# CROWLEY MARINE SERVICES, INC.



# 1222

July 2, 1996

Mr. Barney Chan
Alameda County Health Care Service Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 260
Alameda, California 94502-6577

Reference: **Former Pacific Dry Dock and Repair Company Yard II Facility;**
**321 Embarcadero, Oakland**
**Groundwater Monitoring Report**

Dear Mr. Chan:

Enclosed for your review please find the groundwater monitoring report for the above referencedfacility. After your review of the report I would welcome the opportunity to meet to discuss what additional work, if any, may be required for site closure.

Please contact me at (206) 443-8042 with any questions or comments that you may have regarding this matter.

Sincerely

Stephen Wilson
Manager, Environmental Compliance

Enclosure: *Letter Report of Quarterly Groundwater Monitoring - May 8, 1996*

cc: PDD II Correspondence
Beth Hamilton w/o enclosure
D. Heinze ~~Dan Schoenholtz w~~/ enclosure
Paul Graff w/o enclosure

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Versar INC.



June 21, 1996

Mr. Stephen Wilson
Manager, Environmental Compliance
Crowley Marine Services, Inc.
2401 Fourth Avenue
P.O. Box 2287
Seattle, Washington 98111

Reference: Letter Report of Quarterly Groundwater Monitoring - May 8, 1996
Former Pacific Dry Dock and Repair Company Yard II,
321 Embarcadero, Oakland, California;
Versar Project No. 2463-201

Dear Mr. Wilson:

Crowley Marine Services, Inc. (Crowley), has retained Versar, Inc. (Versar), to perform groundwater monitoring and sampling at the Former Pacific Dry Dock and Repair Company Yard II, located at 321 Embarcadero, Oakland, California (Site). This letter presents the activities, results, and conclusions of the fifth round of groundwater monitoring and sampling at the Site.

## 1.0 Introduction

On May 8, 1996, Versar conducted the fifth round of groundwater monitoring and sampling at the Site. Figure 1 shows the Site location and Figure 2 shows the Site layout.

The fifth round of groundwater monitoring and sampling activities included the following:

- Recording groundwater level measurements from the seven wells at the Site
- Purging each monitoring well of three well volumes of water and collecting groundwater samples from each well



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- Submitting the groundwater samples for laboratory analysis for total petroleum hydrocarbons as diesel (TPH-D); total petroleum hydrocarbons as gasoline (TPH-G); total oil and grease (TOG); benzene, toluene, ethylbenzene, and xylenes (BTEX); chlorinated hydrocarbons; and the metals copper, lead, mercury and zinc

- Calculating the groundwater gradient

- Analyzing and summarizing the data, and generating this report

## 2.0 Monitoring and Sampling Activities

Prior to groundwater sampling, Versar measured the depth to groundwater below ground surface (bgs) in each monitoring well. Groundwater was present at depths of 3.85 feet bgs (MW1), 4.75 feet bgs (MW2), 5.00 feet bgs (MW3), 6.20 feet bgs (MW4), 4.28 feet bgs (MW5), 4.74 feet bgs (MW6), and 3.38 feet bgs (MW7). The groundwater gradient on May 8, 1996, was 0.016 feet per foot to the northwest, as shown in Figure 3. The groundwater level data for previous sampling events are listed in Table 1.

After groundwater levels were measured, Versar purged the monitoring wells following Versar's standard procedures described in the Versar report entitled "Groundwater Monitoring Well Installation and Monitoring-March 13, 1995." Data collected during purging included (1) the initial depth to groundwater; (2) pH; (3) temperature; (4) conductivity; and (5) observations of sheen, odor, free product, and turbidity. Details of the purging were recorded and are included as Attachment I.

Versar collected groundwater samples from each monitoring well using a single-use bailer. The samples for TPH-G, BTEX, and chlorinated hydrocarbons were placed in pre-cleaned, 40-milliliter glass vials preserved with hydrochloric acid. Groundwater samples to be analyzed for TPH-D and TOG were placed in pre-cleaned, 1-liter amber glass containers. Samples collected for copper, lead, mercury, and zinc were placed in pre-cleaned, 300 milliliter plastic or glass containers preserved with nitric acid. Sampling containers were labeled with the date collected and a unique sample identification and stored on ice in an insulated cooler. All monitoring well groundwater samples were accompanied by Versar's chain-of-custody records and submitted for analysis to Entech Analytical Labs, Inc. (Entech), a California-certified laboratory (Certification No. 1369). Entech prepared the samples following U.S. Environmental Protection Agency (EPA) protocols.

3.0 Laboratory Analytical Results

Versar submitted seven groundwater samples for laboratory analysis for TOG, TPH-D, TPH-G, BTEX, chlorinated hydrocarbons, and the metals copper, zinc, mercury and lead. A copy of the laboratory analytical report and chain-of-custody record from the sampling event is included as Attachment II.

TOG was detected in the groundwater sampled from MW4. The laboratory detected TPH-D in groundwater samples collected from all of the monitoring wells. BTEX, TPH-G, and chlorinated hydrocarbons were not detected in groundwater samples collected from monitoring wells MW3, MW6, and MW7. Concentrations of copper, zinc, and lead were not detected in any of the groundwater samples; however, mercury was detected in MW1 at 0.0011 milligrams per liter (mg/L) and in MW6 at 0.0008 mg/L.

Laboratory analytical results for the groundwater samples are summarized in Tables 2 through 4.

Prepared By:

FOR Philip L. Hoffmeister
Staff Geologist

Approved for Release By:

Paul Graff, R.G. 5600
Project Manager

REGISTERED GEOLOGIST
PAUL GRAFF
No. 5600
Exp 6/30/97
STATE OF CALIFORNIA

cc: Ms. Beth Hamilton, Enea, Puinti & Hamilton

# ATTACHMENTS


Figures

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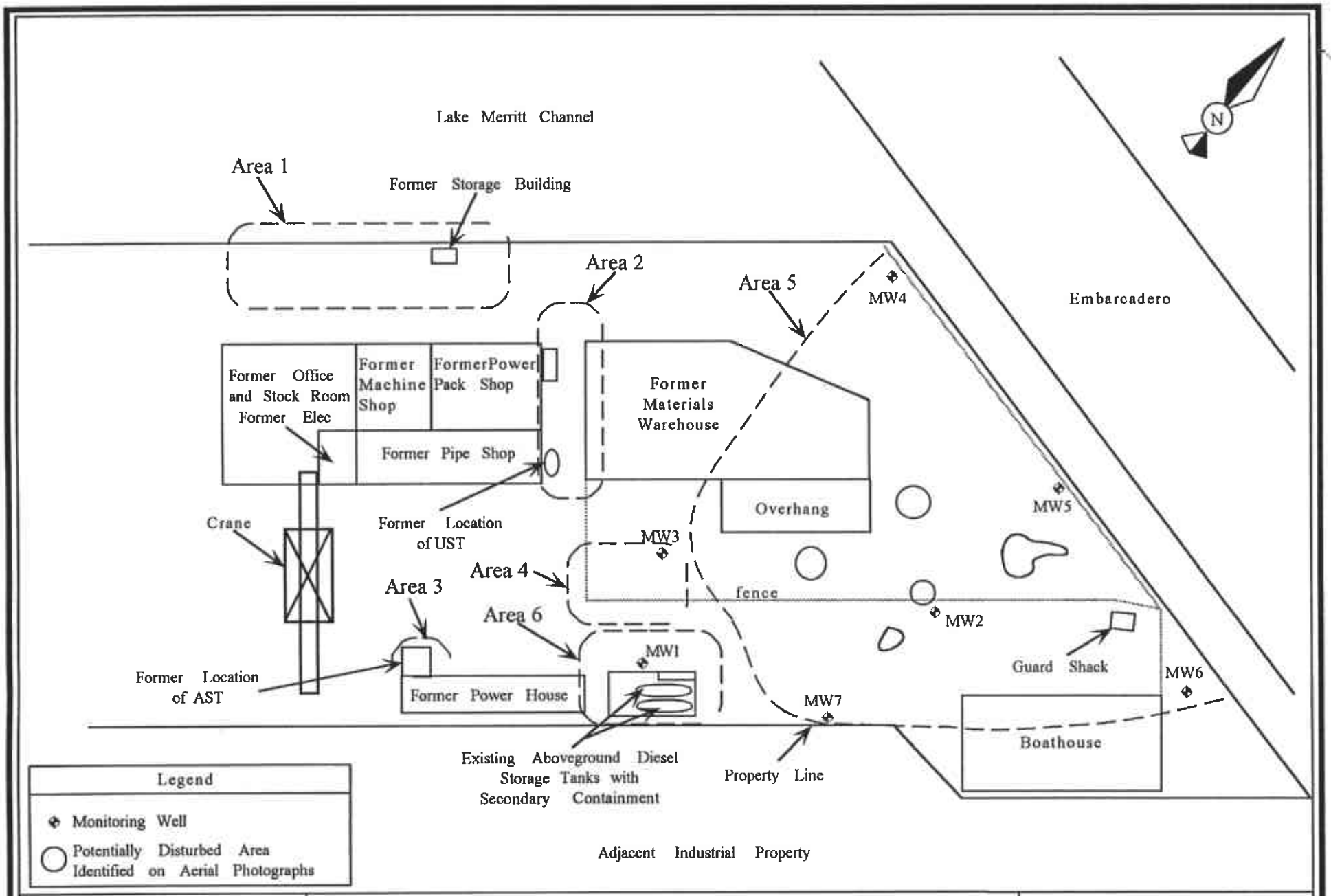
Attachments

| | |
|---|---|
| Attachment I | Monitoring Well Purge Table Sheets |
| Attachment II | Laboratory Analytical Reports and Chain-of-Custody Records for Groundwater Samples collected May 8, 1996, Fifth Groundwater Sampling Event |


SOURCE: USGS TOPO 1959

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



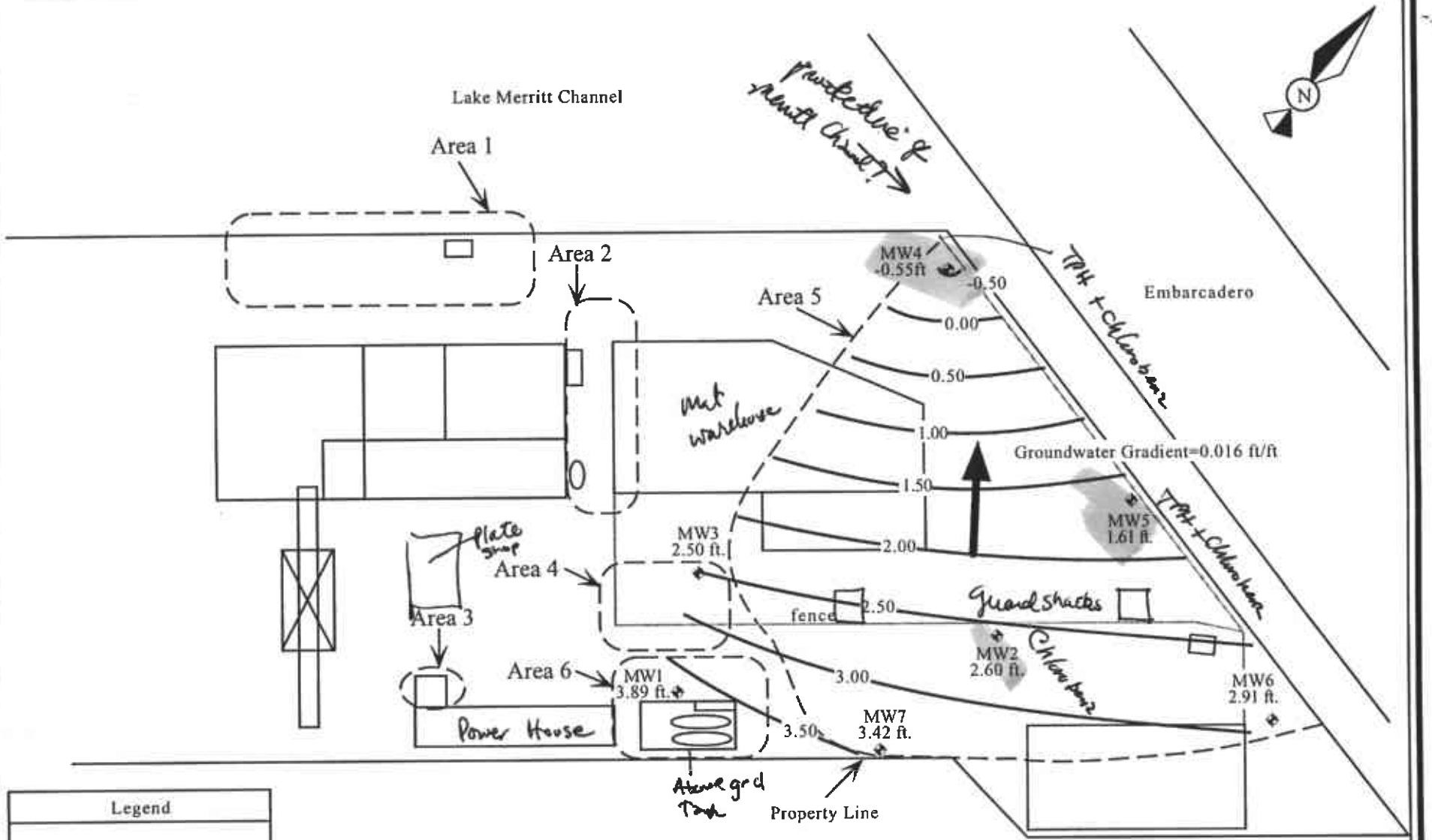

Project No. 2463-103

Site Layout

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

Figure 2

Versar, Inc.




Project No. 2463-103

Groundwater Elevation Map, May 8, 1996

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

Figure 3

Versar, Inc.

Table 1

Monitoring Well Groundwater Level Data

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



| Groundwater Monitoring Well Date | Reference Elevation (top of casing)[1,2] | Depth to Groundwater[1] | Groundwater Elevation[2] | Hydraulic Gradient and Direction |
|---|---|---|---|---|
| MW1 | | | | |
| 3/7/95 | 98.60 | 3.15 | 95.45 | 0.015 northwest |
| 3/13/95 | | 2.62 | 95.98 | 0.019 northwest |
| 6/21/95 | | 3.44 | 95.16 | 0.022 north/northwest |
| 9/29/95 | 7.74 | 3.55 | 4.19 | 0.008 north/northwest |
| 1/18/96 | | 3.28 | 4.46 | 0.015 northwest |
| 5/8/96 | | 3.85 | 3.89 | 0.016 northwest |
| MW2 | | | | |
| 3/7/95 | 98.20 | 3.93 | 94.27 | |
| 3/13/95 | | 3.23 | 94.97 | |
| 6/21/95 | | 4.44 | 93.76 | |
| 9/29/95 | 7.35 | 4.90 | 2.45 | |
| 1/18/96 | | 5.23 | 2.12 | |
| 5/8/96 | | 4.75 | 2.60 | |
| MW3 | | | | |
| 3/7/95 | 98.36 | 4.12 | 94.24 | |
| 3/13/95 | | 3.96 | 94.40 | |
| 6/21/95 | | 4.63 | 93.73 | |
| 9/29/95 | 7.50 | 5.10 | 2.40 | |
| 1/18/96 | | 4.05 | 2.45 | |
| 5/8/96 | | 5.00 | 2.50 | |

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

Table 1

Monitoring Well Groundwater Level Data

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



| Groundwater Monitoring Well Date | Reference Elevation (top of casing)[1,2] | Depth to Groundwater[1] | Groundwater Elevation[2] |
|---|---|---|---|
| MW4 | | | |
| 9/29/95 | 5.65 | 4.78 | 0.87 |
| 1/18/96 | | 3.65 | 2.00 |
| 5/8/96 | | 6.20 | 0.55 |
| MW5 | | | |
| 9/29/95 | 5.89 | 4.25 | 1.64 |
| 1/18/96 | | 3.75 | 2.14 |
| 5/8/96 | | 4.28 | 1.61 |
| MW6 | | | |
| 9/29/95 | 7.65 | 4.82 | 2.83 |
| 1/18/96 | | 3.63 | 4.02 |
| 5/8/96 | | 4.74 | 2.91 |
| MW7 | | | |
| 9/29/95 | 6.80 | 3.65 | 3.15 |
| 1/18/96 | | 1.85 | 4.95 |
| 5/8/96 | | 3.38 | 3.42 |

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

Table 2

Monitoring Well Groundwater Sampling Results - Petroleum Hydrocarbons

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



| Groundwater Monitoring Well Date | TOG[1] | TPH-MO[2] | TPH-D[3] (µg/L) | TPH-G[4] (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (µg/L) | MTBE[5] (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MW1 | | | | | | | | | |
| 3/13/95 | ---[6] | --- | 220 | ND[7] | ND | ND | ND | ND | --- |
| 6/21/95 | --- | --- | 160 | ND | ND | ND | 1.0 | 5.3 | --- |
| 9/29/95 | --- | ND | ND | ND | ND | ND | ND | ND | ND |
| 12/29/95 | ND | --- | ND | 55 | 3.6 | ND | 1.4 | ND | ND |
| 5/8/96 | ND | --- | 330 | 240 | 0.90 | 2.6 | 5.7 | 58 | --- |
| MW2 | | | | | | | | | |
| 3/13/95 | --- | --- | 2,500 | 1,600 | 77 | ND | ND | 850 | --- |
| 6/21/95 | --- | --- | 3,300 | 2,300 | 65 | 0.74 | 1.3 | 810 | --- |
| 9/29/95 | --- | ND | 870 | 1,400 | 41 | ND | ND | ND | ND |
| 12/29/95 | ND | --- | 2,600 | 1,600 | 36 | ND | 14 | ND | ND |
| 5/8/96 | ND | --- | 680 | 640 | 14 | ND | 0.53 | 59 | --- |
| MW3 | | | | | | | | | |
| 3/13/95 | --- | --- | ND | ND | ND | ND | ND | ND | --- |
| 6/21/95 | --- | --- | 140 | ND | ND | ND | ND | ND | --- |
| 9/29/95 | --- | ND | ND | ND | ND | ND | ND | ND | ND |
| 12/29/95 | ND | --- | ND | ND | ND | ND | ND | ND | ND |
| 5/8/96 | ND | --- | 140 | ND | ND | ND | ND | ND | --- |

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

Table 2

Monitoring Well Groundwater Sampling Results - Petroleum Hydrocarbons

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



| Groundwater Monitoring Well Date | TOG[1] (µg/L) | TPH-MO[2] | TPH-D[3] (µg/L) | TPH-G[4] (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (µg/L) | MTBE[5] (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MW4 | | | | | | | | | |
| 10/2/95 | ---[6] | 880 | 1,900 | 1,400 | 33 | ND[7] | 3.0 | ND | ND |
| 12/29/95 | 9,500 | --- | 800 | 960 | 35 | 5.5 | 13 | ND | ND |
| 5/8/96 | 7,200 | --- | 2,400 | 610 | 3.3 | 1.5 | 2.5 | 160 | --- |
| MW5 | | | | | | | | | |
| 10/2/95 | --- | ND | 840 | 300 | 3.7 | ND | ND | ND | ND |
| 12/29/95 | 40,000 | --- | 650 | 860 | 8.5 | 0.85 | 0.77 | ND | ND |
| 5/8/96 | ND | --- | 1,100 | 830 | 13 | ND | 0.55 | 59 | --- |
| MW6 | | | | | | | | | |
| 10/2/95 | --- | ND | ND | ND | ND | ND | ND | ND | ND |
| 12/29/95 | 7,300 | --- | ND | ND | ND | ND | ND | ND | ND |
| 5/8/96 | ND | --- | 220 | ND | ND | ND | ND | ND | --- |
| MW7 | | | | | | | | | |
| 10/2/95 | --- | ND | 900 | ND | ND | ND | ND | ND | ND |
| 12/29/95 | ND | --- | 130 | ND | ND | ND | ND | ND | ND |
| 5/8/96 | ND | --- | 180 | ND | ND | ND | ND | ND | --- |

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

Table 3

Monitoring Well Groundwater Sampling Results - Chlorinated Hydrocarbons[1]
(All values in $\mu$g/L or parts per billion)

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



| Groundwater Monitoring Well Date | Chlorobenzene | Chloroform | cis and trans-1,2-Dichloroethene | 1,4-Dichlorobenzene |
|---|---|---|---|---|
| MW1 | | | | |
| 3/13/95 | 4.6 | ND | ND | ND |
| 6/21/95 | ND[2] | 0.73 | ND | ND |
| 9/29/95 | 1.5 | ND | ND | ND |
| 12/29/95 | 9.1 | ND | ND | ND |
| 5/8/96 | 9.5 | ND | ND | ND |
| MW2 | | | | |
| 3/13/95 | 780 | ND | ND | ND |
| 6/21/95 | 290 | ND | 1.6 | ND |
| 9/29/95 | 940 | ND | ND | ND |
| 12/29/95 | 370 | ND | ND | ND |
| 5/8/96 | 450 | ND | ND | 22 |
| MW3 | | | | |
| 3/13/95 | 0.51 | ND | ND | ND |
| 6/21/95 | ND | ND | ND | ND |
| 9/29/95 | ND | ND | ND | ND |
| 12/29/95 | ND | ND | ND | ND |
| 5/8/96 | ND | ND | ND | ND |
| MW4 | | | | |
| 10/2/95 | 390 | ND | ND | ND |
| 12/29/95 | 210 | ND | ND | ND |
| 5/8/96 | 290 | ND | ND | 15 |

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

Table 3

Monitoring Well Groundwater Sampling Results - Chlorinated Hydrocarbons[1]
(All values in $\mu$g/L or parts per billion)

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



| Groundwater Monitoring Well Date | Chlorobenzene | Chloroform | cis and trans-1,2-Dichloroethene | 1,4-Dichlorobenzene |
|---|---|---|---|---|
| MW5 | | | | |
| 10/2/95 | 35 | ND[2] | ND | ND |
| 12/29/95 | 240 | ND | ND | ND |
| 5/8/96 | 410 | ND | ND | 20 |
| MW6 | | | | |
| 10/2/95 | ND | ND | ND | ND |
| 12/29/95 | ND | ND | ND | ND |
| 5/8/96 | ND | ND | ND | ND |
| MW7 | | | | |
| 10/2/95 | ND | ND | ND | ND |
| 12/29/95 | ND | ND | ND | ND |
| 5/8/96 | ND | ND | ND | ND |

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

Table 4

Monitoring Well Groundwater Sampling Results - Metals
(All values in $\mu$g/L or parts per billion)

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



| Groundwater Monitoring Well Date | Copper | Lead | Mercury | Zinc |
|---|---|---|---|---|
| MW1 | | | | |
| 3/13/95 | ---[1] | --- | --- | --- |
| 6/21/95 | --- | --- | --- | --- |
| 9/29/95 | ND[2] | ND | 0.28 | 56 |
| 12/29/95 | 50 | 110 | ND | 24 |
| 5/8/96 | ND | ND | 1.1 | ND |
| MW2 | | | | |
| 3/13/95 | --- | --- | --- | --- |
| 6/21/95 | --- | --- | --- | --- |
| 9/29/95 | ND | ND | ND | 51 |
| 12/29/95 | 55 | ND | ND | 38 |
| 5/8/96 | ND | ND | ND | ND |
| MW3 | | | | |
| 3/13/95 | --- | --- | --- | --- |
| 6/21/95 | --- | --- | --- | --- |
| 9/29/95 | ND | ND | ND | 60 |
| 12/29/95 | 100 | ND | ND | 30 |
| 5/8/96 | ND | ND | ND | ND |

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

Table 4

Monitoring Well Groundwater Sampling Results - Metals
(All values in $\mu$g/L or parts per billion)

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



| Groundwater Monitoring Well Date | Copper | Lead | Mercury | Zinc |
|---|---|---|---|---|
| MW4 | | | | |
| 10/2/95 | 20 | 210 | 0.6 | 440 |
| 12/29/95 | 55 | ND | ND | 68 |
| 5/8/96 | ND | ND | ND | ND |
| MW5 | | | | |
| 10/2/95 | ND[2] | ND | 0.91 | 240 |
| 12/29/95 | 100 | ND | ND | 68 |
| 5/8/96 | ND | ND | ND | ND |
| MW6 | | | | |
| 10/2/95 | ND | ND | 2.3 | 140 |
| 12/29/95 | 95 | ND | 0.53 | 110 |
| 5/8/96 | ND | ND | 0.80 | ND |
| MW7 | | | | |
| 10/2/95 | 20 | 310 | 11 | 380 |
| 12/29/95 | 60 | ND | ND | 80 |
| 5/8/96 | ND | ND | ND | ND |

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

## MONITORING WELL PURGE TABLE

| | |
|---|---|
| **Project Number:** 2463-201 | **Site Name:** Crowley Marine |
| **Well Number:** MW1 | **Date(s) Purged:** 5/8/96 |
| **OVA - Ambient:** 0.0 ppm | **Purge Method:** Disposable Bailer |
| **OVA - Vault:** 2.6 ppm | **Purge Rate:** 1.7 gpm |
| **OVA - Casing:** 13.4 ppm | **Date & Time Sampled:** 5/8/96 (1430) |
| **Water Level - Initial:** 3.8 feet | **Purged & Sampled:** ADF/CB |
| **Water Level - Final:** 3.95 feet | **Sampling Method:** Dedicated Bailer |
| **Well Depth:** 14.2 feet | **Free Product:** No |
| **Well Diameter:** 4-inch | **Sheen:** No |
| **Well Casing Volume:** 6.7 gallons | **Odor:** Strong Hydrocarbon |

| Time | Purge Water Removed (gal) | Temperature (degrees Fahrenheit) | pH | Electrical Conductivity (umhos/cm) | Turbidity |
|---|---|---|---|---|---|
| 1406 | 0.5 | 67.1 | 7.56 | 3,660 | Clear |
| 1407 | 2 | 67.6 | 7.67 | 4,120 | Clear |
| 1409 | 4 | 69.3 | 7.82 | 4,440 | Clear |
| 1410 | 6 | 68.8 | 7.84 | 4,550 | Slight Float |
| 1411 | 8 | 68.8 | 8.02 | 4,660 | Clear |
| 1412 | 10 | 68.1 | 8.07 | 5,070 | Clear |
| 1413 | 12 | 68.8 | 8.17 | 4,730 | Clear |
| 1414 | 14 | 68.5 | 8.13 | 4,810 | Clear |
| 1415 | 16 | 67.9 | 8.30 | 4,740 | Clear |
| 1416 | 18 | 67.8 | 8.49 | 4,780 | Clear |
| 1418 | 20 | 67.1 | 8.70 | 4,750 | Clear |
| 1430 | Sample | 67.3 | 8.61 | 4,750 | Clear |
| | | | | | |
| | | | | | |

Field Notes:

## MONITORING WELL PURGE TABLE

| | |
|---|---|
| **Project Number:** 2463-201 | **Site Name:** Crowley Marine |
| **Well Number:** MW2 | **Date(s) Purged:** 5/8/96 |
| **OVA - Ambient:** 0.0 ppm | **Purge Method:** Disposable Bailer |
| **OVA - Vault:** 1.5 ppm | **Purge Rate:** 1.9 gpm |
| **OVA - Casing:** 17.3 ppm | **Date & Time Sampled:** 5/8/96 (1345) |
| **Water Level - Initial:** 4.75 feet | **Purged & Sampled:** ADF/CB |
| **Water Level - Final:** 4.75 feet | **Sampling Method:** Dedicated Bailer |
| **Well Depth:** 16.64 feet | **Free Product:** No |
| **Well Diameter:** 4-inch | **Sheen:** No |
| **Well Casing Volume:** 7.7 gallons | **Odor:** Hydrocarbon |

| Time | Purge Water Removed (gal) | Temperature (degrees Fahrenheit) | pH | Electrical Conductivity (umhos/cm) | Turbidity |
|---|---|---|---|---|---|
| 1327 | 0.5 | 69.0 | 6.62 | 3,730 | Clear |
| 1329 | 2.5 | 68.5 | 6.76 | 3,390 | Greyish Float |
| 1330 | 5 | 67.6 | 6.82 | 3,310 | Medium |
| 1331 | 7.5 | 67.0 | 6.92 | 3,310 | Medium |
| 1332 | 10 | 66.5 | 6.93 | 3,260 | Medium |
| 1333 | 12.5 | 66.5 | 7.10 | 3,260 | Medium |
| 1334 | 15 | 66.5 | 7.02 | 3,240 | Medium |
| 1336 | 17.5 | 67.2 | 7.11 | 3,230 | Medium |
| 1337 | 20 | 67.8 | 7.03 | 3,230 | Medium |
| 1339 | 22.5 | 67.8 | 7.07 | 3,210 | Medium |
| 1345 | Sample | 67.6 | 7.12 | 3,230 | Medium |
| | | | | | |
| | | | | | |
| | | | | | |

Field Notes:

## MONITORING WELL PURGE TABLE

| | |
|---|---|
| **Project Number:** 2463-201 | **Site Name:** Crowley Marine |
| **Well Number:** MW3 | **Date(s) Purged:** 5/8/96 |
| **OVA - Ambient:** 1.7 ppm | **Purge Method:** Disposable Bailer |
| **OVA - Vault:** 2.8 ppm | **Purge Rate:** 1.5 gpm |
| **OVA - Casing:** 8.3 ppm | **Date & Time Sampled:** 5/8/96 (1300) |
| **Water Level - Initial:** 4.97 feet | **Purged & Sampled:** ADF/CB |
| **Water Level - Final:** 8.93 feet | **Sampling Method:** Dedicated Bailer |
| **Well Depth:** 14.34 feet | **Free Product:** No |
| **Well Diameter:** 4-inch | **Sheen:** No |
| **Well Casing Volume:** 6 gallons | **Odor:** No |

| Time | Purge Water Removed (gal) | Temperature (degrees Fahrenheit) | pH | Electrical Conductivity (umhos/cm) | Turbidity |
|---|---|---|---|---|---|
| 1247 | 0.5 | 77.1 | 5.75 | 5.160 | Clear |
| 1248 | 2 | 75.7 | 6.36 | 4,590 | Clear |
| 1250 | 4 | 75.1 | 6.66 | 4,810 | Orange Floaters |
| 1251 | 6 | 74.5 | 6.83 | 4,770 | Clear |
| 1252 | 8 | 73.6 | 6.88 | 5,140 | Slight |
| 1254 | 10 | 73.4 | 6.98 | 5,250 | Slight |
| 1255 | 12 | 73.3 | 7.05 | 5,140 | Slight |
| 1257 | 14 | 73.1 | 7.07 | 6,300 | Slight |
| 1258 | 16 | 72.7 | 7.11 | 7,840 | Medium |
| 1259 | 18 | 73.6 | 7.19 | 7,850 | Medium |
| 1300 | Sample | 72.9 | 7.14 | 7,790 | Medium |
| | | | | | |
| | | | | | |
| | | | | | |

Field Notes:

## MONITORING WELL PURGE TABLE

| | |
|---|---|
| **Project Number:** 2463-201 | **Site Name:** Crowley Marine |
| **Well Number:** MW4 | **Date(s) Purged:** 5/8/96 |
| **OVA - Ambient:** 2.0 ppm | **Purge Method:** Disposable Bailer |
| **OVA - Vault:** 2.7 ppm | **Purge Rate:** 1.8 gpm |
| **OVA - Casing:** 4.81 ppm | **Date & Time Sampled:** 5/8/96 (1525) |
| **Water Level - Initial:** 5.00 feet | **Purged & Sampled:** ADF/CB |
| **Water Level - Final:** 5.00 feet | **Sampling Method:** Dedicated Bailer |
| **Well Depth:** 15.55 feet | **Free Product:** Bailers w/brown oily coating |
| **Well Diameter:** 4-inch | **Sheen:** Yes |
| **Well Casing Volume:** 6.8 gallons | **Odor:** Strong hydrocarbon |

| Time | Purge Water Removed (gal) | Temperature (degrees Fahrenheit) | pH | Electrical Conductivity (umhos/cm) | Turbidity 1510 |
|---|---|---|---|---|---|
| 1510 | 0.5 | 66.1 | 7.42 | 6,920 | Clear |
| 1511 | 2 | 65.2 | 7.32 | 7,060 | Clear |
| 1512 | 4 | 64.6 | 7.24 | 7,140 | Low |
| 1513 | 6 | 64.2 | 7.24 | 7,120 | Low |
| 1515 | 8 | 64.2 | 7.25 | 7,200 | Low |
| 1516 | 10 | 63.7 | 7.31 | 7,020 | Low |
| 1517 | 12 | 63.6 | 7.23 | 6,970 | Low |
| 1518 | 14 | 63.4 | 7.26 | 7,000 | Low |
| 1519 | 16 | 62.8 | 7.22 | 6,880 | Low |
| 1520 | 18 | 63.2 | 7.25 | 6,940 | Low |
| 1525 | Sample | 62.9 | 7.24 | 6,950 | Low |
| | | | | | |
| | | | | | |
| | | | | | |

Field Notes:

## MONITORING WELL PURGE TABLE

| | |
|---|---|
| **Project Number:** 2463-201 | **Site Name:** Crowley Marine |
| **Well Number:** MW5 | **Date(s) Purged:** 5/8/96 |
| **OVA - Ambient:** 2.0 ppm | **Purge Method:** Disposable Bailer |
| **OVA - Vault:** 3.1 ppm | **Purge Rate:** 2 gpm |
| **OVA - Casing:** 5.0 ppm | **Date & Time Sampled:** 5/8/96 (1605) |
| **Water Level - Initial:** 4.0 feet | **Purged & Sampled:** ADF/CB |
| **Water Level - Final:** 4.15 feet | **Sampling Method:** Dedicated Bailer |
| **Well Depth:** 14.75 feet | **Free Product:** No |
| **Well Diameter:** 4-inch | **Sheen:** Yes - Slight |
| **Well Casing Volume:** 7 gallons | **Odor:** Strong Hydrocarbon |

| Time | Purge Water Removed (gal) | Temperature (degrees Fahrenheit) | pH | Electrical Conductivity (umhos/cm) | Turbidity |
|---|---|---|---|---|---|
| 1550 | 0.5 | 68.9 | 7.15 | 3,500 | Clear |
| 1551 | 2 | 68.8 | 6.92 | 3,530 | Clear |
| 1552 | 4 | 68.2 | 6.94 | 3,580 | Clear |
| 1553 | 6 | 68.2 | 6.96 | 3,650 | Clear |
| 1554 | 8 | 67.6 | 6.97 | 3,730 | Clear |
| 1555 | 10 | 67.5 | 6.96 | 3,760 | Clear |
| 1556 | 12 | 66.8 | 6.98 | 4,090 | Clear |
| 1557 | 14 | 66.5 | 6.99 | 4,030 | Clear |
| 1558 | 16 | 66.5 | 7.02 | 3,930 | Clear |
| 1559 | 18 | 66.4 | 7.05 | 3,950 | Clear |
| 1600 | 20 | 66.5 | 7.00 | 3,930 | Clear |
| 1605 | Sample | 66.4 | 7.03 | 3,950 | Clear |
| | | | | | |
| | | | | | |

Field Notes:

## MONITORING WELL PURGE TABLE

| | |
|---|---|
| **Project Number:** 2463-201 | **Site Name:** Crowley Marine |
| **Well Number:** MW6 | **Date(s) Purged:** 5/8/96 |
| **OVA - Ambient:** 2.2 ppm | **Purge Method:** Disposable Bailer |
| **OVA - Vault:** 3.2 ppm | **Purge Rate:** 1.6 gpm |
| **OVA - Casing:** 4.0 ppm | **Date & Time Sampled:** 5/8/96 (1500) |
| **Water Level - Initial:** 4.75 feet | **Purged & Sampled:** ADF/CB |
| **Water Level - Final:** 4.80 feet | **Sampling Method:** Dedicated Bailer |
| **Well Depth:** 14.25 feet | **Free Product:** No |
| **Well Diameter:** 4-inch | **Sheen:** No |
| **Well Casing Volume:** 6.2 gallons | **Odor:** No |

| Time | Purge Water Removed (gal) | Temperature (degrees Fahrenheit) | pH | Electrical Conductivity (umhos/cm) | Turbidity |
|---|---|---|---|---|---|
| 1440 | 0.5 | 67.7 | 8.74 | 1,760 | Clear |
| 1442 | 2 | 66.4 | 8.70 | 1,380 | Clear |
| 1443 | 4 | 66.1 | 8.32 | 1,340 | Clear |
| 1444 | 6 | 65.4 | 8.21 | 1,430 | Clear |
| 1445 | 8 | 65.4 | 8.12 | 1,330 | Very Slight |
| 1446 | 10 | 65.3 | 8.12 | 1,350 | Slight |
| 1448 | 12 | 65.1 | 8.00 | 1,350 | Slight |
| 1449 | 14 | 64.9 | 7.75 | 1,350 | Low |
| 1450 | 16 | 64.5 | 7.87 | 1,350 | Low |
| 1451 | 18 | 64.4 | 7.90 | 1,360 | Low |
| 1500 | Sample | 64.6 | 7.91 | 1,360 | Low |
| | | | | | |
| | | | | | |
| | | | | | |

Field Notes:

## MONITORING WELL PURGE TABLE

| | |
|---|---|
| **Project Number:** 2463-201 | **Site Name:** Crowley Marine |
| **Well Number:** MW7 | **Date(s) Purged:** 5/8/96 |
| **OVA - Ambient:** 0.8 ppm | **Purge Method:** Disposable Bailer |
| **OVA - Vault:** 26.8 ppm | **Purge Rate:** 1.67 gpm |
| **OVA - Casing:** 2.8 ppm | **Date & Time Sampled:** 5/8/96 (1125) |
| **Water Level - Initial:** 3.38 feet | **Purged & Sampled:** ADF/CB |
| **Water Level - Final:** 3.60 feet | **Sampling Method:** Dedicated Bailer |
| **Well Depth:** 13.3 feet | **Free Product:** No |
| **Well Diameter:** 4-inch | **Sheen:** No |
| **Well Casing Volume:** 6.5 gallons | **Odor:** No |

| Time | Purge Water Removed (gal) | Temperature (degrees Fahrenheit) | pH | Electrical Conductivity (umhos/cm) | Turbidity |
|---|---|---|---|---|---|
| 1107 | 0.5 | 69.3 | 4.98 | 3,240 | Clear |
| 1109 | 2 | 68.3 | 5.88 | 3,310 | Clear |
| 1110 | 4 | 67.9 | 6.00 | 3,330 | Slight |
| 1111 | 6 | 67.8 | 6.27 | 3,320 | Slight |
| 1112 | 8 | 67.7 | 6.42 | 3,310 | Slight |
| 1113 | 10 | 68.1 | 6.49 | 3,320 | Slight |
| 1114 | 12 | 67.9 | 6.59 | 3,320 | Slight |
| 1115 | 14 | 67.9 | 6.65 | 3,330 | Slight |
| 1116 | 16 | 67.6 | 6.73 | 3,330 | Clear |
| 1117 | 18 | 67.4 | 6.75 | 3,330 | Clear |
| 1119 | 20 | 68.1 | 6.93 | 3,380 | Clear |
| 1125 | Sample | 68.2 | 6.85 | 3,320 | Clear |
| | | | | | |
| | | | | | |
| | | | | | |

Field Notes:

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

**Attn: Amanda Freeman**
**Versar, Inc.**
**1255 Harbor Bay Pkwy, Suite 100**
**Alameda, CA 94501**

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed: | 5/10/96 |
| Project #: | 2463103 |
| Sampled By: | Client |

## Certified Analytical Report

**Water Sample Analysis:**

| *Test* | *MW1* | *MW2* | *MW3* | *MW4* | *Units* | *PQL* | *EPA Method #* |
|---|---|---|---|---|---|---|---|
| Sample Matrix | Water | Water | Water | Water | | | |
| Sample Date | | | | | | | |
| Sample Time | 1430 | 1345 | 1300 | 1525 | | | |
| Lab # | C6273 | C6274 | C6275 | C6276 | | | |
| **Oil & Grease** | **ND** | **ND** | **ND** | **7.2** | mg/liter | 5.0 mg/l | 413.1 |
| DF-Diesel | 5 | 5 | 1 | 5 | | | |
| **TPH-Diesel** | **330** | **680** | **140** | **2,400** | µg/liter | 50.0 µg/l | 8015M |
| DF-Gas/BTEX | 1 | 1 | 1 | 5 | | | |
| **TPH-Gas** | **240** | **640** | **ND** | **610** | µg/liter | 50.0 µg/l | 8015M |
| **Benzene** | **0.90** | **14** | **ND** | **3.3** | µg/liter | 0.5 µg/l | 8020 |
| **Toluene** | **2.6** | **nd** | **ND** | **1.5** | µg/liter | 0.5 µg/l | 8020 |
| **Ethyl Benzene** | **5.7** | **0.53** | **ND** | **2.5** | µg/liter | 0.5 µg/l | 8020 |
| **Xylenes** | **58** | **59** | **ND** | **160** | µg/liter | 0.5 µg/l | 8020 |
| **Volatile Organics** | **9.5** | **472** | **ND** | **305** | µg/liter | See attached | 8010 |

1. DLR=DF x PQL
2. See attached EPA 8010 Report for individual compounds, detection limits, and analysis date
3. EPA 8015M & 8020 analysis performed by Trace Analysis Laboratory (CAELAP #1199)
4. Trace Analysis Laboratory is a wholly owned subsidiary of Entech Analytical Labs, Inc.
5. Remaining analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

**Attn: Amanda Freeman**
**Versar, Inc.**
**1255 Harbor Bay Pkwy, Suite 100**
**Alameda, CA 94501**

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed: | 5/10/96 |
| Project #: | 2463103 |
| Sampled By: | Client |

## Certified Analytical Report

**Water Sample Analysis:**

| *Test* | *MW5* | *MW6* | *MW7* | *Units* | *PQL* | *EPA Method #* |
|---|---|---|---|---|---|---|
| Sample Matrix | Water | Water | Water | | | |
| Sample Date | | | | | | |
| Sample Time | 1605 | 1500 | 1125 | | | |
| Lab # | C6277 | C6278 | C6279 | | | |
| **Oil & Grease** | **ND** | **ND** | **ND** | mg/liter | 5.0 mg/l | 413.1 |
| DF-Diesel | 5 | 1 | 1 | | | |
| **TPH-Diesel** | **1,100** | **220** | **180** | µg/liter | 50.0 µg/l | 8015M |
| DF-Gas/BTEX | 1 | 1 | 1 | | | |
| **TPH-Gas** | **830** | **ND** | **ND** | µg/liter | 50.0 µg/l | 8015M |
| **Benzene** | **13** | **ND** | **ND** | µg/liter | 0.5 µg/l | 8020 |
| **Toluene** | **ND** | **ND** | **ND** | µg/liter | 0.5 µg/l | 8020 |
| **Ethyl Benzene** | **0.55** | **ND** | **ND** | µg/liter | 0.5 µg/l | 8020 |
| **Xylenes** | **59** | **ND** | **ND** | µg/liter | 0.5 µg/l | 8020 |
| **Volatile Organics** | **430** | **ND** | **ND** | µg/liter | See attached | 8010 |

1. DLR=DF x PQL
2. See attached EPA 8010 Report for individual compounds, detection limits, and analysis date
3. EPA 8015M & 8020 analysis performed by Trace Analysis Laboratory (CAELAP #1199)
4. Trace Analysis Laboratory is a wholly owned subsidiary of Entech Analytical Labs, Inc.
5. Remaining analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

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**Attn: Amanda Freeman**
**Versar, Inc.**
**1255 Harbor Bay Pkwy, Suite 100**
**Alameda, CA 94501**

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed: | 5/13/96 |
| Project #: | 2463103 |
| Sampled By: | Client |

## Certified Analytical Report

**Water Sample Analysis:**

| *Sample ID* | *Sample Time* | *Lab #* | **Copper** | **Zinc** | **Mercury** | **Lead** |
|---|---|---|---|---|---|---|
| MW1 | 1430 | C6273 | **ND** | **ND** | **0.0011** | **ND** |
| MW2 | 1345 | C6274 | **ND** | **ND** | **ND** | **ND** |
| MW3 | 1300 | C6275 | **ND** | **ND** | **ND** | **ND** |
| MW4 | 1525 | C6276 | **ND** | **ND** | **ND** | **ND** |
| MW5 | 1605 | C6277 | **ND** | **ND** | **ND** | **ND** |
| MW6 | 1500 | C6278 | **ND** | **ND** | **0.0008** | **ND** |
| MW7 | 1125 | C6279 | **ND** | **ND** | **ND** | **ND** |

1. DLR=DF x PQL (DF=1 unless noted)
2. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)

**Test Methods:**

| *Test* | *EPA Method #* | *Units* | *PQL* |
|---|---|---|---|
| Zinc | 289.1 | mg/liter | 0.05 mg/l |
| Lead | 239.2 | mg/liter | 0.005 mg/l |
| Copper | 220.1 | mg/liter | 0.05 mg/l |
| Mercury | 245.1 | mg/liter | 0.0005 mg/l |

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

## Certified Analytical Report: EPA Method #8010

| | |
|---|---|
| Client: | Versar, Inc. |
| Sample Matrix: | Water |
| Lab #: | C6273 |
| Sample ID: | MW1 |

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed | 5/13/96 |
| Dilution Factor | 1 |

| *Compound* | *Concentration Found* | *PQL* | *Compound* | *Concentration Found* | *PQL* |
|---|---|---|---|---|---|
| **Bromodichloromethane** | **ND** | 0.5 ppb | **trans-1,2-Dichloroethene** | **ND** | 0.5 ppb |
| **Bromoform** | **ND** | 1.0 ppb | **1,2-Dichloropropane** | **ND** | 0.5 ppb |
| **Bromomethane** | **ND** | 1.0 ppb | **cis-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Carbon Tetrachloride** | **ND** | 0.5 ppb | **trans-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Chlorobenzene** | **9.5** | 0.5 ppb | **Methylene Chloride** | **ND** | 3.0 ppb |
| **Chloroethane** | **ND** | 1.0 ppb | **1,1,2,2-Tetrachloroethane** | **ND** | 0.5 ppb |
| **Chloroform** | **ND** | 0.5 ppb | **Tetrachloroethene** | **ND** | 0.5 ppb |
| **Chloromethane** | **ND** | 0.5 ppb | **1,1,1-Trichloroethane** | **ND** | 0.5 ppb |
| **Dibromochloromethane** | **ND** | 1.0 ppb | **1,1,2-Trichloroethane** | **ND** | 0.5 ppb |
| **Dichlorodifluoromethane** | **ND** | 0.5 ppb | **Trichloroethene** | **ND** | 0.5 ppb |
| **1,2-Dichlorobenzene** | **ND** | 0.5 ppb | **Trichlorofluoromethane** | **ND** | 0.5 ppb |
| **1,3-Dichlorobenzene** | **ND** | 0.5 ppb | **Vinyl Chloride** | **ND** | 1.0 ppb |
| **1,4-Dichlorobenzene** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,2-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethene** | **ND** | 0.5 ppb | | | |

| **Surrogate** | **Recovery (%)** |
|---|---|
| 1,4-Dichlorobutane | 99 |

1. DLR=DF x PQL
2. Reporting Units (ppb): Soil (µg/kg); Water (µg/liter)
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)
4. This worksheet is an integral part of the Certified Analytical Report for Lab #C6273 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

## Certified Analytical Report: EPA Method #8010

| | |
|---|---|
| Client: | Versar, Inc. |
| Sample Matrix: | Water |
| Lab #: | C6274 |
| Sample ID: | MW2 |

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed | 5/13/96 |
| Dilution Factor | 10 |

| *Compound* | *Concentration Found* | *PQL* | *Compound* | *Concentration Found* | *PQL* |
|---|---|---|---|---|---|
| **Bromodichloromethane** | **ND** | 0.5 ppb | **trans-1,2-Dichloroethene** | **ND** | 0.5 ppb |
| **Bromoform** | **ND** | 1.0 ppb | **1,2-Dichloropropane** | **ND** | 0.5 ppb |
| **Bromomethane** | **ND** | 1.0 ppb | **cis-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Carbon Tetrachloride** | **ND** | 0.5 ppb | **trans-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Chlorobenzene** | **450** | 0.5 ppb | **Methylene Chloride** | **ND** | 3.0 ppb |
| **Chloroethane** | **ND** | 1.0 ppb | **1,1,2,2-Tetrachloroethane** | **ND** | 0.5 ppb |
| **Chloroform** | **ND** | 0.5 ppb | **Tetrachloroethene** | **ND** | 0.5 ppb |
| **Chloromethane** | **ND** | 0.5 ppb | **1,1,1-Trichloroethane** | **ND** | 0.5 ppb |
| **Dibromochloromethane** | **ND** | 1.0 ppb | **1,1,2-Trichloroethane** | **ND** | 0.5 ppb |
| **Dichlorodifluoromethane** | **ND** | 0.5 ppb | **Trichloroethene** | **ND** | 0.5 ppb |
| **1,2-Dichlorobenzene** | **ND** | 0.5 ppb | **Trichlorofluoromethane** | **ND** | 0.5 ppb |
| **1,3-Dichlorobenzene** | **ND** | 0.5 ppb | **Vinyl Chloride** | **ND** | 1.0 ppb |
| **1,4-Dichlorobenzene** | **22** | 0.5 ppb | | | |
| **1,1-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,2-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethene** | **ND** | 0.5 ppb | | | |

| **Surrogate** | **Recovery (%)** |
|---|---|
| 1,4-Dichlorobutane | 101 |

1. DLR=DF x PQL
2. Reporting Units (ppb): Soil (µg/kg); Water (µg/liter)
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)
4. This worksheet is an integral part of the Certified Analytical Report for Lab #C6274 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

## Certified Analytical Report: EPA Method #8010

| | |
|---|---|
| Client: | Versar, Inc. |
| Sample Matrix: | Water |
| Lab #: | C6275 |
| Sample ID: | MW3 |

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed | 5/9/96 |
| Dilution Factor | 1 |

| *Compound* | *Concentration Found* | *PQL* | *Compound* | *Concentration Found* | *PQL* |
|---|---|---|---|---|---|
| **Bromodichloromethane** | **ND** | 0.5 ppb | **trans-1,2-Dichloroethene** | **ND** | 0.5 ppb |
| **Bromoform** | **ND** | 1.0 ppb | **1,2-Dichloropropane** | **ND** | 0.5 ppb |
| **Bromomethane** | **ND** | 1.0 ppb | **cis-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Carbon Tetrachloride** | **ND** | 0.5 ppb | **trans-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Chlorobenzene** | **ND** | 0.5 ppb | **Methylene Chloride** | **ND** | 3.0 ppb |
| **Chloroethane** | **ND** | 1.0 ppb | **1,1,2,2-Tetrachloroethane** | **ND** | 0.5 ppb |
| **Chloroform** | **ND** | 0.5 ppb | **Tetrachloroethene** | **ND** | 0.5 ppb |
| **Chloromethane** | **ND** | 0.5 ppb | **1,1,1-Trichloroethane** | **ND** | 0.5 ppb |
| **Dibromochloromethane** | **ND** | 1.0 ppb | **1,1,2-Trichloroethane** | **ND** | 0.5 ppb |
| **Dichlorodifluoromethane** | **ND** | 0.5 ppb | **Trichloroethene** | **ND** | 0.5 ppb |
| **1,2-Dichlorobenzene** | **ND** | 0.5 ppb | **Trichlorofluoromethane** | **ND** | 0.5 ppb |
| **1,3-Dichlorobenzene** | **ND** | 0.5 ppb | **Vinyl Chloride** | **ND** | 1.0 ppb |
| **1,4-Dichlorobenzene** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,2-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethene** | **ND** | 0.5 ppb | | | |

| **Surrogate** | **Recovery (%)** |
|---|---|
| 1,4-Dichlorobutane | 98 |

1. DLR=DF x PQL
2. Reporting Units (ppb): Soil (µg/kg); Water (µg/liter)
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)
4. This worksheet is an integral part of the Certified Analytical Report for Lab #C6275 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

## Certified Analytical Report: EPA Method #8010

| | |
|---|---|
| Client: | Versar, Inc. |
| Sample Matrix: | Water |
| Lab #: | C6276 |
| Sample ID: | MW4 |

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed | 5/13/96 |
| Dilution Factor | 10 |

| *Compound* | *Concentration Found* | *PQL* | *Compound* | *Concentration Found* | *PQL* |
|---|---|---|---|---|---|
| **Bromodichloromethane** | **ND** | 0.5 ppb | **trans-1,2-Dichloroethene** | **ND** | 0.5 ppb |
| **Bromoform** | **ND** | 1.0 ppb | **1,2-Dichloropropane** | **ND** | 0.5 ppb |
| **Bromomethane** | **ND** | 1.0 ppb | **cis-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Carbon Tetrachloride** | **ND** | 0.5 ppb | **trans-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Chlorobenzene** | **290** | 0.5 ppb | **Methylene Chloride** | **ND** | 3.0 ppb |
| **Chloroethane** | **ND** | 1.0 ppb | **1,1,2,2-Tetrachloroethane** | **ND** | 0.5 ppb |
| **Chloroform** | **ND** | 0.5 ppb | **Tetrachloroethene** | **ND** | 0.5 ppb |
| **Chloromethane** | **ND** | 0.5 ppb | **1,1,1-Trichloroethane** | **ND** | 0.5 ppb |
| **Dibromochloromethane** | **ND** | 1.0 ppb | **1,1,2-Trichloroethane** | **ND** | 0.5 ppb |
| **Dichlorodifluoromethane** | **ND** | 0.5 ppb | **Trichloroethene** | **ND** | 0.5 ppb |
| **1,2-Dichlorobenzene** | **ND** | 0.5 ppb | **Trichlorofluoromethane** | **ND** | 0.5 ppb |
| **1,3-Dichlorobenzene** | **ND** | 0.5 ppb | **Vinyl Chloride** | **ND** | 1.0 ppb |
| **1,4-Dichlorobenzene** | **15** | 0.5 ppb | | | |
| **1,1-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,2-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethene** | **ND** | 0.5 ppb | | | |

| **Surrogate** | **Recovery (%)** |
|---|---|
| 1,4-Dichlorobutane | 101 |

1. DLR=DF x PQL
2. Reporting Units (ppb): Soil (µg/kg); Water (µg/liter)
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)
4. This worksheet is an integral part of the Certified Analytical Report for Lab #C6276 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

## Certified Analytical Report: EPA Method #8010

| | |
|---|---|
| Client: | Versar, Inc. |
| Sample Matrix: | Water |
| Lab #: | C6277 |
| Sample ID: | MW5 |

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed | 5/13/96 |
| Dilution Factor | 10 |

| *Compound* | *Concentration Found* | *PQL* | *Compound* | *Concentration Found* | *PQL* |
|---|---|---|---|---|---|
| **Bromodichloromethane** | **ND** | 0.5 ppb | **trans-1,2-Dichloroethene** | **ND** | 0.5 ppb |
| **Bromoform** | **ND** | 1.0 ppb | **1,2-Dichloropropane** | **ND** | 0.5 ppb |
| **Bromomethane** | **ND** | 1.0 ppb | **cis-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Carbon Tetrachloride** | **ND** | 0.5 ppb | **trans-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Chlorobenzene** | **410** | 0.5 ppb | **Methylene Chloride** | **ND** | 3.0 ppb |
| **Chloroethane** | **ND** | 1.0 ppb | **1,1,2,2-Tetrachloroethane** | **ND** | 0.5 ppb |
| **Chloroform** | **ND** | 0.5 ppb | **Tetrachloroethene** | **ND** | 0.5 ppb |
| **Chloromethane** | **ND** | 0.5 ppb | **1,1,1-Trichloroethane** | **ND** | 0.5 ppb |
| **Dibromochloromethane** | **ND** | 1.0 ppb | **1,1,2-Trichloroethane** | **ND** | 0.5 ppb |
| **Dichlorodifluoromethane** | **ND** | 0.5 ppb | **Trichloroethene** | **ND** | 0.5 ppb |
| **1,2-Dichlorobenzene** | **ND** | 0.5 ppb | **Trichlorofluoromethane** | **ND** | 0.5 ppb |
| **1,3-Dichlorobenzene** | **ND** | 0.5 ppb | **Vinyl Chloride** | **ND** | 1.0 ppb |
| **1,4-Dichlorobenzene** | **20** | 0.5 ppb | | | |
| **1,1-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,2-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethene** | **ND** | 0.5 ppb | | | |

| **Surrogate** | **Recovery (%)** |
|---|---|
| 1,4-Dichlorobutane | 101 |

1. DLR=DF x PQL
2. Reporting Units (ppb): Soil (µg/kg); Water (µg/liter)
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)
4. This worksheet is an integral part of the Certified Analytical Report for Lab #C6277 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

## Certified Analytical Report: EPA Method #8010

| | |
|---|---|
| Client: | Versar, Inc. |
| Sample Matrix: | Water |
| Lab #: | C6278 |
| Sample ID: | MW6 |

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed | 5/9/96 |
| Dilution Factor | 1 |

| *Compound* | *Concentration Found* | *PQL* | *Compound* | *Concentration Found* | *PQL* |
|---|---|---|---|---|---|
| **Bromodichloromethane** | **ND** | 0.5 ppb | **trans-1,2-Dichloroethene** | **ND** | 0.5 ppb |
| **Bromoform** | **ND** | 1.0 ppb | **1,2-Dichloropropane** | **ND** | 0.5 ppb |
| **Bromomethane** | **ND** | 1.0 ppb | **cis-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Carbon Tetrachloride** | **ND** | 0.5 ppb | **trans-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Chlorobenzene** | **ND** | 0.5 ppb | **Methylene Chloride** | **ND** | 3.0 ppb |
| **Chloroethane** | **ND** | 1.0 ppb | **1,1,2,2-Tetrachloroethane** | **ND** | 0.5 ppb |
| **Chloroform** | **ND** | 0.5 ppb | **Tetrachloroethene** | **ND** | 0.5 ppb |
| **Chloromethane** | **ND** | 0.5 ppb | **1,1,1-Trichloroethane** | **ND** | 0.5 ppb |
| **Dibromochloromethane** | **ND** | 1.0 ppb | **1,1,2-Trichloroethane** | **ND** | 0.5 ppb |
| **Dichlorodifluoromethane** | **ND** | 0.5 ppb | **Trichloroethene** | **ND** | 0.5 ppb |
| **1,2-Dichlorobenzene** | **ND** | 0.5 ppb | **Trichlorofluoromethane** | **ND** | 0.5 ppb |
| **1,3-Dichlorobenzene** | **ND** | 0.5 ppb | **Vinyl Chloride** | **ND** | 1.0 ppb |
| **1,4-Dichlorobenzene** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,2-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethene** | **ND** | 0.5 ppb | | | |

| **Surrogate** | **Recovery (%)** |
|---|---|
| 1,4-Dichlorobutane | 98 |

1. DLR=DF x PQL
2. Reporting Units (ppb): Soil (µg/kg); Water (µg/liter)
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)
4. This worksheet is an integral part of the Certified Analytical Report for Lab #C6278 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

# Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

## Certified Analytical Report: EPA Method #8010

| | |
|---|---|
| Client: | Versar, Inc. |
| Sample Matrix: | Water |
| Lab #: | C6279 |
| Sample ID: | MW7 |

| | |
|---|---|
| Date: | 5/16/96 |
| Date Received: | 5/9/96 |
| Date Analyzed | 5/9/96 |
| Dilution Factor | 1 |

| *Compound* | *Concentration Found* | *PQL* | *Compound* | *Concentration Found* | *PQL* |
|---|---|---|---|---|---|
| **Bromodichloromethane** | **ND** | 0.5 ppb | **trans-1,2-Dichloroethene** | **ND** | 0.5 ppb |
| **Bromoform** | **ND** | 1.0 ppb | **1,2-Dichloropropane** | **ND** | 0.5 ppb |
| **Bromomethane** | **ND** | 1.0 ppb | **cis-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Carbon Tetrachloride** | **ND** | 0.5 ppb | **trans-1,3-Dichloropropene** | **ND** | 0.5 ppb |
| **Chlorobenzene** | **ND** | 0.5 ppb | **Methylene Chloride** | **ND** | 3.0 ppb |
| **Chloroethane** | **ND** | 1.0 ppb | **1,1,2,2-Tetrachloroethane** | **ND** | 0.5 ppb |
| **Chloroform** | **ND** | 0.5 ppb | **Tetrachloroethene** | **ND** | 0.5 ppb |
| **Chloromethane** | **ND** | 0.5 ppb | **1,1,1-Trichloroethane** | **ND** | 0.5 ppb |
| **Dibromochloromethane** | **ND** | 1.0 ppb | **1,1,2-Trichloroethane** | **ND** | 0.5 ppb |
| **Dichlorodifluoromethane** | **ND** | 0.5 ppb | **Trichloroethene** | **ND** | 0.5 ppb |
| **1,2-Dichlorobenzene** | **ND** | 0.5 ppb | **Trichlorofluoromethane** | **ND** | 0.5 ppb |
| **1,3-Dichlorobenzene** | **ND** | 0.5 ppb | **Vinyl Chloride** | **ND** | 1.0 ppb |
| **1,4-Dichlorobenzene** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,2-Dichloroethane** | **ND** | 0.5 ppb | | | |
| **1,1-Dichloroethene** | **ND** | 0.5 ppb | | | |

| **Surrogate** | **Recovery (%)** |
|---|---|
| 1,4-Dichlorobutane | 97 |

1. DLR=DF x PQL
2. Reporting Units (ppb): Soil (µg/kg); Water (µg/liter)
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)
4. This worksheet is an integral part of the Certified Analytical Report for Lab #C6279 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

**Entech Analytical Labs, Inc.**

**525 Del Rey Avenue, Suite E**
**Sunnyvale, CA 94086**

## QUALITY CONTROL RESULTS SUMMARY

OIL AND GREASE

QC Batch #: WOG960501 Date Analyzed: 05/10/96
Matrix: Water
Units: mg/l

| PARAMETER | SA mg/l | SR mg/l | SP mg/l | SP PR | SPD mg/l | SPD PR | RPD | QC LIMITS RPD | QC LIMITS PR |
|---|---|---|---|---|---|---|---|---|---|
| Oil & Grease | 200 | 0 | 190 | 95 | 220 | 110 | 14.6 | 25 | 70-130 |

**Definition of Terms:**

SA: Spike Added
SR: Sample Result
SP: Spike Result
SP (PR): Spike % Recovery
SPD: Spike Duplicate Result
SPD (PR): Spike Duplicate % Recovery
RPD: Relative Percent Difference (Duplicate Analyses)

QA/QC OFFICER Nick J. Gaone
N. Gaone

**Trace Analysis Laboratory**

**3423 Investment Blvd., #8**
**Hayward, CA 94545**

## QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: WBT051096
Matrix: Water
Units: µg/L

Date Analyzed: 05/10/96

| PARAMETER | Method # | SA µg/L | SR µg/L | SP µg/L | SP % R | SPD µg/L | SPD %R | RPD | QC LIMITS (ADVISORY) RPD | QC LIMITS (ADVISORY) %R |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 8020 | 24 | ND | 25 | 105% | 25 | 103% | 1.6 | 25 | 50-150 |
| Toluene | 8020 | 24 | ND | 25 | 103% | 25 | 103% | 0.4 | 25 | 50-150 |

Definition of Terms:

- na: Not Analyzed in QC batch
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

QA/QC Officer: Nick J. Gaone
N. Gaone

**Trace Analysis Laboratory**

**3423 Investment Blvd., #8**
**Hayward, CA 94545**

## QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: TPHD043096
Matrix: Water
Units: µg/L

Date analyzed: 4/30/96
Date extracted: 4/30/96

| PARAMETER | Method # | SA µg/L | SR µg/L | MS µg/L | MS %R | MSD µg/L | MSD %R | RPD | QC LIMITS (ADVISORY) RPD | QC LIMITS (ADVISORY) %R |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 8015M | 1250 | ND | 817 | 65% | 997 | 80% | 19.9 | 25 | 50-150 |

Definition of Terms:

- na: Not Analyzed in QC batch
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike Duplicate % Recovery
- NC: Not Calculated

QA/QC Officer: Nick J. Gaone
N. Gaone

**Entech Analytical Labs, Inc.**

**525 Del Rey Avenue, Suite E**
**Sunnyvale, CA 94086**

## QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography - Volatile Organics

QC Batch #: VOC960509
Matrix: Water/Soil
Units: µg/L

Date Analyzed: 5/9/96

| PARAMETER | Method # | SA µg/L | SR µg/L | SP µg/L | SP % R | SPD µg/L | SPD %R | RPD | QC LIMITS (ADVISORY) RPD | QC LIMITS (ADVISORY) %R |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 601/602 | 40 | ND | 40 | 100% | 41 | 103% | 2.7 | 25 | 50-150 |
| Toluene | 601/602 | 40 | ND | 39 | 98% | 41 | 101% | 3.3 | 25 | 50-150 |
| Chlorobenzene | 601/602 | 40 | ND | 38 | 96% | 39 | 97% | 1.0 | 25 | 50-150 |
| 1,1-Dichloroethane | 601/602 | 40 | ND | 34 | 84% | 35 | 88% | 3.8 | 25 | 50-150 |
| Trichloroethene | 601/602 | 40 | ND | 36 | 90% | 37 | 93% | 2.7 | 25 | 50-150 |

Definition of Terms:

- na: Not Analyzed in QC batch
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R) Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R) Spike Duplicate % Recovery
- NC: Not Calculated

QA/QC Officer: Nick J. Gaone

N. Gaone

**Entech Analytical Labs, Inc.**

**525 Del Rey Avenue, Suite E**
**Sunnyvale, CA 94086**

## QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography - Volatile Organics

QC Batch #: VOC960513
Matrix: Water/Soil
Units: µg/L

Date Analyzed: 5/13/96

| PARAMETER | Method # | SA µg/L | SR µg/L | SP µg/L | SP % R | SPD µg/L | SPD %R | RPD | QC LIMITS (ADVISORY) RPD | QC LIMITS (ADVISORY) %R |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 601/602 | 40 | ND | 41 | 102% | 41 | 101% | 0.2 | 25 | 50-150 |
| Toluene | 601/602 | 40 | ND | 40 | 101% | 40 | 100% | 0.5 | 25 | 50-150 |
| Chlorobenzene | 601/602 | 40 | ND | 35 | 89% | 37 | 94% | 5.5 | 25 | 50-150 |
| 1,1-Dichloroethane | 601/602 | 40 | ND | 36 | 89% | 35 | 88% | 1.4 | 25 | 50-150 |
| Trichloroethene | 601/602 | 40 | ND | 38 | 94% | 38 | 94% | 0.0 | 25 | 50-150 |

Definition of Terms:

- na: Not Analyzed in QC batch
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R) Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R) Spike Duplicate % Recovery
- NC: Not Calculated

QA/QC Officer: Nick F. Gaone

N. Gaone

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

## QUALITY CONTROL RESULTS SUMMARY

METHOD: Flame Atomic Absorption

QC Batch #: WN-0009
Matrix: Water
Units: mg/l

Date Analyzed: 5/13/96

| PARAMETER | Method # | SA mg/l | SR mg/l | SP mg/l | SP %R | SPD mg/l | SPD % R | RPD | QC LIMITS %R | QC LIMITS RPD |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 204.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Barium | 208.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Beryllium | 210.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Cadmium | 213.1 | 0.50 | 0.01 | 0.50 | 99 | 0.51 | 99 | 0.6 | 70- 130 | 20.00 |
| Chromium | 218.1 | 0.50 | 0.03 | 0.52 | 98 | 0.54 | 102 | 3.6 | 70- 130 | 20.00 |
| Cobalt | 219.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Copper | 220.1 | 0.50 | 0.02 | 0.52 | 99 | 0.51 | 99 | 0.6 | 70- 130 | 20.00 |
| Lead | 239.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Molybdenum | 246.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Nickel | 249.1 | 0.50 | 0.01 | 0.51 | 100 | 0.51 | 100 | 0.8 | 70- 130 | 20.00 |
| Silver | 270.1 | 0.050 | 0.01 | 0.05 | 88 | 0.05 | 80 | 9.5 | 70- 130 | 20.00 |
| Thallium | 279.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Vanadium | 286.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Zinc | 289.1 | 0.50 | 0.04 | 0.53 | 98 | 0.53 | 98 | 0.6 | 70- 130 | 20.00 |
| Iron | 236.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |
| Magnesium | 242.1 | na | na | na | na | na | na | na | 70- 130 | 20.00 |

Definition of Terms:

- na: Not analyzed in QC batch
- SA: Spike Added
- SR: Sample Result
- SP: Spike Result
- SP (%R) Spike % Recovery
- SPD Spike Duplicate Result
- SPD (%R) Spike % Recovery

QA/QC OFFICER Nick F. Gaone
N. Gaone

**Entech Analytical Labs, Inc.**

**525 Del Rey Avenue, Suite E**
**Sunnyvale, CA 94086**

## QUALITY CONTROL RESULTS SUMMARY

METHOD: Cold Vapor Atomic Absorption

QC Batch #: WHG960503
Matrix: Water
Units: mg/l

Date Analyzed: 05/07/96

| PARAMETER | Method # | SA mg/l | SR mg/l | SP mg/l | SP %R | SPD mg/L | SPD %R | RPD | QC LIMITS %R |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 245.1 | 0.0100 | 0.0000 | 0.0086 | 86 | 0.0089 | 89 | 3.4 | 70- 130 |

Definition of Terms:

SA: Spike Added
SR: Sample Result
SP: Spike Result
SP (%R) Spike % Recovery
SPD Spike Duplicate Result
SPD (%R) Spike Duplicate % Recovery

QA/QC OFFICER Nick F Gaone
N. Gaone

Versar INC.

# CHAIN OF CUSTODY RECORD

TO: ENTECH ANALY

| PROJECT NO. | PROJECT NAME |
|---|---|
| 2463103 | Crawley 4D 2 |

SAMPLERS: (Signature) [signature] (Printed) A Freeman

| FIELD SAMPLE NUMBER | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | TD Grease | TPH D | Metals (w Zn Hg Pb) | HVOCs 8010 | TPHG/BTEX | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | C6273 |
| MW1 | | 1430 | | X | MW1 | 5 | | | 1 | 2 | 2 | | | | Metals UNFres! |
| MW2 | | 1345 | | X | MW2 | 5 | | | 1 | 2 | 2 | | | | C6274 |
| MW3 | | 1300 | | X | MW3 | 5 | | | 1 | 2 | 2 | | | | C6275 |
| MW4 | | 1525 | | X | MW4 | 5 | | | 1 | 2 | 2 | | | | C6276 |
| MW5 | | 1605 | | X | MW5 | 7 | 1 | 1 | 1 | 2 | 2 | | | | C6277 |
| MW6 | | 1500 | | X | MW6 | 7 | 1 | 1 | 1 | 2 | 2 | | | | C6278 |
| MW7 | | 1125 | | X | MW7 | 7 | 1 | 1 | 1 | 2 | 2 | | | | C6279 |

INDUSTRIAL HYGIENE SAMPLE: Y (N)

PARAMETERS

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| [signature] | 5/8/96 1615 | [signature] | [signature] | 5-9 12:00 | [signature] |
| (Printed) A Freeman | | (Printed) | (Printed) | | (Printed) |
| Relinquished by: (Signature) | Date / Time | Received for Laboratory by: (Signature) | Date / Time | Remarks | |
| | | | | 5 Day Turnaround | |
| (Printed) | | (Printed) | | | |

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

Versar INC.

## CHAIN OF CUSTODY RECORD

TO : ENTECH ANAL

| PROJECT NO. | PROJECT NAME | PARAMETERS | INDUSTRIAL HYGIENE SAMPLE |
|---|---|---|---|
| 2463 103 | Crowley YD 2 | | Y / N |

SAMPLERS: (Signature) Andy Freeman (Printed) A Freeman

| FIELD SAMPLE NUMBER | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | TOX | TPHD | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| MW1 | | 1430 | | X | MW1 | 2 | 1 | 1 | CC273 |
| MW2 | | 1345 | | X | MW2 | 2 | 1 | 1 | CC274 |
| MW3 | | 1300 | | X | MW3 | 2 | 1 | 1 | CC275 |
| MW4 | | 1525 | | X | MW4 | 2 | 1 | 1 | CC276 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| Andy Freeman | 5/8/96 1615 | Lee White | Lee White | 5/9/96 1152 | Jennifer Ellington |
| (Printed) A Freeman | | (Printed) | (Printed) | | (Printed) |

| Relinquished by: (Signature) | Date / Time | Received for Laboratory by: (Signature) | Date / Time | Remarks |
|---|---|---|---|---|
| (Printed) | | (Printed) | | 5 day turnaround |

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

# Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

## Subcontract Chain of Custody

| Subcontract Lab: T TRACE | | Date Sent: 5-9-96 | Project Name: 2463103- Versar | | Due Date: 5-16-96 | |
|---|---|---|---|---|---|---|
| Sample ID and Source | Matrix | Required Analysis | Date Taken | Time Taken | Containers | Pres? |
| C6273 (MW1) | $H_2O$ | TPH-GAS, Diesel BTEX | 5/6/96 | | 1x1-Amber 2xVOA vials | Y |
| C6274 (MW2) | | | | | | |
| C6275 (MW3) | | | | | | |
| C6276 (MW4) | | | | | | |
| C6277 (MW5) | | | | | | |
| C6278 (MW6) | | | | | | |
| C6279 (MW7) | | | | | | |
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| Relinquished By: | Received By: | Date: | Time: |
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| Relinquished By: | Received By: | Date: | Time: |
| Relinquished By: | Received By: | Date: | Time: |

Notes: _____