



CROWLEY MARINE SERVICES, INC.

ENVIRONMENTAL
PROTECTION
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May 20, 1996

Mr. Dale Klettke, CHMM
Hazardous Materials Specialist
Hazardous Materials Division
Department of Environmental Health
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 94502

Reference: Site Assessment Report for Pacific Dry Dock and Repair Company Yard I

Dear Mr. Klettke:

Per your request please find enclosed a site assessment report for the former Crowley Marine Services' (Crowley) facility referenced above, located at 1441 Embarcadero in Oakland. This report was prepared by Versar, Inc. for Crowley.

Having completed the site investigation Crowley intends to submit a request for site closure in the near future. I would welcome the opportunity to meet with you and review this matter.

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

Sincerely,

Stephen Wilson
Manager, Environmental Affairs

Enclosure

cc: PDD I Correspondence w/o enclosure
Beth Hamilton w/o enclosure
Dan Schoenholtz w/enclosure
Igaz Jamall w/enclosure
Paul Graff w/o enclosure



ENVIRONMENTAL
PROTECTION
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SITE ASSESSMENT REPORT
FORMER PACIFIC DRY DOCK AND REPAIR COMPANY YARD I FACILITY
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. 2722-116

May 6, 1996



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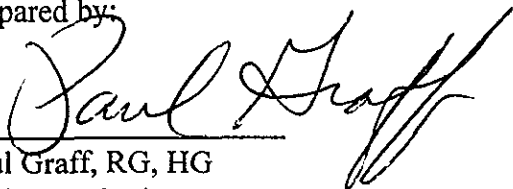
Versar Project No. 2722-116

May 6, 1996

FOREWORD

On behalf of Crowley Marine Services, Inc., Versar, Inc., has conducted an environmental investigation at the site known as the former Pacific Dry Dock and Repair Company Yard I, at 1441 Embarcadero, Oakland, California. This report summarizes the soil and groundwater data collected at the Site from December 1989 through March 1996.

Prepared by:



Paul Graff, RG, HG
Senior Geologist
California Registered Geologist No. 5600



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- B Drilling Logs
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1.0 INTRODUCTION

Crowley Marine Services, Inc. (Crowley) retained Versar, Inc. (Versar) to conduct an environmental investigation at the former Pacific Dry Dock and Repair Company Yard I Facility (Site) located at 1441 Embarcadero in Oakland, California (Figure 1). This report discusses investigation activities conducted from 1989 through 1996, and includes data from 1995 and 1996 soil and groundwater investigations.

1.1 Site Description and History

The Site occupies approximately 1.5 acres of shoreline property between the Embarcadero and the 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). In 1992 Crowley ceased operations at the Site and it has been vacant since that time. From approximately 1910 to 1992, the Site was used as a dry dock and ship repair facility.

1.2 Site Geology and Hydrogeology

The Site is located in the Coast Ranges geomorphic province, between the Hayward Fault (to the east) and the San Andreas Fault (to the west). The underlying bedrock consists of Mesozoic volcanic and metavolcanic rocks similar to those found throughout the Coast Ranges. Overlying the bedrock are Quaternary marine and nonmarine alluvial sediments consisting of clays and silts.

The Site is nearly level at an elevation between five and eight feet above mean sea level (National Geodetic Vertical Datum of 1929). Versar has characterized the shallow soils as gravel, sand, silt, and clay fill material extending from the surface to the bay muds. The depth of the bay muds is between 7 and 15 feet below ground surface (bgs). The bay muds consisted of silty clays, clays with shell fragments, and thin water-saturated layers of sands or gravels.

Groundwater has been reported beneath the Site at depths ranging from approximately two to five feet bgs. Because of the Site's proximity to the waterfront, groundwater depth and

movement are expected to be tidally influenced. The typical groundwater gradient is approximately 0.016, ranging in direction from north to southeast.

2.0 SOIL INVESTIGATION

Between December 1989 and February 1996, Versar conducted several phases of soil sampling activities at the Site. For investigation purposes in 1992, the Site was divided into the western section and the eastern section. The following discussion briefly summarizes activities conducted at each section of the Site. Previously reported activities are only briefly mentioned and the respective reports referenced. Previously undocumented activities during 1995 and 1996 are discussed in more detail.

2.1 Western Section

In December 1989 and January 1990, Versar conducted a limited subsurface assessment at the Site. The assessment identified petroleum hydrocarbons, volatile and semi-volatile organic compounds (SVOCs), and metals and non-metals (arsenic, cyanide, and sulfides) in the soil and sediments at the Site. The findings of this initial investigation were reported in the *Site Assessment of Pacific Dry Dock Yards I and II Report*, dated October 2, 1990.

In September 1991, Versar oversaw the removal of a UST located in the northwestern portion of the Site. Soil and groundwater samples collected and submitted for laboratory analysis indicated petroleum hydrocarbons in soils and groundwater. A UST removal report, dated January 14, 1992, was submitted to the local regulatory agency, the Alameda County Health Services Agency (ACHSA).

In October 1991 and January 1992, Versar conducted a second phase of investigation on the western section of the Site. This investigation phase included drilling 48 soil borings and collecting and analyzing 11 groundwater samples and 70 soil samples. The findings of this investigation phase were presented in the *Preliminary Investigation and Evaluation Report (PIER), Pacific Dry Dock and Repair Yard I, Western Section*, dated May 6, 1992.

To further assess and monitor groundwater conditions on the Western Section of the Site, five groundwater monitoring wells were installed in June 1993. Ten soil samples were collected from the five boreholes and submitted for TPH-D, TPH-G, TOG, and BTEX analysis. In addition, two soil samples were submitted for SVOC, VOC, organochlorine pesticides and polychlorinated biphenyl (PCB), CAM 17 metals, and organotin analysis. Details of the monitoring well installation and laboratory analytical results were reported in the *Well Installation, Pacific Dry Dock and Repair Yard I, Western Section* report, dated November 1993.

2.2 Eastern Section

The December 1989/January 1990 assessment identified concentrations of petroleum hydrocarbons and metals on the eastern section of the Site. A total of 59 soil samples was collected and submitted for laboratory analysis. Analytical results and assessment details were included in the *Site Assessment of Pacific Dry Dock Yards I and II Report*, dated October 2, 1990.

In August 1992, Versar conducted additional investigation activities on the eastern section. The additional activities included sampling the contents of an abandoned 500-gallon UST and drilling 16 boreholes and collecting soil and groundwater samples. The results of the additional sampling indicated petroleum hydrocarbon and lead concentrations in the soils. Details of the 1992 sampling activities were presented in the *Addendum to Phase II Site Investigation Work Plan, Pacific Dry Dock Yard I* report, dated September 18, 1992.

In February 1994, Versar oversaw the removal of the 500-gallon UST from the northeast corner of the Site. Upon removal, the UST was inspected and no signs of degradation were noted. Soil and groundwater samples collected following UST removal were submitted for laboratory analysis. Details of the UST removal and laboratory analytical results were included in the *Underground Storage Tank Removal Report*, dated July 29, 1994.

2.2.1 1995 and 1996 Soil Investigations

The August 1992 investigation identified two boring locations where lead concentrations in soil samples exceeded Total Threshold Limit Concentration (TTLC) or Soluble Threshold Limit Concentration (STLC) values (BH18E and BH32E, both at five feet bgs). In June and July 1995, Versar removed approximately 40 tons of soil containing lead from the two locations (BH18 and BH32) identified during the 1992 investigation. The scope of work was outlined in a workplan addendum submitted to ACHSA on March 27, 1995, and approved in a letter dated June 13, 1995.

The initial excavation activities were conducted on June 20, 1995. A total of approximately 20 tons of soil were excavated from the two locations. Following completion of excavation activities, five soil samples were collected from each excavation for laboratory analysis. One sample was collected from each wall and from the bottom of each excavation. The results of laboratory analysis indicated lead concentrations exceeding STLC or TTLC values still present in each excavation.

Based on the June 1995 soil sampling results, Versar excavated an additional approximately 20 tons of soil from the west side of the BH18 excavation and the east and south sides of the BH32 excavation. Five confirmation soil samples were collected for laboratory analysis on July 14, 1995. The analytical results from these samples indicated that concentrations of lead above the TTLC and STLC values still existed on the west wall of the BH18 excavation and on the southwest, south, and east walls and bottom of the BH32 excavation. Figure 3 shows the current extent of the excavations, sampling locations, and pertinent laboratory analytical results. Table 1 summarizes the excavation soil samples collected in June and July 1995. Copies of the laboratory analytical reports are included as Appendix A. The approximately 40 tons of lead impacted soil were removed from the Site in January 1996 and disposed of at the Laidlaw Environmental Services facility in Buttonwillow, California. Waste disposal documentation is included as Appendix C.

Based on the results of the soil samples collected in July 1995, the extent of the lead impacted soil was not fully defined. Therefore, Versar proposed additional investigation activities in a January 1996 workplan addendum, which was approved by the ACHSA in a letter dated February 13, 1996. The activities outlined in the workplan addendum were conducted between February 28 and March 5, 1996. These activities included drilling and sampling soil borings and one well to 1) assess the extent of the lead impacted soils, and 2) assess groundwater conditions near the removed UST, the lead-impacted excavations, and near a 1992 boring containing petroleum hydrocarbons.

On February 28, 1996, eight soil borings were drilled and one monitoring well (MW6) installed on the eastern section of the Site to meet the above objectives. Drilling logs for the eight soil borings are included in Appendix B. A total of 22 soil samples were submitted to Trace Analysis Laboratories (Trace) for analysis of total lead. The analytical results for three samples collected at 2.5, 5.5, and 7.5 feet bgs from soil boring HP1, near the BH18 excavation, indicated total lead concentrations of 5.2, 26, and 8.8 mg/kg, respectively. Total lead concentrations in the soil samples collected at 2.5, 5.5, and 7.5 feet bgs in boring HP4, located five feet south of the BH32 excavation, were 1,200, 1,200, and 5.4 mg/kg, respectively. Soil samples collected at 2.5 and 5.0 feet bgs in boring SB2, located ten feet south of the BH32 excavation, contained 840 and 4,100 mg/kg total lead, respectively. Total lead concentrations in soil samples collected at 2.5 and 8.0 feet bgs in soil boring SB3 were 520 and 35 mg/kg. Soluble (STLC) lead at 38 milligrams per liter was also reported in the sample collected from SB3 at 2.5 feet bgs. The analytical results for the soil samples collected during the February drilling operations are summarized in Table 2 and shown on Figure 3. Complete copies of the analytical reports are included in Appendix A.

3.0 GROUNDWATER INVESTIGATION

The following sections discuss groundwater investigation activities conducted at the Site. Previously reported activities are only briefly mentioned and the respective reports referenced. Recent, previously undocumented activities are discussed in more detail.

3.1 Western Section

As previously mentioned, Versar supervised the removal of a UST from the northwestern corner of the Site in 1991. Groundwater samples collected from the excavation following the removal contained 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. Details of the UST removal and sampling results were included in the January 14, 1992 UST removal report.

On June 23 and 24, 1993, five 2-inch-diameter groundwater monitoring wells were installed to a depth of 13 to 14 feet bgs. Details of the well installation were included in Versar's report *Well Installation, Pacific Dry Dock and Repair Yard I, Western Section* report, dated November 7, 1993. Following well installation, a quarterly monitoring program was initiated at the Site. To date, a total of ten rounds of sampling have been conducted at the Site, the latest on March 5, 1996.

3.2 Eastern Section

During the August 1992 investigation, Versar collected groundwater samples from three soil borings that were extended into groundwater. The analytical results indicated concentrations of petroleum hydrocarbons and SVOCs in the groundwater. Details of the August 1992 groundwater sampling activities were included in Versar's report, *Addendum to Phase II Site Investigation Work Plan, Pacific Dry Dock Yard I*, dated September 18, 1992.

3.2.1 February 1996 Groundwater Sampling

On February 28, 1996, Versar installed one groundwater monitoring well and collected groundwater samples from four soil borings extended into groundwater. All four grab groundwater samples were submitted to Trace for analysis of TPH-D, TPH-G, BTEX, and total lead. The analytical results are shown on Figure 4 and Table 3.

3.3 March 1996 Quarterly Sampling Event

Following development of the new monitoring well, MW6, all six wells were purged and sampled on March 5, 1996. The six groundwater samples were submitted to Trace for analysis of TPH-D, TPH-G, BTEX, and total dissolved solids (TDS). The analytical results are shown on Figure 5 and Table 5. Groundwater levels collected prior to purging and sampling are shown in Table 4.

4.0 REFERENCES

- Versar, Inc. Fair Oaks, California. *Site Assessment of Pacific Dry Dock Yards I and II Report, Oakland, California.* October 2, 1990.
- Versar, Inc. Fair Oaks, California. *Summary of Tank Removal Activities, Pacific Dry Dock and Repair Yard I, 1441 Embarcadero, Oakland, California.* January 24, 1992.
- Versar, Inc. Fair Oaks, California. *Site Investigation Work Plan, Pacific Dry Dock and Repair Yard I, Eastern Section, Oakland, California.* June 1991.
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- Versar, Inc. Fair Oaks, California. *Preliminary Investigation and Evaluation Report (PIER), Pacific Dry Dock and Repair Yard I, Western Section, Oakland, California.* May 6, 1992.
- Versar, Inc. Fair Oaks, California. *Preliminary Investigation and Evaluation Report (PIER), Pacific Dry Dock and Repair Yard I, Eastern Section, Oakland, California.* July 24, 1992.
- Versar, Inc., Fair Oaks, California. *Addendum to Phase II Site Investigation Work Plan, Pacific Dry Dock and Repair Yard I, Oakland, California.* September 1992.
- Versar, Inc., Fair Oaks, California. *Quarterly Groundwater Monitoring Report, Pacific Dry Dock Yard I, Oakland, California.* October 26, 1993.
- 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. *Quarterly Groundwater Monitoring Report, Pacific Dry Dock Yard I, Oakland, California.* April 1, 1994.
- Versar, Inc., Fair Oaks, California. *Quarterly Groundwater Monitoring Report - January 17 and 18, 1994, Pacific Dry Dock Yard I, Oakland, California.* June 21, 1994.
- Versar, Inc. Fair Oaks, California. *Underground Storage Tank Removal Report, 1441 Embarcadero, Oakland, California.* July 29, 1994.
- Versar, Inc., Fair Oaks, California. *Quarterly Groundwater Monitoring Report - March 30, 1994, Pacific Dry Dock Yard I, Oakland, California.* July 1994.

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Versar, Inc., Fair Oaks, California. *Groundwater Monitoring Report - October 19, 1994, Pacific Dry Dock Yard I, Oakland, California.* January 6, 1995.

Versar, Inc., Fair Oaks, California. *Addendum to Phase II Site Investigation Work Plan, Pacific Dry Dock and Repair Yard I, Oakland, California.* March 27, 1995.

Versar, Inc., Fair Oaks, California. *Groundwater Monitoring Report - February 2, 1995, Pacific Dry Dock and Repair Company Yard I, Oakland, California.* May 4, 1995.

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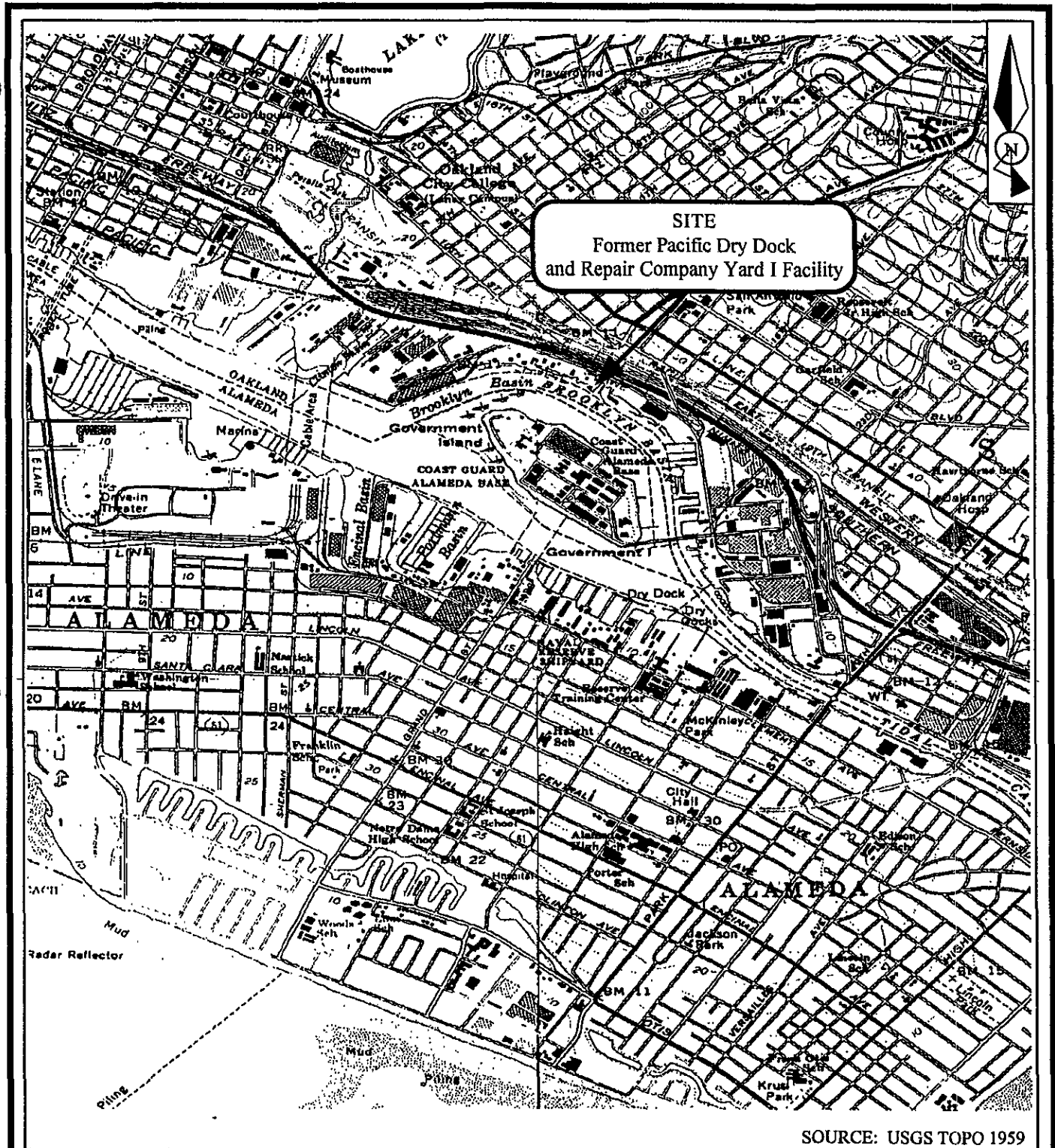
Versar, Inc., Fair Oaks, California. *Addendum to Work Plan for Site Investigation, Pacific Dry Dock and Repair Yard I, Oakland, California.* October 2, 1995.

Versar, Inc., Fair Oaks, California. *Groundwater Monitoring Report - September 7, 1995, Former Pacific Dry Dock and Repair Company Yard I, Oakland, California.* November 10, 1995.

Versar, Inc., Fair Oaks, California. *Revised Workplan Addendum for the Former Pacific Dry Dock and Repair Company Yard I, 1441 Embarcadero, Oakland, California.* January 26, 1996.

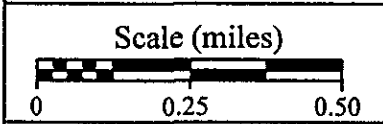
Versar, Inc., Fair Oaks, California. *Letter Report of Quarterly Groundwater Monitoring - March 5, 1996, Former Pacific Dry Dock and Repair Company Yard I, 1441 Embarcadero Oakland, California.* In Preparation.

FIGURES



SITE
Former Pacific Dry Dock
and Repair Company Yard I Facility

SOURCE: USGS TOPO 1959



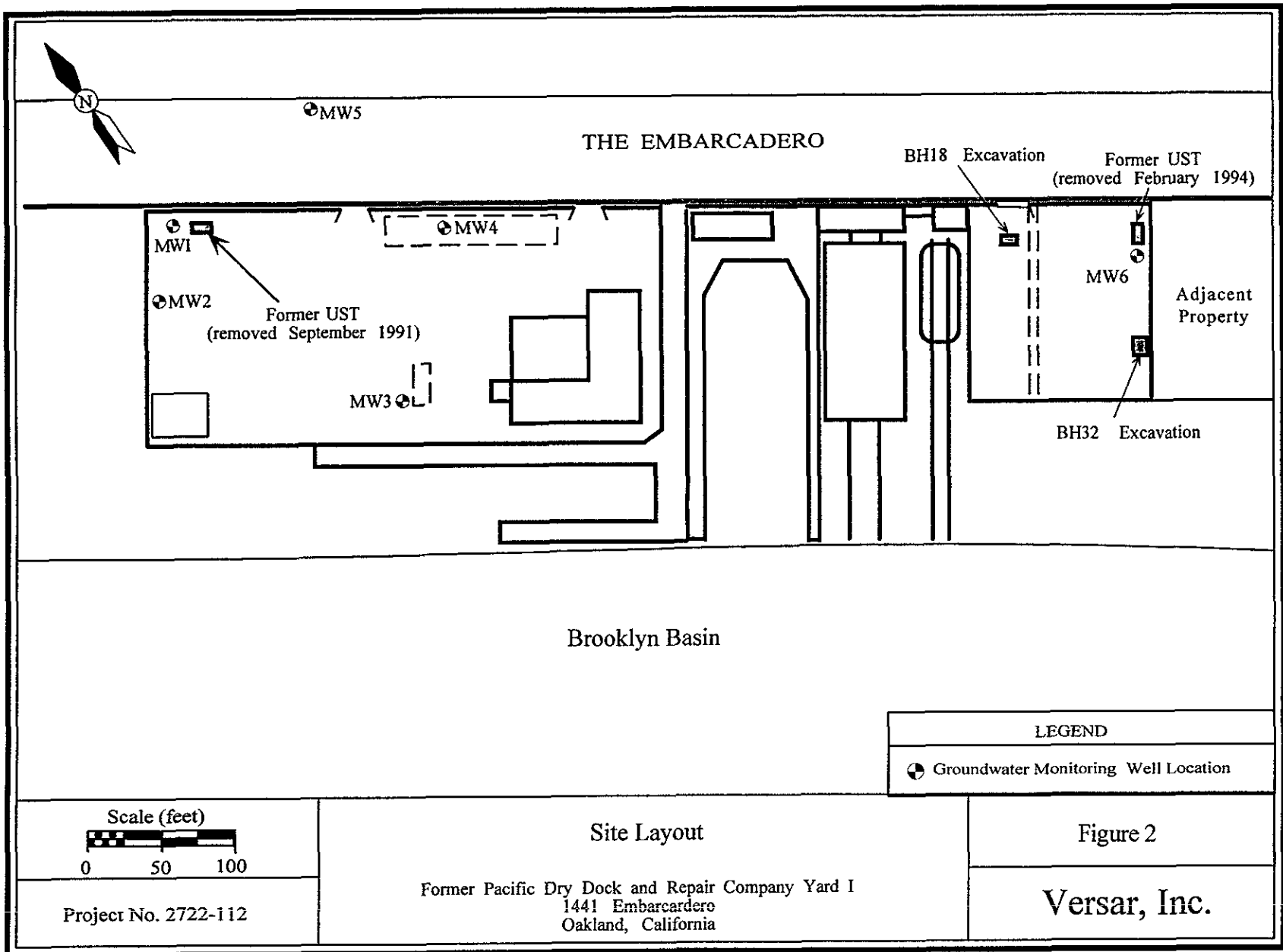
Site Location

Figure 1

Project No. 2722-112

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

Versar, Inc.



Project No. 2722-112

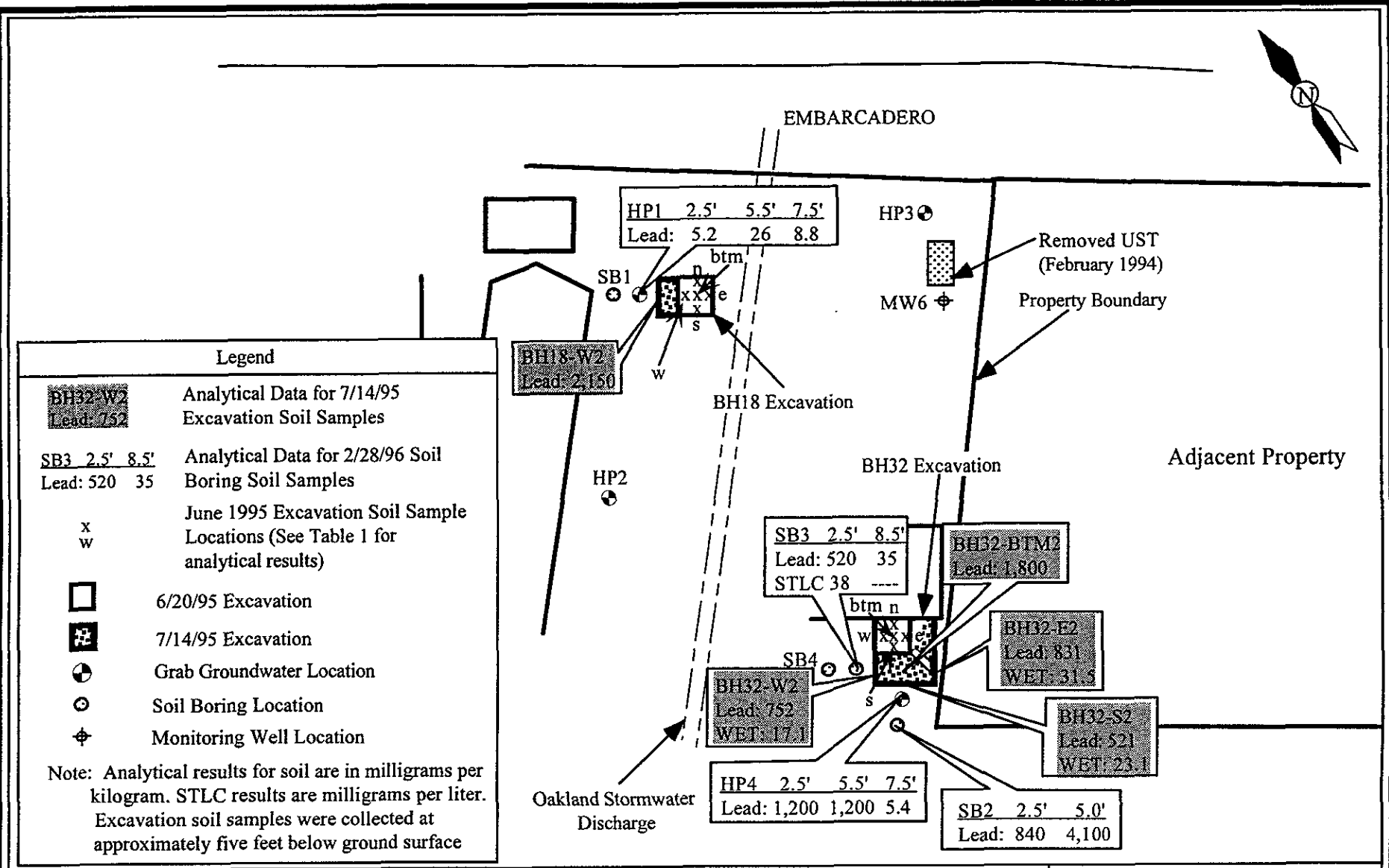
Former Pacific Dry Dock and Repair Company Yard I
 1441 Embarcadero
 Oakland, California

LEGEND

⊕ Groundwater Monitoring Well Location

Figure 2

Versar, Inc.



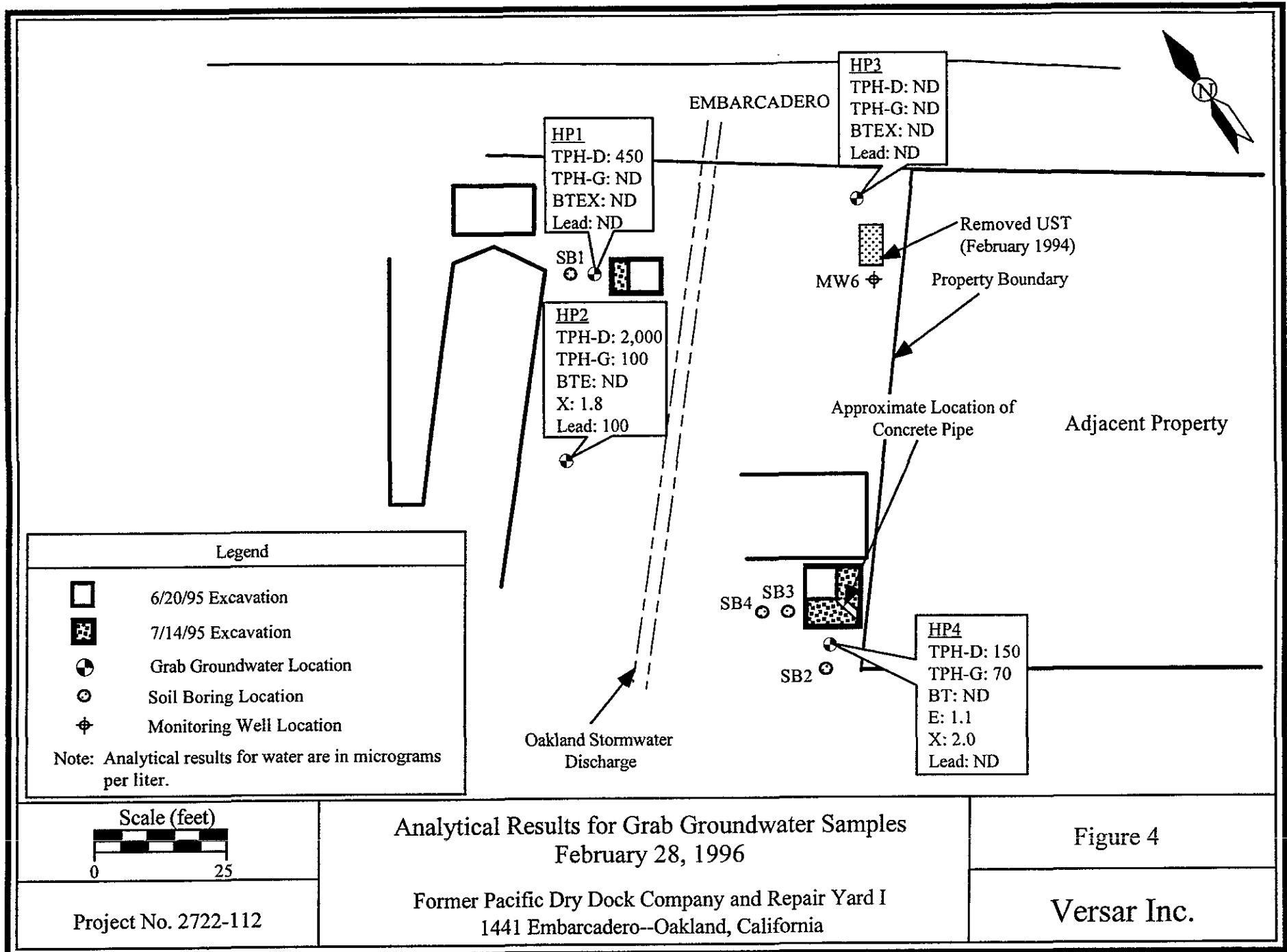
Analytical Results for Soil Samples from July 1995 Excavations and February 28, 1996 Soil Borings

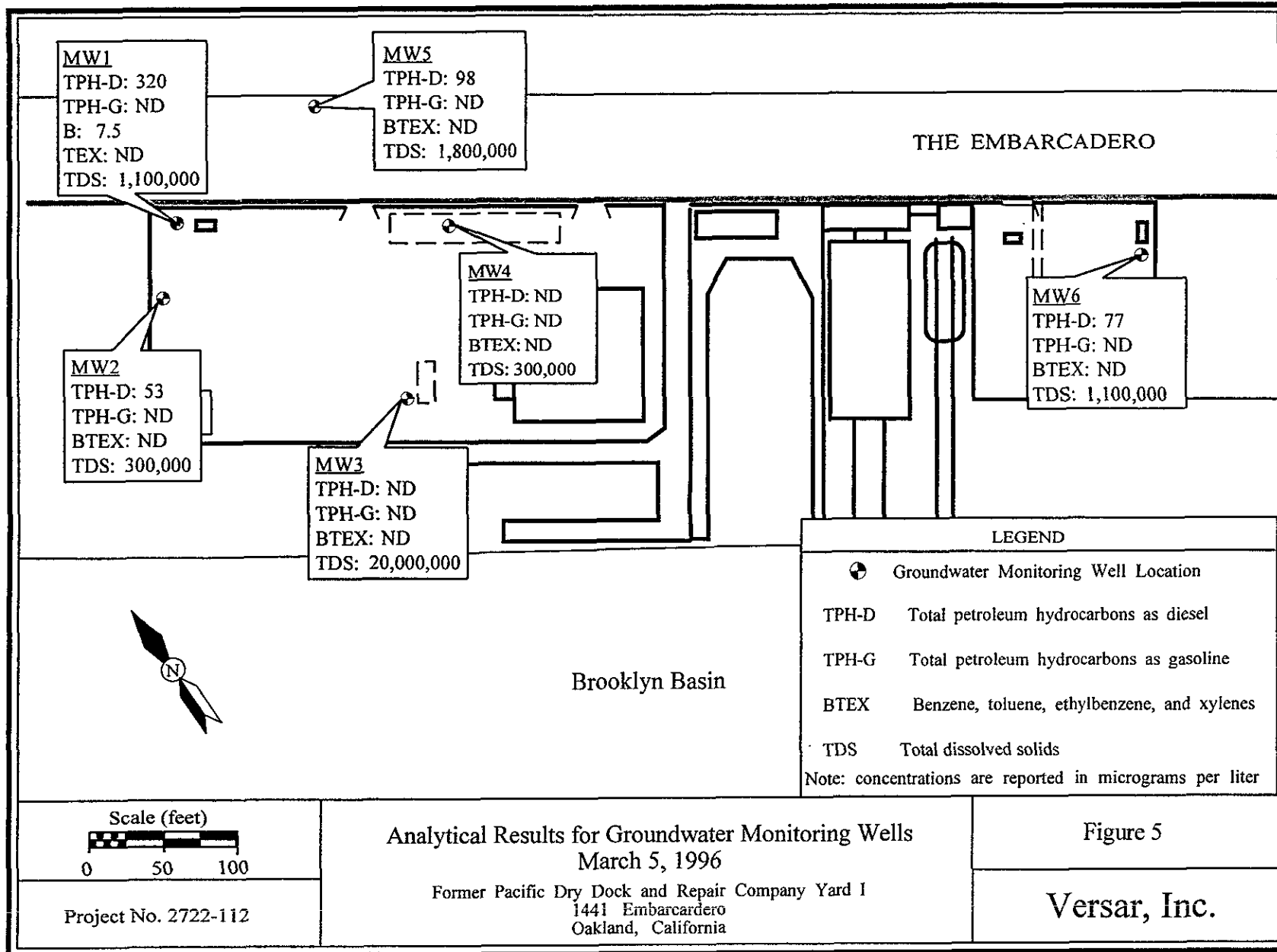
Figure 3

Project No. 2722-112

Former Pacific Dry Dock Company and Repair Yard I
1441 Embarcadero--Oakland, California

Versar Inc.





TABLES

TABLE 1

Analytical Results for Excavation
Soil Sampling in June and July 1995

Date	Sample Identification	Depth (ft)	Total Lead (mg/kg) ²	STLC ¹ Lead (mg/L) ³
6/20/95	BH18-N	5	81.2	2.13
	BH18-S	5	38.2	NA ⁴
	H18-E	5	26.9	NA
	BH18-W	5	463	42.8
	BH18-BTM	5	18	NA
	BH18-SPL	Stockpile	22.1	NA
6/20/95	BH32-N	5	177	0.64
	BH32-S	5	4,320	NA
	BH32-E	5	808	16.2
	BH32-W	5	17.1	NA
	BH32-BTM	5	6.81	NA
	BH32-SPL	Stockpile	2,980	NA
7/14/95	BH18-W2	5	2,150	NA
	SSP18B	Stockpile	29.1	NA
7/14/95	BH32-S2	5	521	23.1
	BH32-BTM2	5	1,800	NA
	BH32-W2	5	752	17.1
	BH32-E2	5	831	31.5
	SSP32B	Stockpile	758	NA

¹ Soluble Threshold Limit Concentration² milligrams per kilogram³ milligrams per liter⁴ Not Analyzed

TABLE 2
Analytical Results for
Soil Samples Collected on February 28, 1996

Sample Identification ¹	Total Lead (mg/kg) ³	STLC ² Lead (mg/L) ⁴
HP1-2.0-2.5	5.2	NA ⁵
HP1-5.0-5.5	26.0	NA
HP1-8.0-8.5	8.8	NA
HP4-2.0-2.5	1,200	NA
HP4-5.0-5.5	1,200	NA
HP4-7.0-7.5	5.4	NA
SB3-2.0-2.5	520	38
SB3-8.0-8.5	35	NA
SB2-2.5-3.0	840	NA
SB2-5.0-5.5	4,100	NA

¹ Sample identification includes borehole number and sample depth (feet below ground surface).

²Soluble Threshold Limit Concentration

³ milligrams per kilogram

⁴ milligrams per liter

⁵ Not Analyzed

TABLE 3

ANALYTICAL RESULTS FOR GRAB GROUNDWATER SAMPLES COLLECTED FEBRUARY 28, 1996

Former Pacific Dry Dock and Repair Company Yard I
Oakland, California

Groundwater Sample Identified	Sample Date	TPH-G ($\mu\text{g/L}$) ¹	Dissolved TPH-D ($\mu\text{g/L}$)	MTBE ($\mu\text{g/L}$)	Benzene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Ethylbenzene ($\mu\text{g/L}$)	Xylenes	Filtered Lead ($\mu\text{g/L}$)
HP1	2/28/96	ND ²	450	ND	ND	ND	ND	ND	ND
HP2	2/28/96	100	2,000	ND	ND	ND	ND	1.8	100
HP3	2/28/96	ND	ND	ND	ND	ND	ND	ND	ND
HP4	2/28/96	70	150	ND	ND	ND	1.1	2.0	ND

¹ $\mu\text{g/L}$ = micrograms per liter² ND = Not Detected at or above method reporting limits.

TABLE 4

MONITORING WELL GROUNDWATER LEVELS

March 5, 1996

Former 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.

MONITORING WELL GROUNDWATER LEVELS

March 5, 1996

Former 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	
Groundwater Elevation	5.21	5.92	2.68	6.58	4.36	0.017 ft/ft to the southeast
<u>May 3, 1995</u>						
Depth to Groundwater (Outgoing Tide)	4.76	3.01	8.90	3.79	5.91	
Groundwater Elevation	4.69	6.34	-0.16	5.71	3.60	0.018 ft/ft south of east
<u>September 7, 1995</u>						
Depth to Groundwater (Outgoing Tide)	6.16	5.34	7.66	6.58	7.05	
Groundwater Elevation	3.29	4.01	1.08	2.92	2.46	0.014 ft/ft south of east

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 4 (Continued)

MONITORING WELL GROUNDWATER LEVELS

March 5, 1996

Former Pacific Dry Dock and Repair Company Yard I
Oakland, California

	MW1	MW2	MW3	MW4	MW5	MW6	Hydraulic Gradient (feet/foot)
Reference Casing Elevation (feet) March 7, 1996	9.45	9.35	8.74	9.50	9.51	8.26	
<u>March 5, 1996</u>							
Depth to Groundwater (Incoming Tide) ⁴	3.95	2.65	8.10	2.65	5.70	3.48	0.017 ft/ft to the southwest
Groundwater Elevation	5.50	6.70	0.64	6.85	3.81	4.78	

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 5

HISTORICAL CHEMICAL DATA FOR GROUNDWATER MONITORING WELL SAMPLES

March 5, 1996

Former Pacific Dry Dock and Repair Company Yard I
Oakland, California

Groundwater Monitoring Well	Sample Date	TPH-G (µg/L) ¹	TPH-D (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TDS (µg/L)	Filtered Lead (µg/L)	Salinity
MW1	7/1/93	ND ²	ND	ND	ND	ND	ND	ND	NA ³	NA	NA
	10/14/93	ND	63	NA	ND	ND	ND	ND	8,800,000	NA	8.7
	1/18/94	ND	60	NA	NA	1.0	1.4	1.5	1,200,000	NA	1.0
	3/30/94	ND	110	NA	2.5	1.7	0.56	1.9	NA	NA	0.97
	7/15/94	ND	60	ND	ND	ND	ND	ND	NA	NA	NA
	10/19/94	ND	830	NA	ND	ND	ND	ND	NA	NA	NA
	2/2/95	ND	ND	NA	ND	ND	ND	ND	NA	NA	NA
	5/3/95	ND	78	NA	1.6	0.58	ND	ND	NA	NA	NA
	9/7/95	ND	ND	NA	ND	ND	ND	ND	NA	NA	NA
	3/5/96	ND	320	NA	7.5	ND	ND	ND	1,100,000	ND	NA
MW2	7/1/93	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	10/14/93	ND	ND	NA	ND	ND	ND	ND	12,000,000	NA	11
	1/18/94	ND	ND	NA	ND	ND	ND	ND	570,000	NA	0.46
	3/30/94	ND	ND	ND	ND	2.2	ND	ND	NA	NA	0.29
	7/15/94	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	3/5/96	ND	53	NA	ND	ND	ND	ND	300,000	ND	NA
MW3	7/1/93	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	10/14/93	ND	840	NA	ND	ND	ND	ND	31,000,000	NA	29
	1/18/94	ND	64	NA	ND	ND	ND	ND	28,000,000	NA	27
	3/30/94	ND	ND	NA	ND	0.90	ND	ND	NA	NA	21
	7/15/94	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	10/19/94	ND	ND	NA	ND	ND	ND	ND	NA	NA	NA
	2/2/95	100	ND	NA	38	0.55	ND	ND	NA	NA	NA
	5/3/95	ND	ND	NA	ND	ND	ND	ND	NA	NA	NA
	9/7/95	ND	ND	NA	ND	ND	ND	ND	NA	NA	NA
	3/5/96	ND	ND	NA	ND	ND	ND	ND	20,000,000	ND	NA

¹ µg/L = micrograms per liter² ND = Not Detected at or above method reporting limits.³ NA = Not Analyzed

TABLE 5 (Continued)

HISTORICAL CHEMICAL DATA FOR GROUNDWATER MONITORING WELL SAMPLES

March 5, 1996

Former Pacific Dry Dock and Repair Company Yard I
Oakland, California

Groundwater Monitoring Well	Sample Date	TPH-G (µg/L) ¹	TPH-D (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TDS (µg/L)	Filtered Lead (µg/L)	Salinity
MW4	7/1/93	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	10/14/93	ND	ND	NA	ND	ND	ND	ND	3,600,000	NA	3.4
	1/18/94	ND	ND	NA	ND	ND	ND	ND	3,100,000	NA	2.6
	3/30/94	ND	ND	NA	ND	1.5	ND	1.5	NA	NA	0.1
	7/15/94	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	3/5/96	ND	ND	NA	ND	ND	ND	ND	300,000	ND	NA
MW5	7/1/93	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	10/14/93	ND	ND	NA	ND	ND	ND	ND	2,000,000	NA	2.0
	1/18/94	ND	ND	NA	ND	ND	ND	ND	2,200,000	NA	2.1
	3/30/94	ND	ND	ND	ND	0.87	ND	ND	NA	NA	1.6
	7/15/94	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
	3/5/96	ND	98	NA	ND	ND	ND	ND	1,800,000	ND	NA
MW6	3/5/96	ND	77	NA	ND	ND	ND	ND	1,100,000	ND	NA

¹ µg/L = micrograms per liter² ND = Not Detected at or above method reporting limits.³ NA = Not Analyzed

APPENDIX A
LABORATORY REPORTS



REPORT OF LABORATORY ANALYSIS

June 26, 1995

A handwritten signature in black ink, appearing to be "R. Chew".

Mr. Lawrence Kleinecke
Versar, Inc.
5330 Primrose
Suite 228
Fair Oaks, CA 95628

RE: PACE Project Number: 701924
Client Project ID: 2722-118

Dear Mr. Kleinecke:

Enclosed are the results of analyses for samples received on June 20, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Ronald M. Chew".

Ron Chew
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

PAGE: 1

Versar, Inc.
5330 Primrose
Suite 228
Fair Oaks, CA 95628

PACE Project Number: 701924
Client Project ID: 2722-118

Attn: Mr. Lawrence Kleinecke
Phone: (916)962-1612

PACE Sample No: 70147657
Client Sample ID: BH18-N

Date Collected: 06/20/95
Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	81.2	mg/kg	4.95	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

PAGE: 2

PACE Project Number: 701924

Client Project ID: 2722-118

PACE Sample No: 70147665
Client Sample ID: BH18-S

Date Collected: 06/20/95

Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	38.2	mg/kg	4.9	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

PAGE: 3

PACE Project Number: 701924

Client Project ID: 2722-118

PACE Sample No: 70147673
Client Sample ID: BH18-E

Date Collected: 06/20/95

Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	26.9	mg/kg	4.55	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

PAGE: 4

PACE Project Number: 701924

Client Project ID: 2722-118

PACE Sample No: 70147681
Client Sample ID: BH18-W

Date Collected: 06/20/95

Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	463	mg/kg	4.67	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924
Client Project ID: 2722-118

PACE Sample No: 70147699
Client Sample ID: BH18-BTM

Date Collected: 06/20/95
Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	18	mg/kg	5.05	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924

Client Project ID: 2722-118

PACE Sample No: 70147707
Client Sample ID: BH18-SPL

Date Collected: 06/20/95
Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	22.1	mg/kg	4.55	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

PAGE: 7

PACE Project Number: 701924
Client Project ID: 2722-118

PACE Sample No: 70147715
Client Sample ID: BH32-N

Date Collected: 06/20/95
Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	177	mg/kg	4.67	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924

Client Project ID: 2722-118

PACE Sample No: 70147723

Date Collected: 06/20/95

Client Sample ID: BH32-S

Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	4320	mg/kg	4.76	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924

Client Project ID: 2722-118

PACE Sample No: 70147731
Client Sample ID: BH32-E

Date Collected: 06/20/95
Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	808	mg/kg	4.85	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924

Client Project ID: 2722-118

PACE Sample No: 70147749 Date Collected: 06/20/95
Client Sample ID: BH32-W Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals. ICP								
Lead	17.1	mg/kg	4.59	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924
Client Project ID: 2722-118

PACE Sample No: 70147756 Date Collected: 06/20/95
Client Sample ID: BH32-8TM Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	6.81	mg/kg	4.5	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924
Client Project ID: 2722-118

PACE Sample No: 70147764
Client Sample ID: BH32-SPL

Date Collected: 06/20/95
Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	2980	mg/kg	4.76	06/23/95	EPA 6010	BRW	7439-92-1	
Date Digested				06/22/95				



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924

Client Project ID: 2722-118

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	PACE Reporting Limit



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 06/26/95

PAGE: 14

Versar, Inc.
5330 Primrose
Suite 228
Fair Oaks, CA 95628

PACE Project Number: 701924
Client Project ID: 2722-118

Attn: Mr. Lawrence Kleinecke
Phone: (916)962-1612

QC Batch ID: 4228

QC Batch Method: EPA 3050

Date of Batch: 06/21/95

Associated PACE Samples:	70147657	70147665	70147673	70147681	70147699
	70147707	70147715	70147723	70147731	70147749
	70147756	70147764			

METHOD BLANK: 70149133

Associated PACE Samples:

Associated PACE Samples:	70147657	70147665	70147673	70147681	70147699	70147707	70147715
	70147723	70147731	70147749	70147756	70147764		

Parameter	Units	Method Blank Result	PRL	Footnotes
Lead	mg/kg	ND	5	

MATRIX SPIKE: 70149141

Parameter	Units	70147657	Spike Conc.	Matrix Spike Result	Spike % Rec	Footnotes
Lead	mg/kg	81.2	98	136	56	

LABORATORY CONTROL SAMPLE & LCSD: 70149166

Parameter	Units	70149174 Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Lead	mg/kg	100	103	103	103	103	0	

SAMPLE DUPLICATE: 70149158

Parameter	Units	70147657	Dup. Result	RPD	Footnotes
Lead	mg/kg	81.2	60	30	



REPORT OF LABORATORY ANALYSIS

DATE: 06/26/95

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PACE Project Number: 701924

Client Project ID: 2722-118

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit
RPD Relative Percent Difference

701924

Versar

CHAIN OF CUSTODY RECORD

PROJECT NO.		PROJECT NAME				PARAMETERS								INDUSTRIAL HYGIENE SAMPLE	Y		
2722-118		PODI													<input checked="" type="checkbox"/>		
SAMPLERS: (Signature)					(Printed)									NO. OF CONTAINERS	TTL Lead		
<i>Lawrence Kleinock</i>					Lawrence Kleinock												
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION												
BH18-N	6/24/95	1015		<		1	X								147657		
BH18-S	"	1018		X		1	X								147665		
BH18-E	"	1020		X		1	X								147673		
BH18-W	"	1023		X		1	X								147681		
BH18-BTM	"	1025		X		1	X								147699		
BH18-SPL	"	1030	X			2	X								147707		
BH32-N	"	1100		X		1	X								147715		
BH32-S	"	1105		X		1	X								147723		
BH32-E	"	1110		X		1	X								147731		
BH32-W	"	1115		X		1	X								147749		
BH32-BTM	"	1120		X		1	X								147756		
BH32-SPL	"	1125	X			2	X								147764		
Relinquished by: (Signature)			Date / Time		Received by: (Signature)			Relinquished by: (Signature)			Date / Time		Received by: (Signature)				
(Printed)					(Printed)			(Printed)					(Printed)				
Relinquished by: (Signature)			Date / Time		Received for Laboratory by: (Signature)			Date / Time		Remarks							
<i>Lawrence Kleinock</i>			6/24/95 1145		<i>Michelle Kim</i>			6-20-95 1145		5-day TAT * TTLc Lead aly							
(Printed)					REINQUISHED BY <i>Michelle Kim</i>			6-20-95 1255 PM									



FILE
REPORT OF LABORATORY ANALYSIS

RECEIVED
JUL 10 1995

July 07, 1995

Mr. Lawrence Kleinecke
Versar, Inc.
5330 Primrose
Suite 228
Fair Oaks, CA 95628

RE: PACE Project Number: 702009
Client Project ID: P.D.D.I.

Dear Mr. Kleinecke:

Enclosed are the results of analyses for samples received on June 20, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ron Chew
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

DATE: 07/07/95

PAGE: 1

Versar, Inc.
5330 Primrose
Suite 228
Fair Oaks, CA 95628

PACE Project Number: 702009
Client Project ID: P.D.D.I.

Attn: Mr. Lawrence Kleinecke
Phone: (916)962-1612

PACE Sample No:	70158118	Date Collected:	06/20/95
Client Sample ID:	BH 18-N	Date Received:	06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Inorganics								
STLC Metals, ICP, STLC Leach.								
Date Digested				06/30/95				
Metals								
STLC Metals, ICP, STLC Leach.								
Lead	2130	ug/L	420	07/06/95	EPA 6010	SMS	7439-92-1	
Date Digested				07/06/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/07/95

PAGE: 2

PACE Project Number: 702009

Client Project ID: P.D.D.I.

PACE Sample No: 70158126

Date Collected: 06/20/95

Client Sample ID: BH 18-W

Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Inorganics								
STLC Metals, ICP, STLC Leach.								
Date Digested				06/30/95				
Metals								
STLC Metals, ICP, STLC Leach.								
Lead	42800	ug/L	420	07/06/95	EPA 6010	SMS	7439-92-1	
Date Digested				07/06/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/07/95

PAGE: 3

PACE Project Number: 702009

Client Project ID: P.D.D.I.

PACE Sample No: 70158142
Client Sample ID: BH 32-N

Date Collected: 06/20/95
Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Inorganics								
STLC Metals, ICP, STLC Leach.								
Date Digested				06/30/95				
Metals								
STLC Metals, ICP, STLC Leach.								
Lead	640	ug/L	420	07/06/95	EPA 6010	SMS	7439-92-1	
Date Digested				07/06/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/07/95

PAGE: 4

PACE Project Number: 702009

Client Project ID: P.D.D.I.

PACE Sample No: 70158175
Client Sample ID: BH 32-E

Date Collected: 06/20/95
Date Received: 06/20/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Inorganics								
STLC Metals, ICP, STLC Leach.								
Date Digested				06/30/95				
Metals								
STLC Metals, ICP, STLC Leach.								
Lead	16200	ug/L	420	07/06/95	EPA 6010	SMS	7439-92-1	
Date Digested				07/06/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/07/95

PAGE: 5

PACE Project Number: 702009
Client Project ID: P.D.D.I.

PARAMETER FOOTNOTES

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 07/07/95

PAGE: 6

Versar, Inc.
5330 Primrose
Suite 228
Fair Oaks, CA 95628

PACE Project Number: 702009
Client Project ID: P.D.D.I.

Attn: Mr. Lawrence Kleinecke
Phone: (916)962-1612

QC Batch ID: 4588 QC Batch Method: EPA 3010
Associated PACE Samples: 70158118 70158126 70158142 70158175

Date of Batch: 07/05/95

METHOD BLANK: 70167093
Associated PACE Samples:

Parameter	70158118	70158126 Method Blank Result	70158142 PRL	70158175 Footnotes
Lead	ug/L	ND	420	

MATRIX SPIKE: 70167101

Parameter	Units	70151303 Spike Conc.	10000 Spike Conc.	12600 Matrix Spike Result	97 Spike % Rec	Footnotes
Lead	ug/L	2840	10000	12600	97	

LABORATORY CONTROL SAMPLE & LCSD: 70167127

Parameter	Units	70167135 Spike Conc.	9670 LCS Result	97 Spike % Rec	9650 LCSD Result	97 Spike Dup % Rec	0 RPD	Footnotes
Lead	ug/L	10000	9670	97	9650	97	0	

SAMPLE DUPLICATE: 70167119

Parameter	Units	70151303	Dup. Result	RPD	Footnotes
Lead	ug/L	2840	2890	2	



REPORT OF LABORATORY ANALYSIS

DATE: 07/07/95

PAGE: 7

PACE Project Number: 702009

Client Project ID: P.D.D.I.

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit
RPD Relative Percent Difference

701924

Versar

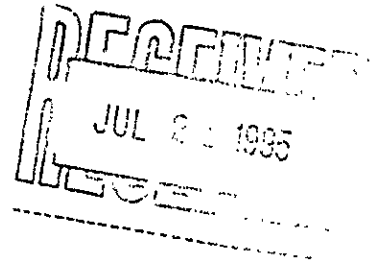
CHAIN OF CUSTODY RECORD

PROJECT NO.		PROJECT NAME				PARAMETERS										INDUSTRIAL HYGIENE SAMPLE	Y				
2722-118		PDDI				<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>SAMPLERS: (Signature) <i>Laura Plun</i></p> <p>(Printed) Lawrence Klemecke</p> </div> <div style="width: 30%; border: 1px solid black; padding: 5px;"> <p>NO. OF CONTAINERS</p> <p>TTL Lead</p> <p>Lead WET</p> </div> </div>											X				
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION											REMARKS					
BH18-N	6/24/95	1015		X		1	X	X													147657
BH18-S	"	1018		X		1	X														147665
BH18-E	"	1020		X		1	X														147673
BH18-W	"	1023		X		1	X	X													147681
BH18-BTM	"	1025		X		1	X														147699
BH18-SPL	"	1030	X			2	X														147707
BH32-N	"	1100		X		1	X	X													147715
BH32-S	"	1105		X		1	X														147723
BH32-E	"	1110		X		1	X	X													147731
BH32-W	"	1115		X		1	X														147749
BH32-BTM	"	1120		X		1	X														147756
BH32-SPL	"	1125	X			2	X														147764
Relinquished by: (Signature)			Date / Time		Received by: (Signature)			Relinquished by: (Signature)			Date / Time		Received by: (Signature)								
(Printed)					(Printed)			(Printed)					(Printed)								
Relinquished by: (Signature)			Date / Time		Received for Laboratory by:			Date / Time		Remarks											
<i>Laura Plun</i>			6/24/95 1145		<i>Michael W. ...</i>			6/20/95 1145		5-day TAT TTL Lead aty by July 7 WET											
(Printed)					(Printed)																
Lawrence Klemecke					RETINQUISHED BY <i>Michael W. ...</i>			6-20-95 1255 PM													



REPORT OF LABORATORY ANALYSIS

July 20, 1995



Mr. Philip Cox
Versar, Inc.
7844 Madison Avenue
Suite 167
Fair Oaks, CA 95628

RE: PACE Project Number: 702241
Client Project ID: Crowley

Dear Mr. Cox:

Enclosed are the results of analyses for samples received on July 14, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ron Chew
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

DATE: 07/20/95

PAGE: 1

Versar, Inc.
7844 Madison Avenue
Suite 167
Fair Oaks, CA 95628

PACE Project Number: 702241
Client Project ID: Crowley

Attn: Mr. Philip Cox
Phone: (916)863-9342

PACE Sample No:	70181110	Date Collected:	07/14/95
Client Sample ID:	BH32-S2	Date Received:	07/14/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	521	mg/kg	4.95	07/19/95	EPA 6010	BRW	7439-92-1	
Date Digested				07/18/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/20/95

PAGE: 2

PACE Project Number: 702241
Client Project ID: Crowley

PACE Sample No: 70181128 Date Collected: 07/14/95
Client Sample ID: BH32-BTM2 Date Received: 07/14/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	1800	mg/kg	2.81	07/19/95	EPA 6010	BRW	7439-92-1	
Date Digested				07/18/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/20/95

PAGE: 3

PACE Project Number: 702241

Client Project ID: Crowley

PACE Sample No: 70181136
Client Sample ID: BH32-W2

Date Collected: 07/14/95
Date Received: 07/14/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	752	mg/kg	4.31	07/19/95	EPA 6010	BRW	7439-92-1	
Date Digested				07/18/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/20/95

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PACE Project Number: 702241
Client Project ID: Crowley

PACE Sample No:	70181144	Date Collected:	07/14/95
Client Sample ID:	BH32-E2	Date Received:	07/14/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	831	mg/kg	3.91	07/19/95	EPA 6010	BRW	7439-92-1	
Date Digested				07/18/95				

PACE Project Number: 702241

Client Project ID: Crowley

PACE Sample No: 70181151
Client Sample ID: BH18-W2

Date Collected: 07/14/95

Date Received: 07/14/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	2150	mg/kg	5	07/19/95	EPA 6010	BRW	7439-92-1	
Date Digested				07/18/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/20/95

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PACE Project Number: 702241

Client Project ID: Crowley

PACE Sample No: 70181169
Client Sample ID: SSP32B

Date Collected: 07/14/95
Date Received: 07/14/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	758	mg/kg	3.42	07/19/95	EPA 6010	BRW	7439-92-1	
Date Digested				07/18/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/20/95

PAGE: 7

PACE Project Number: 702241
Client Project ID: Crowley

PACE Sample No: 70181177
Client Sample ID: SSP18B

Date Collected: 07/14/95
Date Received: 07/14/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	29.1	mg/kg	4.46	07/19/95	EPA 6010	BRW	7439-92-1	
Date Digested				07/18/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/20/95

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PACE Project Number: 702241
Client Project ID: Crowley

PARAMETER FOOTNOTES

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit



ENVIRONMENTAL LABORATORIES

QUALITY CONTROL DATA

REPORT OF LABORATORY ANALYSIS

DATE: 07/20/95

PAGE: 9

Versar, Inc.
7844 Madison Avenue
Suite 167
Fair Oaks, CA 95628

PACE Project Number: 702241
Client Project ID: Crowley

Attn: Mr. Philip Cox
Phone: (916)863-9342

QC Batch ID: 5038	QC Batch Method: EPA 3050				Date of Batch: 07/18/95
Associated PACE Samples:	70181110	70181128	70181136	70181144	70181151
	70181169	70181177			

METHOD BLANK: 70184734
Associated PACE Samples:

	70181110	70181128	70181136	70181144	70181151	70181169	70181177
Parameter	Units	Method Blank Result	PRL	Footnotes			
Lead	mg/kg	ND	5				

MATRIX SPIKE: 70184742

	Units	70181250	Spike Conc.	Matrix Spike Result	Spike % Rec	Footnotes
Lead	mg/kg	9.25	87	86.3	89	

LABORATORY CONTROL SAMPLE & LCSD: 70184767

	Units	70184775 Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Lead	mg/kg	100	102	102	100	100	2	

SAMPLE DUPLICATE: 70184759

	Units	70181250	Dup. Result	RPD	Footnotes
Lead	mg/kg	9.25	7.24	24	

PACE Project Number: 702241

Client Project ID: Crowley

QUALITY CONTROL DATA PARAMETER FOOTNOTES

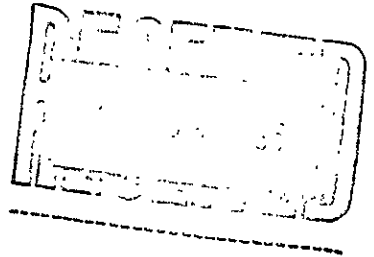
The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit
RPD Relative Percent Difference

702241

PROJECT NO.		PROJECT NAME					PARAMETERS										INDUSTRIAL HYGIENE SAMPLE	Y			
722 - 118		Crowley: Former Pacific Dry Dock and Repair Yard I																<input checked="" type="checkbox"/>			
SAMPLERS: (Signature)					(Printed)					NO. OF CONTAINERS 10/14/Lead										REMARKS	
Philip M. Cox					Philip M. Cox																
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION		NO. OF CONTAINERS														
BH32-S2	7/14/95	0925		X	Excavation BH32		1	X	5 Day TAT 181110												
BH32-BTM2		0935		X	↓		1	X	181128												
BH32-W2		0940		X	↓		1	X	181136												
BH32-E2		1005		X	↓		1	X	181144												
BH18-W2		1105		X	Excavation BH18		1	X	181151												
SSP32B		1110	X	<input checked="" type="checkbox"/>	PC Soil Stackpile BH32		1	X	181169												
SSP18B		1115	X	<input checked="" type="checkbox"/>	Soil Stackpile BH18		1	X	181177												
Relinquished by: (Signature)					Date / Time		Received by: (Signature)					Relinquished by: (Signature)					Date / Time		Received by: (Signature)		
Philip M. Cox					7/14/95/1340																
(Printed)					Versar		(Printed)					(Printed)							(Printed)		
Relinquished by: (Signature)					Date / Time		Received for Laboratory by: (Signature)					Date / Time		Remarks							
							Tami N Robbins					7/14/95/1340									
(Printed)							Tami N Robbins					PACE									

REPORT OF LABORATORY ANALYSIS



July 31, 1995

Mr. Philip Cox
Versar, Inc.
7844 Madison Avenue
Suite 167
Fair Oaks, CA 95628

RE: PACE Project Number: 702380
Client Project ID: CROWLEY

Dear Mr. Cox:

Enclosed are the results of analyses for samples received on July 24, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ron Chew
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

DATE: 07/31/95

PAGE: 1

Versar, Inc.
7844 Madison Avenue
Suite 167
Fair Oaks, CA 95628

PACE Project Number: 702380
Client Project ID: CROWLEY

Attn: Mr. Philip Cox
Phone: (916)863-9342

PACE Sample No: 70193891
Client Sample ID: BH-32-~~5~~2
Date Collected: 07/14/95
Date Received: 07/24/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Inorganics								
STLC Metals, ICP, STLC Leach.								
Date Digested				07/24/95				
Metals								
STLC Metals, ICP, STLC Leach.								
Lead	23100	ug/L	420	07/28/95	EPA 6010	SMS	7439-92-1	
Date Digested				07/27/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/31/95

PAGE: 2

PACE Project Number: 702380

Client Project ID: CROWLEY

PACE Sample No: 70193909 Date Collected: 07/14/95
Client File ID: BH-32-W2 Date Received: 07/24/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Inorganics								
STLC Metals, ICP, STLC Leach.								
Date Digested				07/24/95				
Metals								
STLC Metals, ICP, STLC Leach.								
Lead	17100	ug/L	420	07/28/95	EPA 6010	SMS	7439-92-1	
Date Digested				07/27/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/31/95

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PACE Project Number: 702380

Client Project ID: CROWLEY

PACE Sample No:	70193917	Date Collected:	07/14/95
Client Sample ID:	BH-32-E2	Date Received:	07/24/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Inorganics								
STLC Metals, ICP, STLC Leach.								
Date Digested				07/24/95				
Metals								
STLC Metals, ICP, STLC Leach.								
Lead	31500	ug/L	420	07/28/95	EPA 6010	SMS	7439-92-1	
Date Digested				07/27/95				



REPORT OF LABORATORY ANALYSIS

DATE: 07/31/95

PAGE: 4

PACE Project Number: 702380
Client Project ID: CROWLEY

PARAMETER FOOTNOTES

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 07/31/95

PAGE: 5

Versar, Inc.
 7844 Madison Avenue
 Suite 167
 Fair Oaks, CA 95628

PACE Project Number: 702380
 Client Project ID: CROWLEY

Attn: Mr. Philip Cox
 Phone: (916)863-9342

QC Batch ID: 5420 QC Batch Method: EPA 3010
 Associated PACE Samples: 70193891 70193909 70193917

Date of Batch: 07/27/95

MATRIX SPIKE: 70198742

Parameter	Units	70192596	Matrix		Footnotes
			Spike Conc.	Spike Result	
Lead	ug/L	3030	10000	15700	127 1

LABORATORY CONTROL SAMPLE & LCS: 70198767

Parameter	Units	70198775		LCS		Spike Dup		Footnotes
		Spike Conc.	LCS Result	Spike % Rec	LCS Result	% Rec	RPD	
Lead	ug/L	10000	10500	105	10200	102	3	

SAMPLE DUPLICATE: 70198759

Parameter	Units	70192596	Dup.		Footnotes
			Result	RPD	
Lead	ug/L	3030	3700	20	

PACE Project Number: 702380
Client Project ID: CROWLEY

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit
RPD Relative Percent Difference
[1] High spike recovery may be due to matrix interferences.



Additional Analyses

702380

201279

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client Versar
Address 5330 Primrose Drive, Suite 228
Fair Oaks, CA 95628
Phone (916) 962-1612

Report To: Phil. Cox
Bill To: Versar
P.O. # / Billing Reference _____
Project Name / No. Crowley

Pace Client No. _____
Pace Project Manager RMC
Pace Project No. _____
*Requested Due Date: 7/31/95

Sampled By (PRINT): _____
Sampler Signature _____ Date Sampled _____

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES				ANALYSES REQUEST	REMARKS	
						UNPRESERVED	H ₂ SO ₄	HNO ₃	VOA			
1	BH 32 - 52	7/19/95	Solid	193891	1					X	Sample AKA # (70181110)	Project AKA # 702241
2	BH 32 - W2	↓	↓	193909	1					X	(70181136)	
3	BH 32 - E2	↓	↓	193917	1					X	(70181144)	
4												
5												
6												
7												
8												

COOLER NOS.	BAILERS	SHIPMENT METHOD	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
OUT. DATE	RETURNED DATE						

Additional Comments

SEE REVERSE SIDE FOR INSTRUCTIONS

702241

Versar

CHAIN OF CUSTODY RECORD

P.01

PROJECT NO.		PROJECT NAME				PARAMETERS						INDUSTRIAL HYGIENE SAMPLE	Y
2722-118		Crowley: Ferner Pacific Dry Dock and Repair Yard				NO. OF CONTAINERS Total 11 SIC Lead						REMARKS LAB #15	Y
SAMPLERS: (Signature) Philip M. Cox				(Printed) Philip M. Cox									
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION								
BH32-S2	7/14/95	0925		X	Excavation BH32	1	X						5 D, TAT 181110
BH32-BTM2		0935		X	↓	1	X						181128
BH32-W2		0940		X		1	X						181136
BH32-E2		1005		X		1	X						181144
BH18-W2		1105		X		Excavation BH18	1	X					181151
SSP32B		1110	X	X	Soil Stockpile BH32	1	X					181169	
SSP18B		1115	X	X	Soil Stockpile BH18	1	X					181177	

Post-It™ brand fax transmittal memo 7871 2 of pages > 1

To: Ron Chew
 From: P.M.Cox
 Co.:
 Dept.:
 Phone # 862-9742
 Fax # (913) 742-0342

Relinquished by: (Signature) Philip M. Cox	Date / Time 7/14/95 1340	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
(Printed) Philip M. Cox	Versar	(Printed)	(Printed)		(Printed)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Tami N Robbins	Date / Time 7/14/95 1340	Remarks	
(Printed)		(Printed) Tami N Robbins	PACE		

JUL-24-1995 13:12 FROM PRCE INCORPORATED TO 1916962678 P.13

07-24-1995 11:52

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**FILE
COPY**

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



March 11, 1996

Mr. Philip M. Cox
Versar, Inc.
7844 Madison Avenue, Suite 167
Fair Oaks, California 95628

Dear Mr. Cox:

Trace Analysis Laboratory received four water samples on March 1, 1996, for your Project No. 2722-112, Crowley Yard I (our custody log number 6223).

These samples were analyzed for Dissolved Total Petroleum Hydrocarbons as Diesel, Gasoline, Methyl tert-butyl ether, Benzene, Toluene, Ethylbenzene, Xylenes, and Dissolved Lead. 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,

Louis W. DuPuis
Quality Assurance/Quality Control Manager

Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

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



LOG NUMBER: 6223
DATE SAMPLED: 02/28/96
DATE RECEIVED: 03/01/96
DATE EXTRACTED: 03/07/96
DATE ANALYZED: 03/08/96
DATE REPORTED: 03/11/96

CUSTOMER: Versar, Inc.
REQUESTER: Philip M. Cox
PROJECT: No. 2722-112, Crowley Yard I

Sample Type: Water

Method and Constituent:	Units	HP 1		HP 2		HP 3	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method: Dissolved Total Petroleum Hydrocarbons as Diesel	ug/l	450	50	2,000	50	ND	50

Method and Constituent:	Units	HP 4		Method Blank	
		Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method: Dissolved Total Petroleum Hydrocarbons as Diesel	ug/l	150	50	ND	50

QC Summary:

% Recovery: 95
% RPD: 7.2

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

LOG NUMBER: 6223
 DATE SAMPLED: 02/28/96
 DATE RECEIVED: 03/01/96
 DATE ANALYZED: 03/04/96
 DATE REPORTED: 03/11/96
 PAGE: Two

Sample Type: Water

Method and Constituent:	Units	HP 1		HP 2		HP 3	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	ND	50	100	50	ND	50
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	1.8	1.5	ND	1.5

Method and Constituent:	Units	HP 4		Method Blank	
		Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Gasoline	ug/l	70	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	1.1	0.50	ND	0.50
Xylenes	ug/l	2.0	1.5	ND	1.5

QC Summary:

% Recovery: 105
 % RPD: 7.4

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


LOG NUMBER: 6223
 DATE SAMPLED: 02/28/96
 DATE RECEIVED: 03/01/96
 DATE EXTRACTED: 03/04/96
 DATE ANALYZED: 03/07/96
 DATE REPORTED: 03/11/96
 PAGE: Three

Sample Type: Water

Method and Constituent:	Units	HP 1		HP 2		HP 3	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
EPA Method 239.1: Dissolved Lead	ug/l	ND	100	100	100	ND	100

Method and Constituent:	Units	HP 4		Method Blank		QC Summary	
		Concentration	Reporting Limit	Concentration	Reporting Limit	% Recovery	% RPD
EPA Method 239.1: Dissolved Lead	ug/l	ND	100	ND	100	80	0.0

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


 Louis W. DuPuis
 Quality Assurance/Quality Control Manager

PROJECT NO.		PROJECT NAME				PARAMETERS						INDUSTRIAL HYGIENE SAMPLE	Y
2722-112		County Yd I				NO. OF CONTAINERS TPH-6 BTEX (MDE) TPH-D Lead Diss. Lead						REMARKS	
SAMPLERS: (Signature) Philip M. Cox					(Printed) Philip M. Cox								
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION								
HP1	2/29/96	1300		X						Note: Please submit filter, TPH-D & Lead samples through a 0.45 micron filter.			
HP2		176		X									
HP3		1005		X									
HP4		1730		X									
Relinquished by: (Signature) Philip M. Cox		Date / Time 2/29/96		Received by: (Signature) VIA FEDEX			Relinquished by: (Signature)		Date / Time		Received by: (Signature)		
(Printed) Philip M. Cox		Versar, Inc		(Printed)			(Printed)				(Printed)		
Relinquished by: (Signature) Federal Express		Date / Time 3/1/96 11Am		Received for Laboratory by: (Signature) Louis D. Pius			Date / Time 3/1/96 11Am		Remarks 5-day Fed Ex, water, acid = 1-liter glass pb = 1-1.1oz plastic #203, TPH6 = 2-tow HC white T-1 ref 20				
(Printed)				(Printed)									

COPY

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



March 11, 1996

Mr. Phil Cox
Versar, Inc.
7844 Madison Avenue, Suite 167
Fair Oaks, California 95628

Dear Mr. Cox:

Trace Analysis Laboratory received twenty-two soil samples on February 28, 1996 for your Project No. 2722-112, Crowley Yard I (our custody log number 6215).

Eight of these samples were analyzed for Total Lead. Our analytical report, the completed chain of custody form, and our analytical methodologies 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 'Louis W. DuPuis', written in a cursive style.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

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



LOG NUMBER: 6215
DATE SAMPLED: 02/28/96
DATE RECEIVED: 02/28/96
DATE EXTRACTED: 03/08/96
DATE ANALYZED: 03/08/96
DATE REPORTED: 03/11/96

CUSTOMER: Versar, Inc.
REQUESTER: Phil Cox
PROJECT: No. 2722-112, Crowley Yard I

Sample Type: Soil

Method and Constituent:	Units	HP1-2.0-2.5		HP1-5.0-5.5		HP1-8.0-8.5	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
EPA Method 7420:							
Lead	ug/kg	5,200	3,600	26,000	3,600	8,800	3,600

Method and Constituent:	Units	HP4-2.0-2.5		HP4-5.0-5.5		HP4-7.0-7.5	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
EPA Method 7420:							
Lead	ug/kg	1,200,000	3,600	1,200,000	3,600	5,400	3,600

Method and Constituent:	Units	SB3-2.0-2.5		SB3-8.0-8.5		Method Blank	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
EPA Method 7420:							
Lead	ug/kg	520,000	3,600	35,000	3,600	ND	3,600

QC Summary:

% Recovery: 76
% RPD: 6.3

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

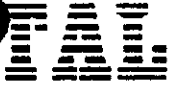
Louis W. DuPuis
Quality Assurance/Quality Control Manager

Trace Analysis Laboratory, Inc.

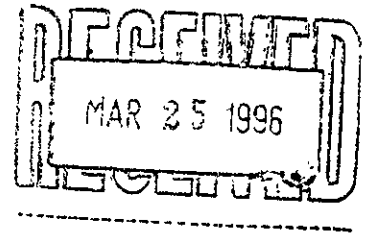
3423 Investment Boulevard, #8 • Hayward, California 94545

COPY

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



March 20, 1996



Mr. Philip M. Cox
Versar, Inc.
7844 Madison Avenue, Suite 167
Fair Oaks, California 95628

Dear Mr. Cox:

Trace Analysis Laboratory received twenty-two soil samples on February 28, 1996 for your Project No. 2722-112, Crowley Yard I (our custody log number 6215A).

Two of these samples were analyzed for Total Lead and one was analyzed for WET/Lead. Our analytical report, the completed chain of custody form, and our analytical methodologies 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 'Louis W. DuPuis'. The signature is fluid and cursive, written over a horizontal line.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



LOG NUMBER: 6215A
DATE SAMPLED: 02/28/96
DATE RECEIVED: 02/28/96
DATE EXTRACTED: 03/18/96
DATE ANALYZED: 03/19/96
DATE REPORTED: 03/20/96

CUSTOMER: Versar, Inc.
REQUESTER: Philip M. Cox
PROJECT: No. 2722-112, Crowley Yard I

Sample Type: Soil

Method and Constituent:	Units	SB2-2.5-3.0		SB2-5.0-5.5		Method Blank	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 7420: Lead	ug/kg	840,000	3,600	4,100,000	3,600	8,800	3,600

QC Summary:

% Recovery: 80
% RPD: 0.3


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

LOG NUMBER: 6215A
 DATE SAMPLED: 02/28/96
 DATE RECEIVED: 02/28/96
 DATE EXTRACTED: 03/15/96 and 03/19/96
 DATE ANALYZED: 03/20/96
 DATE REPORTED: 03/19/96
 PAGE: Two

Waste Extraction Test
 Sample Type: Extract of Water

Method and Constituent:	Units	SB3-2.0-2.5		Method Blank		QC Summary	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	% Recovery	% RPD
EPA Method 239.1:							
Lead	ug/l	38,000	100	ND	100	80	0.9

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


 Louis W. DuPuis
 Quality Assurance/Quality Control Manager

Versar

6215A

CHAIN OF CUSTODY RECORD

P.O.E. ANALYSIS MUM/001012 44:00 03-12-1986 09:36

PROJECT NO.		PROJECT NAME					PARAMETERS										INDUSTRIAL HYGIENE SAMPLE		Y
2722-112		Crowley, KS					<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">NO. OF CONTAINERS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TSP/PM</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">STCC/WET/VEG</div> </div>										X		X
SAMPLERS: (Signature) P. M. Cox					(Printed) Phillip Cox												REMARKS		
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION														
X SB3-20-25	2/20/86	1427		X	S-1 Paving SB3	1	X	X											
X SB3-80-85	↓	1434		X	↓	1	X												
X HP4-2.0-25	↓	1438		X	S-1 Paving HP4	1	X												
X HP4-3.5-40	↓	1505		X	↓	1											HOLD		
X HP4-5.0-55	↓	1516		X	↓	1	X												
X HP4-7.5-75	↓	1522		X	↓	1	X												
X SB2-2.5-30	↓	1517		X	S-1 Bay SB2	1	X										HOLD		
X SB2-5.0-55	↓	1555		X	↓	1	X										↓		
X SB2-80-85	↓	1600		X	↓	1													
X HP1-80-85		1156		X		1	X												
Relinquished by: (Signature) P. M. Cox		Date / Time 2/20/86 1623		Received by: (Signature) V. ...		Relinquished by: (Signature)		Date / Time		Received by: (Signature)									
(Printed) Phillip M. Cox		Versar Inc		(Printed)		(Printed)				(Printed)									
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature) Fluor ...		Date / Time 2/23/86 16:27		Remarks 5 day TAT from 3/12/86 ⊗ P.M. Cox											
(Printed)				(Printed)															

APPENDIX B
DRILLING LOGS

Versar Inc.		DRILLING LOG		PROJECT NO. 2722-112	
Supervising Geologist: Paul Graff			Site Name: Former Pacific Dry Dock & Repair Yard I		
Log By: Philip Cox			Boring No: HP1		
Date: 2/28/96			Boring Diameter: 8 inches		
Drilling Contractor: West Hazmat			Boring Depth: 9.5 feet		
Contractor Lic. No. C57-554979			Boring Location: Five feet west of BH 18 Excavation		
Rig Type: CME 75					
Driller: Jeff					

Depth (ft)	Advanced/Recovered	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
						SOIL TYPE, ROUNDING, GRADING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2						0.0'-2.0' Asphalt (2 layers) with gravel base. 2.0'-3.5' Gravelly sand: gravels up to 1.5", sand fine grained, water at approximately 3.5', fill.	3.0	20
4		▽		SP				
6				SC		3.5'-9.5' Clayey sand: gray, 5-10% shells present, sand moderately to poorly graded, fine to medium-grained, clay approximately 10-30%. Very loose at 6.5-8.0' bgs. Traces of gravel at 8.0'-9.5'. slight hydrocarbon odor.	5.0	0
8							7.0	0
10							9.0	0
						Note: Borehole backfilled with grout from bottom of borehole to even with grade		

Versar Inc.		DRILLING LOG		PROJECT NO. 2722-112	
Supervising Geologist: Paul Graff			Site Name: Former Pacific Dry Dock & Repair Yard I		
Log By: Philip Cox			Boring No: HP2		
Date: 2/28/96			Boring Diameter: 8 inches		
Drilling Contractor: West Hazmat			Boring Depth: 9.5 feet		
Contractor Lic. No. C57-554979			Boring Location: Approximately 40 feet south of		
Rig Type: CME 75			BH 18 Excavation		
Driller: Jeff					

Depth (ft)	Advanced/Recovered	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
						SOIL TYPE, ROUNDING, GRADING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2						0.0'-2.5' Asphalt with gravel base fill.		
4	4 4 4	▽		SC		2.5'-9.5' Clayey sand: clay up to 40%, moderate hydrocarbon odor, no staining, gray, shells up to 20%. Oily product on center bit when removed to sample at 5'.	3.5	1,812
6	3 4 5							
8								
10	1 3 8							
Note: Borehole backfilled with grout from bottom of borehole to even with grade								

Versar Inc.		DRILLING LOG		PROJECT NO. 2722-112	
Supervising Geologist: Paul Graff			Site Name: Former Pacific Dry Dock & Repair Yard I		
Log By: Philip Cox			Boring No: HP3		
Date: 2/28/96			Boring Diameter: 8 inches		
Drilling Contractor: West Hazmat			Boring Depth: 9.5 feet		
Contractor Lic. No. C57-554979			Boring Location: 8 feet north of the former UST		
Rig Type: CME 75			Excavation		
Driller: Jeff					

Depth (ft)	Advanced/Recovered	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
						SOIL TYPE, ROUNDING, GRADING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2				SW		0.0'-0.5' Asphalt with gravel base.		
4	8 7 15					0.5'-4.0' Gravelly sand: brown, loose, no odor or staining, gravels from 15 to 30% decreasing with depth up to 1.0" in diameter, subrounded, sand well graded fine to coarse grained with <10% fines, fill.	2.0	0
6	4 5 4			SC		4.0'-7.0' Clayey sand: clay approximately 10-15%, tan sand, moderately graded fine to medium grained, saturated, shells up to 40%, no petroleum odor or staining.	5.5	0
8				CL		7.0'-9.5' Silty clay: trace shells, silt approximately 10-15%, high plasticity clay, saturated, dark gray, no petroleum odor or staining	9.5	0
10	1 1 1							
						Note: Borehole backfilled with grout from bottom of borehole to even with grade		

Versar Inc.		DRILLING LOG		PROJECT NO. 2722-112	
Supervising Geologist: Paul Graff			Site Name: Former Pacific Dry Dock & Repair Yard I		
Log By: Philip Cox			Boring No: HP4		
Date: 2/28/96			Boring Diameter: 8 inches		
Drilling Contractor: West Hazmat			Boring Depth: 9.5 feet		
Contractor Lic. No. C57-554979			Boring Location: 5 feet west of BH32 excavation		
Rig Type: CME 75					
Driller: Jeff					

Depth (ft)	Advanced/Recovered	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
						SOIL TYPE, ROUNDING, GRADING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2				CL	[Symbol]	0.0'-0.5' Asphalt with gravel base. 0.5'-4.0' Gravelly clay: dark brown, gravels approximately 10%, up to 1/2" in diameter. low plasticity clay. fill.		
4	4 7 25 50/8"	▽ 50/8"		SW	[Symbol]	4.0'-8.0' Gravelly sand: gray, sand well graded, gravel up to 1/4", subangular, slight hydrocarbon odor, woody material in cuttings.	4.0	827
6	3 2 1 1 1				[Symbol]		6.0	91
8	1 2 2			CH	[Symbol]	8.0'-9.5' Clay: brown, trace shells, moderate plasticity, probable bay muds, saturated.	9.5	0
10						Note: Borehole backfilled with grout from bottom of borehole to even with grade		

<i>Versar Inc.</i>		DRILLING LOG		PROJECT NO. 2722-112	
Supervising Geologist: Paul Graff			Site Name: Former Pacific Dry Dock & Repair Yard I		
Log By: Philip Cox			Boring No: MW6		
Date: 2/28/96			Boring Diameter: 8 inches		
Drilling Contractor: West Hazmat			Boring Depth: 13.5 feet		
Contractor Lic. No. C57-554979			Boring Location: Eight feet south of former UST		
Rig Type: CME 75			excavation.		
Driller: Jeff					

Depth (ft)	Advanced/Recovered	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
						SOIL TYPE, ROUNDING, GRADING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2				SW		0.0'-0.5' Asphalt with gravel base.		
4	6 8 9			SC		0.5'-3.0' Gravelly sand: dark brown, gravel up to 1.5" in diameter, subrounded, content approximately 30% decreasing with depth, sand fine grained, clay present at approximately 10%, saturated at approximately 4.0' bgs, fill.	3.0	0
6	1 2 1			CH		3.0'-6.0' Clayey sand: gray, no hydrocarbon odor or staining, shells, clay increasing with depth from 10 to 40%, saturated, sand moderately graded fine to medium-grained.	5.5	0
8						6.0'-14.5' Bay muds: clay with shells, moderate plasticity, no hydrocarbon odor or staining, saturated.		
10	2 8 4						9.0	0
12								
14	1 2 3						14.5	0
16						Well construction: 10' of 2 inch 0.020 inch slotted screen, 3' blank, 11' sand, 1 foot bentonite chips, and cement grout to 6" bgs.		

Versar Inc.		DRILLING LOG		PROJECT NO. 2722-112	
Supervising Geologist: Paul Graff			Site Name: Former Pacific Dry Dock & Repair Yard I		
Log By: Philip Cox			Boring No: SB1		
Date: 2/28/96			Boring Diameter: 8 inches		
Drilling Contractor: West Hazmat			Boring Depth: 9.5 feet		
Contractor Lic. No. C57-554979			Boring Location: Ten feet west of BH 18 Excavation		
Rig Type: CME 75					
Driller: Jeff					

Depth (ft)	Advanced/Recovered	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
						Soil Type, Rounding, Grading, Percent: Gravel, Sands, Fines Color, Moisture, Density, Secondary Porosity, Odors, Staining Geology: Fill, Alluvium, Bedrock		
2				SW	0.0'-0.5' Asphalt with gravel base. 0.5'-4.5' Gravelly sand: dark brown, gravel up to 1.5", subangular to angular sand well graded, fill material, wet at approximately 3.5' bgs.	2.5	0	
4				SC	4.5'-9.5' Clayey sand: dark gray, hydrocarbon odor, sand moderately sorted fine to medium-grained, clay approximately 20%. Small 1 to 2" poorly graded gravel lens at approximately 8.5 feet. Gravel approximately 1/4" in diameter.	6.0	0	
8				GF SC		8.0	0	
10								
Note: Borehole backfilled with grout from bottom of borehole to even with grade								

<i>Versar Inc.</i>	DRILLING LOG	PROJECT NO. <u>2722-112</u>
Supervising Geologist: Paul Graff	Site Name: Former Pacific Dry Dock & Repair Yard I	
Log By: Philip Cox	Boring No: SB2	
Date: 2/28/96	Boring Diameter: 8 inches	
Drilling Contractor: West Hazmat	Boring Depth: 9.5 feet	
Contractor Lic. No. C57-554979	Boring Location: Ten feet south of BH 32 Excavation	
Rig Type: CME 75		
Driller: Jeff		

Depth (ft)	Advanced/Recovered	First Water/ Water Table		Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
		▽	▽				SOIL TYPE, ROUNDING, GRADING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2					CL		0.0'-1.5' Asphalt with gravel base.		
4		11 14 17	▽				1.5'-4.0' Gravelly clay: dark brown, gravel up to 3/4", subangular to angular, 10-20%, clay low plasticity, water at approximately 3.5', slight to moderate hydrocarbon odor, fill.		
6		10 11 15			SP		4.0'-9.0' Gravelly sand: dark gray, sand moderately to poorly graded fine to medium-grained.		
8									
10		1 1 4			CH		9.0'-9.5' Bay muds: brown to dark gray, saturated.	8.5	0
							Note: Borehole backfilled with grout from bottom of borehole to even with grade		

Versar Inc.		DRILLING LOG		PROJECT NO. 2722-112	
Supervising Geologist: Paul Graff			Site Name: Former Pacific Dry Dock & Repair Yard I		
Log By: Philip Cox			Boring No: SB3		
Date: 2/28/96			Boring Diameter: 8 inches		
Drilling Contractor: West Hazmat			Boring Depth: 9.5 feet		
Contractor Lic. No. C57-554979			Boring Location: Five feet west of BH 32 Excavation		
Rig Type: CME 75					
Driller: Jeff					

Depth (ft)	Advanced/Recovered	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
						SOIL TYPE, ROUNDING, GRADING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2						0.0'-1.5' Asphalt with gravel base.		
4	8 14 24	▽		CL	[diagonal lines]	1.5'-4.0' Gravelly clay: dark brown, gravel up to 1/2", 10-15% in content, 10-20% clay, low plasticity, water at approximately 3.5', trace shells, fill.	3.0	52
6	9 6 4			SW	[diagonal lines]	4.0'-9.5' Sand: shells present up to 25%, well graded, very loose, no odor or staining.		
8								
10								
						Note: Borehole backfilled with grout from bottom of borehole to even with grade		

<i>Versar Inc.</i>		DRILLING LOG		PROJECT NO. <i>2722-112</i>	
Supervising Geologist: <i>Paul Graff</i>			Site Name: <i>Former Pacific Dry Dock & Repair Yard I</i>		
Log By: <i>Philip Cox</i>			Boring No: <i>SB4</i>		
Date: <i>2/28/96</i>			Boring Diameter: <i>8 inches</i>		
Drilling Contractor: <i>West Hazmat</i>			Boring Depth: <i>9.5 feet</i>		
Contractor Lic. No. <i>C57-554979</i>			Boring Location: <i>Ten feet west of BH 32 Excavation</i>		
Rig Type: <i>CME 75</i>					
Driller: <i>Jeff</i>					

Depth (ft)	Advanced/Recovered	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
						SOIL TYPE, ROUNDING, GRADING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2				CL		0.0'-2.0' Asphalt with gravel base.		
4	ii 50/6			CL		2.0'-4.5' Gravelly clay: dark brown, gravel up to 1/4", subrounded, clay low plasticity, water at approximately 4.0', fill.		3.0 - 0
6	4 3 4			CL		4.5'-7.0' Sandy clay: gray, shells present, sand moderately graded, approximately 20-30%, slight hydrocarbon odor.		6.0 - 0
8				SC		7.0'-9.5' Clayey sand: saturated, clay approximately 20%, sand moderately graded, gray.		
10	2 1 1							
						Note: Borehole backfilled with grout from bottom of borehole to even with grade		

APPENDIX C
WASTE DISPOSAL DOCUMENTATION

WEIGHMASTER CERTIFICATE

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

Work Order #: 9601551
WMU #: STU
Grid/Bay: BAY-1

Weighed at 2500 W. Lokern Rd., Buttonwillow, CA.

Gross by: **MERCED MORENO** : deputy 01/19/96 16:04
Tare by: **MERCED MORENO** : deputy 01/19/96 18:37

Gross Weight	31,940	lbs	A
Tare Weight	28,260	lbs	B
Net Weight	3,680	lbs	
Net Weight	1.84	tons	

GENERATOR INFORMATION

Generator: **CROWLEY MARINE SERVICES** Location: **SEATTLE**
Approval #: **15144-BTR-0196** Waste Name: **SOIL W/LEAD/DIESEL**
Manifest #: **95720629** Hazardous Class: **CA HAZ** Physical State: **SOLID** Station #:
State Waste Code(s): **611** EPA Waste Code(s):

TRANSPORTER INFORMATION

Transporter: **CABALLERO** Truck #: **C-88** Truck Type: **END DUMP** # of Bins: **1**
Truck License #: **SP2960T** Trailer License #: **GT10027** Trailer License #: Washout (hrs):

WASTE VERIFICATION ANALYSIS

Analyst: **DANIEL LADEIRA** Sampler: **DANIEL LADEIRA** Method: **SCOOP**

Test	Container		Container		Container		Container		Container Information	
	ID#	Result	ID#	Result	ID#	Result	ID#	Result	Number	Size
VIS(1)	9601551-1	OK Y								
PH(3)		9.81 Y								
SUL(8A)		NEG Y								
CYA(9A)		NEG Y								
FL(21)		NO Y								
ABSP(26)		N/A Y								
CYA(9A/B)		NEG Y								

COMMENTS:

I CERTIFY THAT THE HAULER ABOVE DELIVERED THE DESCRIBED WASTE TO THIS DISPOSAL FACILITY AND IT WAS ACCEPTABLE MATERIAL UNDER THE TERMS OF APPLICABLE PERMITS.

TSDF Signature: *[Signature]*

I CERTIFY THAT THE DESCRIBED WASTE WAS HAULED BY ME TO THE WASTE MANAGEMENT FACILITY NAMED ABOVE.

Driver Signature: *[Signature]*

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAAD009140864010003	Manifest Document No. 1 of 1	2. Page 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address CROWLEY MARINE SERVICE P.O. Box 2287 SEATTLE, WA 98111-2287			A. State Manifest Document Number 95720629		
4. Generator's Phone (206) 445-8242			B. State Generator's ID HY1403602107211		
5. Transporter 1 Company Name CABALLERO		6. US EPA ID Number WA091824112900		C. State Transporter's ID 602353	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone 408-729-0196	
9. Designated Facility Name and Site Address LAIDLAW ENVIRONMENTAL SERVICES 2500 LOKERN ROAD BILTON WILLOW, CA 95206			10. US EPA ID Number CAAD980675276		
			E. State Facility's ID		
			F. Facility's Phone 800-544-7199		
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers	13. Total Quantity	14. Unit Wt/Vol	15. Waste Number
a. RCRA, bulk solid		No. Type			State 611 EPA/Other 0008
			4	Y	State EPA/Other
b.					State EPA/Other
c.					State EPA/Other
d.					State EPA/Other
J. Additional Descriptions for Materials Listed Above LAIDLAW APPROVAL # 15144-BTR0196 WORK ORDER # 0601551			K. Handling Codes for Wastes Listed Above a. 75-03 b. c. d.		
15. Special Handling Instructions and Additional Information EMERGENCY CONTACT (800) 989-3478 Items 5, 6, C, D received per Tommy Caballero, CF Caballero TRUWINE by John W. Wilson 1/31/96.					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name Charles W. Marino		Signature Charles W. Marino		Month 01	Day 19
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature Ed Caballero		Month 01	Day 19
Printed/Typed Name Ed Caballero		Signature		Month	Day
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature		Month	Day
Printed/Typed Name		Signature		Month	Day
19. Discrepancy Indication Space					
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name MERCED MERCAD		Signature Merced Mercad		Month 01	Day 19
				Year 96	

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7327

WEIGHMASTER CERTIFICATE

Work Order #: 9601549
WMU #: STU
Grid/Bay: BAY-1

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.
Weighed at 2500 W. Lokern Rd., Buttonwillow, CA.

Gross by: **MERCED MORENO** : deputy 01/19/96 16:17
Tare by: **MERCED MORENO** : deputy 01/19/96 18:41

Gross Weight 71,240 lbs A
Tare Weight 29,520 lbs B
Net Weight 41,720 lbs
Net Weight 20.86 tons

GENERATOR INFORMATION

Generator: **CROWLEY MARINE SERVICES** Location: **SEATTLE**
Approval #: **15144-BTR-0196** Waste Name: **SOIL W/LEAD/DIESEL**
Manifest #: **95720643** Hazardous Class: **CA HAZ** Physical State: **SOLID** Station #:
State Waste Code(s): **611** EPA Waste Code(s):

TRANSPORTER INFORMATION

Transporter: **CABALLERO** Truck #: **70** Truck Type: **END DUMP** # of Bins: **1**
Truck License #: **9A24171** Trailer License #: **FT53601** Trailer License #: Washout (hrs):

WASTE VERIFICATION ANALYSIS

Analyst: **DANIEL LADEIRA** Sampler: **DANIEL LADEIRA** Method: **SCOOP**

Test	Container		Container		Container		Container		Container Information	
	ID#	9601549-1	ID#	OK?	ID#	OK?	ID#	OK?	Number	Size
VIS(1)	OK	Y								
PH(3)	9.98	Y								
SUL(8A)	NEG	Y								
CYA(9A)	NEG	Y								
FL(21)	NO	Y								
ABSP(26)	N/A	Y								
CYA(9A/B)	NEG	Y								

COMMENTS:

I CERTIFY THAT THE HAULER ABOVE DELIVERED THE DESCRIBED WASTE TO THIS DISPOSAL FACILITY AND IT WAS ACCEPTABLE MATERIAL UNDER THE TERMS OF APPLICABLE PERMITS.

TSDF Signature: *[Signature]*

I CERTIFY THAT THE DESCRIBED WASTE WAS HAULED BY ME TO THE WASTE MANAGEMENT FACILITY NAMED ABOVE.

Driver Signature: *[Signature]*

**UNIFORM HAZARDOUS
 WASTE MANIFEST**

1. Generator's US EPA ID No. **CAAD09E140E64000001** Manifest Document No. **1** of **1**

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
CROWLEY MARINE SERVICE
P.O. BOX 2287 SEATTLE, WA 98111-2287
 4. Generator's Phone **(206) 443-8042**

A. State Manifest Document Number **9572064**

B. State Generator's ID **HYHAQ36020721**

5. Transporter 1 Company Name **CABAIERO** 6. US EPA ID Number **CAAD9E2412900**

C. State Transporter's ID

D. Transporter's Phone **(408) 729-0196**

7. Transporter 2 Company Name

E. State Transporter's ID **602359**

F. Transporter's Phone

9. Designated Facility Name and Site Address
LAWLAW ENVIRONMENTAL SERVICES
2500 LOKERN ROAD
BUTTEVILLE, CA 95926
 10. US EPA ID Number **CAAD9801075279**

G. State Facility's ID **CAAD9801075279**

H. Facility's Phone **800-544-7199**

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers No. Type 13. Total Quantity 14. Unit Wt/Vol

a. RCRA, bulk solid

001 DT 0001E Y

I. Waste Number State **611**

EPA/Other **0008**

b.

State

EPA/Other

c.

State

EPA/Other

d.

State

EPA/Other

J. Additional Descriptions for Materials Listed Above
LAWLAW APPROVAL # 15144-BTR0196
WORK ORDER # 9601549

K. Handling Codes for Wastes Listed Above

a. **15-03**

15. Special Handling Instructions and Additional Information
EMERGENCY CONTACT (800) 989-3478

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name **Charles W. Mariner for C.M.S.** Signature **Charles W. Mariner for C.M.S.** Month **01** Day **11** Year **1999**

17. Transporter 1 Acknowledgement of Receipt of Materials
 Printed/Typed Name **AJ Westover** Signature **AJ Westover** Month **01** Day **11** Year **1999**

18. Transporter 2 Acknowledgement of Receipt of Materials
 Printed/Typed Name Signature Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
 Printed/Typed Name **MERCEDES MORANO** Signature **Merce Morano** Month **01** Day **11** Year **1999**

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7535



Laidlaw Environmental Services (Lokern), Inc.
 2500 West Lokern Road • Buttonwillow, CA 93206 • (805) 762-7372

Weighmaster # 1012510

CUSTOMER COPY

WEIGHMASTER CERTIFICATE

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

Work Order #: **9601550**
 WMU #: **STU**
 Grid/Bay: **BAY-3**

Weighed at 2500 W. Lokern Rd., Buttonwillow, CA.

Gross by: **MERCED MORENO** : deputy **01/19/96 16:08**
 Tare by: **MERCED MORENO** : deputy **01/19/96 18:23**

Gross Weight	66,820	lbs	A
Tare Weight	31,820	lbs	B
Net Weight	35,000	lbs	
Net Weight	17.50	tons	

GENERATOR INFORMATION

Generator: **CROWLEY MARINE SERVICES** Location: **SEATTLE**
 Approval #: **15144-BTR-0196** Waste Name: **SOIL W/LEAD/DIESEL**
 Manifest #: **95720638** Hazardous Class: **CA HAZ** Physical State: **SOLID** Station #:
 State Waste Code(s): **611** EPA Waste Code(s):

TRANSPORTER INFORMATION

Transporter: **CABALLERO** Truck #: **K-1** Truck Type: **END DUMP** # of Bins: **1**
 Truck License #: **4T40637** Trailer License #: **FT81953** Trailer License #: Washout (hrs):

WASTE VERIFICATION ANALYSIS

Analyst: **DANIEL LADEIRA** Sampler: **DANIEL LADEIRA** Method: **SCOOP**

Test	Container		Container		Container		Container		Container Information	
	ID#	OK?	ID#	OK?	ID#	OK?	ID#	OK?	Number	Size
	9601550-1									
VIS(1)	OK	Y								
PH(3)	9.90	Y								
SUL(8A)	NEG	Y								
CYA(9A)	NEG	Y								
FL(21)	NO	Y								
ABSP(26)	N/A	Y								
CYA(9A/B)	NEG	Y								

COMMENTS:

I CERTIFY THAT THE HAULER ABOVE DELIVERED THE DESCRIBED WASTE TO THIS DISPOSAL FACILITY AND IT WAS ACCEPTABLE MATERIAL UNDER THE TERMS OF APPLICABLE PERMITS.

TSDF Signature:

I CERTIFY THAT THE DESCRIBED WASTE WAS HAULED BY ME TO THE WASTE MANAGEMENT FACILITY NAMED ABOVE.

Driver Signature:

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7575

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA1010091140864	Manifest Document No. 000021	2. Page 1 1 of 1	Information in the shaded areas is not required by Federal law.		
3. Generator's Name and Mailing Address CROWLEY MARINE SERVICE P.O. BOX 2287 SEATTLE, WA 98111-2287			A. State Manifest Document Number 9572063		B. State Generator's ID HY1110360207211		
4. Generator's Phone (206) 443-8042			C. State Transporter's ID		D. Transporter's Phone 408-729-0196		
5. Transporter 1 Company Name CABAIERO		6. US EPA ID Number CA1019182412900		E. State Transporter's ID 602355		F. Transporter's Phone	
7. Transporter 2 Company Name		8. US EPA ID Number		G. State Facility's ID CA1098047522611		H. Facility's Phone 800-544-7199	
9. Designated Facility Name and Site Address LAIDLAW ENVIRONMENTAL SERVICES 2500 LUKERN ROAD BITTON WILLOW, CA 93206			10. US EPA ID Number CA1019182412900		I. Waste Number State: 611 EPA/Other: 0008		
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)					12. Containers No. Type	13. Total Quantity	14. Unit Wt/Vol
a. RCRA, bulk solid					001 DIT	00018	Y
b.							
c.							
d.							
J. Additional Descriptions for Materials Listed Above LAIDLAW APPROVAL # 15144 BTRO196 WORK ORDER # 9601550					K. Handling Codes for Wastes Listed Above a. 15-03 b. c. d.		
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Printed/Typed Name Charles W. Mariné for C.M.S.			Signature Charles Mariné for C.M.S.			Month Day Year 01/1/1999	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Jay Sylvester			Signature Jay Sylvester			Month Day Year 01/1/1999	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name			Signature			Month Day Year	
19. Discrepancy Indication Space							
20. Facility Owner or Operator Certification of receipt of hazardous EPA materials covered by this manifest except as noted in Item 19. Printed/Typed Name MERCED MORRIS							
Signature MERCED MORRIS			Signature MERCED MORRIS			Month Day Year 01/1/1999	

DO NOT WRITE BELOW THIS LINE.