Data

Former Pacific Dry Dock and Repair Company Yard II
321 Embarcadero
Oakland, California

Groundwater Monitoring Well Date	Reference Elevation (top of casing)[1,2]	Depth to Groundwater[1]	Groundwater Elevation[2]	Hydraulic Gradient and Direction
MW1				
3/7/95	98.60	3.15	95.45	0.015 northwest
3/13/95		2.62	95.98	0.019 northwest
6/21/95		3.44	95.16	0.022 north/northwest
9/29/95	7.74	3.55	4.19	0.008 north/northwest
1/18/96		3.28	4.46	0.015 northwest
MW2				
3/7/95	98.20	3.93	94.27	
3/13/95		3.23	94.97	
6/21/95		4.44	93.76	
9/29/95	7.35	4.90	2.45	
1/18/96		5.23	2.12	
MW3				
3/7/95	98.36	4.12	94.24	
3/13/95		3.96	94.40	
6/21/95		4.63	93.73	
9/29/95	7.50	5.10	2.40	
1/18/96		4.05	2.45	

[1] Measurement and reference elevation taken from notch/mark on top north side of well casing.
[2] Elevation initially referenced to arbitrary site datum. Resurveyed to mean sea level datum in September 1995.

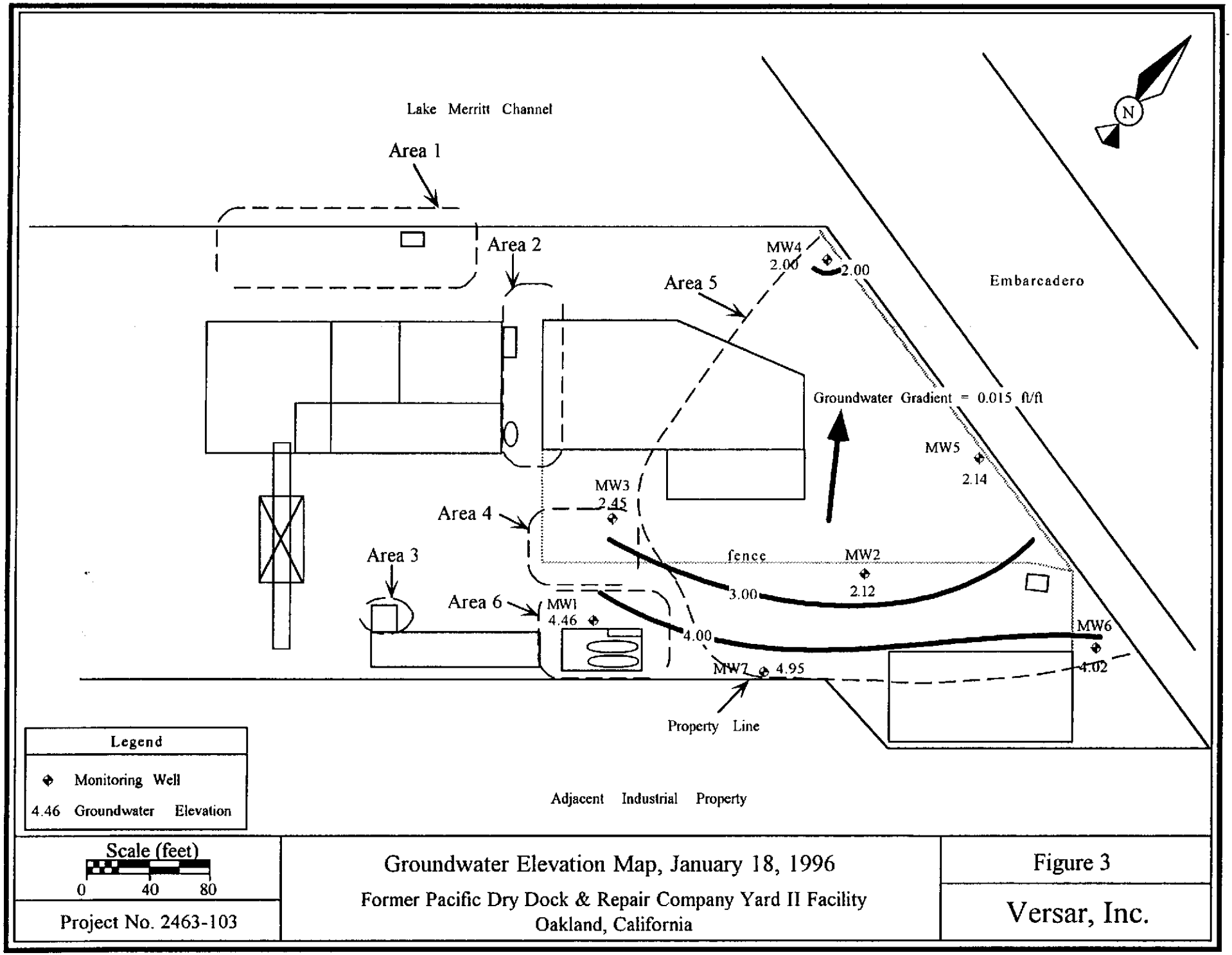
Table 4

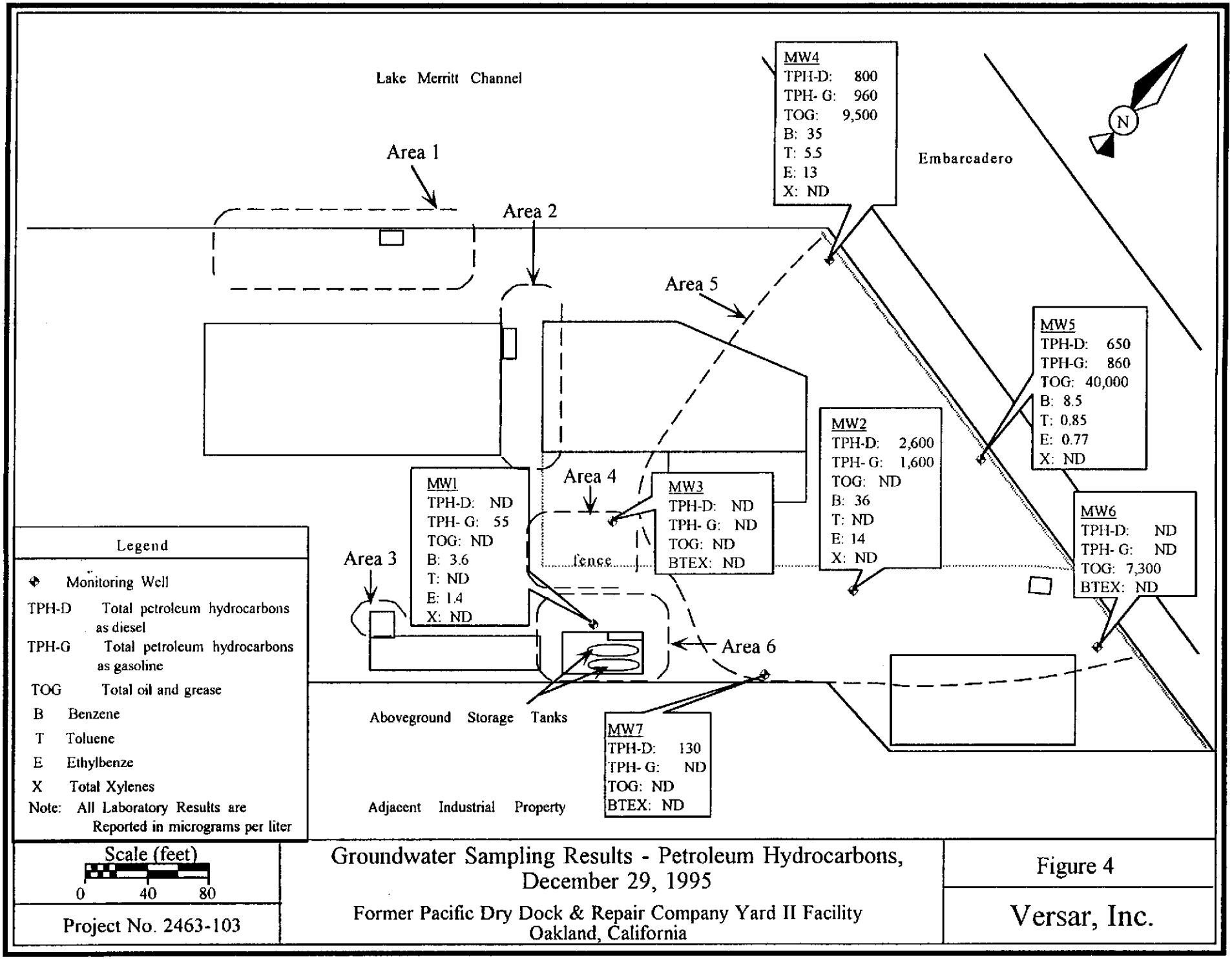
Monitoring Well Groundwater Level Data

Former Pacific Dry Dock and Repair Company Yard II
321 Embarcadero
Oakland, California

Groundwater Monitoring Well Date	Reference Elevation (top of casing)[1,2]	Depth to Groundwater[1]	Groundwater Elevation[2]
MW4			
9/29/95	5.65	4.78	0.87
1/18/96		3.65	2.00
MW5			
9/29/95	5.89	4.25	1.64
1/18/96		3.75	2.14
MW6			
9/29/95	7.65	4.82	2.83
1/18/96		3.63	4.02
MW7			
9/29/95	6.80	3.65	3.15
1/18/96		1.85	4.95

[1] Measurement and reference elevation taken from notch/mark on top north side of well casing.
[2] Elevation initially referenced to arbitrary site datum. Resurveyed to mean sea level datum in September 1995.


Lake Merritt Channel
Area 1
Area 2
Area 5
Area 4
Area 3
Area 6
MW4
2.00
2.00
Embarcadero
Groundwater Gradient = 0.015 ft/ft
MW5
2.14
MW3
2.45
fence
MW2
2.12
3.00
MW1
4.46
4.00
MW6
4.02
MW7
4.95
Property Line
Adjacent Industrial Property
N
Legend
Monitoring Well
4.46 Groundwater Elevation
Scale (feet)
0
40
80
Project No. 2463-103
Groundwater Elevation Map, January 18, 1996
Former Pacific Dry Dock & Repair Company Yard II Facility
Oakland, California
Figure 3
Versar, Inc.



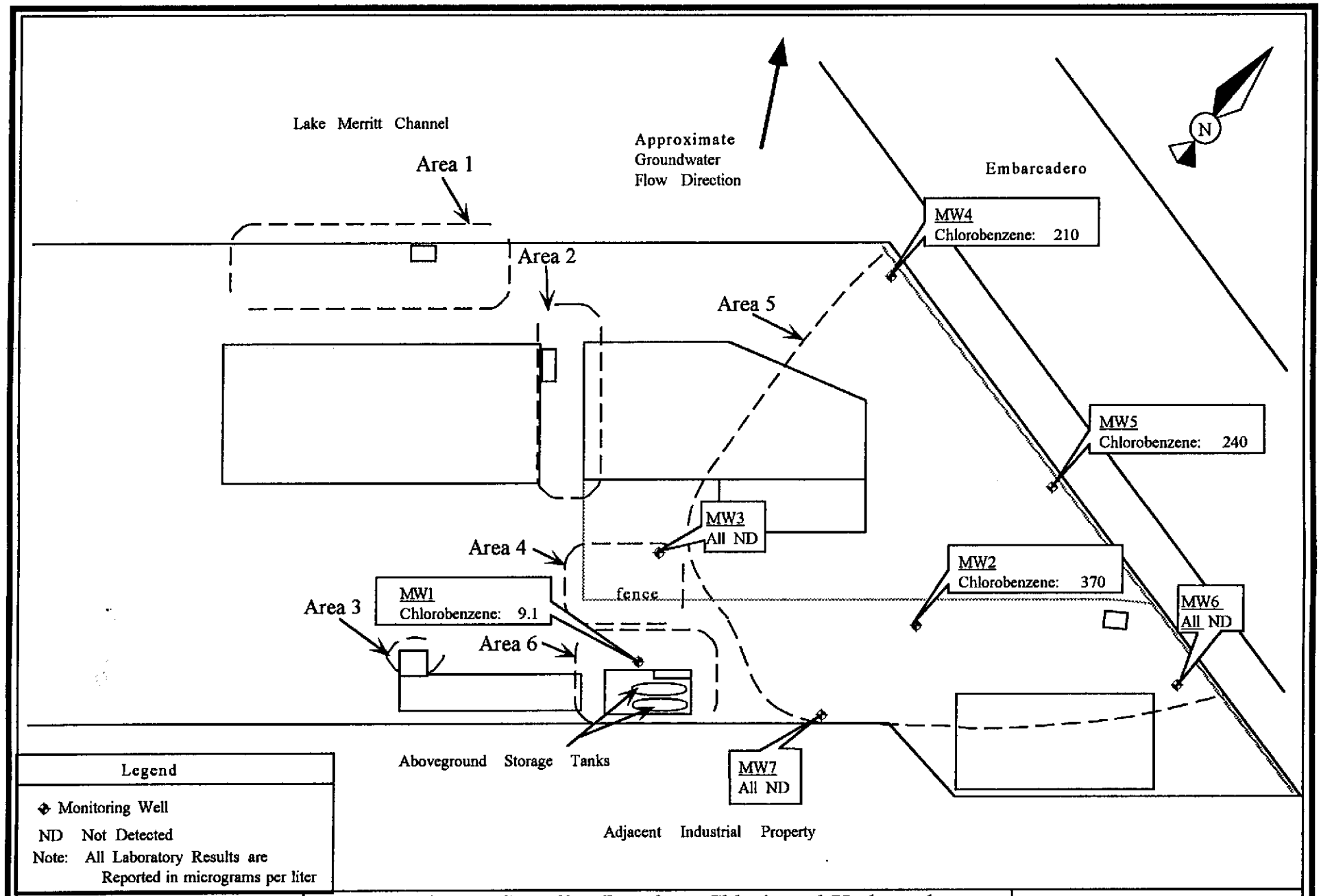
Project No. 2463-103

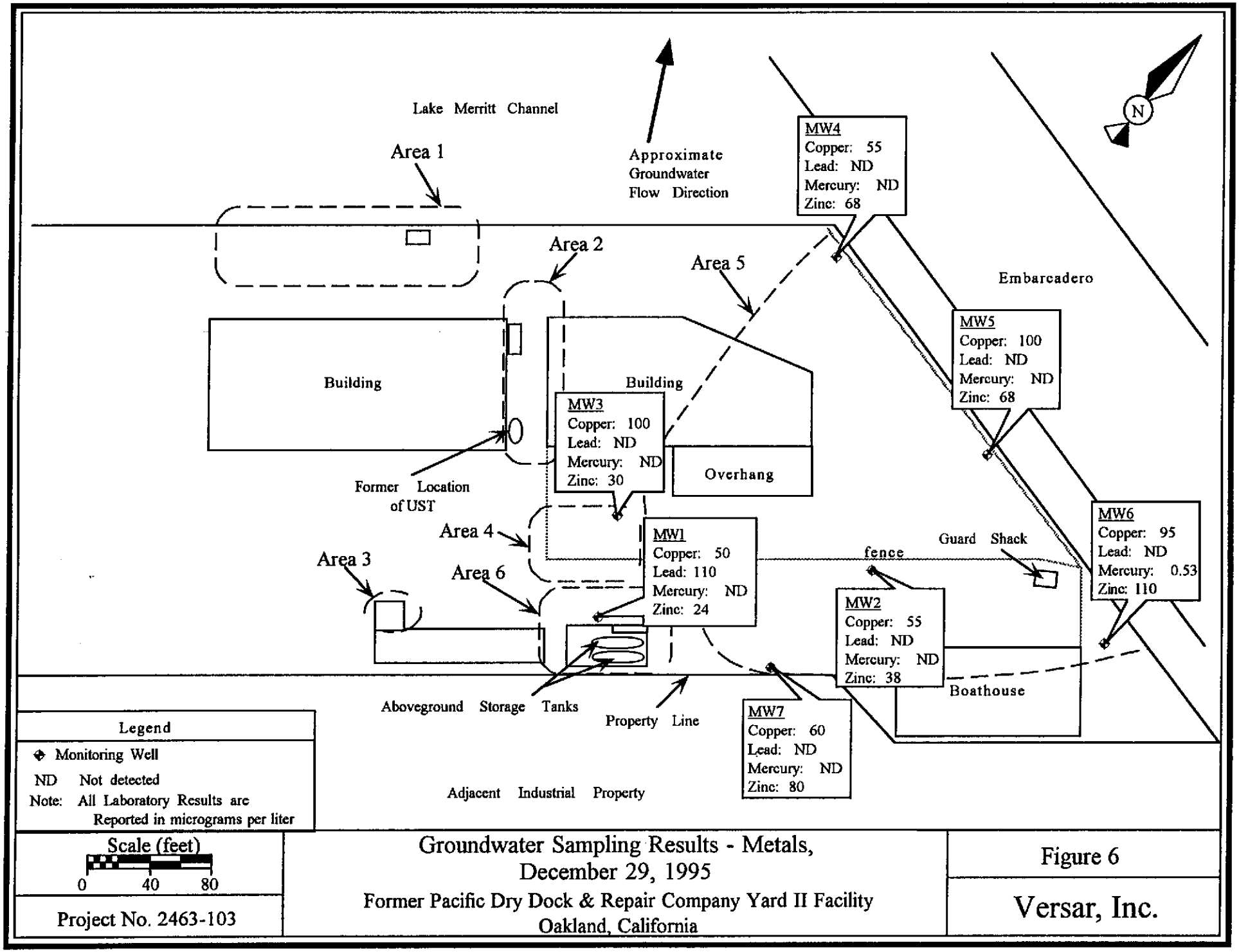
Groundwater Sampling Results - Petroleum Hydrocarbons, December 29, 1995

Former Pacific Dry Dock & Repair Company Yard II Facility
Oakland, California

Figure 4

Versar, Inc.


Lake Merritt Channel
Approximate Groundwater Flow Direction
Embarcadero
N
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
MW1
Chlorobenzene: 9.1
MW2
Chlorobenzene: 370
MW3
All ND
MW4
Chlorobenzene: 210
MW5
Chlorobenzene: 240
MW6
All ND
MW7
All ND
fence
Aboveground Storage Tanks
Adjacent Industrial Property
Legend
Monitoring Well
ND Not Detected
Note: All Laboratory Results are Reported in micrograms per liter
Scale (feet)
0 40 80
Project No. 2463-103
Groundwater Sampling Results - Chlorinated Hydrocarbons, December 29, 1995
Former Pacific Dry Dock & Repair Company Yard II Facility
Oakland, California
Figure 5
Versar, Inc.


Lake Merritt Channel
Area 1
Approximate Groundwater Flow Direction
MW4
Copper: 55
Lead: ND
Mercury: ND
Zinc: 68
N
Area 2
Area 5
Embarcadero
Building
Building
MW5
Copper: 100
Lead: ND
Mercury: ND
Zinc: 68
MW3
Copper: 100
Lead: ND
Mercury: ND
Zinc: 30
Overhang
Former Location of UST
Area 4
Area 3
Area 6
MW1
Copper: 50
Lead: 110
Mercury: ND
Zinc: 24
fence
Guard Shack
MW6
Copper: 95
Lead: ND
Mercury: 0.53
Zinc: 110
MW2
Copper: 55
Lead: ND
Mercury: ND
Zinc: 38
Boathouse
Aboveground Storage Tanks
Property Line
MW7
Copper: 60
Lead: ND
Mercury: ND
Zinc: 80
Adjacent Industrial Property
Legend
Monitoring Well
ND Not detected
Note: All Laboratory Results are Reported in micrograms per liter
Scale (feet)
0 40 80
Project No. 2463-103
Groundwater Sampling Results - Metals, December 29, 1995
Former Pacific Dry Dock & Repair Company Yard II Facility
Oakland, California
Figure 6
Versar, Inc.

MONITORING WELL PURGE TABLE

Project Number: 2463-103	**Site Name:** Crowley
Well Number: MW1	**Date(s) Purged:** 12/29/95
OVA - Ambient: 0 ppm	**Purge Method:** Dedicated Bailer
OVA - Vault: 0 ppm	**Purge Rate:** 2 gpm
OVA - Casing: 1 ppm	**Date & Time Sampled:** 12/29/95 (1335)
Water Level - Initial: 4 feet	**Purged & Sampled:** ADF
Water Level - Final: 4.3 feet	**Sampling Method:** Disposable Bailer
Well Depth: 14.8 feet	**Free Product:** None
Well Diameter: 4 inches	**Sheen:** Very Slight
Well Casing Volume: 7 gal (20 gal)	**Odor:** Slight Hydrocarbons

Time	Purge Water Removed (gal)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity
1320	5	58.3	7.35	6,250	Slight
1322	10	58.8	7.72	6,420	Slight
1324	12.5	59.2	8.24	6,660	Slight
1325	15	58.9	8.32	6,750	Slight
1327	17.5	59.7	8.33	6,820	Slight
1329	20	59.3	8.43	6,780	Slight

Field Notes:

MONITORING WELL PURGE TABLE

Project Number: 2463-103	**Site Name:** Crowley
Well Number: MW2	**Date(s) Purged:** 12/29/95
OVA - Ambient: 0 ppm	**Purge Method:** Dedicated Bailer
OVA - Vault: 24 ppm	**Purge Rate:** 1.2 gpm
OVA - Casing: 53 ppm	**Date & Time Sampled:** 12/29/95 (1445)
Water Level - Initial: 8.4 feet	**Purged & Sampled:** ADF
Water Level - Final: 9.75 feet	**Sampling Method:** Disposable Bailer
Well Depth: 16.8 feet	**Free Product:** None
Well Diameter: 4 inches	**Sheen:** Yes
Well Casing Volume: 5.5 gal (16.5 gal)	**Odor:** Strong Hydrocarbons

Time	Purge Water Removed (gal)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity
1430	2.5	60.3	7.99	6,570	Medium
1434	5	63.8	7.72	6,470	Medium
1436	7.5	64.2	8.16	6,560	Medium
1438	10	64.7	8.06	6,650	Medium
1441	12.5	63.8	7.80	6,420	Medium
1443	15	64.2	7.94	6,340	Medium
1445	17.5	64.5	8.08	6,470	Medium

Field Notes:

MONITORING WELL PURGE TABLE

Project Number: 2463-103	**Site Name:** Crowley
Well Number: MW3	**Date(s) Purged:** 12/29/95
OVA - Ambient: 0 ppm	**Purge Method:** Dedicated Bailer
OVA - Vault: 0 ppm	**Purge Rate:** .8 gpm
OVA - Casing: 2 ppm	**Date & Time Sampled:** 12/29/95 (0930)
Water Level - Initial: 6.2 feet	**Purged & Sampled:** ADF
Water Level - Final: 9.15 feet	**Sampling Method:** Disposable Bailer
Well Depth: 14.35 feet	**Free Product:** None
Well Diameter: 4 inches	**Sheen:** None
Well Casing Volume: 5.32 gal (16 gal)	**Odor:** None

Time	Purge Water Removed (gal)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity/ Color
900	2.5	61.0	6.30	4,370	Medium
908	5	67.4	5.18	5,180	Medium
911	7.5	63	6.86	4,440	Grey-Green
914	10	61.5	6.66	2,970	Grey-Green
919	12.5	63.6	6.85	3,920	Grey-Green
921	15	64.0	6.88	4,710	Grey-Green
923	17.5	64.1	7.03	4,420	Grey-Green

Field Notes:

MONITORING WELL PURGE TABLE

Project Number: 2463-103	**Site Name:** Crowley
Well Number: MW4	**Date(s) Purged:** 12/29/95
OVA - Ambient: 0 ppm	**Purge Method:** Dedicated Bailer
OVA - Vault: 62 ppm	**Purge Rate:** 1.25 gpm
OVA - Casing: 114 ppm	**Date & Time Sampled:** 12/29/95 (1030)
Water Level - Initial: 5.05 feet	**Purged & Sampled:** ADF
Water Level - Final: 5.35 feet	**Sampling Method:** Disposable Bailer
Well Depth: 15.75 feet	**Free Product:** None
Well Diameter: 4 inches	**Sheen:** Yes
Well Casing Volume: 6.9 gal (21gal)	**Odor:** Strong Hydrocarbon

Time	Purge Water Removed (gal)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity/ Color
1015	2.5	56.7	6.14	8,850	Medium
	5	59.2	7.02	10,000	Medium
	7.5	60.1	6.85	---	Dark Grey
	10	60.5	7.02	3,540	Dark Grey
	15	60.1	6.72	3,650	Dark Grey
1029	17.5	60.6	6.85	3,650	Dark Grey
1031	20	60.8	6.72	3,780	Dark Grey

Field Notes:

MONITORING WELL PURGE TABLE

Project Number: 2463-103	**Site Name:** Crowley
Well Number: MW5	**Date(s) Purged:** 12/29/95
OVA - Ambient: 0 ppm	**Purge Method:** Dedicated Bailer
OVA - Vault: 1 ppm	**Purge Rate:** .8 gpm
OVA - Casing: 150 ppm	**Date & Time Sampled:** 12/29/95 (1125)
Water Level - Initial: 5.75 feet	**Purged & Sampled:** ADF
Water Level - Final: 5.95 feet	**Sampling Method:** Disposable Bailer
Well Depth: 15.00 feet	**Free Product:** None
Well Diameter: 4 inches	**Sheen:** Yes
Well Casing Volume: 6.04gal (18 gal.)	**Odor:** Strong Hydrocarbons

Time	Purge Water Removed (gal)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity
1104	2.5	58.6	6.83	2,950	Dark Turbid
1110	5	61.6	6.75	3,060	Dark Turbid
1114	7.5	63.2	7.05	3,200	Dark Turbid
1116	10	64.1	7.04	3,480	Dark Turbid
1118	12.5	64.4	7.09	3,460	Dark Turbid
1122	15	62.9	7.03	3,430	Dark Turbid
1125	17.5	63.7	7.07	3,550	Dark Turbid

Field Notes:

MONITORING WELL PURGE TABLE

Project Number: 2463-103	**Site Name:** Crowley
Well Number: MW6	**Date(s) Purged:** 12/29/95
OVA - Ambient: 0 ppm	**Purge Method:** Dedicated Bailer
OVA - Vault: 0 ppm	**Purge Rate:** .5 gpm
OVA - Casing: 32 ppm	**Date & Time Sampled:** 12/29/95 (1637)
Water Level - Initial: 6.95 feet	**Purged & Sampled:** ADF
Water Level - Final: 6.95 feet	**Sampling Method:** Disposable Bailer
Well Depth: 14.45 feet	**Free Product:** None
Well Diameter: 4 inches	**Sheen:** Slight
Well Casing Volume: 5 gal (15 gal)	**Odor:** Sulfur Smell

Time	Purge Water Removed (gal)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity/ Color
1655	2.5	57.6	9.16	7,140	Orangish Turbid
	5	60.3	8.47	6,850	Orangish Turbid
	7.5	64.3	8.88	6,770	Orangish Turbid
	10	62.1	7.47	6,970	Orangish Turbid
	12	62.7	8.93	6,870	Orangish Turbid
1728	15	63.2	8.79	6,770	Orangish Turbid

Field Notes:

MONITORING WELL PURGE TABLE

Project Number: 2463-103	**Site Name:** Crowley
Well Number: MW7	**Date(s) Purged:** 1/29/95
OVA - Ambient: 4 ppm	**Purge Method:** Dedicated Bailer
OVA - Vault: 103 ppm	**Purge Rate:** 1.2 gpm
OVA - Casing: 5 ppm	**Date & Time Sampled:** 12/29/95 (1535)
Water Level - Initial: 2.55 feet	**Purged & Sampled:** ADF
Water Level - Final: 3.2 feet	**Sampling Method:** Disposable Bailer
Well Depth: 13.5 feet	**Free Product:** None
Well Diameter: 4 inches	**Sheen:** Slight
Well Casing Volume: 7 gal (21 gal)	**Odor:** Smells like eggs/sulfur

Time	Purge Water Removed (gal)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity/ Color
1515	5	564	9.47	7,050	Translucent Orange
1522	10	57.2	8.28	7,140	Translucent Orange
1525	12.5	57.2	8.82	6,960	Orange Cloudy
1529	15	57.5	8.30	7,110	Orange Cloudy
1531	17.5	57.2	8.26	7,000	Orange Cloudy
1533	20	57.3	8.68	6,930	Orange Cloudy

Field Notes:

APPENDIX B

Laboratory Analytical Reports
and Chain of Custody Record for Groundwater Samples

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE EXTRACTED: 01/22/96
DATE ANALYZED: 01/23/96
DATE REPORTED: 01/24/96

CUSTOMER: Versar, Inc.

REQUESTER: Phil Hoffmeister

PROJECT: No. 2463-103, Crowley Yard 2

Sample Type: Water

Method and Constituent:	Units	MW 1 Concentration	MW 1 Reporting Limit	MW 2 Concentration	MW 2 Reporting Limit	MW 3 Concentration	MW 3 Reporting Limit
Standard Method 5520B: Total Oil and Grease	ug/l	ND	5,000	ND	5,000	ND	5,000

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit
Standard Method 5520B: Total Oil and Grease	ug/l	ND	5,000

QC Summary:

% Recovery: 100
% RPD: 8.0

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

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard. #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE EXTRACTED: 01/22/96
DATE ANALYZED: 01/23/96
DATE REPORTED: 01/24/96

CUSTOMER: Versar, Inc.

REQUESTER: Phil Hoffmeister

PROJECT: No. 2463-103, Crowley Yard II

Sample Type: Water

Method and Constituent:	Units	MW 4 Concentration	MW 4 Reporting Limit	MW 5 Concentration	MW 5 Reporting Limit	MW 6 Concentration	MW 6 Reporting Limit
Standard Method 5520B:							
Total Oil and Grease	ug/l	9,500	5,000	40,000	5,000	7,300	5,000

Method and Constituent:	Units	MW 7 Concentration	MW 7 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
Standard Method 5520B:					
Total Oil and Grease	ug/l	ND	5,000	ND	5,000

QC Summary:

% Recovery: 100
% RPD: 8.0

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

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE EXTRACTED: 01/09/96
DATE ANALYZED: 01/23/96
DATE REPORTED: 01/24/96
PAGE: Two

Sample Type: Water

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-2 Concentration	MW-2 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Diesel	ug/l	ND	50	2,600	50	ND	50

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:			
Total Petroleum Hydrocarbons as Diesel	ug/l	ND	50

QC Summary:

% Recovery: 78
% RPD: 11

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

Trace Analysis Laboratory, Inc.

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE EXTRACTED: 01/09/96
DATE ANALYZED: 01/23/96
DATE REPORTED: 01/24/96
PAGE: Two

Sample Type: Water

Method and Constituent:	Units	MW-4 Concentration	MW-4 Reporting Limit	MW-5 Concentration	MW-5 Reporting Limit	MW-6 Concentration	MW-6 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Diesel	ug/l	800	50	650	50	ND	50

Method and Constituent:	Units	MW-7 Concentration	MW-7 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Diesel	ug/l	130	50	ND	50

QC Summary:

% Recovery: 78
% RPD: 11

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

Sample MW-4 contains compounds eluting earlier than the diesel standard.

Trace Analysis Laboratory, Inc.

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE ANALYZED: 01/10/96
DATE REPORTED: 01/24/96
PAGE: Three

Sample Type: Water

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-2 Concentration	MW-2 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	55	50	1,600	620	ND	50
EPA Method 8020 for:							
Methyl t- Butyl Ether	ug/l	ND	5.0	ND	25	ND	5.0
Benzene	ug/l	3.6	0.50	36	2.5	ND	0.50
Toluene	ug/l	ND	0.50	ND	2.5	ND	0.50
Ethylbenzene	ug/l	1.4	0.50	14	2.5	ND	0.50
Xylenes	ug/l	ND	1.5	ND	7.5	ND	1.5

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

QC Summary:

% Recovery: 108
% RPD: 0.3

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

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE ANALYZED: 01/10/96
DATE REPORTED: 01/24/96
PAGE: Three

Sample Type: Water

Method and Constituent:	Units	MW-4 Concentration	MW-4 Reporting Limit	MW-5 Concentration	MW-5 Reporting Limit	MW-6 Concentration	MW-6 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	960	120	860	50	ND	50
EPA Method 8020 for:							
Methyl t-Butyl Ether	ug/l	ND	25	ND	5.0	ND	5.0
Benzene	ug/l	35	2.5	8.5	0.50	ND	0.50
Toluene	ug/l	5.5	2.5	0.85	0.50	ND	0.50
Ethylbenzene	ug/l	13	2.5	0.77	0.50	ND	0.50
Xylenes	ug/l	ND	7.5	ND	1.5	ND	1.5

Method and Constituent:	Units	MW-7 Concentration	MW-7 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Gasoline	ug/l	ND	50	ND	50
EPA Method 8020 for:					
Methyl t-Butyl Ether	ug/l	ND	5.0	ND	5.0
Benzene	ug/l	ND	0.50	ND	0.50
Toluene	ug/l	ND	0.50	ND	0.50
Ethylbenzene	ug/l	ND	0.50	ND	0.50
Xylenes	ug/l	ND	1.5	ND	1.5

QC Summary:

% Recovery: 108
% RPD: 0.3

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

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE ANALYZED: 01/12/96
DATE REPORTED: 01/24/96
PAGE: Four

Sample Type: Water

Method and Constituent	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-2 Concentration	MW-2 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit
EPA Method 8010:							
Benzyl Chloride	ug/l	ND	120	ND	3,000	ND	120
Bromobenzene	ug/l	ND	120	ND	3,000	ND	120
Bromodichloromethane	ug/l	ND	0.50	ND	12	ND	0.50
Bromoform	ug/l	ND	0.50	ND	12	ND	0.50
Bromomethane	ug/l	ND	6.0	ND	150	ND	6.0
Carbon Tetrachloride	ug/l	ND	6.0	ND	150	ND	6.0
Chlorobenzene	ug/l	9.1	0.50	370	12	ND	0.50
Chloroethane	ug/l	ND	6.0	ND	150	ND	6.0
2-Chloroethyl Vinyl Ether	ug/l	ND	6.0	ND	150	ND	6.0
Chloroform	ug/l	ND	0.50	ND	12	ND	0.50
Chloromethane	ug/l	ND	6.0	ND	150	ND	6.0
Dibromochloromethane	ug/l	ND	0.50	ND	12	ND	0.50
Dibromomethane	ug/l	ND	120	ND	3,000	ND	120
1,2-Dichlorobenzene	ug/l	ND	6.0	ND	150	ND	6.0
1,3-Dichlorobenzene	ug/l	ND	6.0	ND	150	ND	6.0
1,4-Dichlorobenzene	ug/l	ND	6.0	ND	150	ND	6.0
Dichlorodifluoromethane	ug/l	ND	6.0	ND	150	ND	6.0
1,1-Dichloroethane	ug/l	ND	0.50	ND	12	ND	0.50
1,2-Dichloroethane	ug/l	ND	0.50	ND	12	ND	0.50
1,1-Dichloroethene	ug/l	ND	0.50	ND	12	ND	0.50

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

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE ANALYZED: 01/12/96
DATE REPORTED: 01/24/96
PAGE: Four

Sample Type: Water

Method and Constituent	Units	MW-4 Concentration	MW-4 Reporting Limit	MW-5 Concentration	MW-5 Reporting Limit	MW-6 Concentration	MW-6 Reporting Limit
EPA Method 601:							
Benzyl Chloride	ug/l	ND	1,500	ND	1,500	ND	120
Bromobenzene	ug/l	ND	1,500	ND	1,500	ND	120
Bromodichloromethane	ug/l	ND	6.2	ND	6.2	ND	0.50
Bromoform	ug/l	ND	6.2	ND	6.2	ND	0.50
Bromomethane	ug/l	ND	75	ND	75	ND	6.0
Carbon Tetrachloride	ug/l	ND	75	ND	75	ND	6.0
Chlorobenzene	ug/l	210	6.2	240	6.2	ND	0.50
Chloroethane	ug/l	ND	75	ND	75	ND	6.0
2-Chloroethyl Vinyl Ether	ug/l	ND	75	ND	75	ND	6.0
Chloroform	ug/l	ND	6.2	ND	6.2	ND	0.50
Chloromethane	ug/l	ND	75	ND	75	ND	6.0
Dibromochloromethane	ug/l	ND	6.2	ND	6.2	ND	0.50
Dibromomethane	ug/l	ND	1,500	ND	1,500	ND	120
1,2-Dichlorobenzene	ug/l	ND	75	ND	75	ND	6.0
1,3-Dichlorobenzene	ug/l	ND	75	ND	75	ND	6.0
1,4-Dichlorobenzene	ug/l	ND	75	ND	75	ND	6.0
Dichlorodifluoromethane	ug/l	ND	75	ND	75	ND	6.0
1,1-Dichloroethane	ug/l	ND	6.2	ND	6.2	ND	0.50
1,2-Dichloroethane	ug/l	ND	6.2	ND	6.2	ND	0.50
1,1-Dichloroethene	ug/l	ND	6.2	ND	6.2	ND	0.50

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

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE ANALYZED: 01/12/96
DATE REPORTED: 01/24/96
PAGE: Five

Sample Type: Water

Method and Constituent	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-2 Concentration	MW-2 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit
EPA Method 8010 (Continued):							
cis and trans-1,2-Dichloroethene	ug/l	ND	0.50	ND	12	ND	0.50
Dichloromethane	ug/l	ND	120	ND	3,000	ND	120
1,2-Dichloropropane	ug/l	ND	0.50	ND	12	ND	0.50
cis-1,3-Dichloropropene	ug/l	ND	0.50	ND	12	ND	0.50
trans-1,3-Dichloropropene	ug/l	ND	0.50	ND	12	ND	0.50
1,1,2,2-Tetrachloroethane	ug/l	ND	0.50	ND	12	ND	0.50
1,1,1,2-Tetrachloroethane	ug/l	ND	120	ND	3,000	ND	120
Tetrachloroethene	ug/l	ND	0.50	ND	12	ND	0.50
1,1,1-Trichloroethane	ug/l	ND	0.50	ND	12	ND	0.50
1,1,2-Trichloroethane	ug/l	ND	0.50	ND	12	ND	0.50
Trichloroethene	ug/l	ND	0.50	ND	12	ND	0.50
Trichlorofluoromethane	ug/l	ND	6.0	ND	150	ND	6.0
1,2,3-Trichloropropane	ug/l	ND	120	ND	3,000	ND	120
Vinyl Chloride	ug/l	ND	6.0	ND	150	ND	6.0

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

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE ANALYZED: 01/12/96
DATE REPORTED: 01/24/96
PAGE: Five

Sample Type: Water

Method and Constituent	Units	MW-4 Concentration	MW-4 Reporting Limit	MW-5 Concentration	MW-5 Reporting Limit	MW-6 Concentration	MW-6 Reporting Limit
EPA Method 601 (Continued):							
cis and trans-1,2-Dichloroethene	ug/l	ND	6.2	ND	6.2	ND	0.50
Dichloromethane	ug/l	ND	1,500	ND	1,500	ND	120
1,2-Dichloropropane	ug/l	ND	6.2	ND	6.2	ND	0.50
cis-1,3-Dichloropropene	ug/l	ND	6.2	ND	6.2	ND	0.50
trans-1,3-Dichloropropene	ug/l	ND	6.2	ND	6.2	ND	0.50
1,1,2,2-Tetrachloroethane	ug/l	ND	6.2	ND	6.2	ND	0.50
1,1,1,2-Tetrachloroethane	ug/l	ND	1,500	ND	1,500	ND	120
Tetrachloroethene	ug/l	ND	6.2	ND	6.2	ND	0.50
1,1,1-Trichloroethane	ug/l	ND	6.2	ND	6.2	ND	0.50
1,1,2-Trichloroethane	ug/l	ND	6.2	ND	6.2	ND	0.50
Trichloroethene	ug/l	ND	6.2	ND	6.2	ND	0.50
Trichlorofluoromethane	ug/l	ND	75	ND	75	ND	6.0
1,2,3-Trichloropropane	ug/l	ND	1,500	ND	1,500	ND	120
Vinyl Chloride	ug/l	ND	75	ND	75	ND	6.0

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

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE ANALYZED: 01/12/96
DATE REPORTED: 01/24/96
PAGE: Six

Sample Type: Water

Method and Constituent	Units	MW-7 Concentration	MW-7 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 601:					
Benzyl Chloride	ug/l	ND	120	ND	120
Bromobenzene	ug/l	ND	120	ND	120
Bromodichloromethane	ug/l	ND	0.50	ND	0.50
Bromoform	ug/l	ND	0.50	ND	0.50
Bromomethane	ug/l	ND	6.0	ND	6.0
Carbon Tetrachloride	ug/l	ND	6.0	ND	6.0
Chlorobenzene	ug/l	ND	0.50	ND	0.50
Chloroethane	ug/l	ND	6.0	ND	6.0
2-Chloroethyl Vinyl Ether	ug/l	ND	6.0	ND	6.0
Chloroform	ug/l	ND	0.50	ND	0.50
Chloromethane	ug/l	ND	6.0	ND	6.0
Dibromochloromethane	ug/l	ND	0.50	ND	0.50
Dibromomethane	ug/l	ND	120	ND	120
1,2-Dichlorobenzene	ug/l	ND	6.0	ND	6.0
1,3-Dichlorobenzene	ug/l	ND	6.0	ND	6.0
1,4-Dichlorobenzene	ug/l	ND	6.0	ND	6.0
Dichlorodifluoromethane	ug/l	ND	6.0	ND	6.0
1,1-Dichloroethane	ug/l	ND	0.50	ND	0.50
1,2-Dichloroethane	ug/l	ND	0.50	ND	0.50
1,1-Dichloroethene	ug/l	ND	0.50	ND	0.50

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

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE ANALYZED: 01/12/96
DATE REPORTED: 01/24/96
PAGE: Seven

Sample Type: Water

Method and Constituent	Units	MW-7 Concentration	MW-7 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 601 (Continued):					
cis and trans-1,2-Dichloroethene	ug/l	ND	0.50	ND	0.50
Dichloromethane	ug/l	ND	120	ND	120
1,2-Dichloropropane	ug/l	ND	0.50	ND	0.50
cis-1,3-Dichloropropene	ug/l	ND	0.50	ND	0.50
trans-1,3-Dichloropropene	ug/l	ND	0.50	ND	0.50
1,1,2,2-Tetrachloroethane	ug/l	ND	0.50	ND	0.50
1,1,1,2-Tetrachloroethane	ug/l	ND	120	ND	120
Tetrachloroethene	ug/l	ND	0.50	ND	0.50
1,1,1-Trichloroethane	ug/l	ND	0.50	ND	0.50
1,1,2-Trichloroethane	ug/l	ND	0.50	ND	0.50
Trichloroethene	ug/l	ND	0.50	ND	0.50
Trichlorofluoromethane	ug/l	ND	6.0	ND	6.0
1,2,3-Trichloropropane	ug/l	ND	120	ND	120
Vinyl Chloride	ug/l	ND	6.0	ND	6.0

QC Summary:

% Recovery: 69
% RPD: 5.7

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

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE ANALYZED: 01/12/96
DATE REPORTED: 01/24/96
PAGE: Six

Sample Type: Water

Method and Constituent	Units	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 8010:			
Benzyl Chloride	ug/l	ND	120
Bromobenzene	ug/l	ND	120
Bromodichloromethane	ug/l	ND	0.50
Bromoform	ug/l	ND	0.50
Bromomethane	ug/l	ND	6.0
Carbon Tetrachloride	ug/l	ND	6.0
Chlorobenzene	ug/l	ND	0.50
Chloroethane	ug/l	ND	6.0
2-Chloroethyl Vinyl Ether	ug/l	ND	6.0
Chloroform	ug/l	ND	0.50
Chloromethane	ug/l	ND	6.0
Dibromochloromethane	ug/l	ND	0.50
Dibromomethane	ug/l	ND	120
1,2-Dichlorobenzene	ug/l	ND	6.0
1,3-Dichlorobenzene	ug/l	ND	6.0
1,4-Dichlorobenzene	ug/l	ND	6.0
Dichlorodifluoromethane	ug/l	ND	6.0
1,1-Dichloroethane	ug/l	ND	0.50
1,2-Dichloroethane	ug/l	ND	0.50
1,1-Dichloroethene	ug/l	ND	0.50

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

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE ANALYZED: 01/12/96
DATE REPORTED: 01/24/96
PAGE: Seven

Sample Type: Water

Method and Constituent	Units	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 8010 (Continued):			
cis and trans-1,2-Dichloroethene	ug/l	ND	0.50
Dichloromethane	ug/l	ND	120
1,2-Dichloropropane	ug/l	ND	0.50
cis-1,3-Dichloropropene	ug/l	ND	0.50
trans-1,3-Dichloropropene	ug/l	ND	0.50
1,1,2,2-Tetrachloroethane	ug/l	ND	0.50
1,1,1,2-Tetrachloroethane	ug/l	ND	120
Tetrachloroethene	ug/l	ND	0.50
1,1,1-Trichloroethane	ug/l	ND	0.50
1,1,2-Trichloroethane	ug/l	ND	0.50
Trichloroethene	ug/l	ND	0.50
Trichlorofluoromethane	ug/l	ND	6.0
1,2,3-Trichloropropane	ug/l	ND	120
Vinyl Chloride	ug/l	ND	6.0

QC Summary:

% Recovery: 69
% RPD: 5.7

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

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE EXTRACTED: 01/16/96
DATE ANALYZED: 01/18/96, 01/22/96, and 01/24/96
DATE REPORTED: 01/24/96
PAGE: Eight

Sample Type: Water

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-2 Concentration	MW-2 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit
EPA Method 220.1:							
Copper	ug/l	50	20	55	20	100	20
EPA Method 239.1:							
Lead	ug/l	110	100	ND	100	ND	100
EPA Method 245.1:							
Mercury	ug/l	ND	0.20	ND	0.20	ND	0.20
EPA Method 289.1:							
Zinc	ug/l	24	5.0	38	5.0	30	5.0

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

Trace Analysis Laboratory, Inc.

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE EXTRACTED: 01/16/96
DATE ANALYZED: 01/18/96, 01/22/96 and 01/24/96
DATE REPORTED: 01/24/96
PAGE: Eight

Sample Type: Water

Method and Constituent:	Units	MW-4 Concentration	MW-4 Reporting Limit	MW-5 Concentration	MW-5 Reporting Limit	MW-6 Concentration	MW-6 Reporting Limit
EPA Method 220.1:							
Copper	ug/l	55	20	100	20	95	20
EPA Method 239.1:							
Lead	ug/l	ND	100	ND	100	ND	100
EPA Method 245.1:							
Mercury	ug/l	ND	0.20	ND	0.20	0.53	0.20
EPA Method 289.1:							
Zinc	ug/l	68	5.0	68	5.0	110	5.0

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

TAL Trace Analysis Laboratory, Inc.

LOG NUMBER: 6096
DATE SAMPLED: 12/29/96
DATE RECEIVED: 01/02/96
DATE EXTRACTED: 01/16/96
DATE ANALYZED: 01/18/96, 01/22/96 and 01/24/96
DATE REPORTED: 01/24/96
PAGE: Nine

Sample Type: Water

Method and Constituent:	Units	MW-7 Concentration	MW-7 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 220.1:							
Copper	ug/l	60	20	ND	20	90	2.1
EPA Method 239.1:							
Lead	ug/l	ND	100	ND	100	100	5.5
EPA Method 245.1:							
Mercury	ug/l	ND	0.20	ND	0.20	83	18
EPA Method 289.1:							
Zinc	ug/l	80	5.0	ND	5.0	103	2.7

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

Louis W. DuPuis
Quality Assurance/Quality Control Manager

Trace Analysis Laboratory, Inc.

LOG NUMBER: 6095
DATE SAMPLED: 12/29/95
DATE RECEIVED: 01/20/96
DATE EXTRACTED: 01/16/96
DATE ANALYZED: 01/18/96, 01/22/96, and 01/24/96
DATE REPORTED: 01/24/96
PAGE: Nine

Sample Type: Water

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 220.1:					
Copper	ug/l	ND	20	90	2.1
EPA Method 239.1:					
Lead	ug/l	ND	100	100	5.5
EPA Method 245.1:					
Mercury	ug/l	ND	0.20	83	18
EPA Method 289.1:					
Zinc	ug/l	ND	5.0	103	2.7

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

Louis W. DuPuis
Quality Assurance/Quality Control Manager

Versar INC. 6095 CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
24163-103	Crowley

SAMPLERS: (Signature) Amanda Freeman (Printed) Amanda Freeman

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	PARAMETERS: Tot Oil + Grease	TPH-D	Metals Cr/Pb/Hg/As	8010	TPHG/BTEX				INDUSTRIAL HYGIENE SAMPLE Y / N	REMARKS
MW3	12/29	925		X	MW3	7	1	1	1	2	2					VOAs Presv HCl / Metals Presv HNO3
MW2	12/29/95	245		X	MW2	7	1	1	1	2	2					"
MW1	12/29/95	135		X	MW1	7	1	1	1	2	2					"

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Amanda Freeman	12/29/95 1800				
(Printed) Amanda Freeman	Samples Iced	(Printed)	(Printed)		(Printed)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) For TAL	Date / Time	Remarks	
			1/3/96 11:20 AM	p/u, water, Green rel., rg TAT 20	
(Printed)		(Printed) Louis DeRis			

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Versar INC. 6096 **CHAIN OF CUSTODY RECORD**

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE
2463-103	CROWLEY	X

SAMPLERS: *(Signature)* Amanda Freeman — (Printed) AMANDA FREEMAN

PARAMETERS: NO. OF CONTAINERS | Tot Oil Grease | TPH-D | Metals Cu/Pb/Hg/Zn | 8010 | TPHG/BTEX

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Tot Oil Grease	TPH-D	Metals Cu/Pb/Hg/Zn	8010	TPHG/BTEX				REMARKS
MW4	12/29/95	1031		X	MW4	7	1	1	1	2	2				VOAS presv HCl / metals presv HNO_3
MW5	12/29/95	1135		X	MW5	7	1	1	1	2	2				"
MW6	12/29/95	437		X	MW6	7	1	1	1	2	2				"
MW7	12/29/95	345		X	MW7	7	1	1	1	2	2				"

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Amanda Freeman	12/29/95 1800				
(Printed) AmandaFreeman	Samples Iced.	(Printed)	(Printed)		(Printed)

Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks
		for TAL Louis DuPuis	1/3/96 11:20 Am	P/U, water, Green ref., T-1, reg TAT 20
(Printed)		(Printed) Louis DuPuis		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).