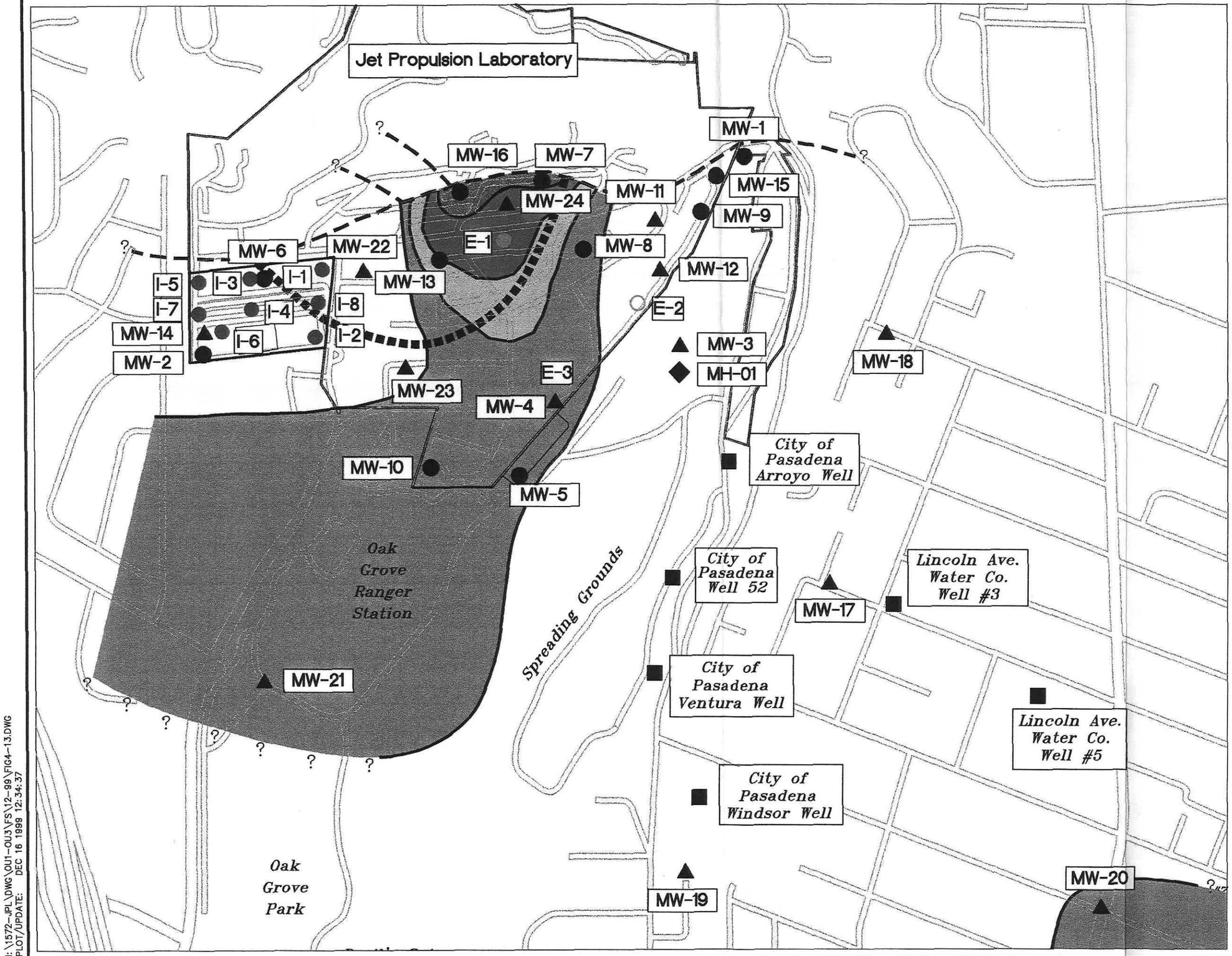

Explanation

- JPL Shallow Monitoring Wells
- JPL Deep Multi-Port Monitoring Wells
- Municipal Production Wells
- City of Pasadena Monitoring Well
- JPL Thrust Fault
- JPL Property Line

Perchlorate Plume

- Concentrations Between Detection Limit (4.0 µg/L) and IAL (18.0 µg/L)
- Concentrations 18.0 to 100.0 µg/L
- Concentrations 100.0 to 500.0 µg/L
- Concentrations Above 500.0 µg/L
- Extraction Well
- Extraction well not screened in aquifer layer shown. (See notes.)
- Infiltration Well (875 gpm)
- Approximate zone of capture [Groundwater within the limits of this countour is captured by the extraction well(s)]

Note: Infiltration was simulated with model layer 1 only.

Note: Well E-1 extracts 1000gpm from layers 1 and 2; wells E-2 and E-3 extract 3000 gpm from layers 2 and 3.

Note: Distinctions between concentration (color) contours may become less clear in black and white photocopies. Refer to the original color figure for best resolution.

N

600 300 0 600

SCALE IN FEET

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

FIGURE 4-13

CAPTURE ZONE OF GROUNDWATER MODEL SIMULATION OF ALTERNATIVE 3- PERCHLORATE PLUME REMEDIATION WITH ON-SITE PUMPING (AQUIFER LAYER 1, MARCH)

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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MW-1
MW-15
MW-9
MW-16
MW-7
MW-11
MW-24
MW-8
MW-12
E-1
MW-6
MW-22
MW-13
I-5
I-3
I-1
I-7
I-4
I-8
MW-14
I-6
I-2
MW-2
E-2
MW-3
MH-01
MW-18
E-3
MW-23
MW-4
MW-10
MW-5
City of Pasadena Arroyo Well
Oak Grove Ranger Station
Spreading Grounds
City of Pasadena Well 52
MW-17
Lincoln Ave. Water Co. Well #3
MW-21
City of Pasadena Ventura Well
Lincoln Ave. Water Co. Well #5
City of Pasadena Windsor Well
Oak Grove Park
MW-19
MW-20
Devil's Gate

Explanation

- JPL Shallow Monitoring Wells
- JPL Deep Multi-Port Monitoring Wells
- Municipal Production Wells
- City of Pasadena Monitoring Well
- JPL Thrust Fault
- JPL Property Line

Perchlorate Plume

- Concentrations Between Detection Limit (4.0 µg/L) and IAL (18.0 µg/L)
- Concentrations 18.0 to 100.0 µg/L
- Concentrations 100.0 to 500.0 µg/L
- Extraction Well
- Infiltration Well
- Approximate zone of capture [Groundwater within the limits of this countour is captured by the extraction well(s)]

Note: Infiltration was simulated with model layer 1 only.

Note: Well E-1 extracts 1000 gpm from layers 1 and 2; wells E-2 and E-3 extract 3000 gpm from layers 2 and 3.

Note: Distinctions between concentration (color) contours may become less clear in black and white photocopies. Refer to the original color figure for best resolution.

N

600 300 0 600

SCALE IN FEET

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

FIGURE 4-14

CAPTURE ZONE FOR GROUNDWATER MODEL SIMULATION OF ALTERNATIVE 3: PERCHLORATE PLUME REMEDIATION WITH ON-SITE PUMPING (AQUIFER LAYER 2, MARCH)

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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Jet Propulsion Laboratory

MW-1
MW-16
MW-7
MW-15
MW-11
MW-24
MW-9
MW-6
MW-22
MW-8
E-1
MW-13
MW-12
I-5
I-3
I-1
I-7
I-4
I-8
MW-14
I-6
I-2
E-2
MW-3
MW-2
MW-18
E-3
MH-01
MW-23
MW-4
City of Pasadena Arroyo Well
MW-10
MW-5
Oak Grove Ranger Station
City of Pasadena Well 52
Lincoln Ave. Water Co. Well #3
MW-17
Spreading Grounds
MW-21
City of Pasadena Ventura Well
Lincoln Ave. Water Co. Well #5
City of Pasadena Windsor Well
Oak Grove Park
MW-20
MW-19
Devil's Gate

Explanation

- JPL Shallow Monitoring Wells
- JPL Deep Multi-Port Monitoring Wells
- Municipal Production Wells
- City of Pasadena Monitoring Well
- JPL Thrust Fault
- JPL Property Line

Perchlorate Plume

- Concentrations Between Detection Limit (4.0 µg/L) and IAL (18.0 µg/L)
- Concentrations 18.0 to 100.0 µg/L
- Concentrations 100.0 to 500.0 µg/L
- Extraction Well
- Extraction well not screened screened in aquifer layer shown. (See notes.)
- Infiltration Well (875 gpm)
- Approximate zone of capture [Groundwater within the limits of this countour is captured by the extraction well(s)]

Note: Infiltration was simulated with model layer 1 only.

Note: Distinctions between concentration (color) contours may become less clear in black and white photocopies. Refer to the original color figure for best resolution.

N

600 300 0 600

SCALE IN FEET

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

FIGURE 4-15

CAPTURE ZONE FOR GROUNDWATER MODEL SIMULATION OF ALTERNATIVE 3: PERCHLORATE PLUME REMEDIATION WITH ON-SITE PUMPING (AQUIFER LAYER 3, MARCH)

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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Jet Propulsion Laboratory

I-5
I-3
I-1
I-7
I-4
I-8
I-2
I-6

PROPOSED TREATMENT PLANT

E-4

CITY OF PASADENA ARROYO WELL

SEWER CONNECTION POINT

E-5

CITY OF PASADENA WELL 52

CITY OF PASADENA VENTURA WELL

VIRO RD

OAK GROVE DR

Oak Grove Ranger Station

Spreading Grounds

CASITAS AVE

Explanation

- Municipal Production Wells
- Proposed Infiltration Wells
- Proposed Extraction Wells
- Groundwater Extracted From Well
- Treated Water
- Water to be discharged to sewer

N

400 200 0 400

SCALE IN FEET

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

FIGURE 4-16

PROPOSED LAYOUT FOR ALTERNATIVE 4: PLUME REMEDIATION WITH OFF-SITE PUMP AND TREAT ACTIVITIES

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Pasadena, California

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Continue

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MW-1
MW-15
MW-9
MW-11
MW-16
MW-7
MW-24
MW-8
MW-12
MW-6
MW-22
MW-13
I-5
I-3
I-1
I-7
I-4
I-8
MW-14
I-6
I-2
MW-2
MW-3
MH-01
MW-18
MW-23
MW-4
E-4
City of Pasadena Arroyo Well
MW-10
MW-5
Oak Grove Ranger Station
Spreading Grounds
E-5
City of Pasadena Well 52
Lincoln Ave. Water Co. Well #3
MW-17
City of Pasadena Ventura Well
Lincoln Ave. Water Co. Well #5
MW-21
City of Pasadena Windsor Well
MW-19
MW-20
Oak Grove Park

Explanation

- JPL Shallow Monitoring Wells
- JPL Deep Multi-Port Monitoring Wells
- Municipal Production Wells
- City of Pasadena Monitoring Well
- JPL Thrust Fault
- JPL Property Line

Perchlorate Plume

- Concentrations Between Detection Limit (4.0 µg/L) and IAL (18.0 µg/L)
- Concentrations 18.0 to 100.0 µg/L
- Concentrations 100.0 to 500.0 µg/L
- Concentrations Above 500.0 µg/L
- Extraction well not screened in aquifer layer shown. (See notes.)
- Infiltration Well (500 gpm)
- Approximate zone of capture [Groundwater within the limits of this countour is captured by the extraction well(s)]

Note: Infiltration was simulated with model layer 1 only.

Note: Wells E-4 and E-5 extract 2000 gpm from layers 2 and 3.

Note: Distinctions between concentration (color) contours may become less clear in black and white photocopies. Refer to the original color figure for best resolution.

N

600 300 0 600

SCALE IN FEET

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

FIGURE 4-17

CAPTURE ZONE FOR GROUNDWATER MODEL SIMULATION OF ALTERNATIVE 4: PERCHLORATE PLUME REMEDIATION WITH OFF-SITE PUMPING (AQUIFER LAYER 1, SEPTEMBER)

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\FS\12-99\FIG4-17.DWG
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