I:\1572-JPL\DW 2\FS6-00\FIG1-14.DWG
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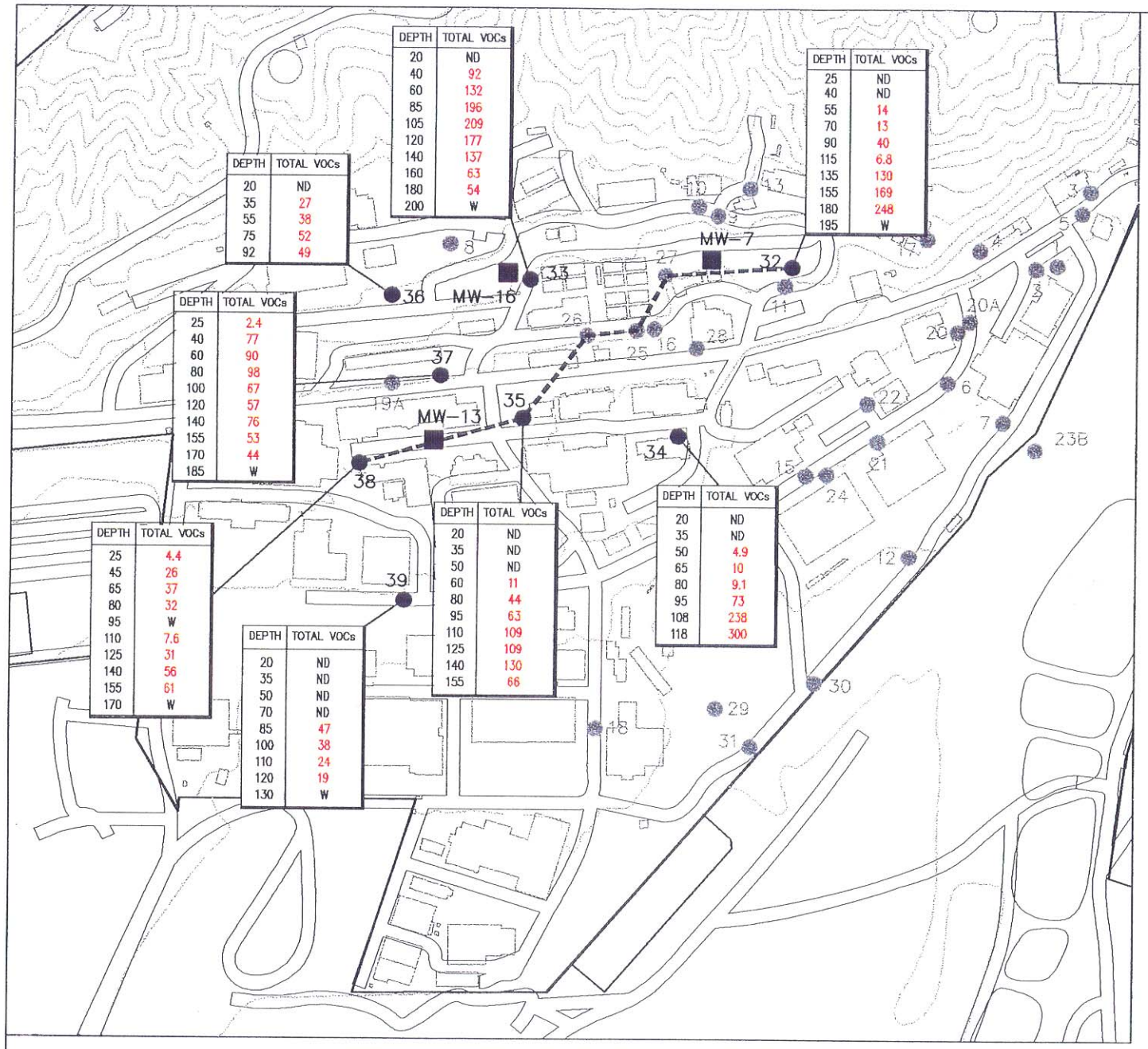



| DEPTH | TOTAL VOCs |
|---|---|
| 20 | ND |
| 40 | 92 |
| 60 | 132 |
| 85 | 196 |
| 105 | 209 |
| 120 | 177 |
| 140 | 137 |
| 160 | 63 |
| 180 | 54 |
| 200 | W |

| DEPTH | TOTAL VOCs |
|---|---|
| 25 | ND |
| 40 | ND |
| 55 | 14 |
| 70 | 13 |
| 90 | 40 |
| 115 | 6.8 |
| 135 | 130 |
| 155 | 169 |
| 180 | 248 |
| 195 | W |

| DEPTH | TOTAL VOCs |
|---|---|
| 20 | ND |
| 35 | 27 |
| 55 | 38 |
| 75 | 52 |
| 92 | 49 |

| DEPTH | TOTAL VOCs |
|---|---|
| 25 | 2.4 |
| 40 | 77 |
| 60 | 90 |
| 80 | 98 |
| 100 | 67 |
| 120 | 57 |
| 140 | 76 |
| 155 | 53 |
| 170 | 44 |
| 185 | W |

| DEPTH | TOTAL VOCs |
|---|---|
| 25 | 4.4 |
| 45 | 26 |
| 65 | 37 |
| 80 | 32 |
| 95 | W |
| 110 | 7.6 |
| 125 | 31 |
| 140 | 56 |
| 155 | 61 |
| 170 | W |

| DEPTH | TOTAL VOCs |
|---|---|
| 20 | ND |
| 35 | ND |
| 50 | ND |
| 60 | 11 |
| 80 | 44 |
| 95 | 63 |
| 110 | 109 |
| 125 | 109 |
| 140 | 130 |
| 155 | 66 |

| DEPTH | TOTAL VOCs |
|---|---|
| 20 | ND |
| 35 | ND |
| 50 | 4.9 |
| 65 | 10 |
| 80 | 9.1 |
| 95 | 73 |
| 108 | 238 |
| 118 | 300 |

| DEPTH | TOTAL VOCs |
|---|---|
| 20 | ND |
| 35 | ND |
| 50 | ND |
| 70 | ND |
| 85 | 47 |
| 100 | 38 |
| 110 | 24 |
| 120 | 19 |
| 130 | W |

## Explanation

- ● 39 Soil Vapor Wells Sampled During Event 7
- ● 31 Soil Vapor Wells Not Sampled During Event 7
- MW-7 ■ Groundwater Monitoring Well
- VOCs Volatile Organic Conpounds
- ND Non-Detect @ Laboratory Detection Limit of 1.0 $\mu$g/L-Vapor
- W Sample Port Waterlogged; No Sample Collected
- ----- Line of Cross Sections

N

400 200 0 400

SCALE IN FEET

*Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.*

NOTE:

Concentrations in $\mu$g/L-Vapor

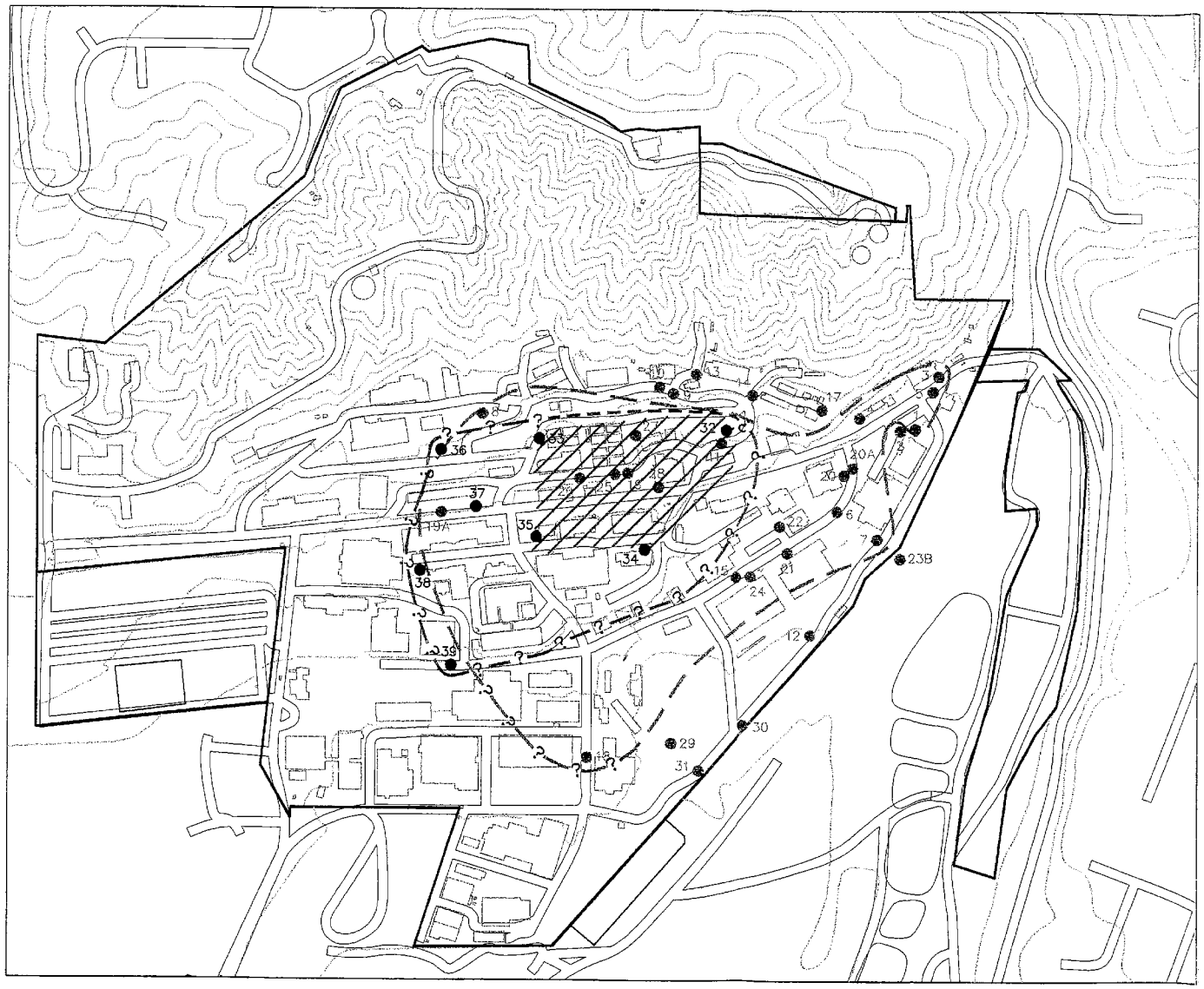
FIGURE 1-14

TOTAL VOC CONCENTRATIONS AT DEPTH, EVENT 7

JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION




## Explanation

● 39 Soil Vapor Wells Sampled During Event 7

● 31 Soil Vapor Wells Not Sampled During Event 7

Countours:

1. Represent minimum known areal distribution based on sampling event.
2. Not queried where some horizontal control exists.

Carbon Tetrachloride ($CCl_4$) Detected During Event 7

Concentrations of Carbon Tetrachloride ($CCl_4$) Exceeding 100 $\mu g/L$—Vapor at an Individual Sample Point

Carbon Tetrachloride ($CCl_4$) Detected During Events 2 and 3

N

400 200 0 400

SCALE IN FEET

*Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.*

FIGURE 1–15

**CARBON TETRACHLORIDE, EVENT 7**

JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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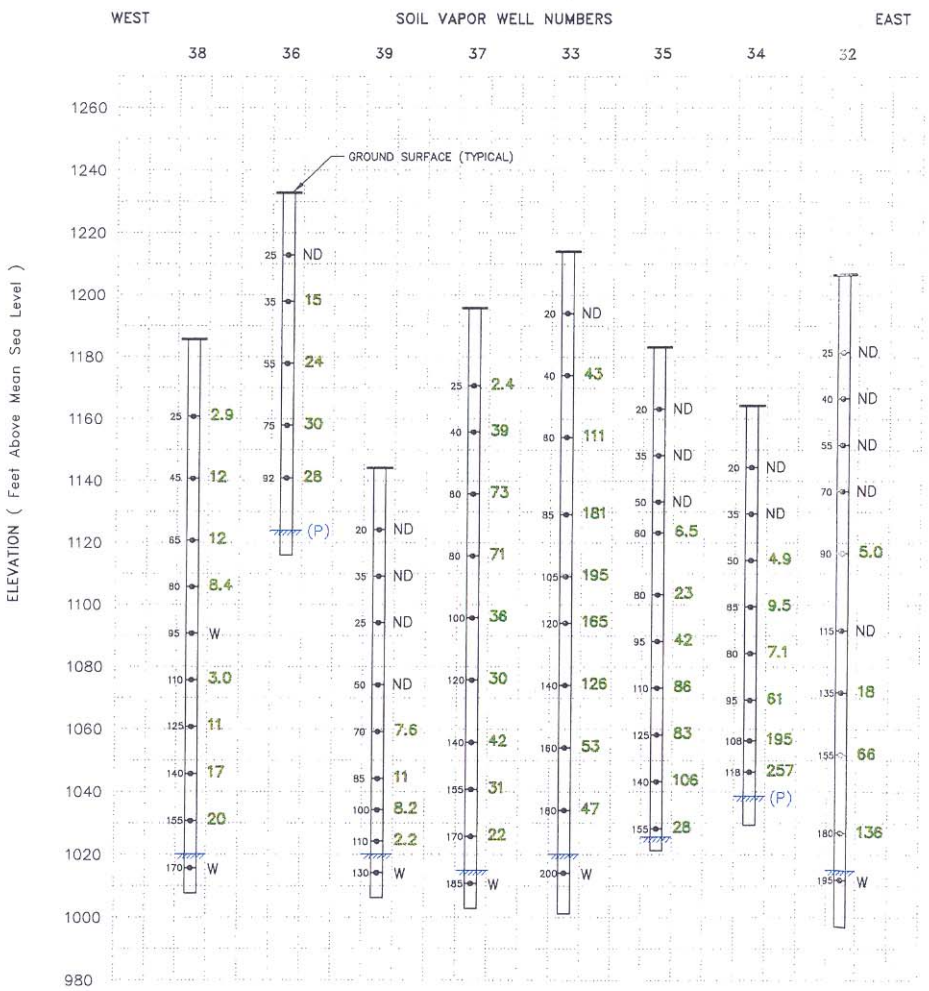



## Explanation

| | |
|---|---|
| 25 | Soil Vapor Sample Point and Depth |
| 43 | Concentrations of Carbon Tetrachloride ( $\mu g/L$–Vapor) |
| ND | Non–Detect @ Laboratory Detection Limit of 1.0 $\mu g/L$–Vapor |
| W | Sample Port Waterlogged; No Sample Collected |
| ////// | Estimated Approximate Groundwater Elevation During Event 7 |
| (P) | Perched Groundwater |

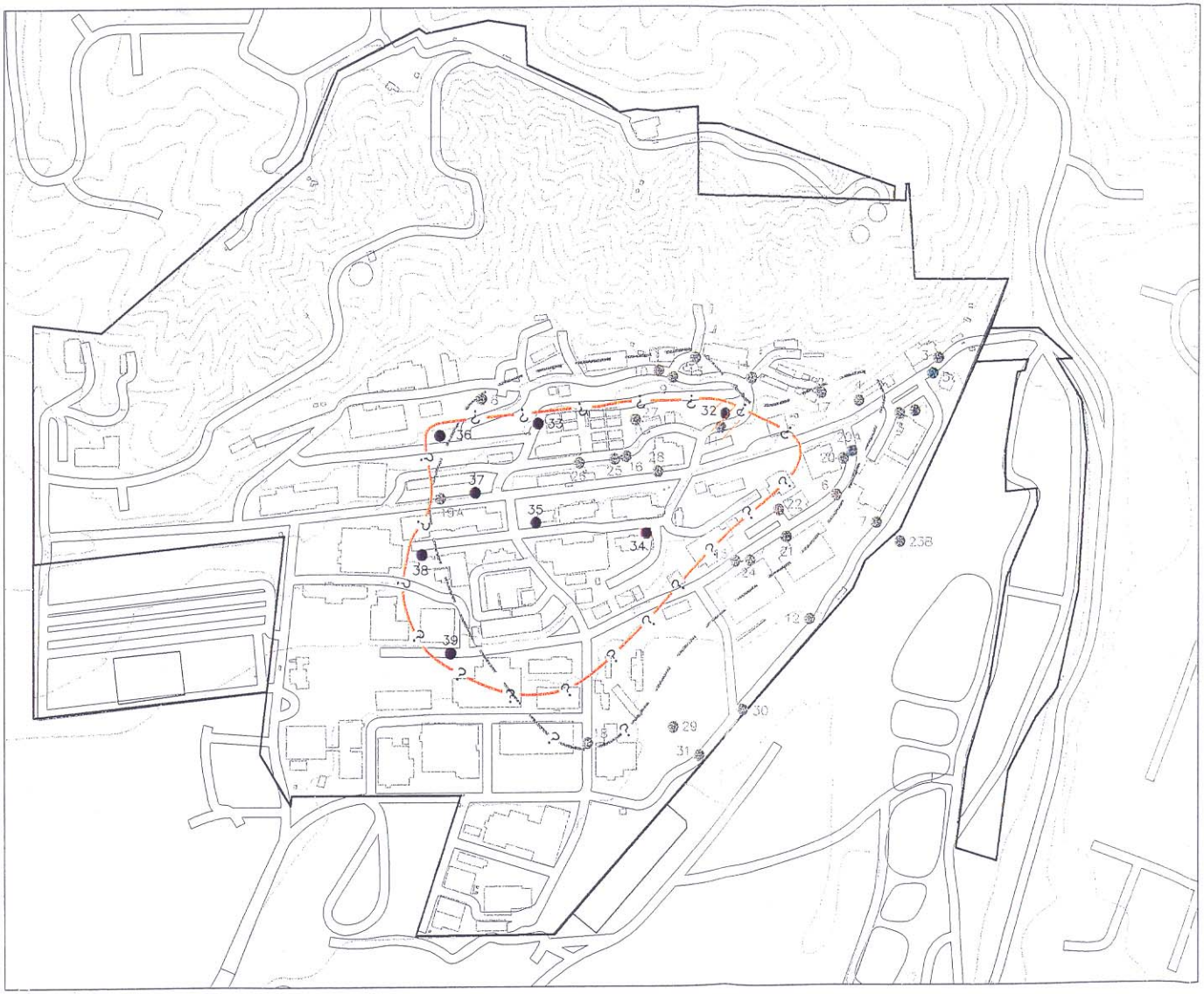
FIGURE 1–16

VERTICAL EXTENT OF CARBON TETRACHLORIDE FROM WEST TO EAST ACROSS THE JPL SITE, EVENT 7

JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION




## Explanation

● 39 Soil Vapor Wells Sampled During Event 7

◐ 31 Soil Vapor Wells Not Sampled During Event 7

Countours:

1. Represent minimum known areal distribution based on sampling event.
2. Not queried where some horizontal control exists.

—?— Freon 113 Detected During Event 7

Concentrations of Freon 113 Exceeding 100 μg/L–Vapor at an Individual Sample Point

Freon 113 Detected During Events 2 and 3

400 200 0 400

SCALE IN FEET

*Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.*

FIGURE 1–17

FREON 113, EVENT 7

JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

E:\1572-JPL\DWG\OU2\FS699\FIG1-17.DWG
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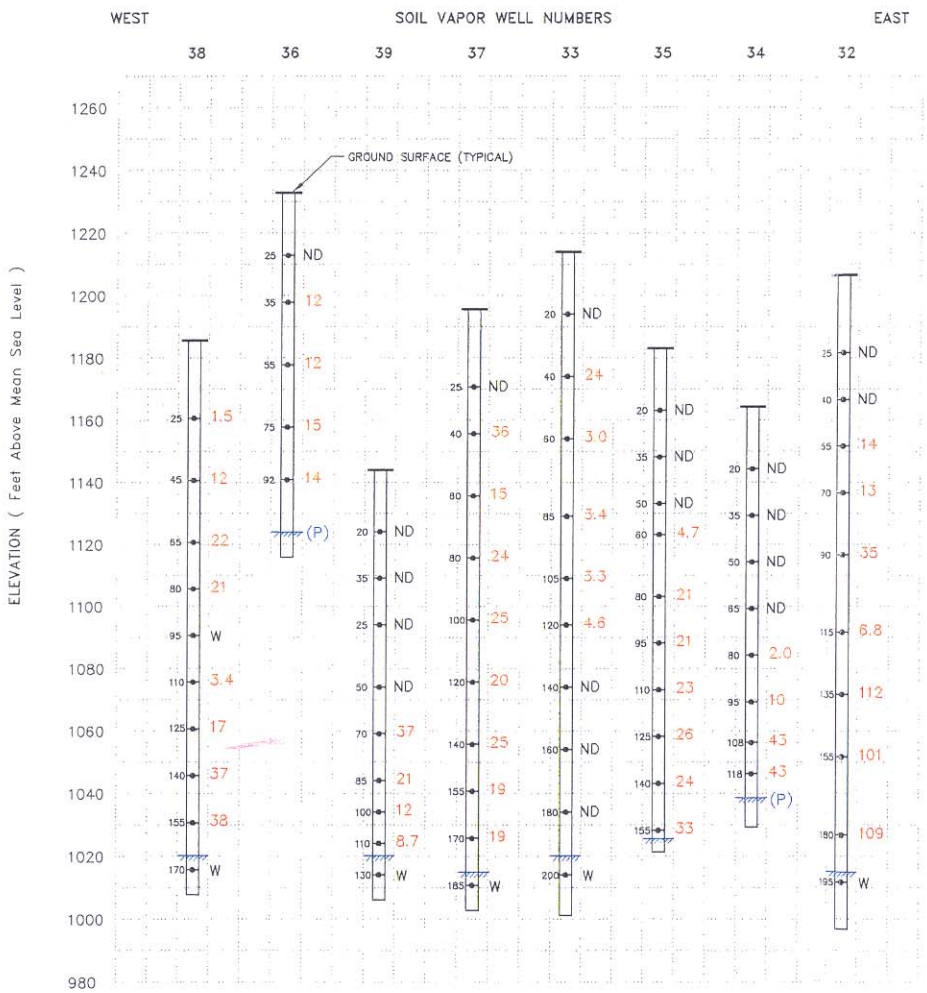


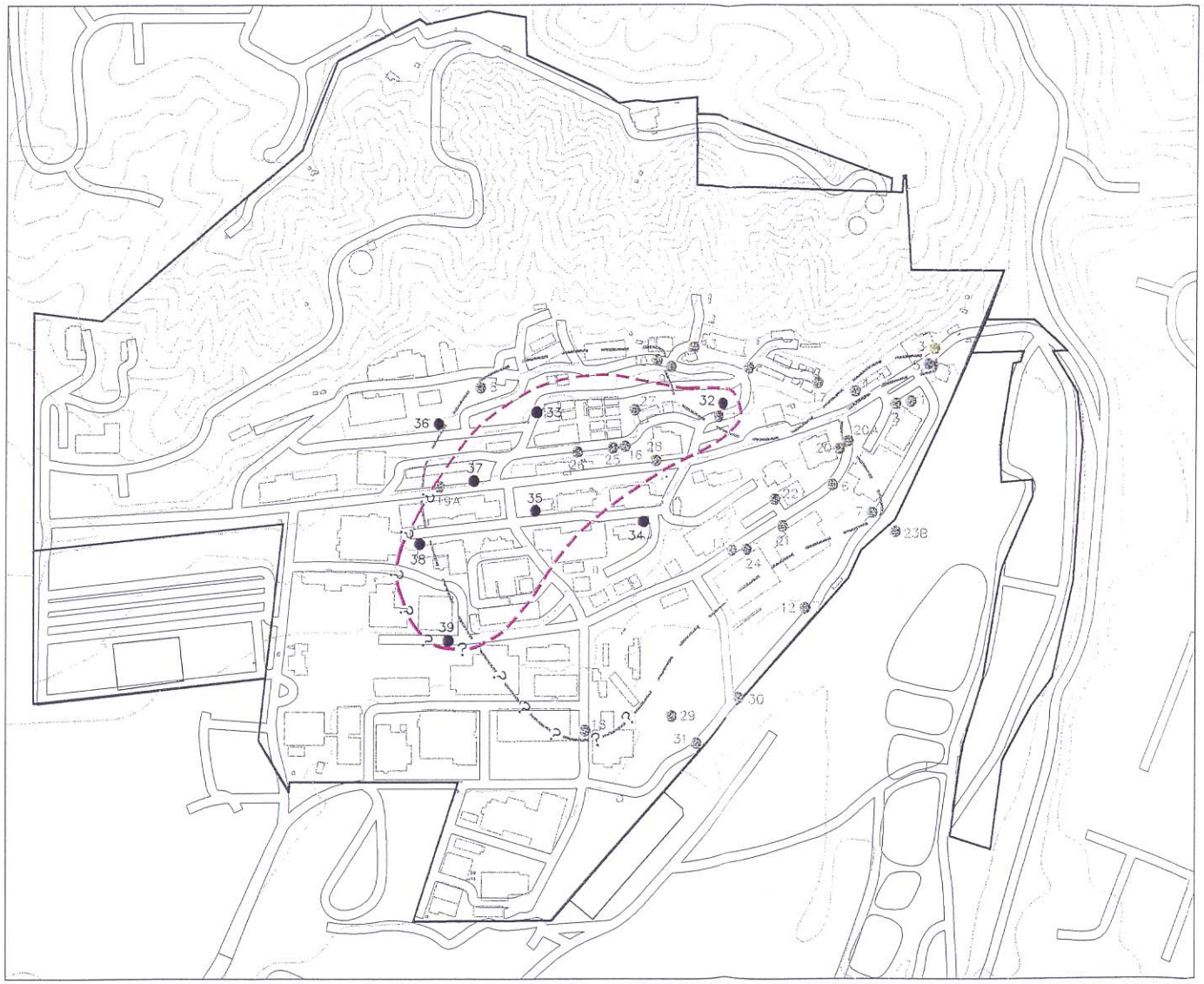

| Explanation | |
|---|---|
| 25 | Soil Vapor Sample Point and Depth |
| 112 | Concentrations of Freon 113 ( $\mu g/L$ – Vapor) |
| ND | Non–Detect @ Laboratory Detection Limit of 1.0 $\mu g/L$ – Vapor |
| W | Sample Port Waterlogged; No Sample Collected |
| ////// | Estimated Approximate Groundwater Elevation During Event 7 |
| (P) | Perched Groundwater |

FIGURE 1–18

VERTICAL EXTENT OF FREON 113 FROM WEST TO EAST ACROSS THE JPL SITE, EVENT 7
JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION




## Explanation

● 39 Soil Vapor Wells Sampled During Event 7

● 31 Soil Vapor Wells Not Sampled During Event 7

Countours:

1. Represent minimum known areal distribution based on sampling event.
2. Not queried where some horizontal control exists.

—?— Trichloroethene (TCE) Detected During Event 7

— — Trichloroethene (TCE) Detected During Events 2 and 3

400 200 0 400

SCALE IN FEET

*Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.*

FIGURE 1–19

TRICHLOROETHENE, EVENT 7

JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU2\FS99\FIG1-19.DWG
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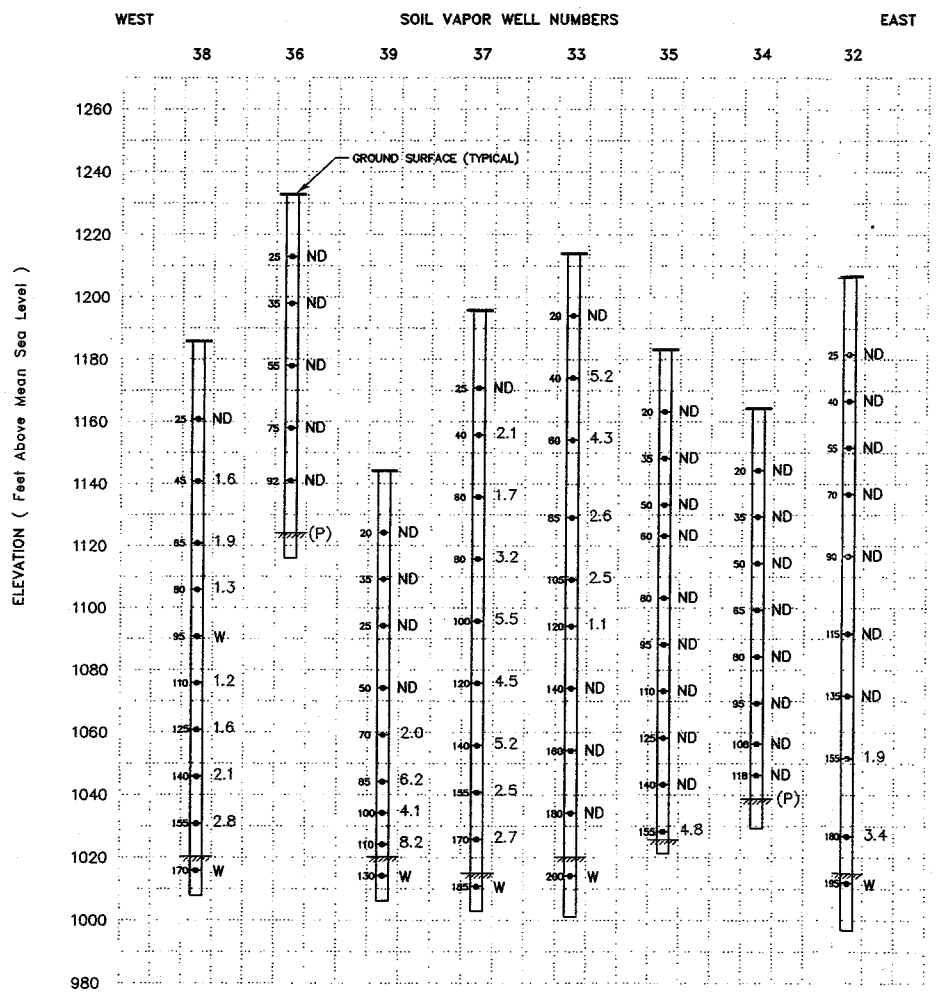



## Explanation

| | |
|---|---|
| 25 | Soil Vapor Sample Point and Depth |
| 5.2 | Concentrations of Trichloroethene ( $\mu g/L$–Vapor) |
| ND | Non–Detect @ Laboratory Detection Limit of 1.0 $\mu g/L$–Vapor |
| W | Sample Port Waterlogged; No Sample Collected |
| | Estimated Approximate Groundwater Elevation During Event 7 |
| (P) | Perched Groundwater |

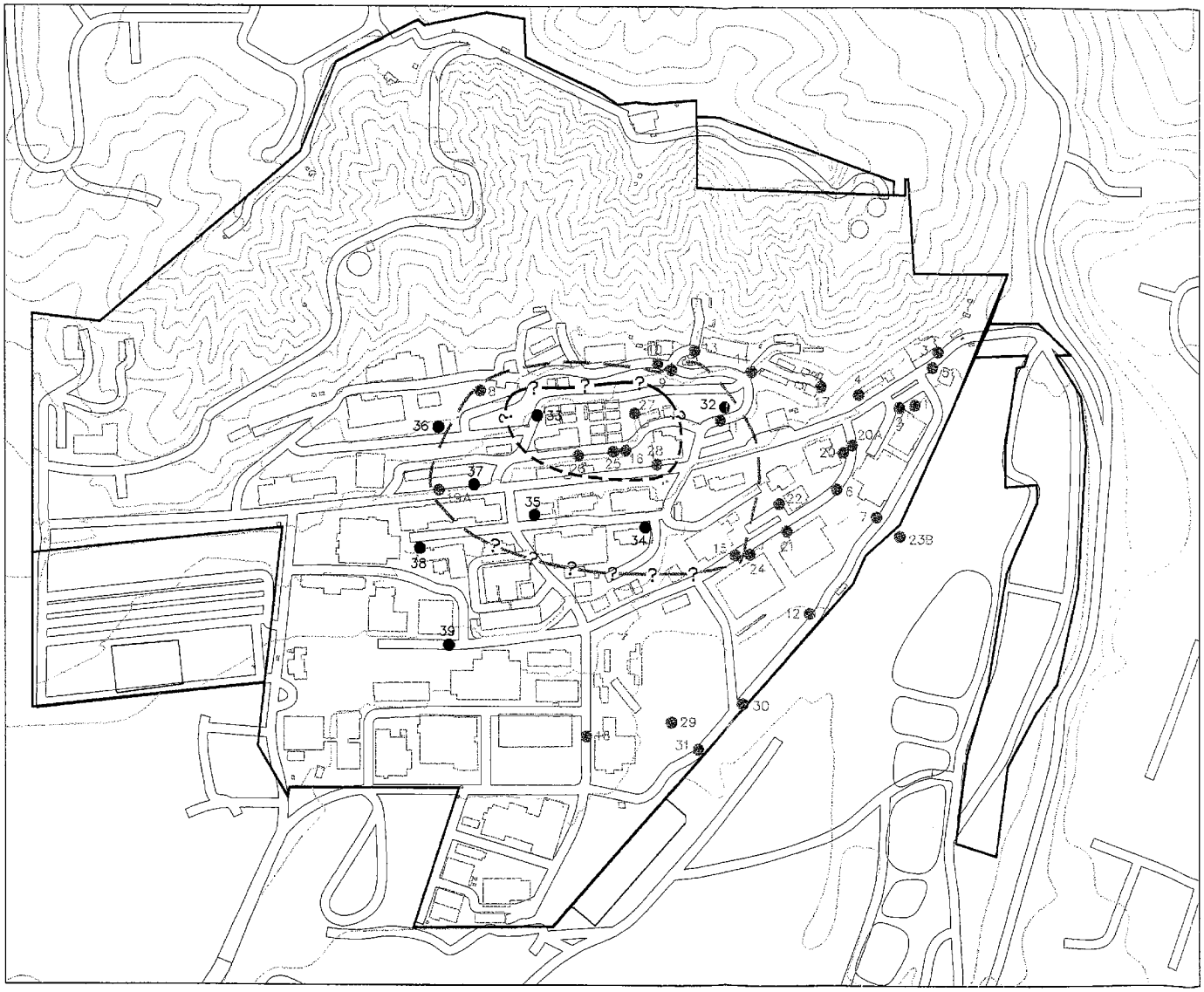
FIGURE 1–20

VERTICAL EXTENT OF TRICHLOROETHENE FROM WEST TO EAST ACROSS THE JPL SITE, EVENT 7

JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION




## Explanation

● 39 Soil Vapor Wells Sampled During Event 7

● 31 Soil Vapor Wells Not Sampled During Event 7

Countours:

1. Represent minimum known areal distribution based on sampling event.
2. Not queried where some horizontal control exists.

—?— 1,1-Dichloroethene (1,1-DCE) Detected During Event 7

Lateral Extent of 1,1-Dichloroethene (1,1-DCE) Detected During Events 2 and 3

N

400 200 0 400

SCALE IN FEET

*Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.*

FIGURE 1-21

1,1-DICHLOROETHENE, EVENT 7

JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU2\FS99\FIG1-21.DWG
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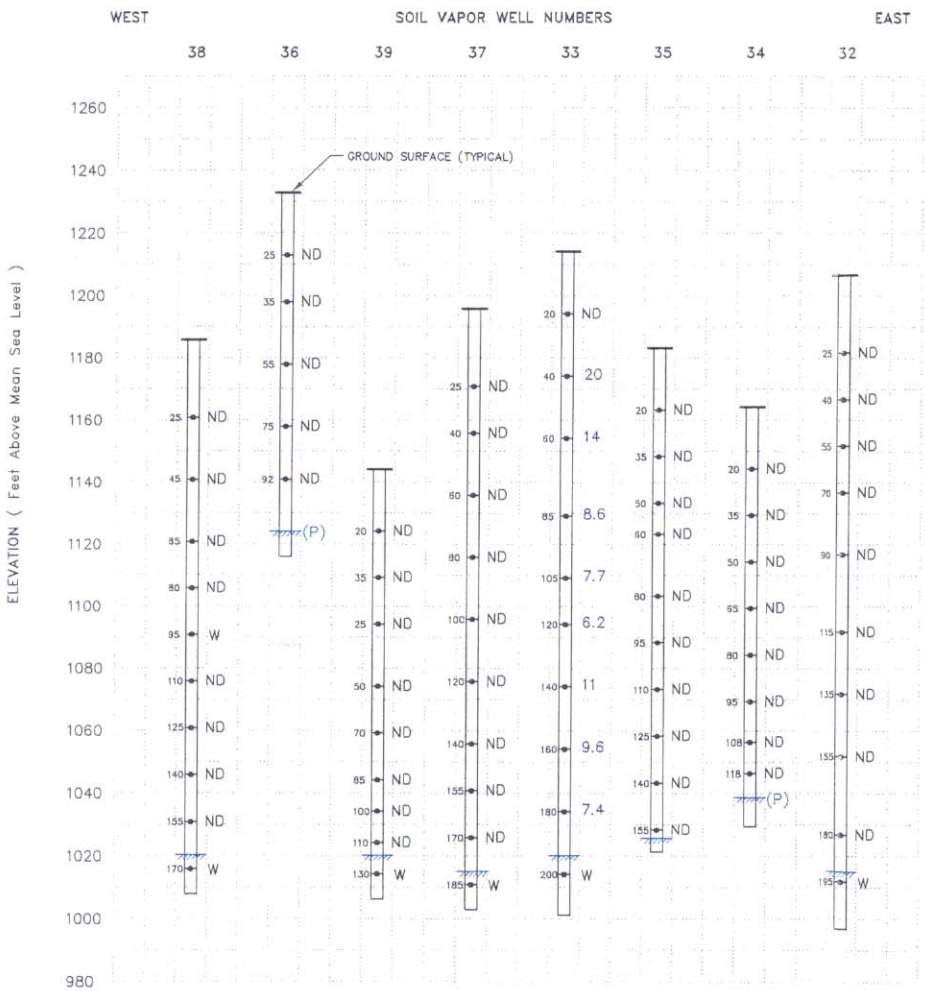


## Explanation

| | |
|---|---|
| 25 | Soil Vapor Sample Point and Depth |
| 20 | Concentrations of 1,1-Dichloroethene ( $\mu g/L$-Vapor) |
| ND | Non-Detect @ Laboratory Detection Limit of 1.0 $\mu g/L$-Vapor |
| W | Sample Port Waterlogged; No Sample Collected |
| | Estimated Approximate Groundwater Elevation During Event 7 |
| (P) | Perched Groundwater |

FIGURE 1-22

VERTICAL EXTENT OF 1,1-DICHLOROETHENE FROM WEST TO EAST ACROSS THE JPL SITE, EVENT 7

JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

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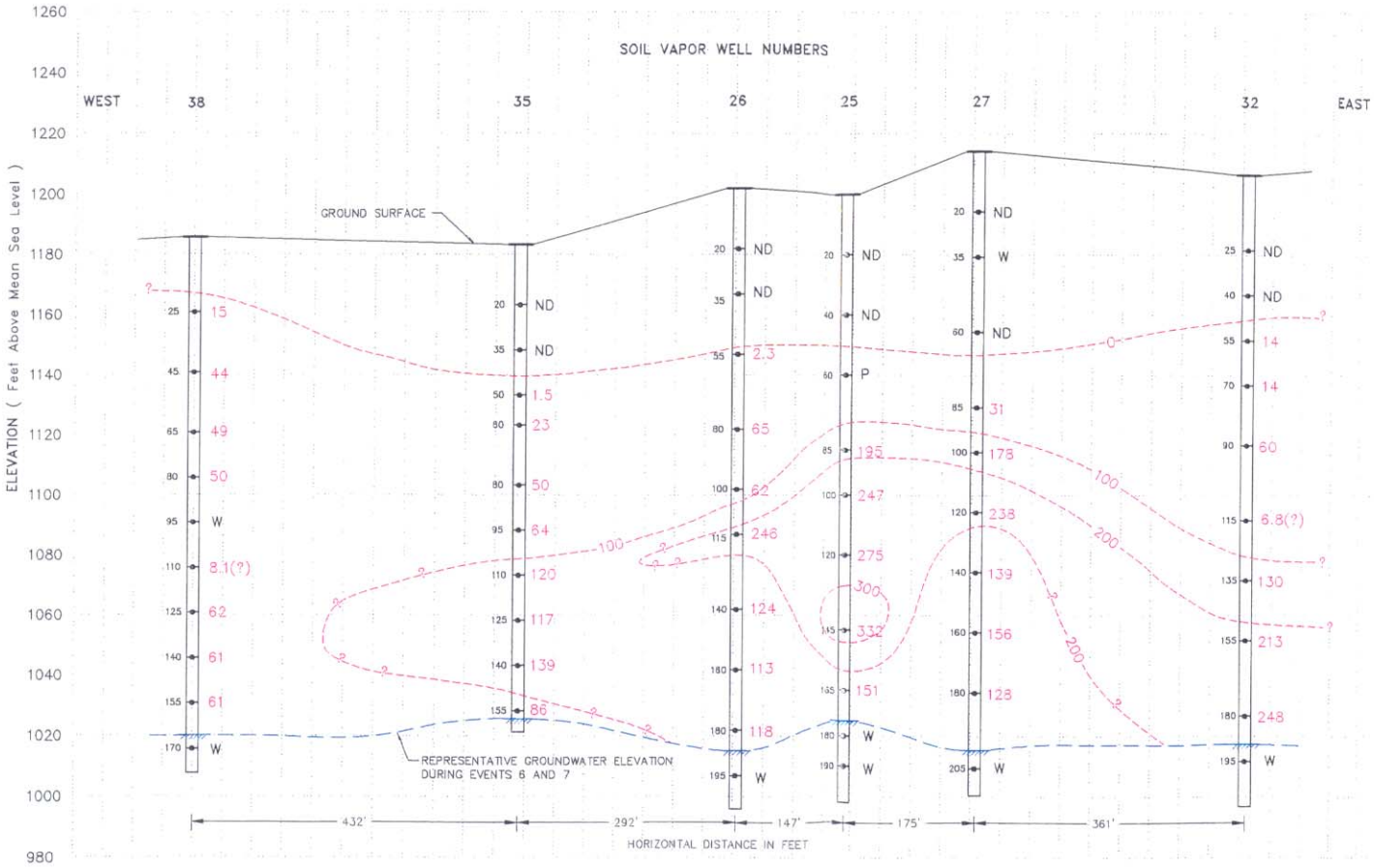


## Explanation

25 → Soil Vapor Sample Point and Depth
139 Concentrations of Total VOCs ( µg/L–Vapor)
ND Non–Detect @ Laboratory Detection Limit of 1.0 µg/L–Vapor
P Sample Port Plugged; No Sample Collected
W Sample Port Waterlogged; No Sample Collected

Contours:

1. Intervals in 100 µg/L–Vapor.
2. Queried where spatial control is lacking.

Note:

Location of cross–section is shown on Figure 1–14.

HORIZONTAL SCALE: 1"=160'

VERTICAL SCALE: 1"=40'

NOTE:

THE CONCENTRATION SUMS PRESENTED INCLUDE THE HIGHEST RESULTS OBTAINED FROM EITHER EVENT.

FIGURE 1–23

REPRESENTATIVE HORIZONTAL AND VERTICAL DISTRIBUTION OF TOTAL VOCs DURING THE TIME INTERVAL FOR EVENTS 6 AND 7
MAY–JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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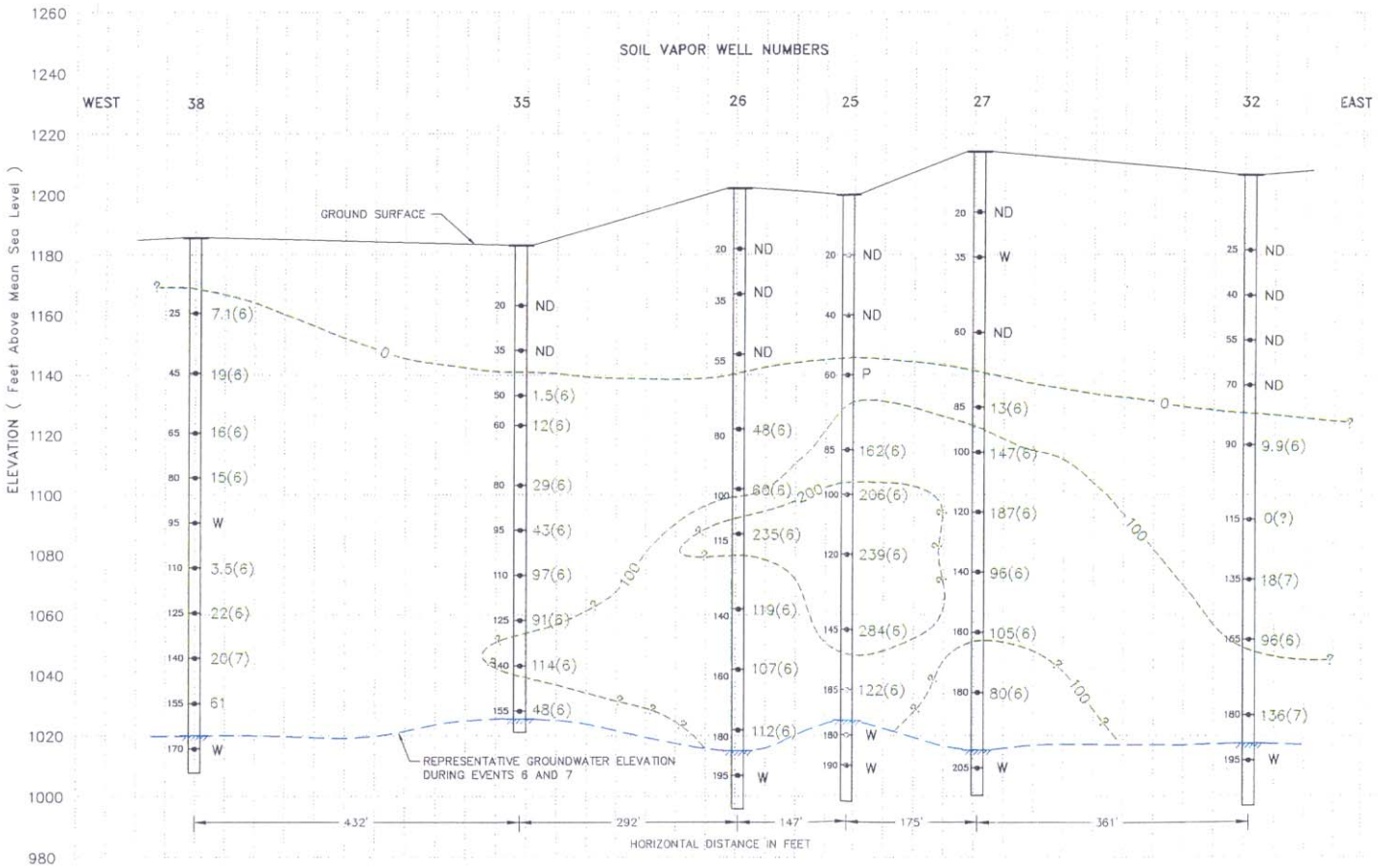


## Explanation

25 → Soil Vapor Sample Point and Depth
187 Concentrations of Carbon Tetrachloride ( $\mu$g/L–Vapor)
(6) Indicates Sample Event From Which Results Came
ND Non–Detect @ Laboratory Detection Limit of 1.0 $\mu$g/L–Vapor
P Sample Port Plugged; No Sample Collected
W Sample Port Waterlogged; No Sample Collected

### Contours:

1. Intervals in 100 $\mu$g/L–Vapor.
2. Queried where spatial control is lacking.

### Note:

Location of cross–section is shown on Figure 1–14.

HORIZONTAL SCALE: 1"=160'
160 80 0 160

VERTICAL SCALE: 1"=40'
40 20 0 40

### NOTE:

HIGHEST CONCENTRATION FROM EITHER EVENT ARE PRESENTED.

FIGURE 1–24

REPRESENTATIVE HORIZONTAL AND VERTICAL DISTRIBUTION OF CARBON TETRACHLORIDE DURING THE TIME INTERVAL FOR EVENTS 6 AND 7
MAY–JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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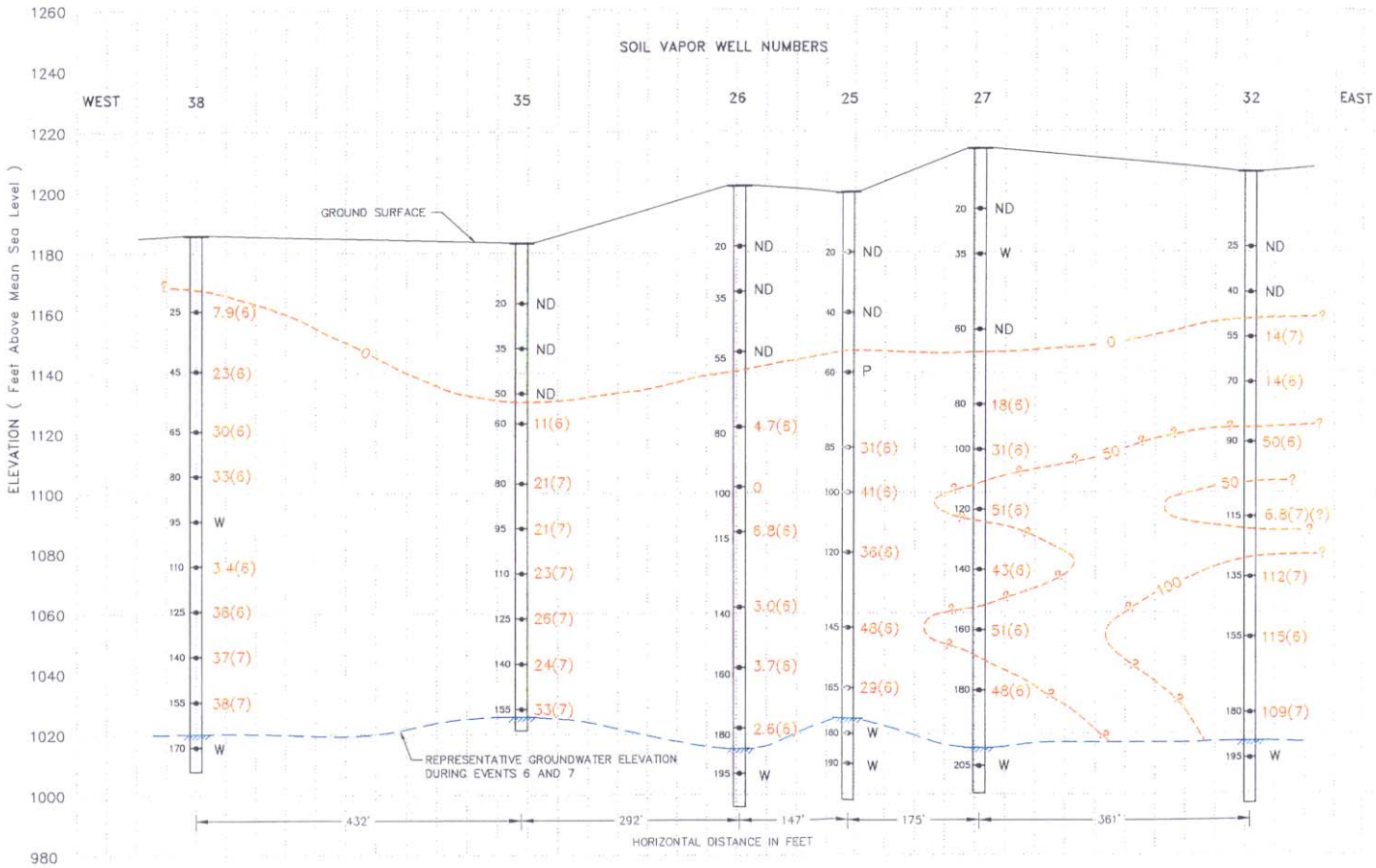


NOTE:

HIGHEST CONCENTRATION FROM EITHER EVENT ARE PRESENTED.

## Explanation

25 Soil Vapor Sample Point and Depth
31 Concentrations of Freon 113 ( $\mu$g/L–Vapor)
(6) Indicates Sample Event From Which Results Came
ND Non–Detect @ Laboratory Detection Limit of 1.0 $\mu$g/L–Vapor
P Sample Port Plugged; No Sample Collected
W Sample Port Waterlogged; No Sample Collected

Contours:

1. Intervals in 50 $\mu$g/L–Vapor.
2. Queried where spatial control is lacking.

Note:

Location of cross–section is shown on Figure 1–14.

HORIZONTAL SCALE: 1"=160'

160 80 0 160

VERTICAL SCALE: 1"=40'

40 20 0 40

FIGURE 1–25

REPRESENTATIVE HORIZONTAL AND VERTICAL DISTRIBUTION OF FREON 113 DURING THE TIME INTERVAL FOR EVENTS 6 AND 7
MAY–JUNE, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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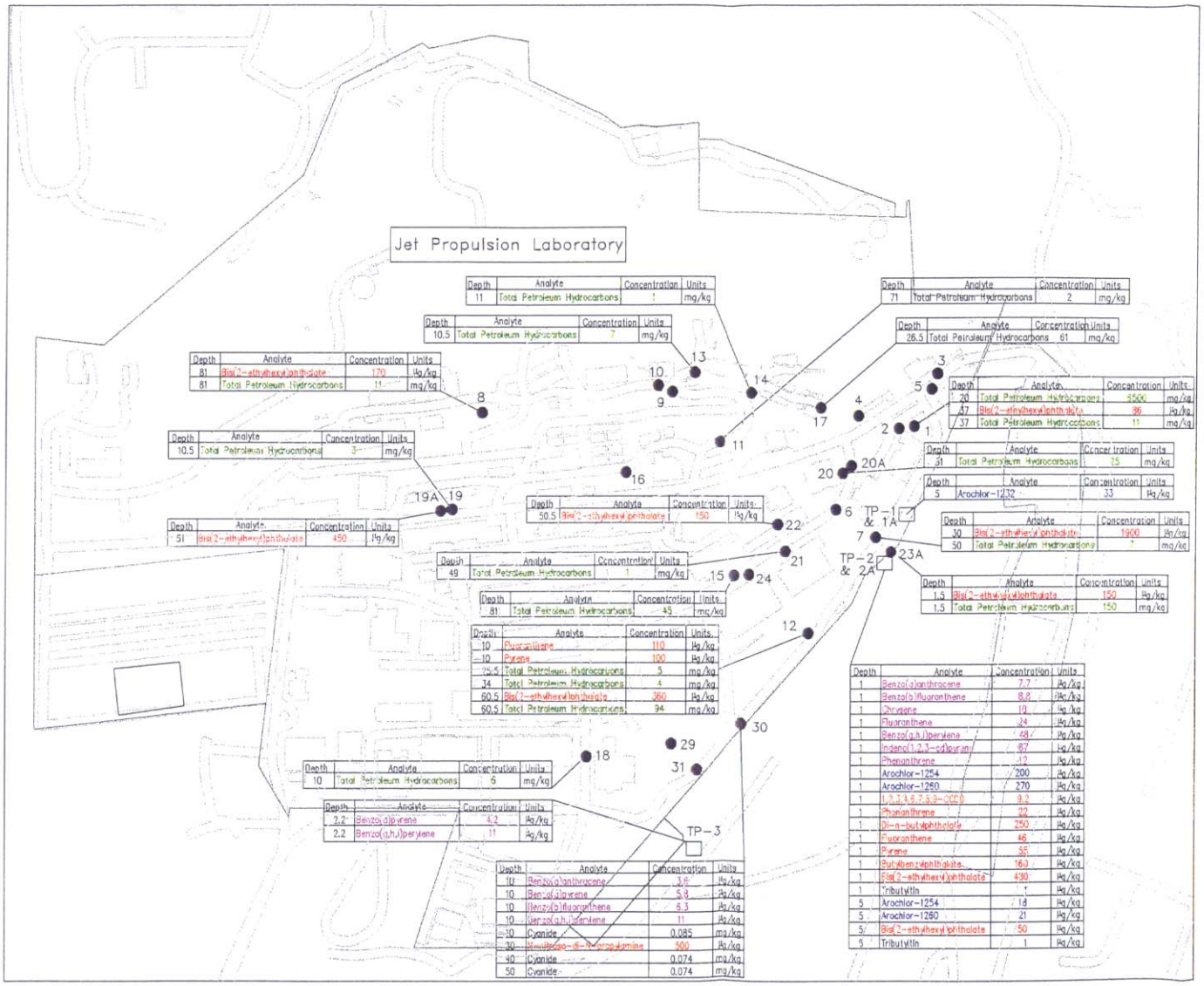


| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 11 | Total Petroleum Hydrocarbons | 1 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 10.5 | Total Petroleum Hydrocarbons | 7 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 81 | Bis(2-ethylhexyl)phthalate | 170 | µg/kg |
| 81 | Total Petroleum Hydrocarbons | 11 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 10.5 | Total Petroleum Hydrocarbons | 3 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 51 | Bis(2-ethylhexyl)phthalate | 450 | µg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 50.5 | Bis(2-ethylhexyl)phthalate | 150 | µg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 49 | Total Petroleum Hydrocarbons | 1 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 81 | Total Petroleum Hydrocarbons | 45 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 10 | Fluoranthene | 110 | µg/kg |
| 10 | Pyrene | 100 | µg/kg |
| 60.5 | Total Petroleum Hydrocarbons | 5 | mg/kg |
| 34 | Total Petroleum Hydrocarbons | 4 | mg/kg |
| 60.5 | Bis(2-ethylhexyl)phthalate | 360 | µg/kg |
| 60.5 | Total Petroleum Hydrocarbons | 94 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 10 | Total Petroleum Hydrocarbons | 6 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 2.2 | Benzo(a,h,i)pyrene | 4.2 | µg/kg |
| 2.2 | Benzo(a,h,i)perylene | 11 | µg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 10 | Benzo(a)anthracene | 3.6 | µg/kg |
| 10 | Benzo(a)pyrene | 5.8 | µg/kg |
| 10 | Benzo(b)fluoranthene | 6.3 | µg/kg |
| 10 | Benzo(g,h,i)perylene | 11 | µg/kg |
| 10 | Cyanide | 0.085 | mg/kg |
| 30 | N-nitroso-di-N-propylamine | 500 | µg/kg |
| 40 | Cyanide | 0.074 | mg/kg |
| 50 | Cyanide | 0.074 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 71 | Total Petroleum Hydrocarbons | 2 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 26.5 | Total Petroleum Hydrocarbons | 61 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 20 | Total Petroleum Hydrocarbons | 5500 | mg/kg |
| 37 | Bis(2-ethylhexyl)phthalate | 86 | µg/kg |
| 37 | Total Petroleum Hydrocarbons | 11 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 31 | Total Petroleum Hydrocarbons | 15 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 5 | Arochlor-1232 | 33 | µg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 30 | Bis(2-ethylhexyl)phthalate | 1900 | µg/kg |
| 50 | Total Petroleum Hydrocarbons | 7 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 1.5 | Bis(2-ethylhexyl)phthalate | 150 | µg/kg |
| 1.5 | Total Petroleum Hydrocarbons | 150 | mg/kg |

| Depth | Analyte | Concentration | Units |
|---|---|---|---|
| 1 | Benzo(a)anthracene | 7.7 | µg/kg |
| 1 | Benzo(b)fluoranthene | 8.8 | µg/kg |
| 1 | Chrysene | 19 | µg/kg |
| 1 | Fluoranthene | 24 | µg/kg |
| 1 | Benzo(g,h,i)perylene | 48 | µg/kg |
| 1 | Indeno(1,2,3-cd)pyrene | 67 | µg/kg |
| 1 | Phenanthrene | 12 | µg/kg |
| 1 | Arochlor-1254 | 200 | µg/kg |
| 1 | Arochlor-1260 | 270 | µg/kg |
| 1 | 1,2,3,4,6,7,8,9-OCDD | 9.2 | µg/kg |
| 1 | Phenanthrene | 22 | µg/kg |
| 1 | Di-n-butylphthalate | 250 | µg/kg |
| 1 | Fluoranthene | 46 | µg/kg |
| 1 | Pyrene | 55 | µg/kg |
| 1 | Butylbenzylphthalate | 160 | µg/kg |
| 1 | Bis(2-ethylhexyl)phthalate | 430 | µg/kg |
| 1 | Tributyltin | 1 | µg/kg |
| 5 | Arochlor-1254 | 18 | µg/kg |
| 5 | Arochlor-1260 | 21 | µg/kg |
| 5 | Bis(2-ethylhexyl)phthalate | 50 | µg/kg |
| 5 | Tributyltin | 1 | µg/kg |

## Explanation

- ● 39 — Soil Boring Completed During RI Investigation
- □ TP-1 & 1A — Test Pit Location

Total Petroleum Hydrocarbons (EPA Method 418.1)

Semivolatile Organic Compounds (EPA Method 8270)

Polycyclic Aromatic Hydrocarbons (EPA Method 8310)

Poly Chlorinated Biphenyls (EPA Method 8081)

Dioxins (EPA Method 8280)

Cyanide (EPA Method 335.3)

Tributyltin (No EPA Method)

mg/kg — Milligrams per kilogram

µg/kg — Micrograms per kilogram

NOTE:
The higher concentrations from the test pit pairs are presented.

N

400 200 0 400

SCALE IN FEET

*Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.*

FIGURE 1-26

CONCENTRATIONS OF ORGANIC COMPOUNDS AND CYANIDE DETECTED IN SOIL DURING THE OU-2 RI

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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