3R - 329

REPORTS

DATE:

April 29, 1999

Public Service Company
of New Mexico
603 W. Elm - P.O. Box 4750
Farmington, NM 87499
505 950-1997
Fax 505 325-7365

PNM Gas Services

April 29, 1999

Oil Conservation Division
Attention: Bill Olson
2040 South Pacheco
Santa Fe, NM 87505

Subject: OCD Closure Reports – 1st Reporting Quarter, 1999

Dear Mr. Olson:

PNM Environmental Services is submitting closure reports to the Oil Conservation Division for the groundwater sites listed below:

1. Florance #32A
2. Jacques #2A
3. McClanahan A #2E
4. Mangum #1E

I have provided copies of the closures to Denny Foust for his information.

I have also enclosed copies of closures submitted to Denny Foust for his approval for the sites listed below:

1. Delo #2
2. Leonard Johnston #1
3. Leonard Johnson #2
4. McCroden #1
5. McCroden #3
6. McCroden #3A
7. McCroden A #1 Drip
8. McCroden A #3 Line Drip
9. McCroden B #1
10. McCroden B #1 Drip
11. McCroden B #3
12. Navajo Indian B #6M
13. Patterson A Com #1
14. Patterson A Com #1E
15. Richardson #1
16. Richardson #1A
17. Richardson #9
18. Starr #1
19. Starr #1 Drip
20. Starr #4A
21. State Com AJ #34E

The following Jicarilla Apache Locations were submitted to Denny Foust, also (copies enclosed):

1. Axi Apache J #19
2. Axi Apache N #1
3. Axi Apache N #10
4. Axi Apache N #12A
5. Axi Apache N #13
6. Axi Apache N #14
7. Axi Apache O #10 Drip
8. Axi Apache O #5 Drip
9. Jicarilla 103 #6M Drip
10. Jicarilla A #10
11. Jicarilla B #12 Drip
12. Jicarilla B #13 Drip
13. Jicarilla Contract 147 #6 Drip
14. Jicarilla G #6 Drip
15. Jicarilla G #6M
16. Jicarilla J #14
17. Jicarilla J #22
18. Jicarilla K #12
19. Jicarilla K #17
20. Jicarilla K #5
21. Jicarilla K #6 Drip
22. K-Well Main Line Separator

If you have any questions, please call me at 324-3764.

Sincerely,

Kathy Juckes

Kathy Juckes
Staff Assistant

District I
P.O. Box 1980, Hobbs, NM

District II
P.O. Drawer DD, Artesia, NM 88221

District III
1000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

2040 South Pacheco Street
Santa Fe, New Mexico 87505

SUBMIT 1 COPY TO APPROPRIATE DISTRICT OFFICE AND 1 COPY TO SANTA FE OFFICE

PIT REMEDIATION AND CLOSURE REPORT

Operator: PNM Gas Services (Burlington) **Telephone:** 324-3764

Address: 603 W. Elm Street Farmington, NM 87401

Facility or Well Name: Mangum #1E

Location: Unit F Sec 27 T 29N R 11W County San Juan

Pit Type: Separator ☐ Dehydrator ☑ Other

Land Type: BLM ☐ State ☐ Fee ☑ Other

Pit Location: (Attach diagram)

Pit dimensions: length 16 ' width 16 ' depth 3 '

Reference: wellhead ☑ other

Footage from reference: 75'

Direction from reference: Due Degrees ☐ East North ☐ of ☑ West South ☐

Depth to Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water	Less than 50 feet 50 feet to 99 feet Greater than 100 feet	(20 points) (10 points) (0 points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1,000 feet from all other water sources)	Yes No	(20 points) (0 points)	0
Distance to Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches	Less than 200 feet 200 feet to 1,000 feet Greater than 1,000 feet	(20 points) (10 points) (0 points)	20
RANKING SCORE (TOTAL POINTS):			40

PNMGS Well Site: **Mangum 1E**

Groundwater Site Summary Report

Copies: WFS(1)
Operator (1)
NMOCD District Office (1)
NMOCD Santa Fe (1)

Quarter/Year: 2nd/98, 3rd/98, 4th/98 & 1st/99

Operator: Burlington Resources
Sec: 33 **Twn:** 29N **Rng:** 11W **Unit:** F
Canyon: San Juan River

Vulnerable Class: Original
OCD Ranking: 40
Lead Agency: NMOCD

Topo Map: Figure 1
Well Completion Diagram: previously submitted
Site Map with Analysis: Figure 2
Groundwater Contour Map: Figure 3a (April 1998), Figure 3b (July 1998), Figure 3c (October 1978) & Figure 3d (January 1999)
Hydrograph: Figure 4
Analytical Results: See 1999 Annual Groundwater Report

Site Hydrology:

The Mangum 1E site lies about 100 feet from the San Juan River, on the north bank just east of the bridge near Bloomfield, New Mexico. The elevation of the site is about 5420 ft. amsl, with the river being 5 to 10 feet lower in elevation. Depth to water is only a few feet at the site, as evidenced by the four monitor wells installed there (see Figure 1).

The valley floor of the San Juan River is more than one-half mile wide near the Mangum 1E site. Alluvial cobbles and gravels, similar to the modern river's bedload, would be expected to be encountered in the subsurface alluvium, which may reach thicknesses of 100 feet or more (Stone et al., 1983; Pastuszak, 1968). However, owing to the extremely shallow groundwater at the site, the depths of the monitor wells are not great, and much clay (presumably from overbank deposits) was found in shallow soils during well installation.

An irrigation ditch bounds the northern side of the Mangum 1E site, while the San Juan River lies just south. Surface topography drops towards the river (south) and along the river's axis (west). Recharge from the irrigation ditch would tend to provide recharge during the spring and summer months, causing groundwater flow towards the river (as also described by Stone et al., 1983).

Groundwater contour maps were prepared from data collected during the quarterly sampling events. Figures 3a through 3c show the elevation of the water table during April, July, and October, 1998, respectively, and Figure 3d for January, 1999. Flow direction is consistently southwestward, with gradient values of about 0.01 (1 ft. per 100 ft.) regardless of the season.

The hydrograph of the site (Figure 4) suggests that groundwater elevations are strongly influenced by the operation of the irrigation ditch in spring and summer months; hydrographs at the site show lowest elevations in the wintertime. Flow direction does not vary appreciably from season to season, as indicated by the "tracking" of water level changes by each well.

Activities for Previous Year:

PNM conducted quarterly groundwater sampling at the Mangum 1E on April 28, July 9 and October 16, 1998, and again on January 18, 1999. In the last sampling round, PNM collected groundwater samples in all wells for chemical analyses of benzene, toluene, ethylbenzene, and xylenes (BTEX). Prior to sampling, water level measurements were taken in each well. All sampling was performed in strict compliance with EPA protocol. PNM delivered the samples to OnSite Technologies, Farmington, New Mexico for chemical analyses of BTEX using EPA method 8020.

Public Service Company of New Mexico - Gas Services
Environmental Services Division - Alvarado Square, MS-0408
Albuquerque, NM 87158

Contact: Maureen Gannon **Telephone: 505-241-2974**

Results:

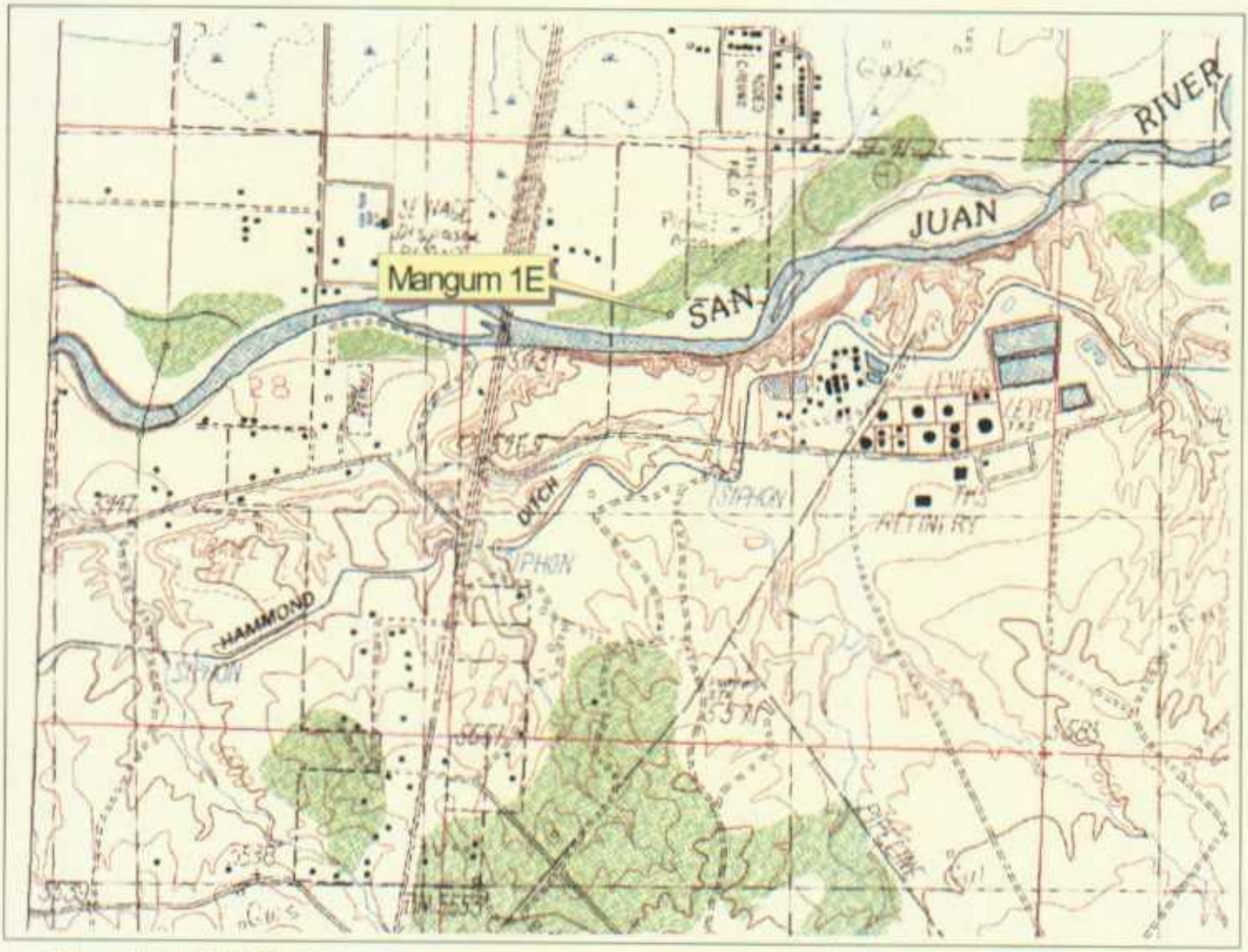
Figure 2 is a site map showing benzene, toluene, ethylbenzene and xylenes (BTEX) analytical data for each monitoring well at the site. BTEX concentrations in MW-1 (the upgradient well) and MW-2 (the source well) have been below standard since they were installed after the initial source removal activities in January, 1997. BTEX in downgradient well MW-3 decreased over time, and has remained below WQCC standards for four quarterly sampling events. Contamination in downgradient monitor well MW-4 decreased over time, and has now remained below standards for the last four consecutive quarterly sampling events.

Further Action:

Consistent with PNM's San Juan Basin Groundwater Management Plan, PNM requests closure of the Mangum 1E with the submittal of the 1st Quarter 1999 Pit Closures Report. This request is based upon the analytical data collected over the last two years at the site. The excavation of source materials appears to have been successful in achieving clean-up at the Mangum 1E over the monitoring period since the BTEX concentrations in downgradient well MW-4 have been below standards for four consecutive quarters. Wells, MW-2 and -3, have shown downward trends in concentration over the last two years. Resampling of all monitor wells also shows that BTEX compounds are below standards in the other wells.

Upon approval of the groundwater closure report, PNM will plug and abandon the four groundwater monitoring wells at the site. The concrete pad and metal vault surrounding each well will be removed. The well casing will be cut to ground surface and each well will be plugged o the surface with cement containing 5% bentonite.

Figure 1.
Mangum 1E Groundwater Site
Twn. 29N Rng. 11W Sec. 27 Unit F



Bloomfield, NM Quadrangle

0 900 1800 2700 3600 4500 Feet

N
W E
S

Figure 2. Mangum 1E Site Map with Analytical Results (concentrations in ppb)

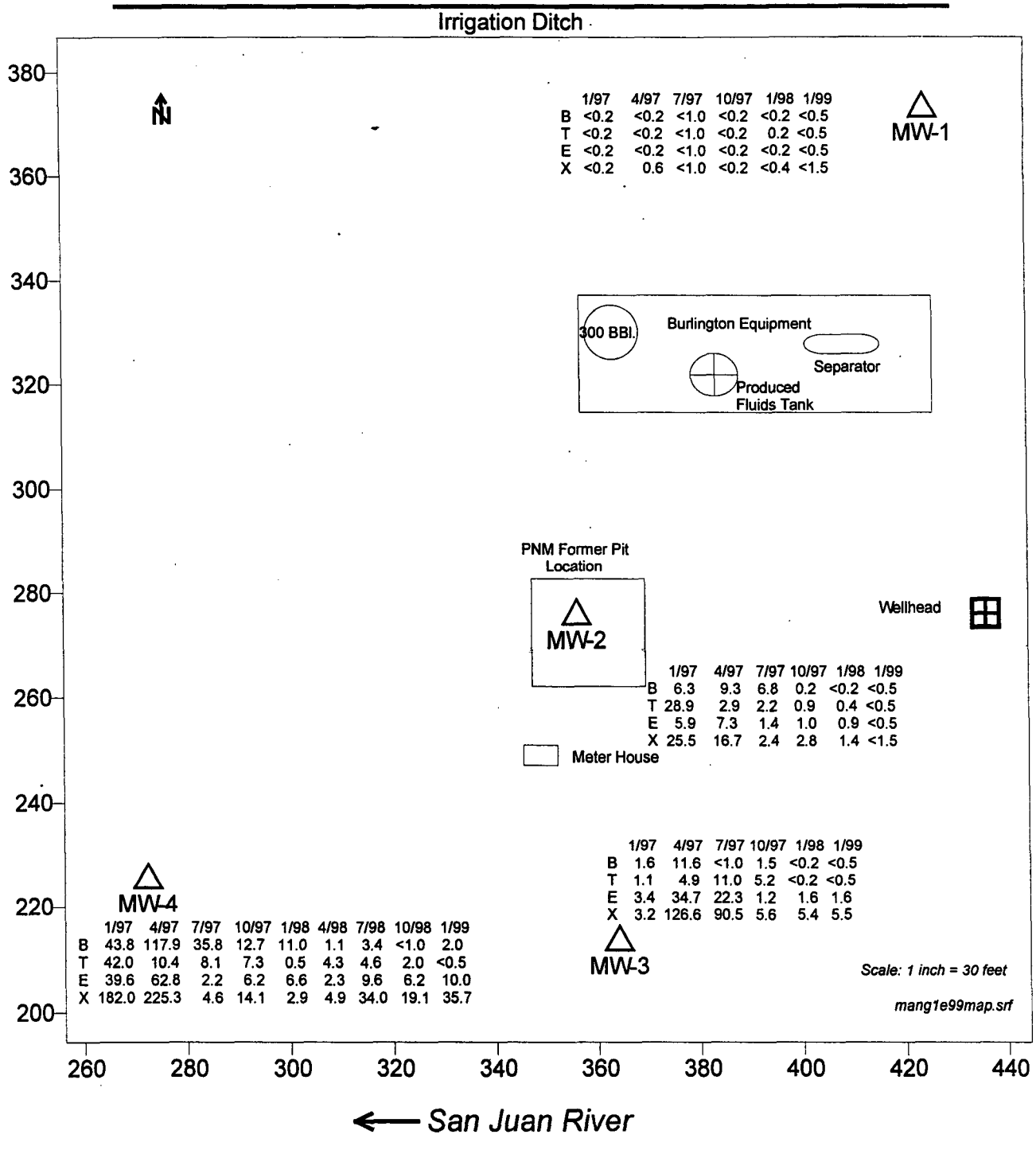
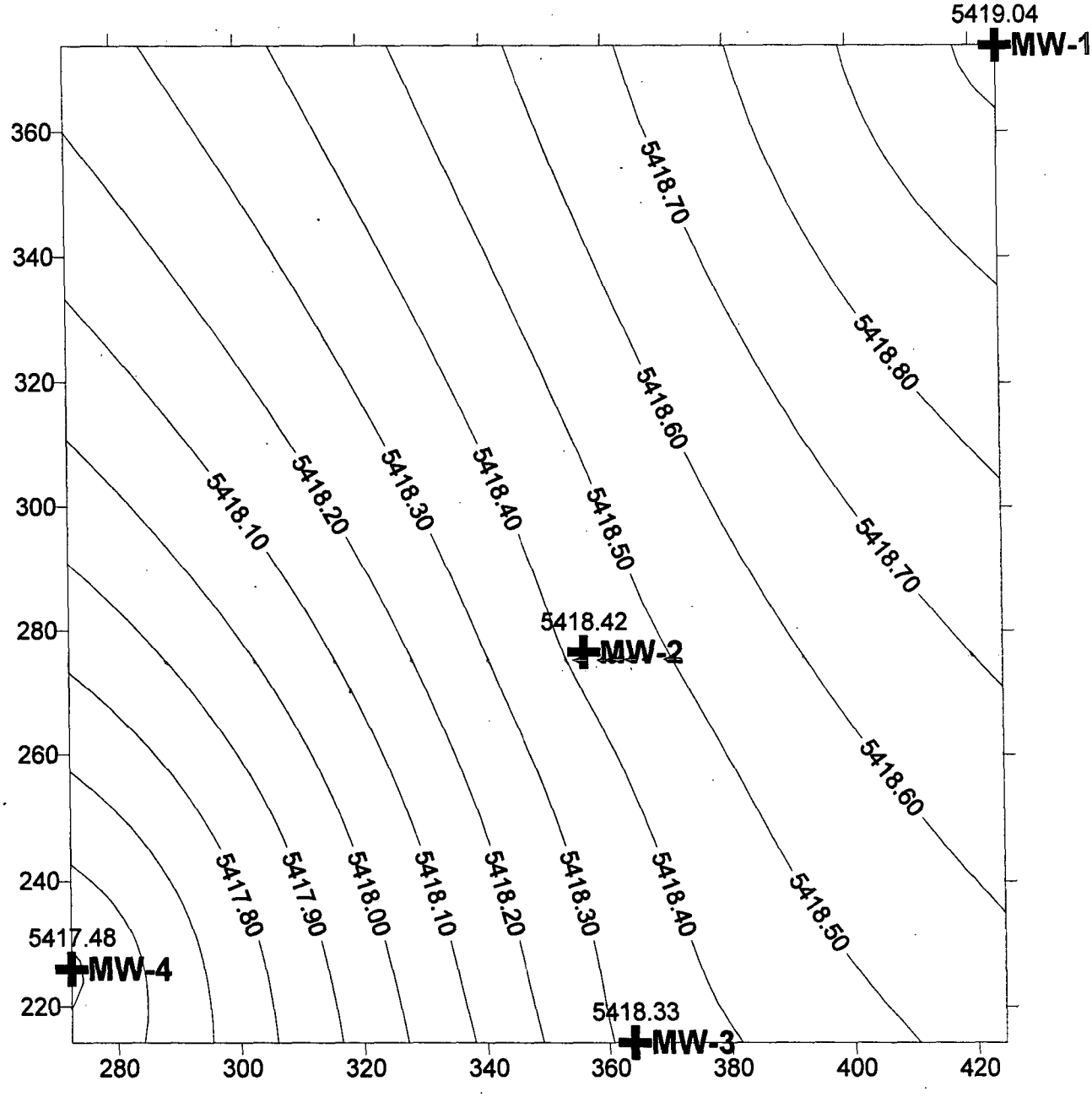
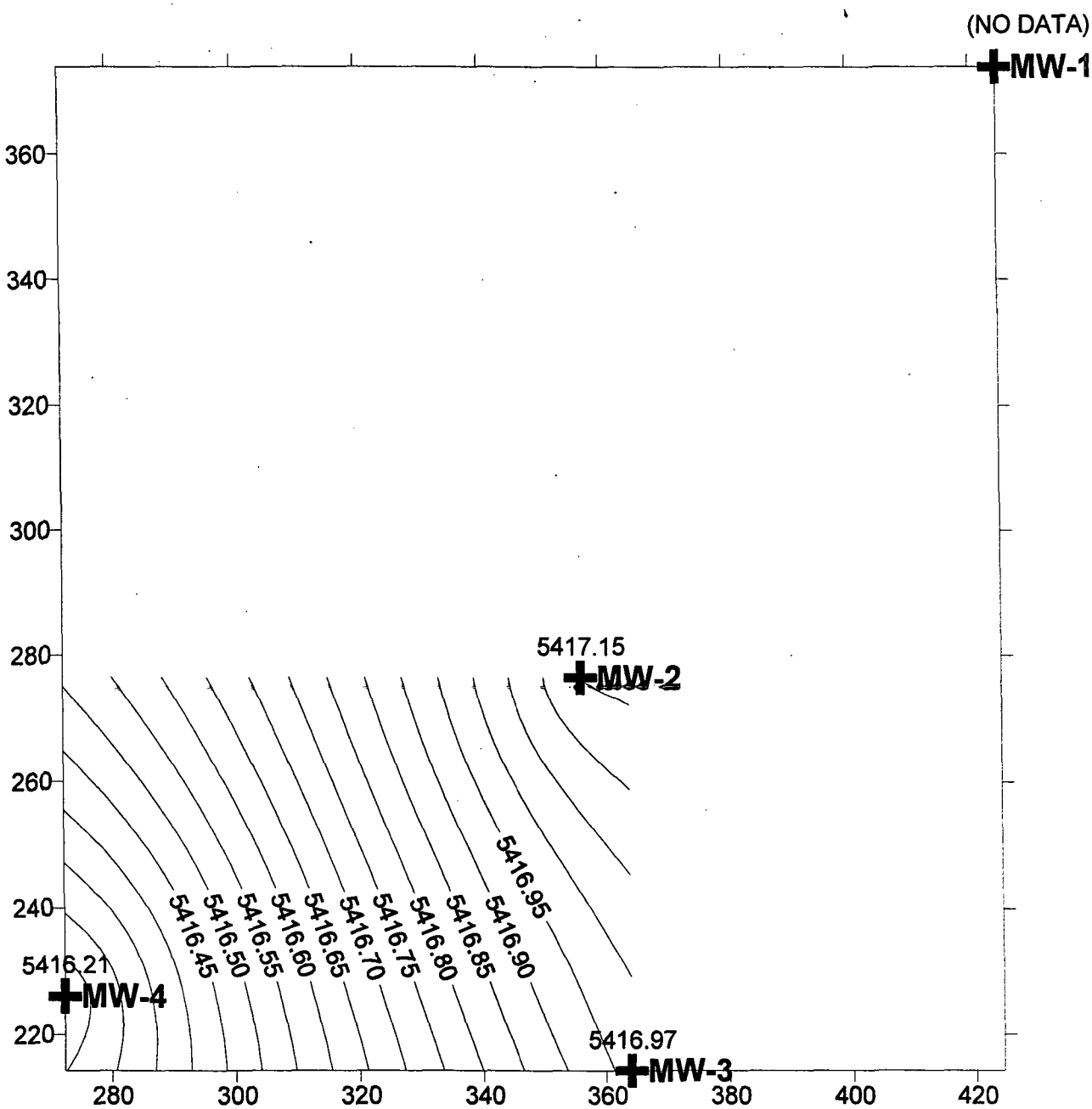


Figure 3a. Mangum 1E Groundwater Contour Map (April 28, 1998)



SCALE IN FEET
(X-axis = Easting,
Y-axis = Northing)

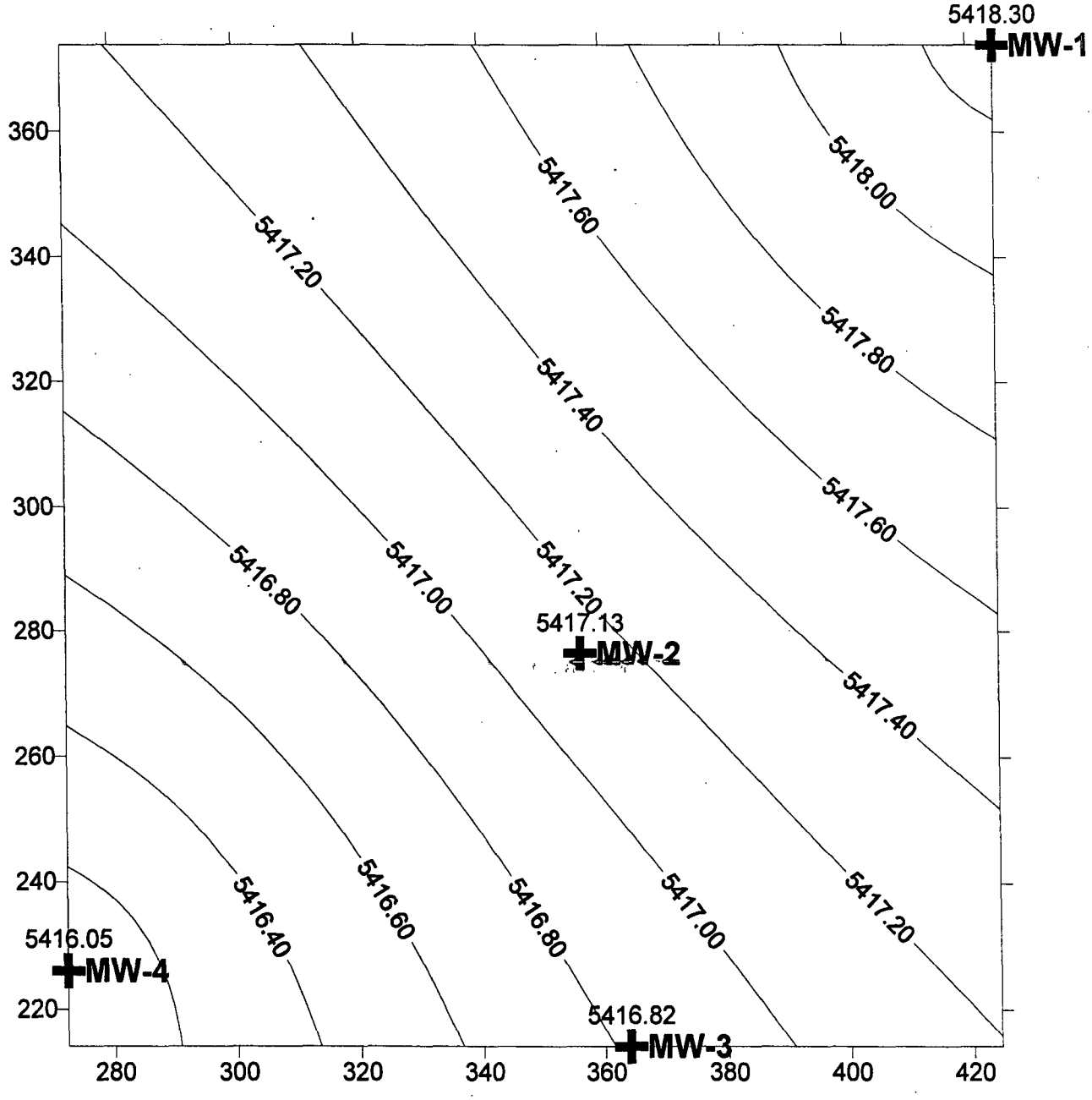
Figure 3b. Mangum 1E Groundwater Contour Map (July 9, 1998)



SCALE IN FEET
(X-axis = Easting,
Y-axis = Northing)

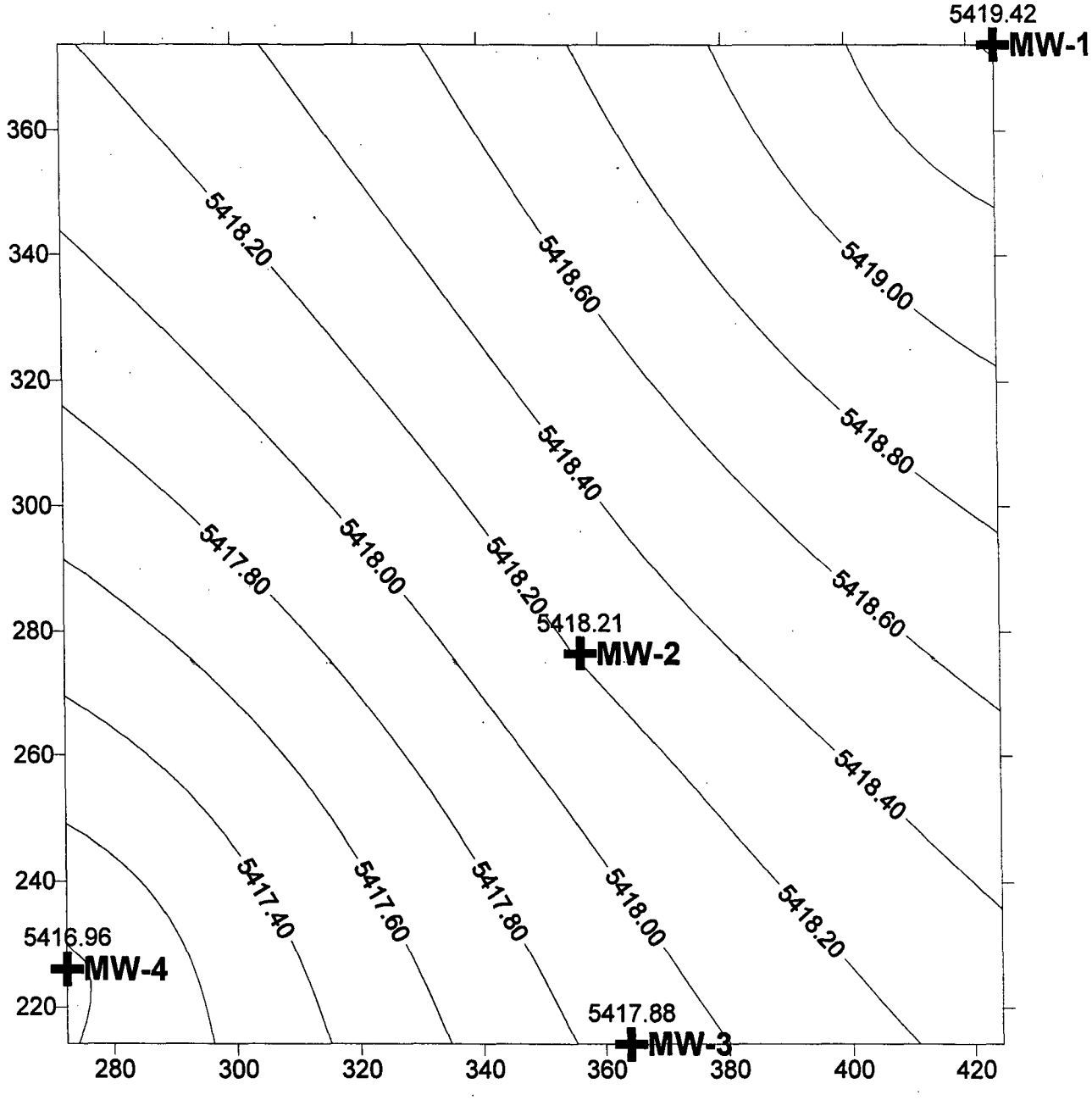
Mangum1E - 798

Figure 3c. Mangum 1E Groundwater Contour Map (October 16, 1998)



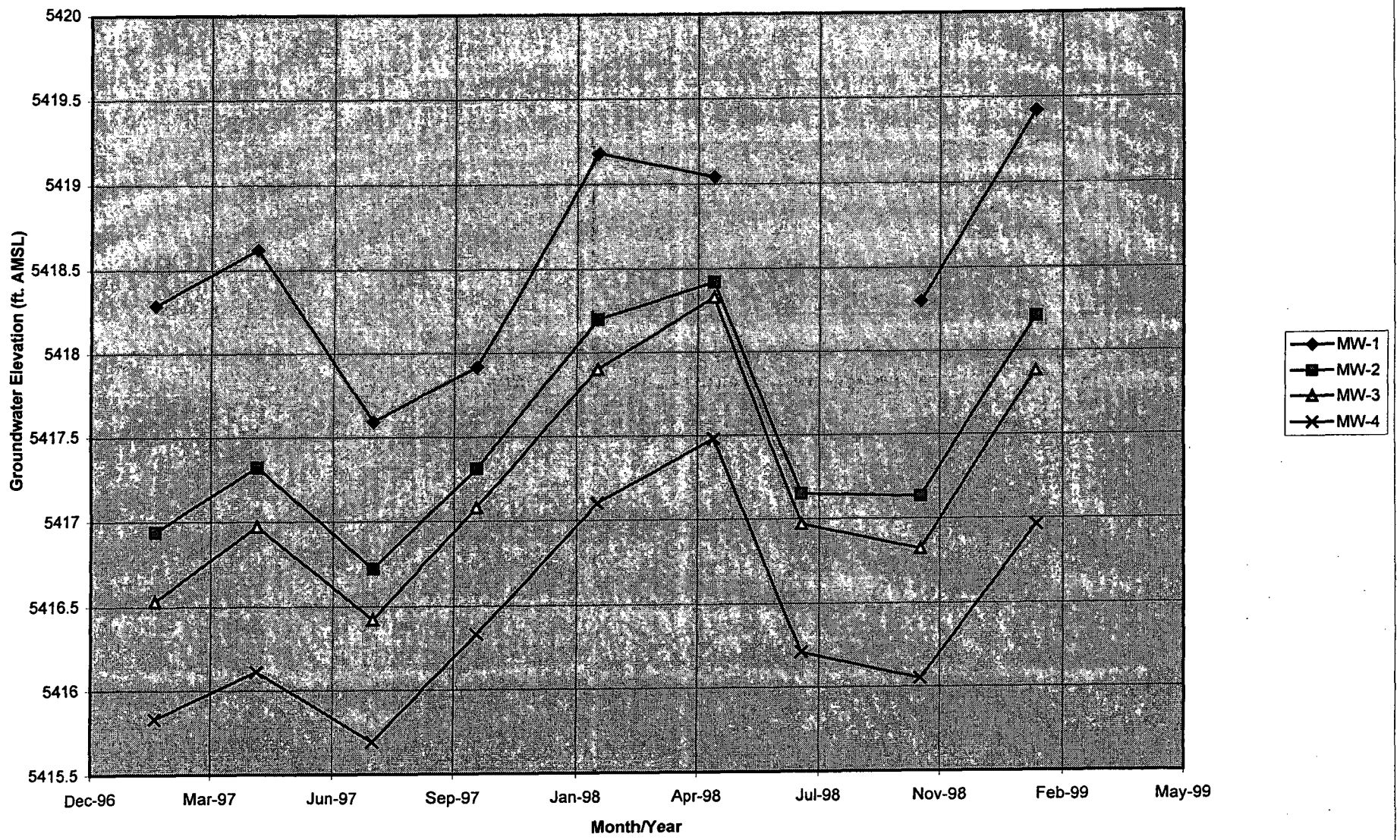
SCALE IN FEET
(X-axis = Easting,
Y-axis = Northing)

Figure 3d. Mangum 1E Groundwater Contour Map (January 18, 1999)



SCALE IN FEET
(X-axis = Easting,
Y-axis = Northing)

Figure 4. Mangum 1E Hydrograph
(Water Level vs. Time)



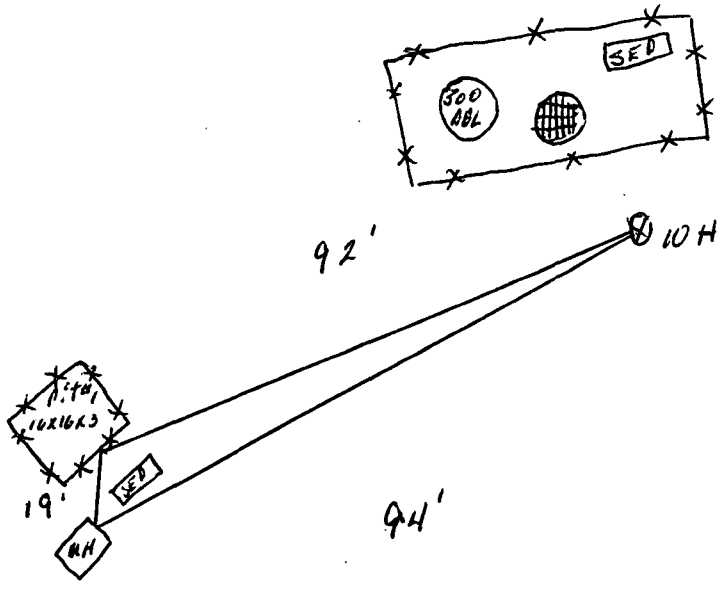
Mang1e99.XLS

Mowgum #1E

68° W of S

92' from wellhead

↑
N



33' From MH

100' to WH

85' from WH
35' from MH
0 PPM

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

Diesel Range Organics

Attn:	*Denver Bearden*	Date:	14-Nov-96
Company:	*PNM Gas Services*	*COC No.:*	*5135*
Address:	*603 W. Elm*	*Sample No.*	*12841*
City, State:	*Farmington, NM 87401*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Mangum #1E***				
Project Location:	***9611121430; Pit Excavation Composite, Wall Sample***				
Sampled by:	RH	Date:	12-Nov-96	Time:	14:30
Analyzed by:	DC/HR	Date:	13-Nov-96		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	*Result*	*Unit of Measure*	*Detection Limit*	*Unit of Measure*
Diesel Range Organics (C10 - C28)	<5.0	mg/kg	5.0	mg/kg

Quality Assurance Report

DRO QC No.: *0512-QC*

Calibration Check

Parameter	*Method Blank*	*Unit of Measure*	*True Value*	*Analyzed Value*	*% Diff*	*Limit*
Diesel Range (C10 - C28)	<5.0	ppm	100	100	0.5	15%

Matrix Spike

Parameter	*1- Percent Recovered*	*2 - Percent Recovered*	*Limit*	*%RSD*	*Limit*
Diesel Range (C10-C28)	93	92	(70-130)	1	20%

Method *- SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography*

Approved by:

Date: 11/14/96

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

AROMATIC VOLATILE ORGANICS

Attn:	*Denver Bearden*	*Date:*	14-Nov-96
Company:	*PNM Gas Services*	*COC No.:*	*5135*
Address:	*603 W. Elm*	*Sample No.:*	*12841*
City, State:	*Farmington, NM 87401*	*Job No.:*	*2-1000*

Project Name:	***PNM Gas Services - Mangum #1E***				
Project Location:	***9611121430; Pit Excavation Composite, Wall Sample***				
Sampled by:	RH	Date:	12-Nov-96	Time:	14:30
Analyzed by:	DC	Date:	13-Nov-96		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	*Result*	*Unit of Measure*	*Detection Limit*	*Unit of Measure*
Benzene	31.0	ug/kg	0.2	ug/kg
Toluene	616.7	ug/kg	0.2	ug/kg
Ethylbenzene	128.1	ug/kg	0.2	ug/kg
m,p-Xylene	967.0	ug/kg	0.2	ug/kg
o-Xylene	225.5	ug/kg	0.2	ug/kg
TOTAL	1968.1	ug/kg		

Method - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by:
Date: 11/14/96

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

AROMATIC VOLATILE ORGANICS

Attn:	*Denver Bearden*	*Date:*	12-Nov-96
Company:	*PNM Gas Services*	*COC No.:*	*5134*
Address:	*603 W. Elm*	*Sample No.:*	*12828*
City, State:	*Farmington, NM 87401*	*Job No.:*	*2-1000*

Project Name:	***PNM Gas Services - Magnum #1E***				
Project Location:	***9611120730; Pit Excavation Ground Water Sample***				
Sampled by:	RH	Date:	12-Nov-96	Time:	7:30
Analyzed by:	DC	Date:	12-Nov-96		
Sample Matrix:	*Water*				

Laboratory Analysis

Parameter	*Result*	*Unit of Measure*	*Detection Limit*	*Unit of Measure*
Benzene	128.3	ug/L	0.2	ug/L
Toluene	501.4	ug/L	0.2	ug/L
Ethylbenzene	157.8	ug/L	0.2	ug/L
m,p-Xylene	1866.8	ug/L	0.2	ug/L
o-Xylene	509.9	ug/L	0.2	ug/L
TOTAL	3164.3	ug/L		

Method - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by:
Date: 11/12/96