

NOVEMBER 04, 2011

**SUMMARY OF QUARTERLY
PERFORMANCE MONITORING FOR NORTHERN
AND SOUTHERN AREAS, AUGUST 2011
APACHE POWDER SUPERFUND SITE**



PREPARED FOR:

Apache Nitrogen Products, Inc.
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Benson, AZ 85602



PREPARED BY:

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NOVEMBER 04, 2011

VIA FEDERAL EXPRESS

Andria Benner
Remedial Project Manager
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Superfund Division SFD-6-2
75 Hawthorne Street
San Francisco, CA 94105

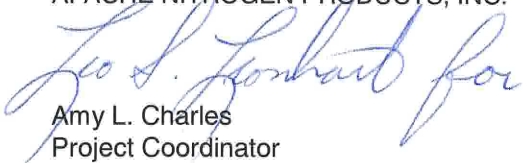
Re: Summary of Quarterly Performance Monitoring for Northern and Southern Areas, August 2011
prepared for Apache Nitrogen Products, Inc., Benson, Arizona.

Dear Ms. Benner:

Apache Nitrogen Products, Inc. is hereby submitting the above-referenced report. One hardcopy and one electronic copy of this report in Portable Document Format (PDF) are provided. If you have any questions or comments, please contact me at (520) 720-2105 or Dr. Leo Leonhart of Hargis + Associates, Inc. at (520) 881-7300, extension 201.

Sincerely,

APACHE NITROGEN PRODUCTS, INC.

A handwritten signature in blue ink that reads 'Leo S. Leonhart for Amy L. Charles'. The signature is written in a cursive style.

Amy L. Charles
Project Coordinator

Enclosures

cc: R.Wallin, ADEQ

**Summary of Quarterly Performance Monitoring for Northern and
Southern Areas, August 2011
Apache Powder Superfund Site
Cochise County, Arizona**

NOVEMBER 04, 2011

**Prepared for
Apache Nitrogen Products, Inc.
Benson, Arizona**

**Prepared by
Hargis + Associates, Inc.
Tucson, Arizona**

**This report was prepared under supervision
of an Arizona Registered Geologist:**



**Leo S. Leonhart, PhD, RG
Reg. No. 18133
Expires: June 30, 2012**



11-2-11

SUMMARY OF QUARTERLY PERFORMANCE MONITORING
NORTHERN AND SOUTHERN AREAS, AUGUST 2011
APACHE POWDER SUPERFUND SITE

INTRODUCTION

This report summarizes the results of the third quarter 2011 monitoring activities performed on August 19 through 24, 2011, at the Apache Powder Superfund Site (the Site) in Cochise County, Arizona. This work involved water level and water quality performance monitoring performed in accordance with the October 3, 1994, Record of Decision (ROD) and December 29, 1994, Unilateral Administrative Order (UAO) issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and subsequent amendments and explanations of significant differences (ESDs) to the ROD (EPA, 1994a and b; 1997, 2000, 2005, 2008). Work was performed according to procedures outlined in approved performance monitoring plans (PMPs) for the Northern and Southern Areas of the Site and the Quality Assurance Project Plan (QAPP) (Hargis + Associates, Inc. [H+A], 2007, 2009a, and 2010).

The August 2011 quarterly monitoring round included measurement of groundwater levels in perched zone monitor wells and piezometers, shallow aquifer monitor wells, Molinos Creek Sub-Aquifer (MCA) monitor wells, and selected shallow aquifer private wells, according to the monitoring schedules in the PMPs (Figure 1). Where sufficient formation water was encountered, groundwater samples were collected for analysis of chemicals of concern (COCs) and other selected quality parameters (Tables 1 through 5; Figure 1; Appendix A). Water samples were also collected at monitoring locations in the San Pedro River for analysis of COCs and other selected quality parameters. A summary of water quality monitoring locations and analyses performed during the August 2011 performance monitoring round is included (Table 1). Further discussion of the results is provided in the following sections.

GROUNDWATER LEVEL AND STREAM DISCHARGE MEASUREMENTS

Groundwater and surface water levels were measured across the PMP Network (Figure 1). The following sections report on the results of those measurements in the perched zone, the MCA and Shallow Aquifer portions of the Southern Area, and the Northern Area Remediation System (NARS) and the Monitored Natural Attenuation (MNA) Management Zone of the Northern Area. Surface water discharge was also measured in the San Pedro River.

GROUNDWATER LEVELS

On August 19, 2011, static water levels were measured in three perched zone piezometers, six perched zone monitor wells, 26 shallow aquifer monitor wells, shallow aquifer extraction well SEW-1, and 11 shallow aquifer private wells. The results for the August 2011 water level monitoring of perched zone piezometers and monitor wells, shallow aquifer monitor wells, and private wells are summarized in Tables 2 and 3. Water level hydrographs are provided in Appendix A. Across the network, results for the August 2011 water level monitoring showed mixed results in the perched zone, mainly decreases in the MCA and mainly decreases in the shallow aquifer as compared with the May 2011 data. Groundwater level decreases are typical at the Site during the spring, summer and fall quarters due to increased pumping and evapotranspiration.

Perched Zone

The water level in perched zone piezometer P-03 decreased 0.22 feet from May 2011 to August 2011. The water level in perched zone piezometer P-01 increased 0.45 feet from May 2011 to August 2011. The water levels in the perched zone appear to have stabilized over the past year. Perched zone piezometer P-10 and monitor wells MW-03 and MW-29 have remained dry (Tables 2 and 3; Figures A-1 through A-6). This is firm evidence that there continues to be no drainage from the perched zone into the MCA.

MCA

Water level decreases were observed in the MCA wells during the period May 2011 to August 2011. The water level decreases ranged from 0.98 feet in monitor well MW-21 to 3.34 feet in monitor well MW-24 (Table 2; Figures A-7 through A-11).

Southern Area Shallow Aquifer

Water levels in the Southern Area shallow aquifer mainly increased during the period May 2011 to August 2011 (Table 2; Figures A-12 through A-17). Water level increases did occur in the 4 southernmost wells and ranged from 0.03 feet in monitor well MW-14 to 0.52 feet in monitor well MW-06. Water level decreases occurred in the 2 northernmost wells and ranged from 1.85 feet in monitor well MW-25 to 1.88 feet in monitor well MW-33.

Northern Area Remediation System Monitor Wells

Water levels in the NARS mainly decreased during the period May 2011 to August 2011. Water level decreases ranged from 0.39 feet in monitor well MW-13 to 4.34 feet in monitor well MW-19 (Table 2; Figures A-18 through A-26). Water level increases did occur in 4 wells along the river and ranged from 0.23 feet in monitor well MW-36 to 1.19 feet in monitor well MW-35.

Monitor Wells and Private Wells in the MNA Management Zone

Water levels in the MNA Management Zone mainly decreased during the period May 2011 to August 2011. Water level decreases ranged from 0.18 feet in private wells D(17-20)36caa and D(18-21)08bab to 2.33 feet in private well D(18-21)06bcb. Water level increases did occur in 4 wells close to the river and ranged from 0.26 feet in monitor well MW-38 to 1.86 feet in private well D(17-20)36aad3 (Table 2; Figures A-27 through A-37).

SAN PEDRO RIVER

The San Pedro River was flowing at surface water stations SW-03, SW-04, SW-12 and SW-14 during the August 2011 monitoring round (Figures A-38 through A-42). Surface water discharge was measured at each station using a Marsh Birney flow meter. Surface water discharge ranged from 0.8 cubic feet per second (cfs), at SW-12, to 1.15 cfs at SW-04 on August 24, 2011. Surface water station SW-13 was dry. The low surface water discharge observed at stations SW-03, SW-04 SW-12 and SW-14 are typical of baseflow conditions due to groundwater discharge.

WATER QUALITY

Groundwater and surface water samples were collected across the PMP network for analysis of COCs and other selected water quality parameters. The following sections report on the results of those sampling and analysis findings in the perched zone, the MCA and Shallow Aquifer portions of the Southern Area; the NARS and MNA Management Zone of the Northern Area, and the San Pedro River (Figure 1).

SOUTHERN AREA

The Southern Area comprises three different areas that are monitored as part of the Southern Area PMP. These include the Perched Zone, MCA, and the Shallow Aquifer. Contamination comprising both nitrate as nitrogen (nitrate-N) and perchlorate is present only in the Perched Zone and MCA (Figure 1). The groundwater samples were analyzed for nitrate-N by EPA Method 300.0, and perchlorate by EPA Method 314.0. All samples were collected and analyzed in accordance with procedures specified in the Southern Area PMP and the QAPP (H+A, 2007 and 2010). Results of the August 2011 groundwater sampling are summarized in Table 4. Time-series graphs of historical water quality in the Southern Area are provided in Appendix A.

Perched Zone

August 2011 groundwater samples were collected at perched zone piezometer P-03 (Table 4; Figure A-2). Water quality analyses for the piezometer P-03 water samples showed an increase

in the concentration of nitrate-N from 9,200 milligrams per liter (mg/l) in May 2011 to 9,500 mg/l in August 2011 (Figure A-2). Perchlorate analyses for the piezometer P-03 water samples also showed an increase in the concentration of perchlorate from 510 micrograms per liter ($\mu\text{g/l}$) in May 2011 to 580 $\mu\text{g/l}$ in August 2011.

Perched zone piezometer P-10 and perched zone monitor wells MW-03, and -29, were not sampled because they were either dry or the residual water in the wells was insufficient to collect representative samples.

Perched Zone Remedy Performance

During the third quarter 2011, Apache Nitrogen Products, Inc. (ANPI) continued to extract and treat perched groundwater from perched zone piezometer P-03. A total of 1,862 gallons of perched groundwater was extracted from P-03. This corresponds to an estimated 142 pounds of nitrate-N and 0.0074 pounds of perchlorate removed and treated from the perched zone groundwater (Table 5). ANPI installed a solar powered pump system at P-03 in May 2010. Perched zone groundwater will continue to be extracted and treated during 2011.

MCA

August 2011 groundwater samples were collected at monitor wells MW-21 and MW-39 (Table 4; Figures A-7 through A-11). The nitrate-N concentration between May and August 2011 remained stable in monitor well MW-21 at 3,700 mg/l. The nitrate-N concentration decreased in monitor well MW-39 from 120 mg/l to 100 mg/l between May and August 2011.

The perchlorate concentration at monitor well MW-21 increased from 230 $\mu\text{g/l}$ to 260 $\mu\text{g/l}$ during the period May 2011 to August 2011. The perchlorate concentration at monitor well MW-39 remained stable at 130 $\mu\text{g/l}$ during the period May 2011 to August 2011.

Shallow Aquifer (Southern Area)

Groundwater samples are collected from shallow aquifer monitor wells MW-01, -06, -14, -22, and -33 on an annual or semiannual basis in February and August (Table 4; Figures A-12 through A-17). Monitor wells MW-01 and MW-06 in the Southern Area were sampled in August

2011. The nitrate-N concentration between February and August 2011 remained stable in monitor well MW-01 at less than 1 mg/l. The nitrate-N concentration increased in monitor well MW-06 from 2.4 mg/l to 2.7 mg/l between February and August 2011.

The perchlorate concentration at monitor wells MW-01 and MW-06 remained stable at less than the detection limit from the previous sampling event.

NORTHERN AREA

The Northern Area comprises two different areas of the shallow aquifer that are monitored as part of the Northern Area PMP (Figure 1). These include the NARS and the MNA Management Zone. The NARS includes the area within the capture envelope of extraction well SEW-1 and is situated in the southern portion of the Northern Area, mostly to the west of the San Pedro River. The MNA management zone is generally north of the NARS, extending toward the northern end of the St. David Basin. The only COC present in the Northern Area is nitrate-N. The groundwater samples were analyzed for nitrate-N by EPA Method 300.0. Results of the August 2011 groundwater sampling of monitor wells are summarized in Table 4. Time-series graphs of historical water quality at these locations are provided in Appendix A.

MNA parameters were scheduled to be collected at monitor wells MW-38, MW-40, MW-41B, MW-42 and D(17-20)25bad. However, the MNA field parameters were inadvertently omitted. The MNA parameters include a mix of field and lab analyzed parameters: alkalinity by Standard Method SM2320B, dissolved manganese by EPA method 200.7, sulfate by EPA method 300.0, dissolved iron, dissolved oxygen, oxidation reduction potential and total dissolved solids (Table 6). Future sampling schedules will be modified to more clearly identify to field personnel which wells require collection of MNA parameters. Otherwise, all samples were collected in accordance with procedures specified in the Northern Area PMP and the QAPP (H+A, 2009a and 2010).

Northern Area Remediation System (NARS)

August 2011 groundwater samples were collected at shallow aquifer monitor wells MW-08, -11, -13, -17, -18, -19, -34, -35, and -36 (Table 4; Figures A-18 through A-26). These wells are located within the SEW-1 capture zone. Nitrate-N concentrations ranged from 2.4 mg/l at

monitor well MW-34 to 210 mg/l at monitor well MW-36. The analytical results showed significant changes in monitor wells MW-11, MW-18 and MW-35. The nitrate-N concentration in MW-11 decreased from the nitrate standard of 10 mg/l to below the standard at 5.1 mg/l. The nitrate-N concentration in MW-18 increased from just below the nitrate standard at 9.9 mg/l to above the standard at 15 mg/l. The nitrate-N concentration in MW-35 showed a large increase from 19 mg/l to 74 mg/l in MW-35.

NARS Remedy Performance

During the third quarter 2011, ANPI continued to extract and treat shallow aquifer groundwater from extraction well SEW-1 (Table 5). A total of 23,232,270 gallons of shallow aquifer groundwater was extracted from SEW-1. This corresponds to approximately 13,115 pounds of nitrate-N removed and treated from the shallow aquifer groundwater. Shallow aquifer groundwater will continue to be extracted and treated during 2011.

On July 28, 2011, it was discovered that SEW-1 was running 24 hours a day, 7 days a week since the beginning of May 2011. A power supply problem is believed responsible for resetting the time to pump continuously. SEW-1 was reset to pump at 16 hours per day on July 28, 2011.

Monitor Wells in the MNA Management Zone

August 2011 groundwater samples were collected at shallow aquifer monitor wells MW-20, -38, -40, -41A, -41B, and -42. Nitrate-N concentrations ranged between 1.5 mg/l at monitor well MW-41A to 8.0 mg/l in monitor well MW-42 (Table 4 and Figures A-27 through A-32). The analytical results indicated no significant changes in the concentrations of nitrate-N concentrations in the wells. The MNA sampling in monitor wells MW-38, MW-40, MW-41B, MW-42 showed no significant changes.

Private Wells in the MNA Management Zone

Third quarter 2011 groundwater samples were scheduled for collection at shallow aquifer private wells D(17-20)23ada, D(17-20)25bad, D(17-20)36aad1, D(17-20)36caa, D(17-20)36caa2, D(17-20)36cdb, D(17-20)36ddc, D(18-20)01aad and D(18-21)06bcb (Table 4 and Figures A-33 through A-37). D(17-20)23ada was not sampled as the owner has died and

the house is vacant. D(18-20)01aad was not sampled because the well was not pumping during the sampling event. Nitrate-N concentrations ranged from 2.3 mg/l at private wells D(17-20)25bad and D(17-20)36caa to 16.0 mg/l at private well D(18-21)06bcb during August 2011. The analytical results indicated no significant changes in the concentrations of nitrate-N at shallow aquifer private wells sampled except at D(18-21)06bcb. Concentrations of nitrate-N increased from just below the nitrate standard at 9.8 mg/l to above the standard at 16 mg/l at D(18-21)06bcb. Concentrations of nitrate-N at private well D(18-21)06bcb have ranged between 9.7 mg/l and 16.0 mg/l from May 2010 to August 2011 (Figure A-37). This private well will continue to be monitored quarterly. When the nitrate concentration at D(18-21)06bcb remains less than 10 mg/l for four or more quarters, ANPI will terminate delivery of bottled water per the Alternate Domestic Water Supply Plan, Revision 3.0 (H+A, 2009b).

Private well D(17-20)25bad was also sampled for MNA parameters. No significant changes were observed in the results.

SAN PEDRO RIVER WATER QUALITY

August 2011 surface water samples were collected along the San Pedro River at stations SW-03, -04, -12, and SW-14 (Figure 1). All samples were analyzed for nitrate-N by EPA Method 300.0. The surface water station SW-14 sample was also analyzed for perchlorate by EPA method 314.0. All samples were collected and analyzed in accordance with procedures specified in the respective PMPs and the QAPP (H+A, 2007, 2009a, and 2010). Time-series graphs of historical water quality at surface water monitoring locations are provided in Appendix A.

Nitrate-N was detected at surface water monitoring locations SW-03 and SW-04 (Table 4; Figures A-38 through A-42). Nitrate-N concentrations decreased from 10.0 mg/l in May 2011 to 1 mg/l in August 2011 at SW-03. Nitrate-N concentrations decreased from 11 mg/l in May 2011 to 1.4 mg/l in August 2011 at SW-04. Nitrate-N concentrations were not detected at surface water monitoring locations SW-12 and SW-14. The perchlorate concentration at SW-14 remained at less than the detection limit. Surface water location SW-13 was dry. The results indicated no significant change in historical trend. Generally, nitrate-N is only detected at locations where the San Pedro River is a gaining stream or some distance downstream from such reaches. However, the influence of these groundwater discharges on San Pedro River

water quality is also dependent on the magnitude of the runoff component of the stream at the time of sampling.

REFERENCES

- Hargis + Associates, Inc. (H+A), 2007. Southern Area Performance Monitoring Plan, Revision 2.0. September 5, 2007.
- _____, 2009a. Performance Monitoring Plan for Monitored Natural Attenuation of Shallow Aquifer Groundwater in the Northern Area Revision 1.0 of the Apache Powder Superfund Site. February 12, 2009.
- _____, 2009b. Alternate Domestic Water Supply Plan, Revision 3.0. February 12, 2009.
- _____, 2010. Quality Assurance Project Plan Performance Monitoring and Operation and Maintenance of Remedies Revision 1.0. Apache Powder Superfund Site, Cochise County, AZ. June 14, 2010.
- EPA [U.S. Environmental Protection Agency], 1994a. Apache Powder Superfund Site, Record of Decision. October 3, 1994.
- _____, 1994b. EPA Unilateral Administrative Order for Remedial Design, Remedial Action and Other Response Actions: U.S. EPA Docket No. 95-07; Issued to Apache Nitrogen Products, Inc., December 21, 1994, Effective Date: December 29, 1994.
- _____, 1997. Memorandum from John Kemmerer, Acting Superfund Enforcement Branch Chief, EPA Region IX, to Keith Takata, Superfund Division Director, EPA Region IX; re: Apache Superfund Site - Explanation of Significant Differences. April 16, 1997.
- _____, 2000. Letter from Ms. Andria Benner, EPA, to Ms. Kerstin Alter, ANP, re: Explanation of Significant Difference (ESD) #2; September 29, 2000.
- _____, 2005. Amendment to the Apache Powder Superfund Site, Record of Decision. September 30, 2005.
- _____, 2008. Letter from John Lucey of EPA to Pamela Beilke of ANP. Re: EPA_Explanation of Significant Differences approving MNA in the Northern Area July 31, 2008.

TABLES

TABLE 1
SUMMARY OF WATER QUALITY MONITORING LOCATIONS
AND ANALYSES PERFORMED AUGUST 2011

WELL IDENTIFIER	3RD QUARTER AUGUST 2011			
	DRY*	NO ₃ -N	ClO ₄	MNA PARAMETERS
P-03		X	X	
P-10	DRY*			
MW-01		X	X	
MW-03	DRY*			
MW-06		X	X	
MW-08		X		
MW-11		X		
MW-13		X		
MW-14	NS			
MW-15	DRY*			
MW-17		X		
MW-18		X		
MW-19		X		
MW-20		X		
MW-21		X	X	
MW-22	NS			
MW-23	NS			
MW-24	NS			
MW-29	DRY*			
MW-33	NS			
MW-34		X		
MW-35		X		
MW-36		X		
MW-38		X		X
MW-39		X	X	
MW-40		X		X
MW-41A		X		
MW-41B		X		X
MW-42		X		X
D(17-20)23acd (Levy/Drow)	NS			
D(17-20)23ada (Dill)	NS			
D(17-20)25bad (Spears)		X		X
D(17-20)36aad1 (Jacobs)		X		
D(17-20)36caa (Gaynor)		X		
D(17-20)36caa2 (Hyder)		X		
D(17-20)36cdb (Woolever)		X		

TABLE 1
 SUMMARY OF WATER QUALITY MONITORING LOCATIONS
 AND ANALYSES PERFORMED AUGUST 2011
 Page 2 of 2

WELL IDENTIFIER	3RD QUARTER AUGUST 2011			
	DRY*	NO ₃ -N	ClO ₄	MNA PARAMETERS
D(17-20)36ddc (Morales)		X		
D(18-20)01aad (McRae)	NS			
D(18-21)06bcb (Jones)		X		
SW-03		X		
SW-04		X		
SW-12		X		
SW-13	DRY*			
SW-14		X	X	

FOOTNOTES:

MNA PARAMETERS = Alkalinity, sulfate, total dissolved solids, dissolved manganese

ClO₄ = Perchlorate

DRY* = Dry or water level insufficient for sample collection

NO₃-N = Nitrate as Nitrogen

NS = Not Sampled

TABLE 2
WATER LEVEL ELEVATION DATA

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
01 PERCHED ZONE PIEZOMETERS				
P-01	11/12/2010	3688.93	23.81	3665.12
	2/4/2011		23.87	3665.06
	5/16/2011		23.78	3665.15
	8/19/2011		23.33	3665.6
P-03	11/12/2010	3674.45	36.89	3637.56
	2/4/2011		36.55	3637.9
	5/16/2011		36.81	3637.64
	8/19/2011		37.03	3637.42
P-10	11/12/2010	3669.12	DRY	---
	2/4/2011		DRY	---
	5/16/2011		DRY	---
	8/19/2011		DRY	---
02 PERCHED ZONE MONITOR WELLS				
MW-03	11/12/2010	3670.69	DRY	---
	2/4/2011		DRY	---
	5/16/2011		DRY	---
	8/19/2011		DRY	---
MW-04	11/12/2010	3685.20	DRY	---
	2/4/2011		DRY	---
	5/16/2011		DRY	---
	8/19/2011		DRY	---
MW-29	11/12/2010	3664.91	DRY	---
	2/4/2011		DRY	---
	5/16/2011		DRY	---

(see page 11 for explanation of abbreviations)



TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 2 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
02 PERCHED ZONE MONITOR WELLS				
MW-29	8/19/2011	3664.91	DRY	---
MW-30	11/12/2010	3664.28	DRY	---
	2/4/2011		DRY	---
	5/16/2011		DRY	---
	8/19/2011		DRY	---
MW-31	11/12/2010	3662.58	DRY	---
	2/4/2011		DRY	---
	5/16/2011		DRY	---
	8/19/2011		DRY	---
MW-32	11/12/2010	3659.37	DRY	---
	2/4/2011		DRY	---
	5/16/2011		DRY	---
	8/19/2011		DRY	---
03 MCA MONITOR WELLS				
MW-15	11/12/2010	3655.59	DRY	---
	2/4/2011		DRY	---
	5/16/2011		DRY	---
	8/19/2011		DRY	---
MW-21	11/12/2010	3662.87	63.21	3599.66
	2/4/2011		62.03	3600.84
	5/16/2011		61.92	3600.95
	8/19/2011		62.9	3599.97
MW-23	11/12/2010	3660.66	UTM	---

(see page 11 for explanation of abbreviations)

TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 3 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
03 MCA MONITOR WELLS				
MW-23				
	2/4/2011	3660.66	UTM	---
	5/16/2011		58.92	3601.74
	8/19/2011		61.31	3599.35
MW-24				
	11/12/2010	3624.50	26.26	3598.24
	2/4/2011		23.82	3600.68
	5/16/2011		23.8	3600.7
	8/19/2011		27.14	3597.36
MW-39				
	11/12/2010	3649.14	49.3	3599.84
	2/4/2011		47.88	3601.26
	5/16/2011		46.93	3602.21
	8/19/2011		49.63	3599.51
04 SOUTHERN AREA SHALLOW AQUIFER MONITOR WELLS				
MW-01				
	11/12/2010	3631.00	18.29	3612.71
	2/4/2011		17.77	3613.23
	5/16/2011		18	3613
	8/19/2011		17.76	3613.24
MW-06				
	11/12/2010	3648.44	22.75	3625.69
	2/4/2011		22.38	3626.06
	5/16/2011		22.61	3625.83
	8/19/2011		22.09	3626.35
MW-14				
	11/12/2010	3623.59	15.89	3607.7
	2/4/2011		14.1	3609.49
	5/16/2011		14.3	3609.29
	8/19/2011		14.27	3609.32

(see page 11 for explanation of abbreviations)

TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 4 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
04 SOUTHERN AREA SHALLOW AQUIFER MONITOR WELLS				
MW-22				
	11/12/2010	3624.96	18.25	3606.71
	2/4/2011		15.66	3609.3
	5/16/2011		16.02	3608.94
	8/19/2011		15.84	3609.12
MW-25				
	11/12/2010	3621.01	21.49	3599.52
	2/4/2011		22.24	3598.77
	5/16/2011		20.25	3600.76
	8/19/2011		22.1	3598.91
MW-33				
	11/12/2010	3623.69	21.59	3602.1
	2/4/2011		18.8	3604.89
	5/16/2011		18.64	3605.05
	8/19/2011		20.52	3603.17
05 NARS SHALLOW AQUIFER MONITOR WELLS				
MW-08				
	11/12/2010	3638.95	68.45	3570.5
	2/4/2011		66.61	3572.34
	3/11/2011		65.14	3573.81
	3/25/2011		65.3	3573.65
	4/8/2011		64.5	3574.45
	4/14/2011		64.48	3574.47
	5/16/2011		67.56	3571.39
	8/19/2011		71.41	3567.54
MW-11				
	11/12/2010	3615.67	27.62	3588.05
	2/4/2011		26.44	3589.23
	5/16/2011		26.98	3588.69
	8/19/2011		26.41	3589.26

(see page 11 for explanation of abbreviations)

TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 5 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
05 NARS SHALLOW AQUIFER MONITOR WELLS				
MW-13				
	11/12/2010	3622.12	29.13	3592.99
	2/4/2011		27.55	3594.57
	5/16/2011		28.69	3593.43
	8/23/2011		29.08	3593.04
MW-17				
	11/12/2010	3624.57	54.29	3570.28
	2/4/2011		51.99	3572.58
	3/11/2011		50.69	3573.88
	3/25/2011		50.52	3574.05
	4/8/2011		50.34	3574.23
	4/14/2011		50.41	3574.16
	5/16/2011		53.6	3570.97
	8/19/2011		56.79	3567.78
MW-18				
	11/12/2010	3624.53	56.8	3567.73
	2/4/2011		53.53	3571
	3/11/2011		52.37	3572.16
	3/25/2011		52.22	3572.31
	4/8/2011		51.84	3572.69
	4/14/2011		51.88	3572.65
	5/16/2011		55.21	3569.32
	8/19/2011		58.31	3566.22
MW-19				
	11/12/2010	3641.08	71.86	3569.22
	2/4/2011		69.07	3572.01
	3/11/2011		67.73	3573.35
	3/25/2011		67.37	3573.71
	4/8/2011		66.91	3574.17
	4/14/2011		66.86	3574.22
	5/16/2011		69.58	3571.5
	8/19/2011		73.92	3567.16

(see page 11 for explanation of abbreviations)

TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 6 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
05 NARS SHALLOW AQUIFER MONITOR WELLS				
MW-34				
	11/12/2010	3614.00	26.51	3587.49
	2/4/2011		25.56	3588.44
	5/16/2011		25.62	3588.38
	8/19/2011		25.25	3588.75
MW-35				
	11/12/2010	3596.16	11	3585.16
	2/4/2011		10.67	3585.49
	3/11/2011		10.75	3585.41
	3/25/2011		10.77	3585.39
	4/8/2011		10.79	3585.37
	4/14/2011		11.11	3585.05
	5/16/2011		11.01	3585.15
	8/19/2011		9.82	3586.34
MW-36				
	11/12/2010	3609.52	24.12	3585.4
	2/4/2011		23.15	3586.37
	3/11/2011		23.3	3586.22
	3/25/2011		23.3	3586.22
	4/8/2011		23.3	3586.22
	4/14/2011		23.45	3586.07
	5/16/2011		22.75	3586.77
	8/19/2011		22.52	3587
06 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER MONITOR WELLS				
MW-20				
	11/12/2010	3601.25	28.9	3572.35
	2/4/2011		24.6	3576.65
	5/16/2011		27.72	3573.53
	8/19/2011		28.51	3572.74

(see page 11 for explanation of abbreviations)

TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 7 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
06 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER MONITOR WELLS				
MW-38	11/12/2010	3571.35	28.93	3542.42
	2/4/2011		23.15	3548.2
	5/16/2011		28.95	3542.4
	8/19/2011		28.69	3542.66
MW-40	11/12/2010	3589.43	28	3561.43
	2/4/2011		26.38	3563.05
	5/16/2011		27.57	3561.86
	8/19/2011		26.38	3563.05
MW-41A	11/12/2010	3574.93	20.98	3553.95
	2/4/2011		19.51	3555.42
	5/17/2011		20	3554.93
	8/23/2011		22	3552.93
MW-41B	11/12/2010	3574.93	23.9	3551.03
	2/4/2011		21.51	3553.42
	5/17/2011		22.94	3551.99
	8/23/2011		23.33	3551.6
MW-42	11/12/2010	3603.29	38.95	3564.34
	2/4/2011		36.06	3567.23
	3/11/2011		35.76	3567.53
	3/25/2011		35.66	3567.63
	4/8/2011		36.14	3567.15
	4/14/2011		36.23	3567.06
	5/16/2011		38.23	3565.06
	8/19/2011		38.9	3564.39

(see page 11 for explanation of abbreviations)



TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 8 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
07 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER PRIVATE WELLS				
D(17-20)23acd(Drow)				
	2/4/2011	3550.78	UTM	---
	5/16/2011		UTM	---
	8/19/2011		UTM	---
D(17-20)23ada(Dill)				
	11/12/2010	3542.81	UTM	---
	2/4/2011		UTM	---
	5/16/2011		UTM	---
	8/19/2011		UTM	---
D(17-20)24ccd(Kartchner)				
	2/4/2011	3558.56	UTM	---
D(17-20)36aad1 (Jacobs)				
	11/12/2010	3581.34	23.89	3557.45
	2/4/2011		23.33	3558.01
	5/16/2011		23.29	3558.05
	8/19/2011		24.43	3556.91
D(17-20)36aad3 (Acuña)				
	11/12/2010	3582.00	23.82	3558.18
	2/4/2011		23.2	3558.8
	5/16/2011		23.96	3558.04
	8/19/2011		22.1	3559.9
D(17-20)36caa (Gaynor)				
	11/12/2010	3589.65	39.3	3550.35
	2/4/2011		28.99	3560.66
	5/16/2011		35.12	3554.53
	8/19/2011		35.3	3554.35
D(17-20)36caa2(Hyder)				
	11/12/2010	3588.84	32.31	3556.53
	2/4/2011		31.68	3557.16
	5/16/2011		33.64	3555.2

(see page 11 for explanation of abbreviations)



TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 9 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
07 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER PRIVATE WELLS				
D(17-20)36caa2(Hyder)				
	8/19/2011	3588.84	32.25	3556.59
D(17-20)36cad1 (McCann)				
	11/12/2010	3591.69	32.45	3559.24
	2/4/2011		30.44	3561.25
	5/16/2011		32.21	3559.48
	8/24/2011		32.9	3558.79
D(17-20)36cdb (Woolever)				
	11/12/2010	3610.64	50.39	3560.25
	2/4/2011		48.29	3562.35
	5/16/2011		50.29	3560.35
	8/19/2011		50.7	3559.94
D(17-20)36dad (Ohlde)				
	11/12/2010	3600.00	35.1	3564.9
	2/4/2011		31.77	3568.23
	5/16/2011		34.99	3565.01
	8/19/2011		UTM	---
D(17-20)36ddc (Morales)				
	11/12/2010	3590.60	29.12	3561.48
	2/4/2011		26.51	3564.09
	5/16/2011		28.61	3561.99
	8/19/2011		29.25	3561.35
D(18-21)06ada (White)				
	11/12/2010	3626.00	35.38	3590.62
	2/4/2011		36.75	3589.25
	5/18/2011		38.42	3587.58
	8/19/2011		39.57	3586.43
D(18-21)06bab (Alexander)				
	11/12/2010	3610.00	29.55	3580.45
	2/4/2011		27.01	3582.99

(see page 11 for explanation of abbreviations)

TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 10 of 11

IDENTIFIER	DATE MEASURED	MEASURING POINT ELEVATION (feet msl)	DEPTH TO WATER (feet bmp)	WATER LEVEL ELEVATION (feet msl)
07 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER PRIVATE WELLS				
D(18-21)06bab (Alexander)				
	5/16/2011	3610.00	32.2	3577.8
	8/19/2011		31.39	3578.61
D(18-21)06bcb (Jones)				
	11/12/2010	3612.80	42.94	3569.86
	2/4/2011		38.22	3574.58
	3/11/2011		37.5	3575.3
	3/25/2011		37.9	3574.9
	4/8/2011		38.2	3574.6
	4/14/2011		38.26	3574.54
	5/16/2011		40.27	3572.53
	8/19/2011		42.6	3570.2
D(18-21)06bcc2 (Wooten)				
	11/12/2010	3635.00	68.52	3566.48
	2/4/2011		63.96	3571.04
	5/16/2011		65.4	3569.6
D(18-21)08bab (Tenopir)				
	11/12/2010	3625.00	23.81	3601.19
	2/4/2011		24.81	3600.19
	5/16/2011		24.12	3600.88
	8/19/2011		24.3	3600.7

(see page 11 for explanation of abbreviations)



HARGIS + ASSOCIATES, INC.

TABLE 2 (continued)
WATER LEVEL ELEVATION DATA

Page 11 of 11

FOOTNOTES:

feet msl = feet above mean sea level

bmp = below measuring point

UTM = unable to measure

NM = not measured

RP = recently pumped

PWL = pumping water level



TABLE 3
SATURATED THICKNESS OF PERCHED ZONE

IDENTIFIER	DATE MEASURED	WATER LEVEL ELEVATION (feet msl)	ELEVATION OF SCREEN BOTTOM (feet msl)	SATURATED THICKNESS OF PERCHED ZONE (feet)
PERCHED ZONE PIEZOMETERS				
P-01	2/4/2011	3665.06	3662.23	2.83
	5/16/2011	3665.15		2.92
P-03	2/4/2011	3637.9	3629.03	8.87
	5/16/2011	3637.64		8.61
P-10	2/4/2011	DRY	3622.78	0.00
	5/16/2011	DRY		0.00
PERCHED ZONE MONITOR WELLS				
MW-03	2/4/2011	DRY	3636.88	0.00
	5/16/2011	DRY		0.00
MW-04	2/4/2011	DRY	3662.32	0.00
	5/16/2011	DRY		0.00

(see page 2 for explanation of abbreviations)



HARGIS + ASSOCIATES, INC.

TABLE 3 (continued)
SATURATED THICKNESS OF PERCHED ZONE

Page 2 of 2

FOOTNOTES:

feet msl = feet above mean sea level



TABLE 4
GROUNDWATER QUALITY DATA
(NITRATE AND PERCHLORATE)

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
01 PERCHED ZONE PIEZOMETERS				
P-03				
	2/15/2010	7700	600	ORG
	5/17/2010	7400	480	FD
	5/17/2010	7400	460	ORG
	8/23/2010	7100 (E)	550	ORG
	11/15/2010	7200 (E)	560	ORG
	2/7/2011	6900 (E)	490	ORG
	5/17/2011	9200 (E)	510	ORG
	8/22/2011	9500	580	ORG
03 MCA MONITOR WELLS				
MW-15				
	5/17/2010	32	47	FD
	5/17/2010	32	43	ORG
MW-21				
	2/15/2010	2800	290	ORG
	5/17/2010	3000	270	ORG
	8/23/2010	3460 (E)	319	ORG
	11/15/2010	3400 (E)	280	ORG
	11/15/2010	4100 (E)	270	FD
	2/7/2011	3600 (E)	340	FD
	2/7/2011	3400 (E)	420	ORG
	5/17/2011	3700 (E)	230	ORG
	8/22/2011	3700	260	ORG
MW-23				
	5/17/2010	11	23 (E)	ORG
	5/17/2011	7.3	17	ORG

(see page 13 for explanation of abbreviations)



TABLE 4 (continued)
GROUNDWATER QUALITY DATA
Page 2 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
03 MCA MONITOR WELLS				
MW-24				
	5/17/2010	1.2	2.2	ORG
	11/15/2010	1.2	3.7	SPT
	11/15/2010	3 (E)	< 4	ORG
	5/17/2011	1.2	2.6	SPT
	5/17/2011	1.5	< 4	ORG
MW-39				
	2/15/2010	110	140	ORG
	5/17/2010	110	120	ORG
	8/23/2010	97.9 (E)	112	ORG
	11/15/2010	110 (E)	140	ORG
	2/7/2011	110 (E)	140	ORG
	5/17/2011	120 (E)	130	FD
	5/17/2011	120 (E)	130	ORG
	8/22/2011	100	130	ORG
04 SOUTHERN AREA SHALLOW AQUIFER MONITOR WELLS				
MW-01				
	2/15/2010	< 0.5	< 1	ORG
	8/24/2010	< 0.1	< 0.1	ORG
	2/8/2011	< 1	NA	ORG
	8/22/2011	< 1	< 4	ORG
MW-06				
	2/15/2010	< 0.5	< 1	ORG
	8/23/2010	0.23	< 2	SPT
	8/23/2010	0.355 (E)	< 1	ORG

(see page 13 for explanation of abbreviations)



TABLE 4 (continued)
GROUNDWATER QUALITY DATA
Page 3 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
04 SOUTHERN AREA SHALLOW AQUIFER MONITOR WELLS				
MW-06				
	2/7/2011	2.4 (E)	< 4	ORG
	8/22/2011	< 0.2	NA	SPT
	8/22/2011	2.7	< 4	ORG
MW-14				
	2/15/2010	0.52	< 1	ORG
	2/15/2010	0.4	< 2	SPT
	2/7/2011	< 1 (E)	< 4	ORG
MW-22				
	2/15/2010	< 0.5	< 1	ORG
	2/7/2011	< 1 (E)	< 4	ORG
MW-33				
	2/15/2010	< 0.5	< 1	FD
	2/15/2010	< 0.5	< 1	ORG
	2/7/2011	< 0.2	NA	SPT
	2/7/2011	< 1 (E)	< 4	ORG
05 NARS SHALLOW AQUIFER MONITOR WELLS				
MW-08				
	2/15/2010	51	NA	ORG
	5/17/2010	44	NA	ORG
	8/23/2010	40.2 (E)	NA	ORG
	11/15/2010	43 (E)	NA	ORG
	2/7/2011	37 (E)	NA	ORG
	5/17/2011	36 (E)	NA	ORG
	8/22/2011	40	NA	ORG

(see page 13 for explanation of abbreviations)



TABLE 4 (continued)
GROUNDWATER QUALITY DATA
Page 4 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
05 NARS SHALLOW AQUIFER MONITOR WELLS				
MW-11				
	5/17/2010	10	NA	ORG
	8/22/2011	5.1	NA	ORG
MW-13				
	2/15/2010	21	NA	ORG
	5/18/2010	21	NA	ORG
	8/23/2010	21.5 (E)	NA	ORG
	2/7/2011	16 (E)	NA	ORG
	8/23/2011	17	NA	FD
	8/23/2011	17	NA	ORG
MW-17				
	2/15/2010	9.2	NA	ORG
	8/23/2010	6.11 (E)	NA	ORG
	2/7/2011	4.8	NA	FD
	2/7/2011	4.7 (E)	NA	ORG
	8/23/2011	8.4	NA	ORG
MW-18				
	2/15/2010	12	NA	ORG
	8/23/2010	11.5 (E)	NA	ORG
	2/7/2011	9.9 (E)	NA	ORG
	8/23/2011	15	NA	ORG
MW-19				
	2/16/2010	18 (E)	NA	FD
	2/16/2010	14 (E)	NA	ORG
	5/17/2010	17	NA	ORG
	8/23/2010	17.3 (E)	NA	ORG

(see page 13 for explanation of abbreviations)

TABLE 4 (continued)
GROUNDWATER QUALITY DATA

Page 5 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
05 NARS SHALLOW AQUIFER MONITOR WELLS				
MW-19				
	11/15/2010	24 (E)	NA	ORG
	2/7/2011	16 (E)	NA	FD
	2/7/2011	16 (E)	NA	ORG
	5/17/2011	16 (E)	NA	ORG
	8/22/2011	14	NA	ORG
MW-34				
	2/16/2010	50	NA	ORG
	2/16/2010	49 (E)	NA	SPT
	2/25/2010	64	< 1	ORG
	5/18/2010	120 (E)	NA	ORG
	8/24/2010	3.76	NA	ORG
	11/16/2010	< 0.2	NA	SPT
	11/16/2010	< 1	NA	ORG
	2/7/2011	< 1 (E)	NA	ORG
	5/17/2011	< 1	NA	ORG
	8/23/2011	2.4	NA	ORG
MW-35				
	2/16/2010	34	NA	ORG
	5/18/2010	21	NA	ORG
	8/24/2010	65.5	NA	ORG
	11/16/2010	58 (E)	NA	FD
	11/16/2010	57 (E)	NA	ORG
	2/7/2011	30 (E)	NA	ORG
	5/17/2011	19 (E)	NA	ORG
	8/23/2011	74	NA	ORG

(see page 13 for explanation of abbreviations)

TABLE 4 (continued)
GROUNDWATER QUALITY DATA

Page 6 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
05 NARS SHALLOW AQUIFER MONITOR WELLS				
MW-36				
	2/16/2010	320	NA	ORG
	5/18/2010	280	NA	ORG
	8/24/2010	263	NA	ORG
	11/16/2010	260 (E)	NA	ORG
	2/7/2011	220 (E)	NA	ORG
	5/17/2011	210 (E)	NA	ORG
	8/23/2011	210	NA	ORG
06 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER MONITOR WELLS				
MW-20				
	2/16/2010	2.2	NA	ORG
	8/24/2010	3	NA	SPT
	8/24/2010	2.77	NA	ORG
	2/8/2011	5	NA	ORG
	8/22/2011	3	NA	ORG
MW-38				
	2/16/2010	3.6	NA	ORG
	8/24/2010	3.06	NA	FD
	8/24/2010	3.13	NA	ORG
	11/16/2010	3.1	NA	ORG
	2/9/2011	3.1	NA	ORG
	2/9/2011	3.5	NA	SPT
	8/23/2011	3.1	NA	ORG
MW-40				
	2/16/2010	3.8	NA	ORG

(see page 13 for explanation of abbreviations)

TABLE 4 (continued)
GROUNDWATER QUALITY DATA

Page 7 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
06 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER MONITOR WELLS				
MW-40				
	5/18/2010	13	NA	ORG
	6/29/2010	9.8	NA	ORG
	6/29/2010	9.2	NA	SPT
	8/24/2010	7.98	NA	ORG
	11/15/2010	2.7	NA	ORG
	2/8/2011	4.6	NA	ORG
	5/17/2011	5.2	NA	ORG
	8/23/2011	4.5	NA	ORG
MW-41A				
	2/16/2010	2.3	NA	ORG
	5/18/2010	2.2	NA	SPT
	5/18/2010	2.1	NA	ORG
	8/24/2010	1.84	NA	ORG
	11/15/2010	1.7	NA	ORG
	11/15/2010	1.8	NA	FD
	2/8/2011	1.7	NA	ORG
	8/23/2011	1.5	NA	ORG
MW-41B				
	2/16/2010	4.9	NA	ORG
	5/18/2010	4	NA	FD
	5/18/2010	4.1	NA	ORG
	8/24/2010	3.57	NA	ORG
	11/15/2010	3.4	NA	ORG
	2/8/2011	3.1	NA	ORG
	8/23/2011	3.6	NA	SPT

(see page 13 for explanation of abbreviations)



TABLE 4 (continued)
GROUNDWATER QUALITY DATA
Page 8 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
06 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER MONITOR WELLS				
MW-41B	8/23/2011	3.1	NA	ORG
MW-42	2/16/2010	7.9	NA	ORG
	5/18/2010	7.5	NA	ORG
	8/23/2010	8.32 (E)	NA	ORG
	11/15/2010	8.1	NA	ORG
	2/8/2011	7.8	NA	ORG
	8/22/2011	8	NA	ORG
07 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER PRIVATE WELLS				
D(17-20)23ada(Dill)	2/17/2010	0.93	NA	ORG
	11/17/2010	0.46	NA	SPT
	11/17/2010	< 1	NA	ORG
D(17-20)25bad(Spears)	2/15/2010	3.3	NA	ORG
	11/17/2010	2.2	NA	ORG
	5/18/2011	2.4	NA	SPT
	5/18/2011	2	NA	ORG
	8/24/2011	2.3	NA	ORG
D(17-20)36aad1 (Jacobs)	2/17/2010	3.6	NA	ORG
	5/18/2010	3.3	NA	ORG
	8/25/2010	3.56	NA	ORG
	11/17/2010	3.9	NA	ORG

(see page 13 for explanation of abbreviations)



TABLE 4 (continued)
GROUNDWATER QUALITY DATA
Page 9 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
07 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER PRIVATE WELLS				
D(17-20)36aad1 (Jacobs)				
	2/9/2011	4	NA	ORG
	2/9/2011	4	NA	FD
	5/18/2011	3.5	NA	FD
	5/18/2011	3.5	NA	ORG
	8/24/2011	4.5	NA	ORG
D(17-20)36caa (Gaynor)				
	2/16/2010	3.1	NA	ORG
	2/16/2010	3.2	NA	SPT
	8/25/2010	2.1	NA	ORG
	2/9/2011	1.5	NA	ORG
	8/24/2011	2.3	NA	FD
	8/24/2011	2.3	NA	ORG
D(17-20)36caa2(Hyder)				
	2/17/2010	3.9	NA	FD
	2/17/2010	3.9	NA	ORG
	8/25/2010	3.13	NA	ORG
	2/9/2011	3	NA	ORG
	8/24/2011	3.2	NA	ORG
D(17-20)36cdb (Woolever)				
	2/17/2010	3.3	NA	ORG
	8/25/2010	3.64	NA	ORG
	2/9/2011	3.9	NA	ORG
	8/24/2011	4.6	NA	ORG
D(17-20)36ddc (Morales)				
	2/17/2010	4.3	NA	ORG

(see page 13 for explanation of abbreviations)



TABLE 4 (continued)
GROUNDWATER QUALITY DATA
Page 10 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
07 NORTHERN AREA MNA MANAGEMENT ZONE SHALLOW AQUIFER PRIVATE WELLS				
D(17-20)36ddc (Morales)				
	8/25/2010	4.19	NA	FD
	8/25/2010	4.15	NA	ORG
	2/9/2011	4.1	NA	ORG
	8/24/2011	3.9	NA	FD
	8/24/2011	4	NA	ORG
D(18-20)01aad (McRae)				
	8/26/2010	5.4	NA	FD
	8/26/2010	5.2	NA	ORG
D(18-21)06bcb (Jones)				
	2/17/2010	8.8	NA	ORG
	5/18/2010	10	NA	ORG
	8/24/2010	9.71	NA	ORG
	8/24/2010	11	NA	SPT
	11/16/2010	10 (E)	NA	ORG
	2/9/2011	12 (E)	NA	ORG
	4/6/2011	11	NA	ORG
	5/18/2011	9.8 (E)	NA	ORG
	8/24/2011	16	NA	ORG
08 SURFACE WATER				
SW-03				
	2/17/2010	11	NA	ORG
	5/18/2010	28	NA	ORG
	8/24/2010	1.4	NA	ORG
	11/16/2010	17 (E)	NA	ORG

(see page 13 for explanation of abbreviations)

TABLE 4 (continued)
GROUNDWATER QUALITY DATA

Page 11 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
08 SURFACE WATER				
SW-03				
	2/8/2011	9.9	NA	ORG
	5/18/2011	10 (E)	NA	ORG
	5/18/2011	12	NA	SPT
	8/24/2011	1	NA	ORG
SW-04				
	2/17/2010	10	NA	ORG
	5/18/2010	27	NA	ORG
	8/24/2010	0.74	NA	ORG
	11/16/2010	17 (E)	NA	ORG
	2/8/2011	13 (E)	NA	ORG
	5/18/2011	11 (E)	NA	FD
	5/18/2011	11 (E)	NA	ORG
	8/24/2011	1.4	NA	ORG
SW-12				
	2/15/2010	< 0.5	NA	FD
	2/15/2010	< 0.5	NA	ORG
	5/18/2010	< 0.5	NA	ORG
	8/24/2010	< 0.2	NA	SPT
	8/24/2010	< 0.1	NA	ORG
	11/16/2010	< 1	NA	ORG
	2/8/2011	< 1	NA	ORG
	5/18/2011	< 1	NA	ORG
	8/24/2011	< 1	NA	ORG
SW-13				
	2/17/2010	< 0.5	NA	ORG

(see page 13 for explanation of abbreviations)



TABLE 4 (continued)
GROUNDWATER QUALITY DATA
Page 12 of 13

IDENTIFIER	SAMPLE DATE	NITRATE-N (mg/l)	PERCHLORATE (µg/l)	SAMPLE TYPE
08 SURFACE WATER				
SW-13				
	2/17/2010	< 0.2	NA	SPT
	5/18/2010	< 0.5	NA	ORG
	2/9/2011	< 0.2	NA	SPT
	2/9/2011	< 1	NA	ORG
SW-14				
	2/17/2010	< 0.5	< 1	ORG
	5/18/2010	< 0.5	< 1	ORG
	8/23/2010	0.465 (E)	< 1	FD
	8/23/2010	0.503 (E)	< 1	ORG
	11/16/2010	< 1	< 4	ORG
	2/9/2011	< 1	NA	ORG
	8/24/2011	< 1	< 4	ORG

(see page 13 for explanation of abbreviations)



TABLE 4 (continued)
GROUNDWATER QUALITY DATA
Page 13 of 13

FOOTNOTES:

- mg/l = Milligrams per liter
- Nitrate-N = Nitrate as Nitrogen
- µg/l = Micrograms
- NA = Not Analyzed
- < = Not detected, numerical value is less than the method detection limit
- TURN = Turner Laboratory (Primary Lab)
- TAA = Test America Analytical (Split Lab)
- UL = Underwriters Laboratory (Primary Perchlorate Lab)
- ORG = Original sample
- FD = Field duplicate sample
- SPT = Split sample
- FB = Field blank
- E = Estimated
- HU = Unusable

TABLE 5
SUMMARY OF QUARTERLY TREATMENT PERFORMANCE
JUNE 2011 THROUGH AUGUST 2011

TREATMENT SYSTEM	MONTH	VOLUME EXTRACTED (gallons)	NITRATE-N MASS REMOVED (pounds)	PERCHLORATE MASS REMOVED (pounds)
P-03 (perched zone)	Jun-11	1006	77	0.0040
	Jul-11	410	31	0.0016
	Aug-11	446	34	0.0018
	TOTAL	1,862	142	0.0074
	TOTAL TO DATE	81,875	2,863	0.3539
SEW-1 (Northern Area)	Jun-11	8,320,760	4,583	NA
	Jul-11	9,463,190	5,213	NA
	Aug-11	5,448,320	3,319	NA
	TOTAL	23,232,270	13,115	NA
	TOTAL TO DATE	594,933,880	583,074	NA

EXPLANATION

NA= not applicable

P-03 = Perched zone piezometer P-03

totalized values were collected at P-03 based on combination of calculating known flow rate by known minutes of pumping and by flow meter installed July 7, 2011

SEW-1 = Shallow Aquifer Extraction Well

totalized flow measurements are recorded from the McCrometer Flowmeter, located in the extraction well vault

TABLE 6
WATER QUALITY DATA
NORTHERN AREA MNA PARAMETERS

IDENTIFIER	SAMPLE DATE	ALKALINITY (mg/l)	DISSOLVED OXYGEN (mg/l)	ELECTRICAL CONDUCTIVITY (μ S/cm)	FERROUS IRON (mg/l)	Mn (mg/l)	ORP (MV)	pH (pH units)	SULFATE (mg/l)	TDS (mg/l)	SAMPLE TYPE
MW-38	11/20/2008	280	4.71	940	0.18	ND	132	8.04	100	700	ORG
	UTS										
	11/16/2010	270	2.77	1850	ND	0.023	133	6.64	110	543	ORG
	8/23/2011	260		509		0.039		7.44	110	510	ORG
MW-40	11/18/2008	190	0.00	210	1.46	ND	5	8.17	76	1400	ORG
	11/18/2008	210							74		SPT
	11/16/2009	270	0.00	752	1.19	< 0.010	26.2	7.42	120	480	ORG
	11/15/2010	220	1.50	680	ND	ND	36	8.24	67	432	ORG
	8/23/2011	270		771		ND		7.3	98	450	ORG
MW-41B	11/18/2008	310	0.00	1030	0.95	ND	53	7.76	180	700	ORG
	11/16/2009	290	0.00	915	1.89	< 0.010	47	7.24	180	610	ORG
	11/15/2010	300	0.00	994	0.63	ND	92	meter error	190	640	ORG
	8/23/2011	280		971		ND		7.38	200	670	ORG
MW-42	11/18/2008	180	0.00	3050	0.37	ND	77	7.74	730	2000	ORG
	11/16/2009	160	0.86	1742	0.53	0.018	37.1	7.15	870	1700	ORG
	11/15/2010	180	0.00	2110	0.27	0.21	15	7.78	920	1350	ORG
	8/22/2011	160		2250		0.29		7.27	990	1800	ORG
D(17-20)25bad	11/18/2008	240	0.00	1310	< .1	0.062	46	7.96	150	900	ORG
	11/17/2009	250	0.00	769	1.38	0.04	152	7.69	160	560	ORG
	11/17/2010	260	0.00	891	ND	0.046	74	7.15	150	570	ORG
	8/24/2011	260		832		0.036		7.13	140	500	ORG

FOOTNOTES:

EC= electrical conductivity

mg/l = milligrams per liter

MV = millivolts

Mn = manganese

ND = not detected

ORG = original sample, SPT = split sample

ORP = oxidation reduction potential

pH= hydrogen ion potential

TDS = total dissolved solids

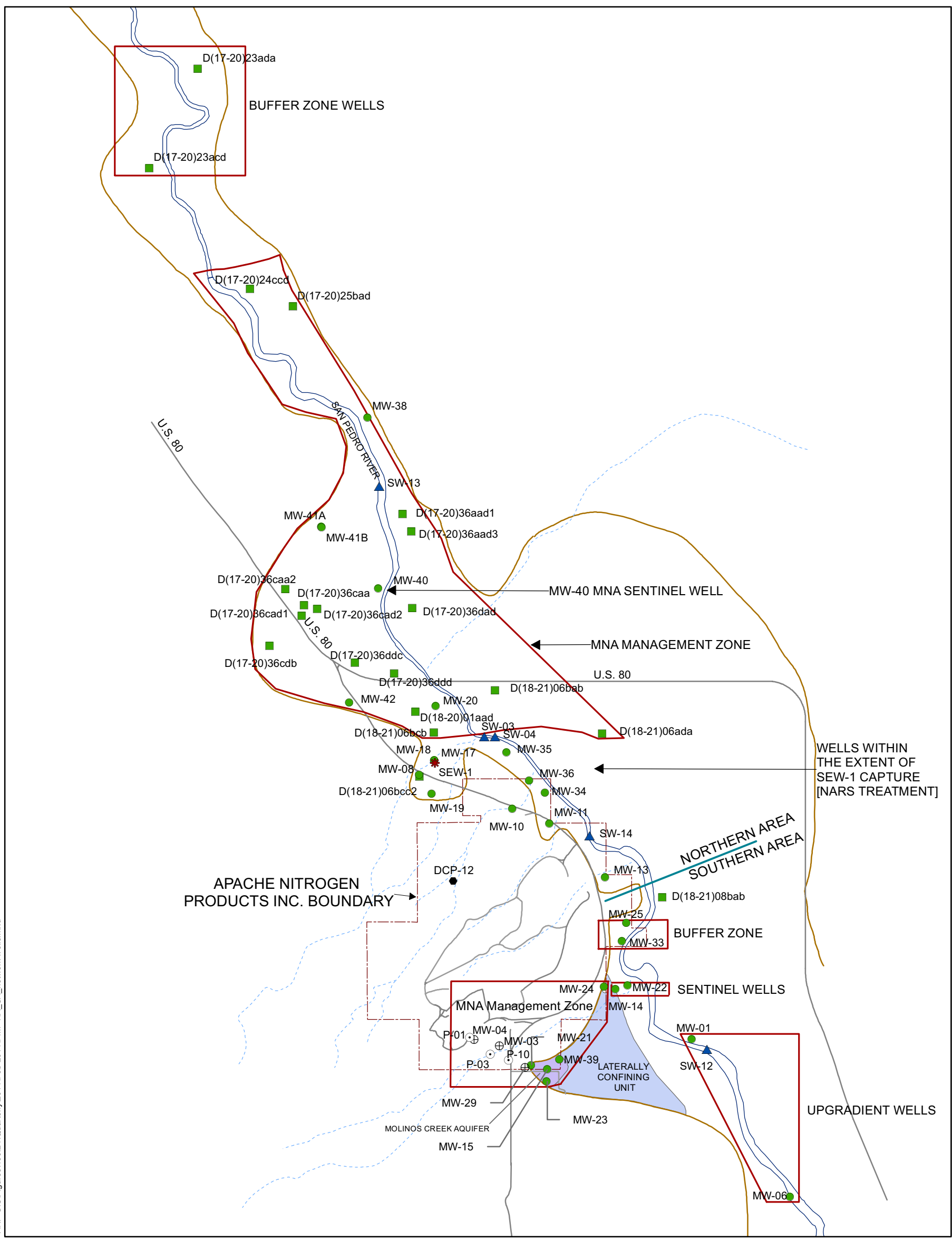
μ S/cm = microsiemens per centimeter

UTS = unable to sample

field parameters = ORP, pH, electrical conductivity, TDS, dissolved oxygen and ferrous Iron

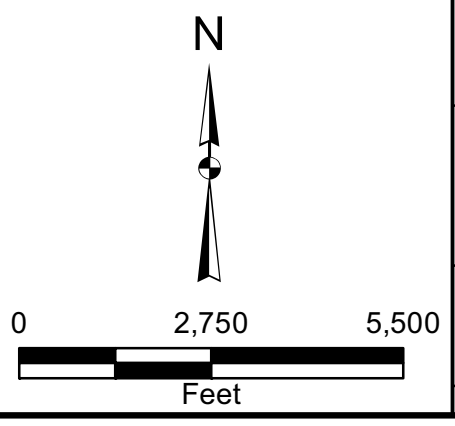
FIGURES

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EXPLANATION

- SHALLOW AQUIFER PRIVATE WELL
- SHALLOW AQUIFER MONITOR WELL
- * SHALLOW AQUIFER EXTRACTION WELL
- ⊙ PERCHED ZONE PIEZOMETER
- ⊕ PERCHED MONITOR WELL
- ▲ SAN PEDRO RIVER SURFACE WATER MONITORING STATION
- EPHEMERAL STREAM
- ~ APPROXIMATE BOUNDARY OF SHALLOW AQUIFER



<p>APACHE NITROGEN PRODUCTS, INC. BENSON, ARIZONA</p>	
<p>PERFORMANCE MONITORING NETWORK WELLS</p>	
	<p>10/11/2011 FIGURE 1</p>
<p>PREP BY BAM REV BY LSL RPT NO 130.24</p>	

APPENDIX A

WATER LEVEL AND WATER QUALITY HYDROGRAPHS

APPENDIX A

WATER LEVEL AND WATER QUALITY HYDROGRAPHS

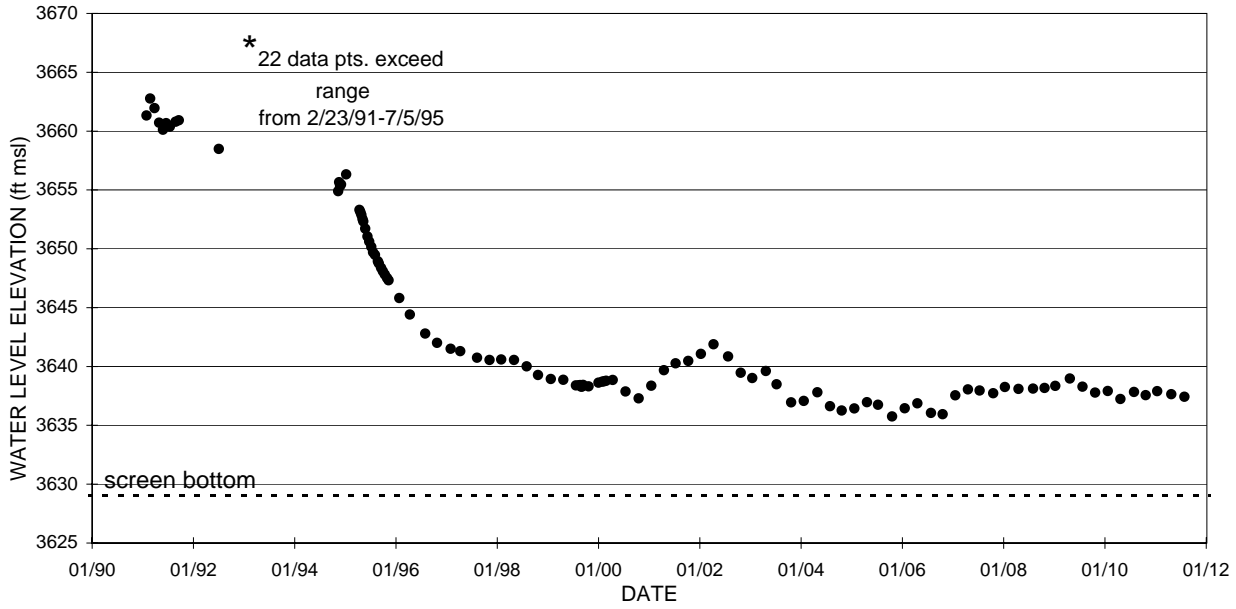
TABLE OF CONTENTS

Figure

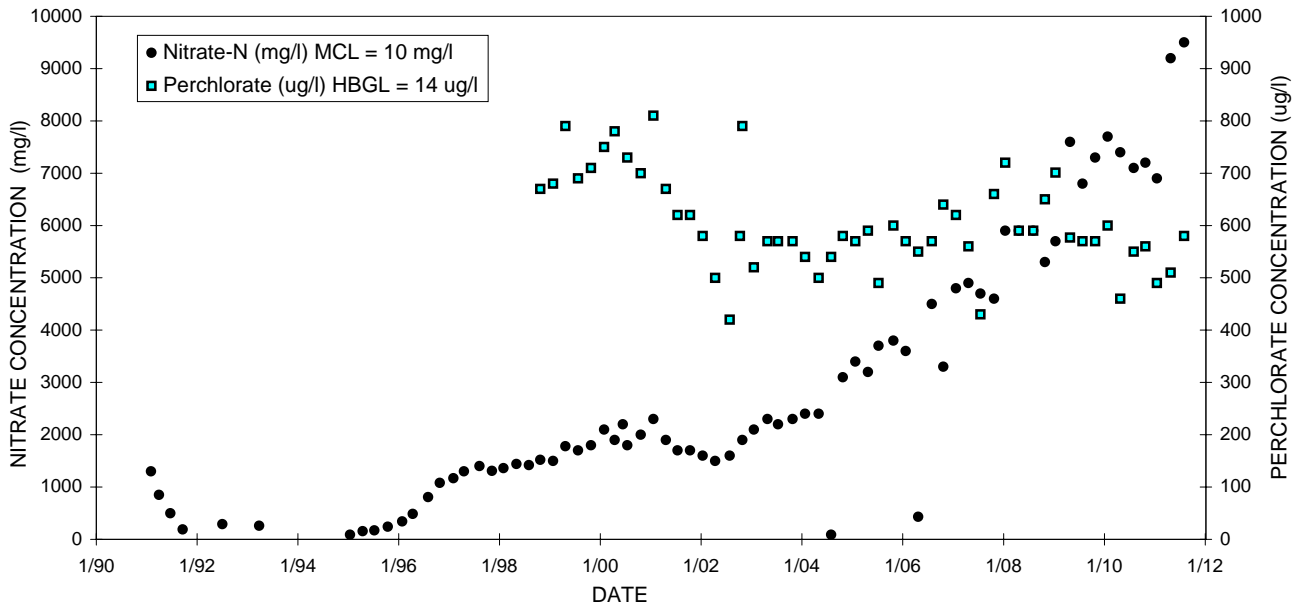
A-1	WATER LEVEL HYDROGRAPH FOR PERCHED ZONE PIEZOMETER P-01
A-2	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR PERCHED ZONE PIEZOMETER P-03
A-3	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR PERCHED ZONE PIEZOMETER P-10
A-4	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR PERCHED ZONE MONITOR WELL MW-03
A-5	WATER LEVEL HYDROGRAPH FOR PERCHED ZONE MONITOR WELL MW-04
A-6	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR PERCHED ZONE MONITOR WELL MW-29
A-7	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-15
A-8	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-21
A-9	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-23
A-10	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-24
A-11	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-39
A-12	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA UPGRADIENT MONITOR WELL MW-01
A-13	WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA UPGRADIENT MONITOR WELL MW-06

- A-14 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA SENTINEL MONITOR WELL MW-14
- A-15 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA SENTINEL MONITOR WELL MW-22
- A-16 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA BUFFER ZONE MONITOR WELL MW-25
- A-17 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA BUFFER ZONE MONITOR WELL MW-33
- A-18 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-08
- A-19 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-11
- A-20 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-13
- A-21 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-17
- A-22 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-18
- A-23 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-19
- A-24 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-34
- A-25 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-35
- A-26 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-36
- A-27 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-20
- A-28 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-38
- A-29 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA SENTINEL MONITOR WELL MW-40

- A-30 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-41A
- A-31 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-41B
- A-32 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-42
- A-33 WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA BUFFER ZONE PRIVATE WELLS D(17-20)23acd AND D(17-20)23ada
- A-34 WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE PRIVATE WELLS D(17-20)25bad AND D(17-20)36aad1
- A-35 WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE PRIVATE WELLS D(17-20)36caa AND D(17-20)36caa2
- A-36 WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE PRIVATE WELLS D(17-20)36cdb AND D(17-20)36ddc
- A-37 WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE PRIVATE WELLS D(18-20)01aad AND D(18-21)06bcb
- A-38 SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-03
- A-39 SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-04
- A-40 SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-12
- A-41 SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-13
- A-42 SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-14



Perched Zone Piezometer P-03

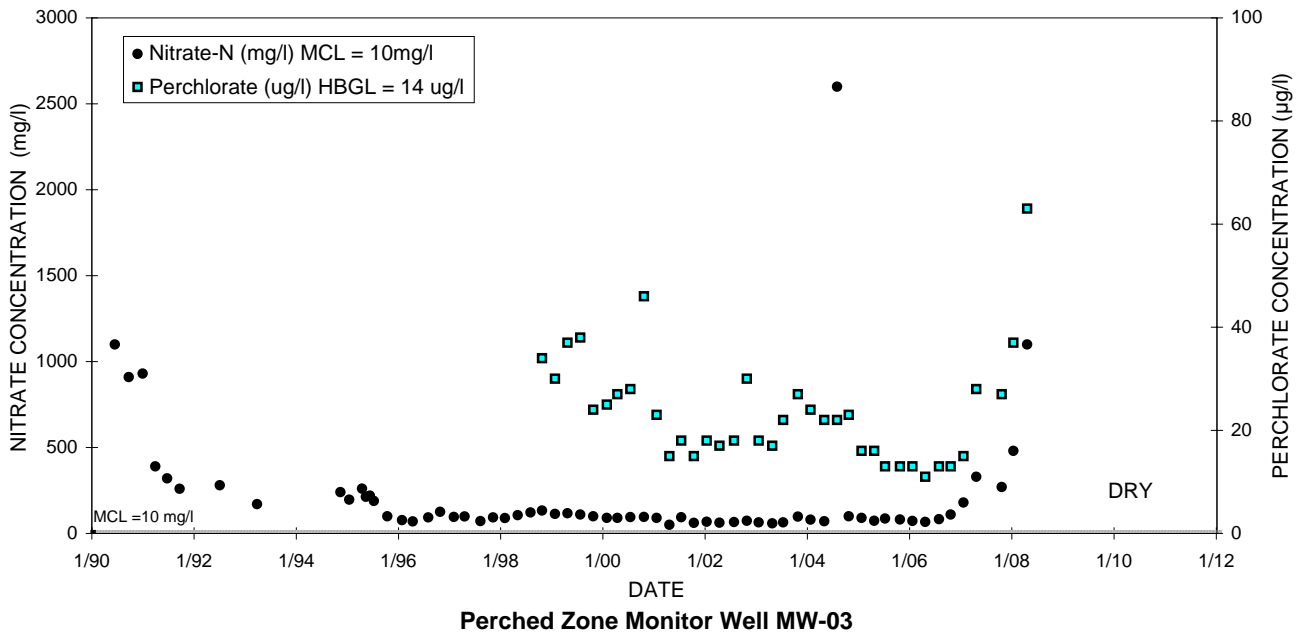
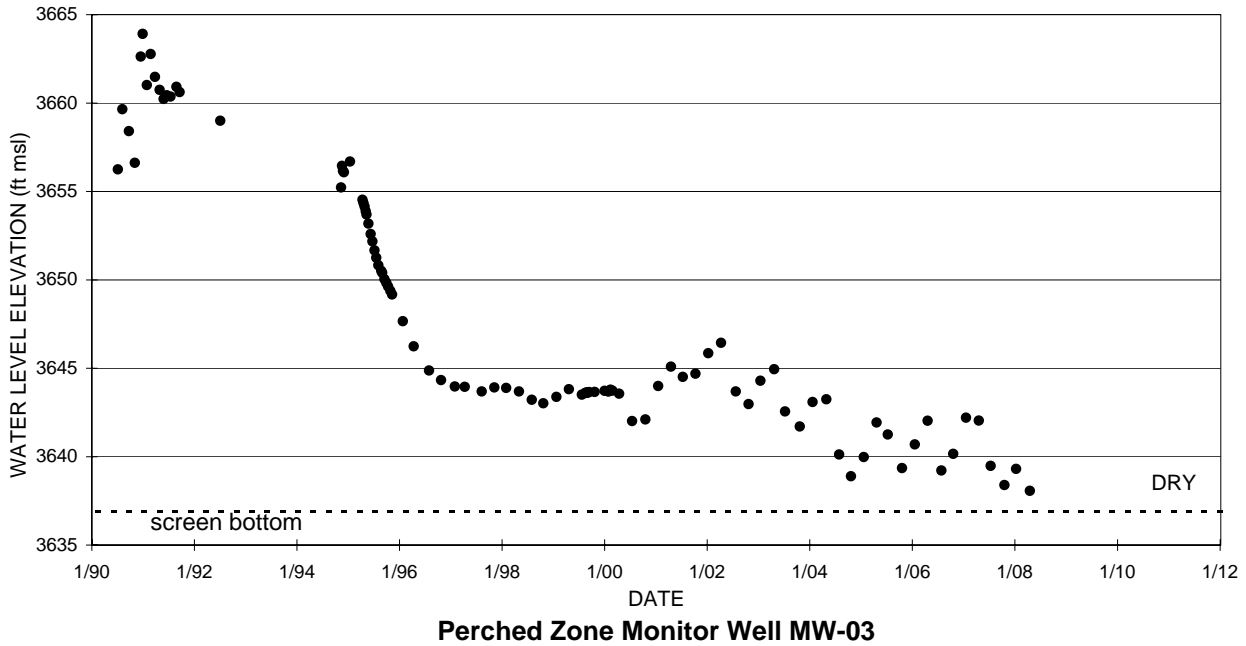


Perched Zone Piezometer P-03

DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

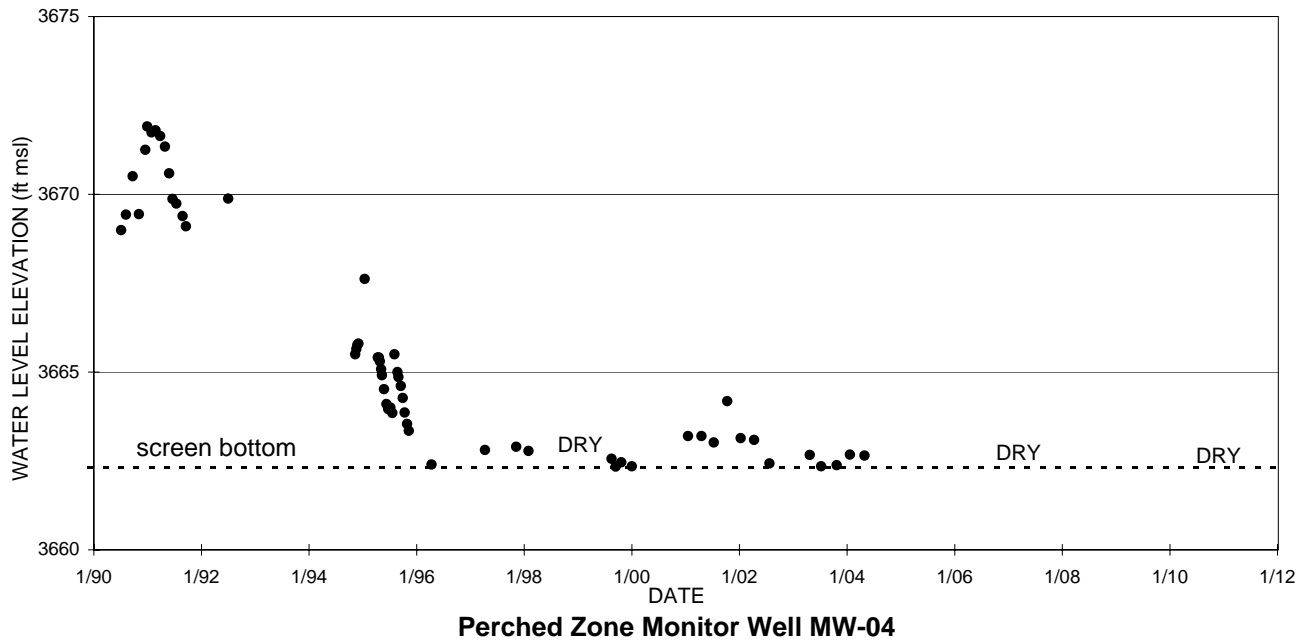
FIGURE A-2. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR PERCHED ZONE PIEZOMETER P-03

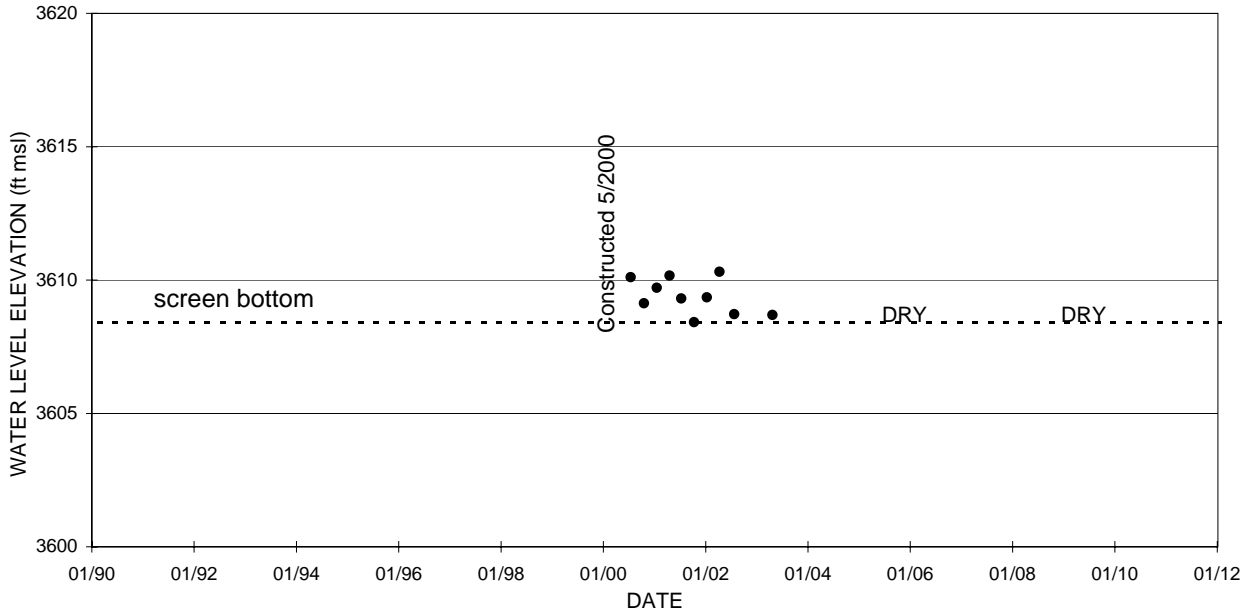


DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

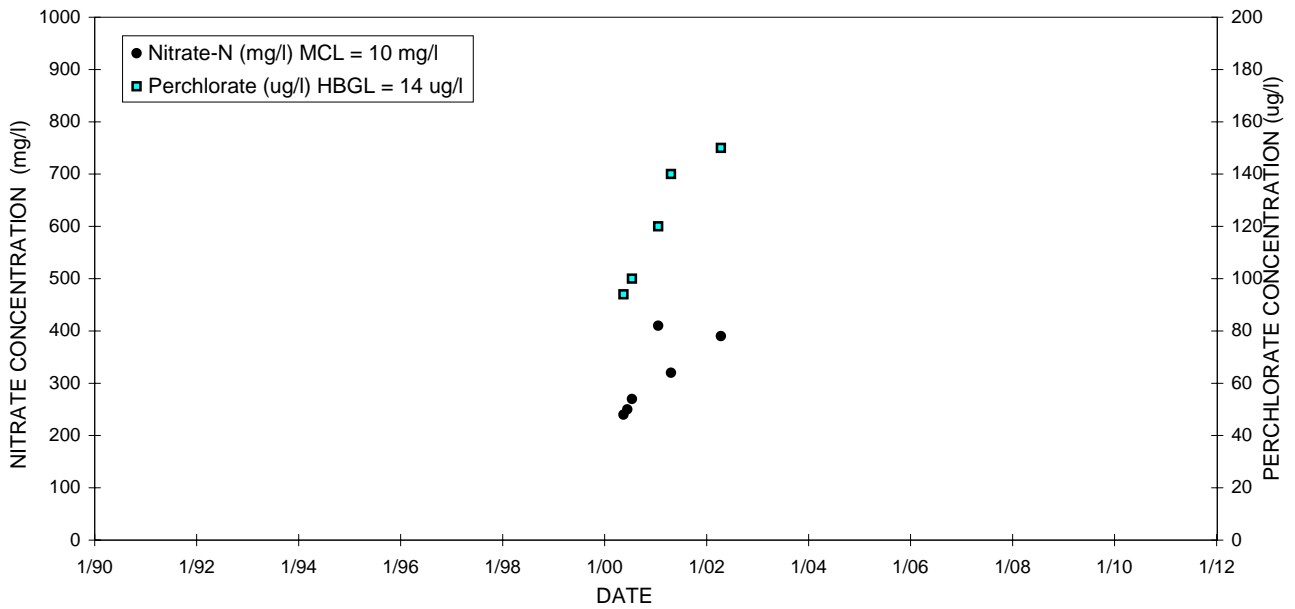
MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-4. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR PERCHED ZONE MONITOR WELL MW-03





Perched Zone Monitor Well MW-29

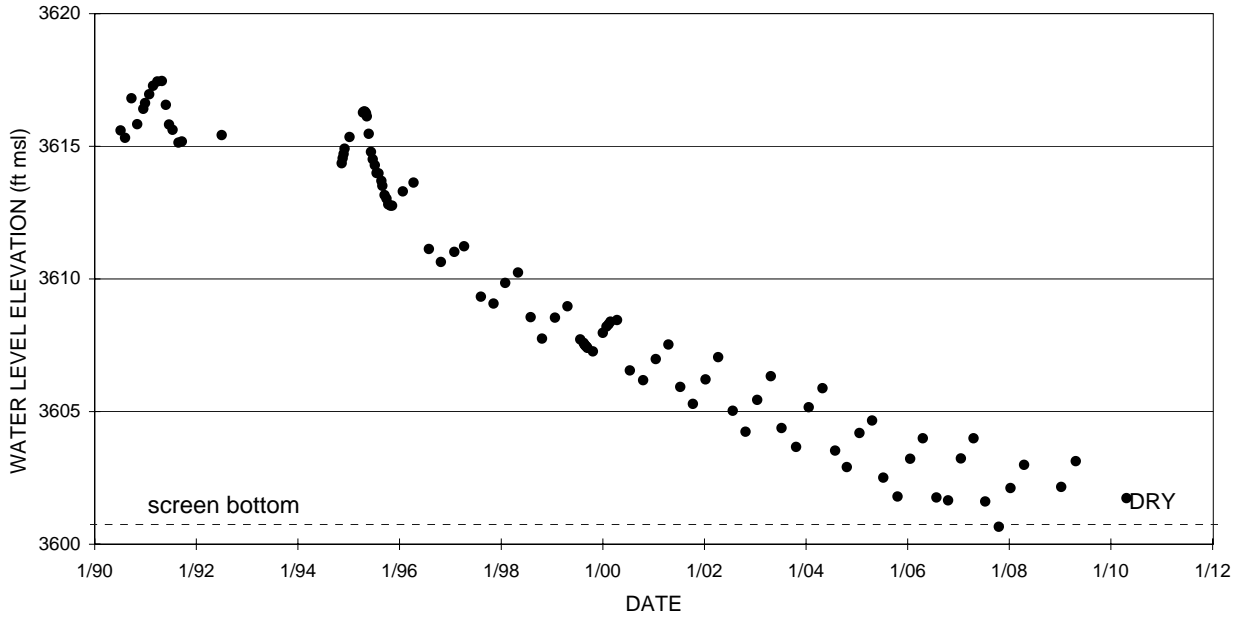


Perched Zone Monitor Well MW-29

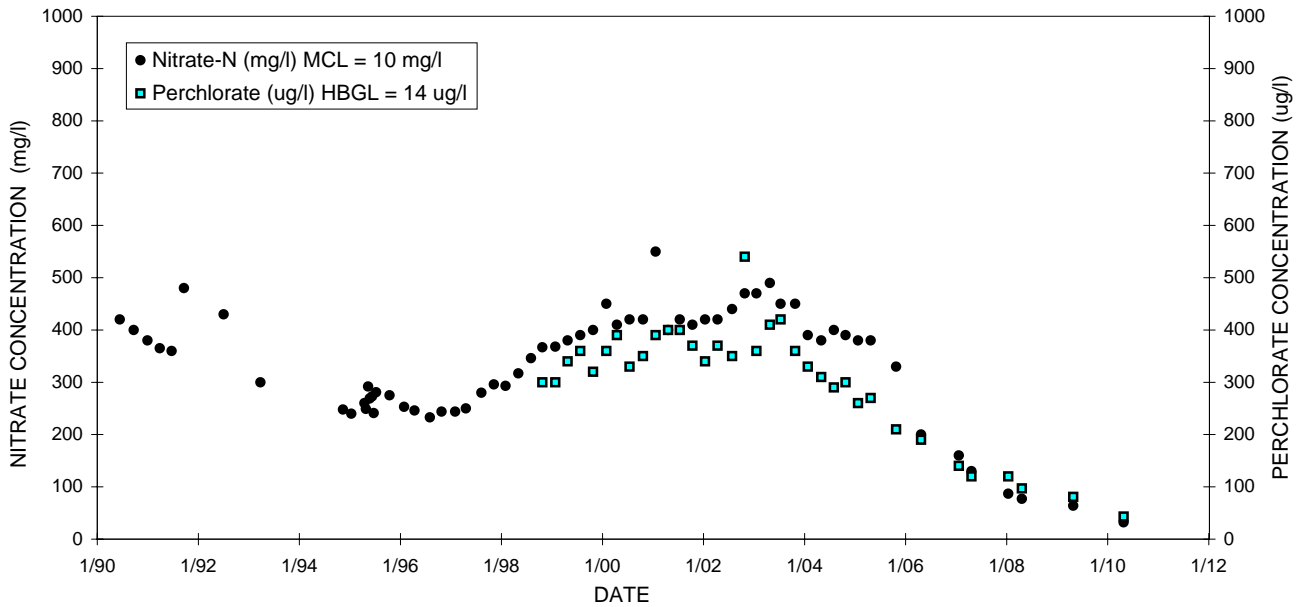
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-6. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR PERCHED ZONE MONITOR WELL MW-29



Molinos Creek Sub-Aquifer Monitor Well MW-15

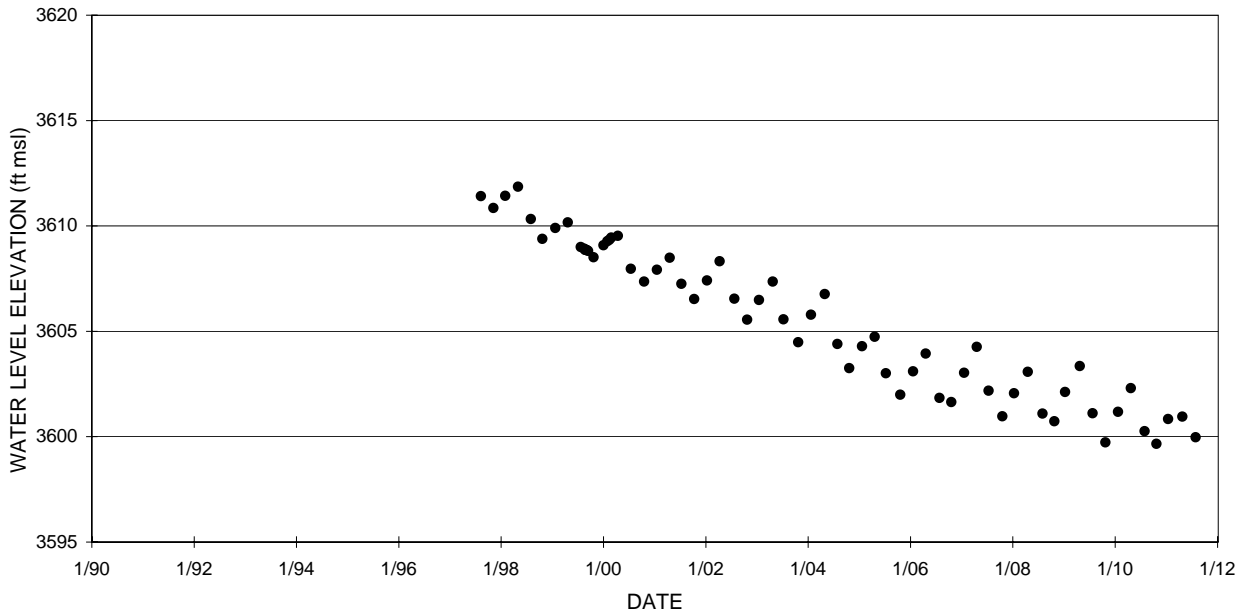


Molinos Creek Sub-Aquifer Monitor Well MW-15

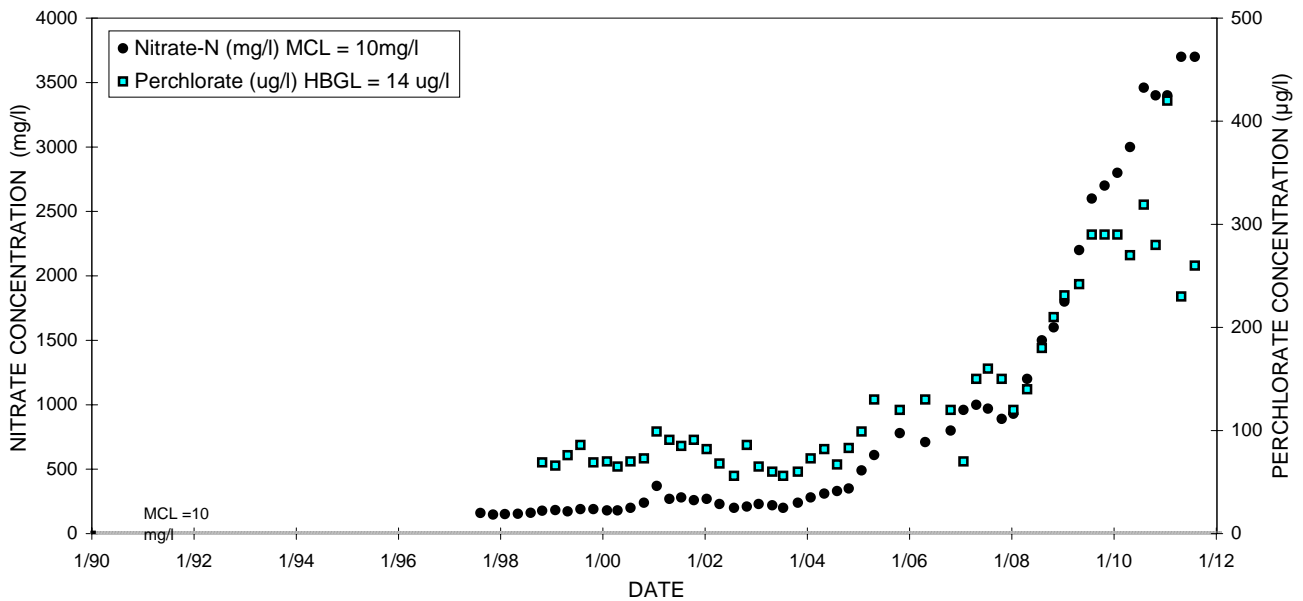
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-7. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-15



Molinos Creek Sub-Aquifer Monitor Well MW-21

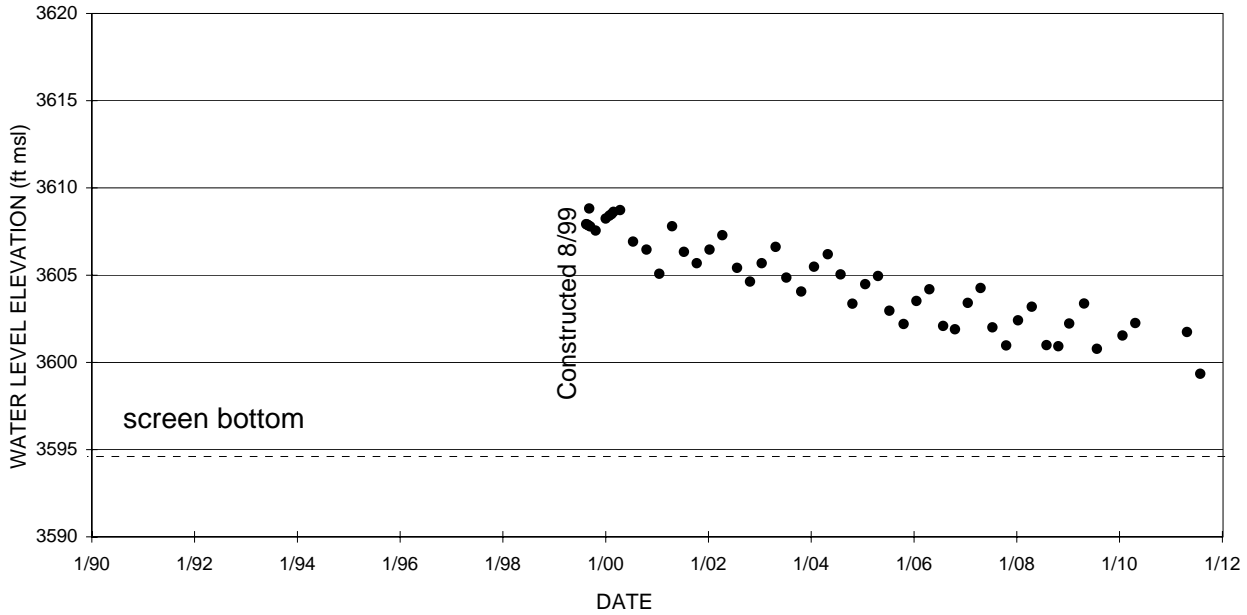


Molinos Creek Sub-Aquifer Monitor Well MW-21

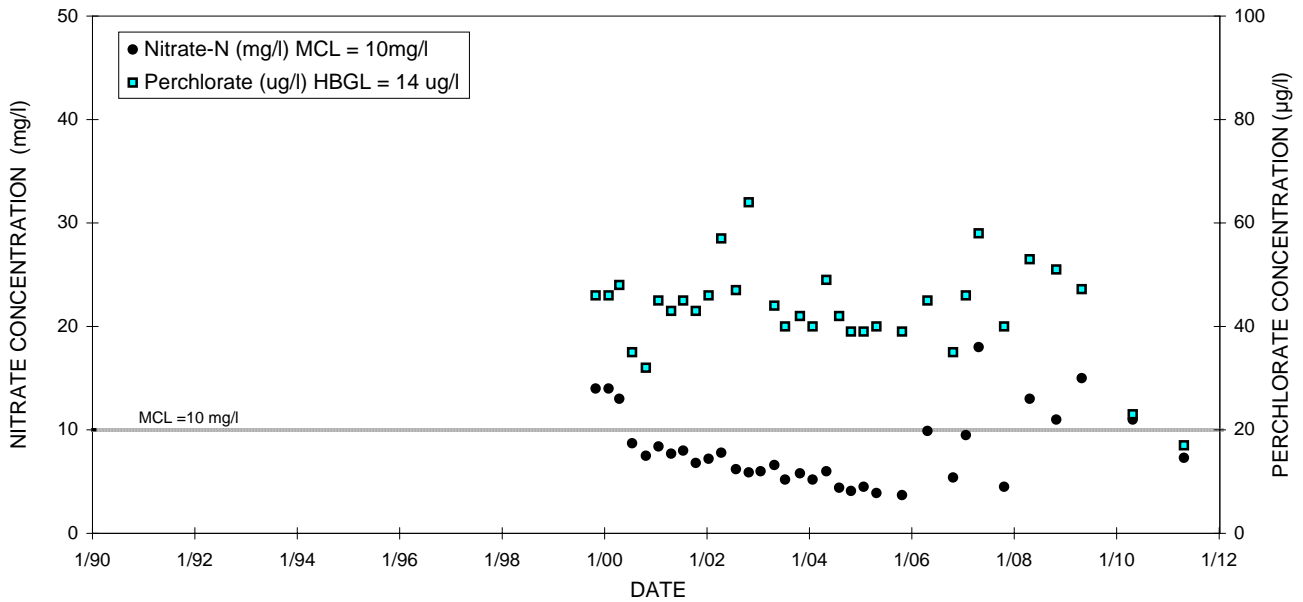
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-8. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-21



Molinos Creek Sub-Aquifer Monitor Well MW-23

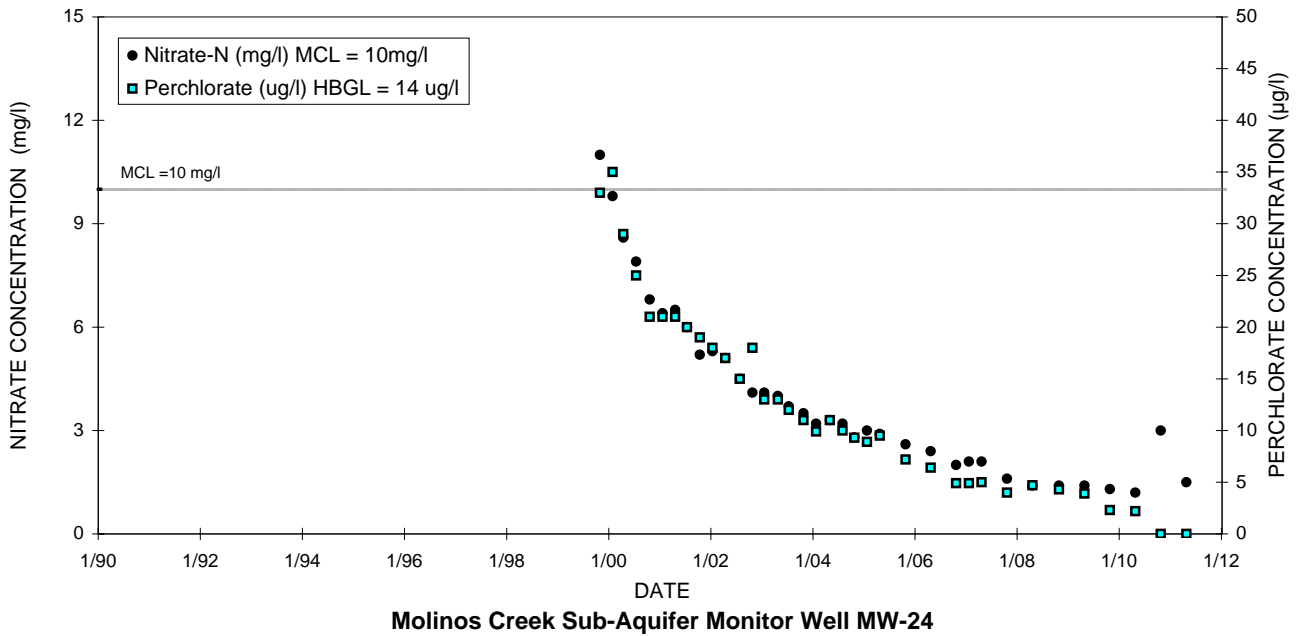
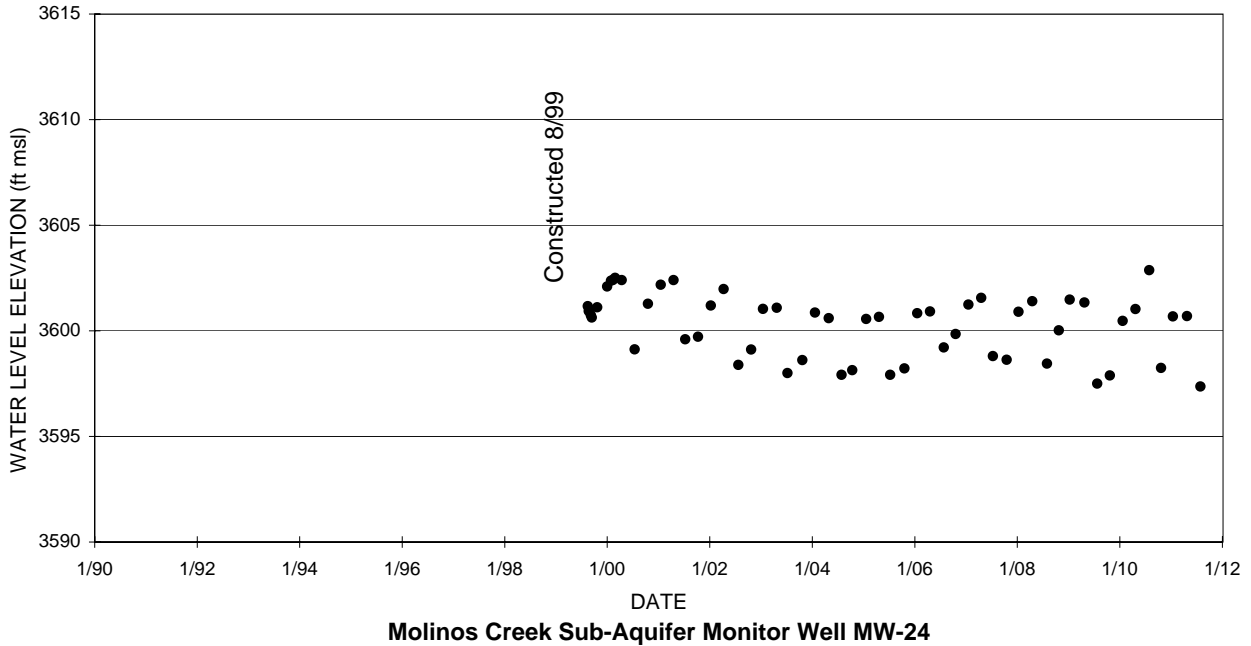


Molinos Creek Sub-Aquifer Monitor Well MW-23

DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

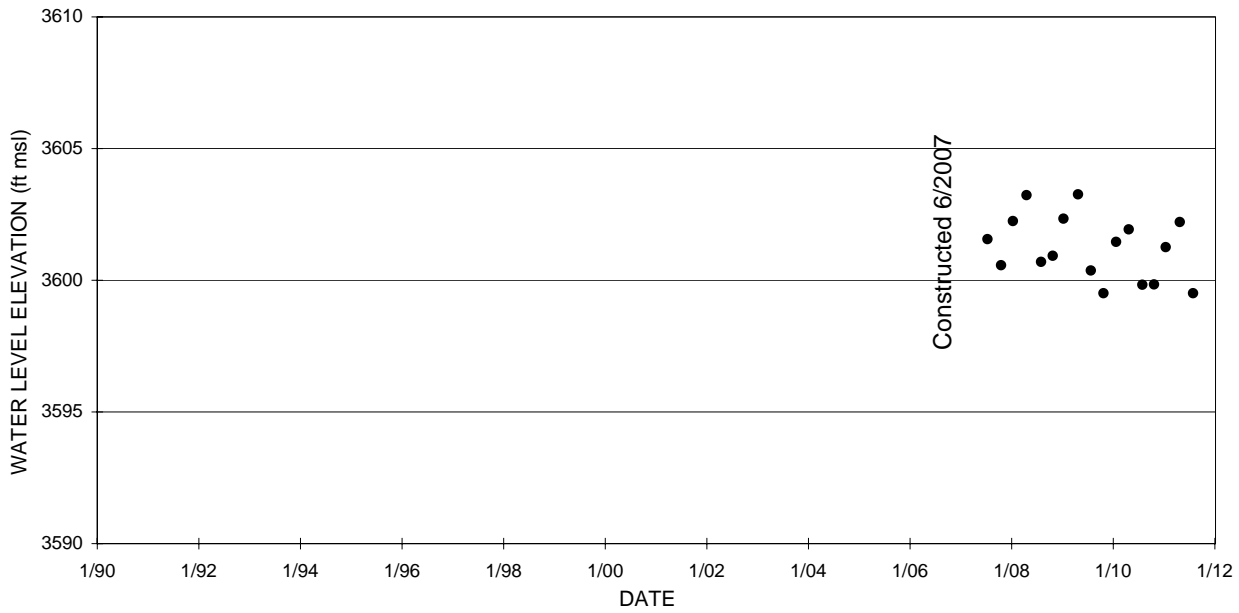
FIGURE A-9. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-23



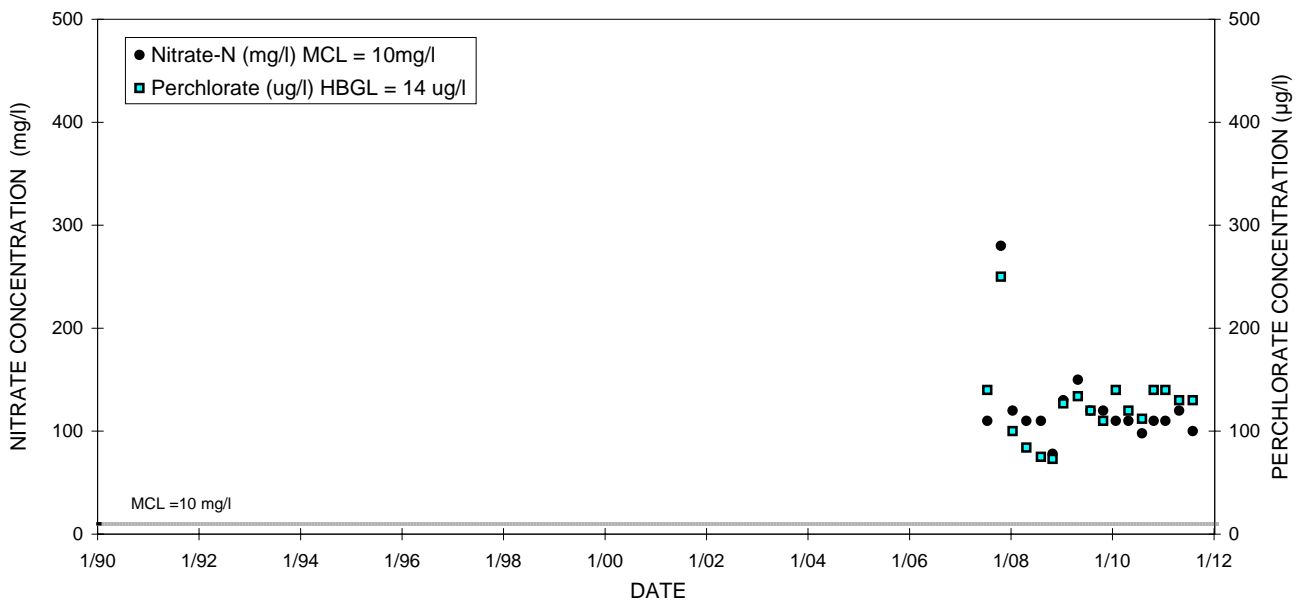
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-10. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-24



Molinos Creek Sub- Aquifer Monitor Well MW-39

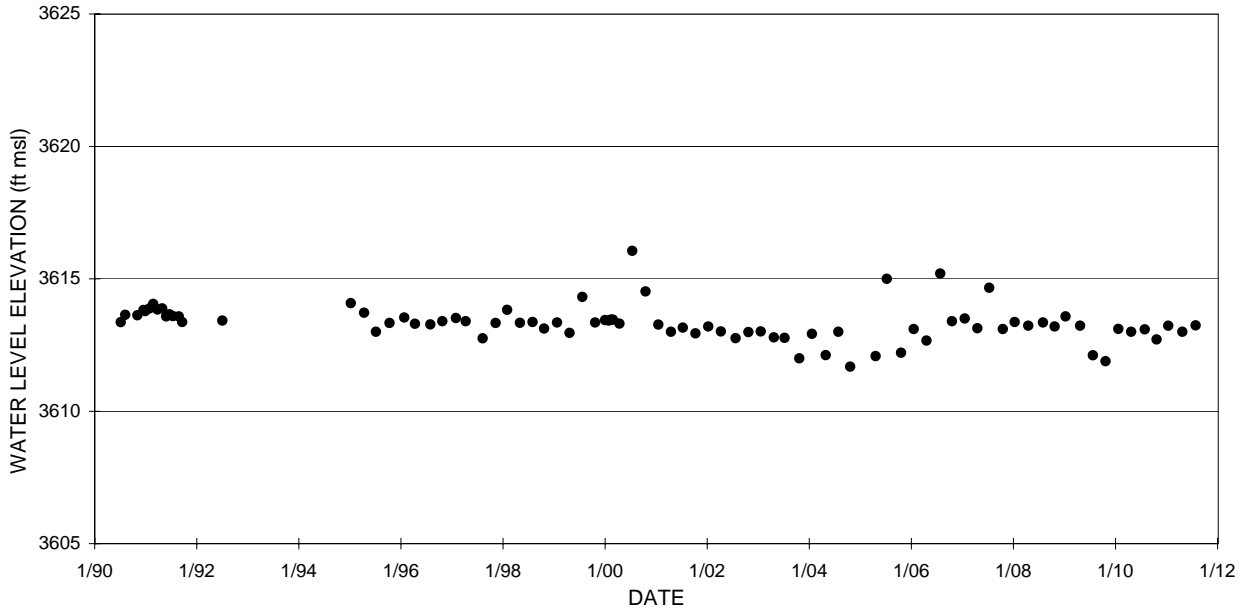


Molinos Creek Sub-Aquifer Monitor Well MW-39

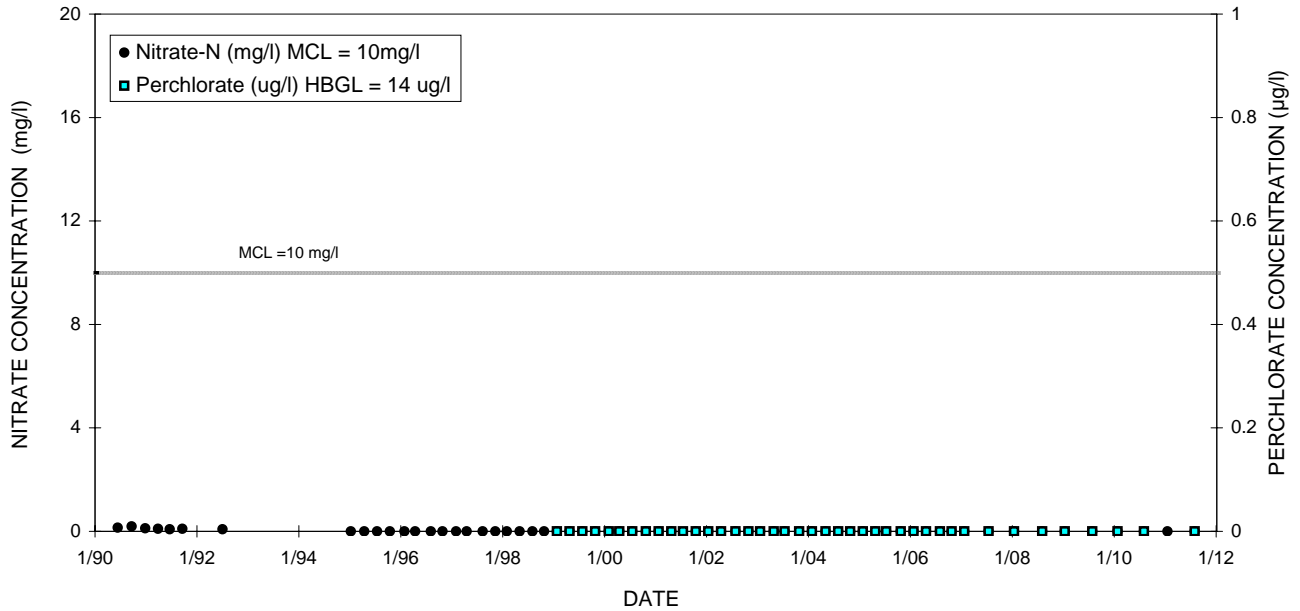
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-11. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR MOLINOS CREEK MNA MANAGEMENT ZONE MONITOR WELL MW-39



Shallow Aquifer Monitor Well MW-01

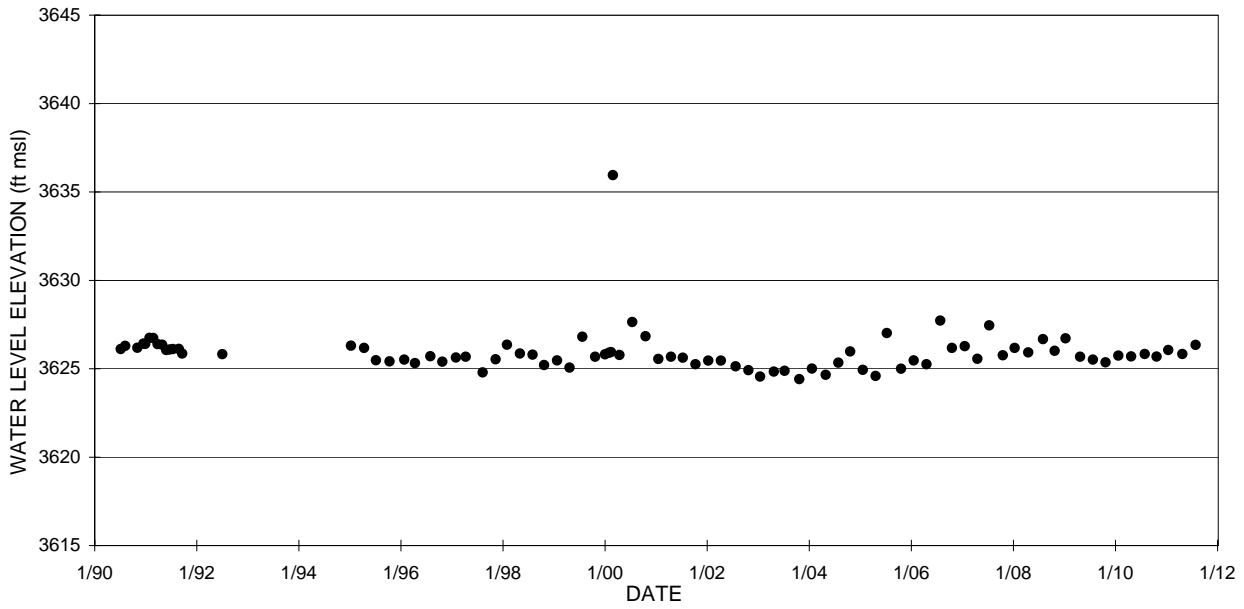


Shallow Aquifer Monitor Well MW-01

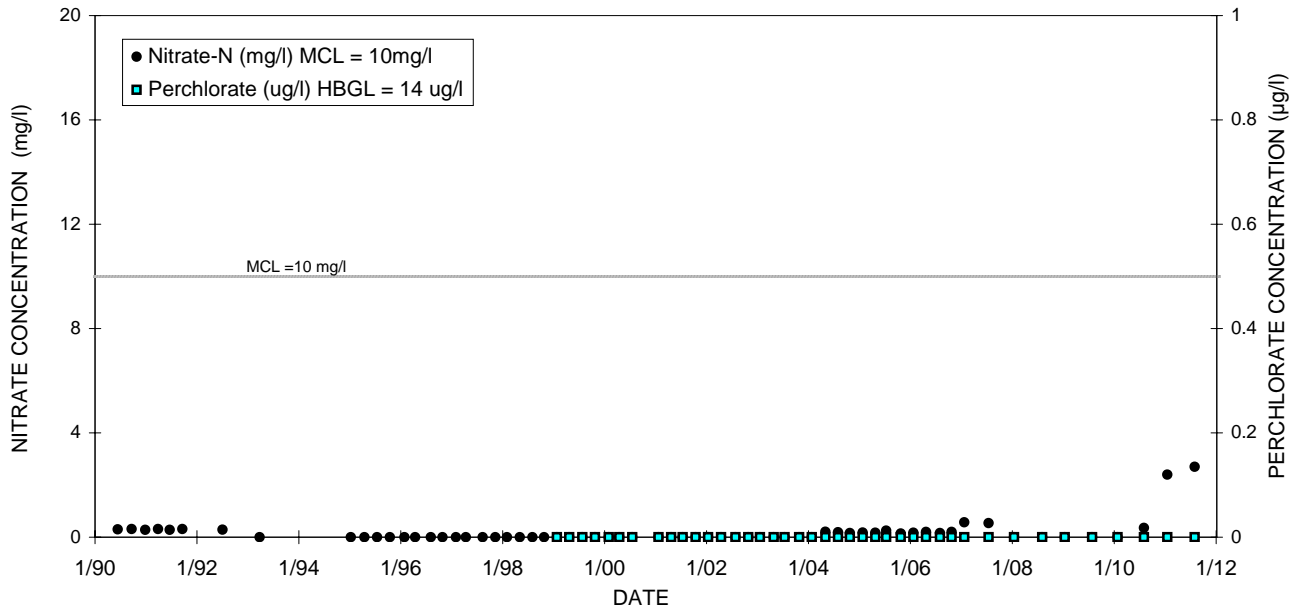
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-12. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA UPGRADIENT MONITOR WELL MW-01



Shallow Aquifer Monitor Well MW-06

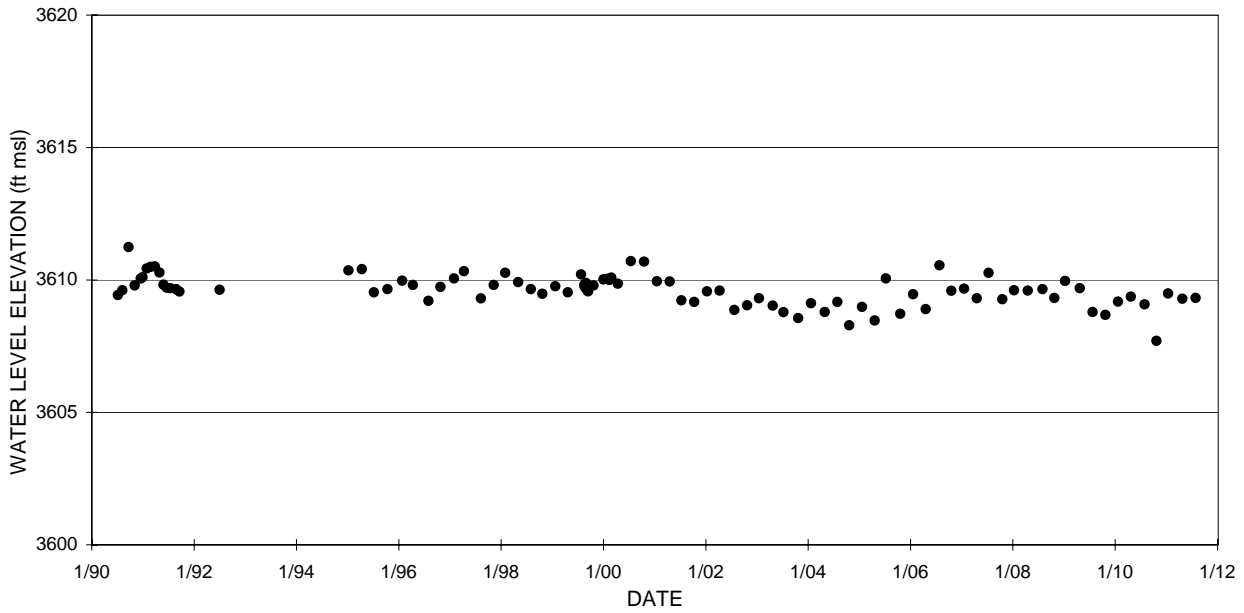


Shallow Aquifer Monitor Well MW-06

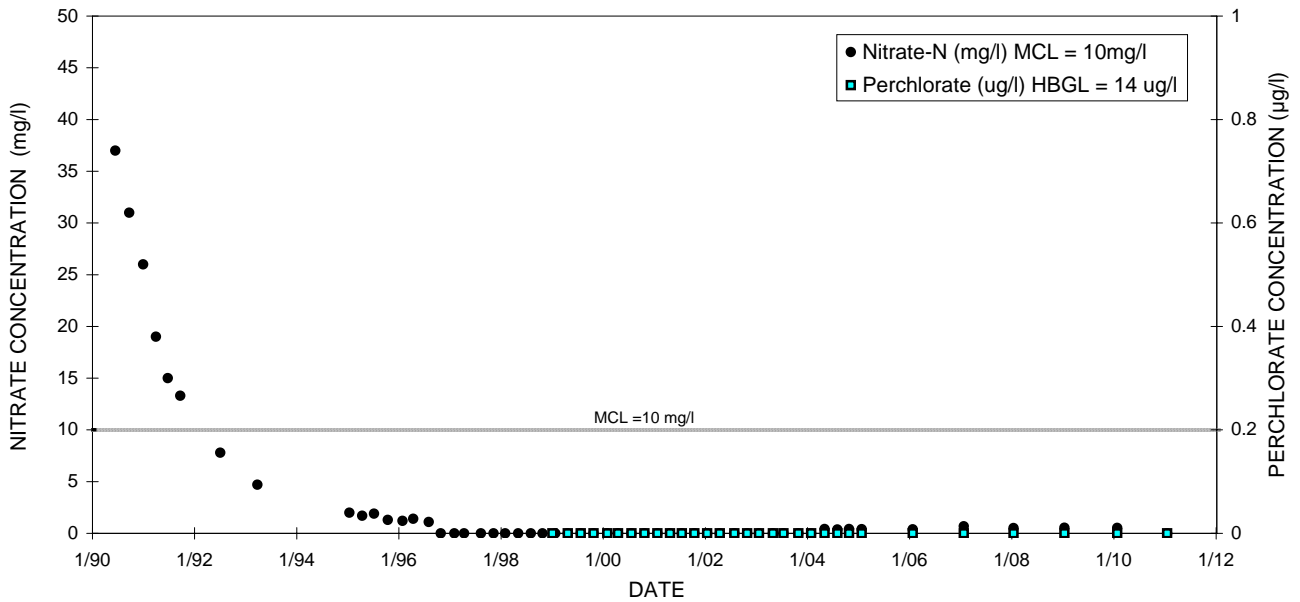
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-13. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA UPGRADIENT MONITOR WELL MW-06



Shallow Aquifer Monitor Well MW-14

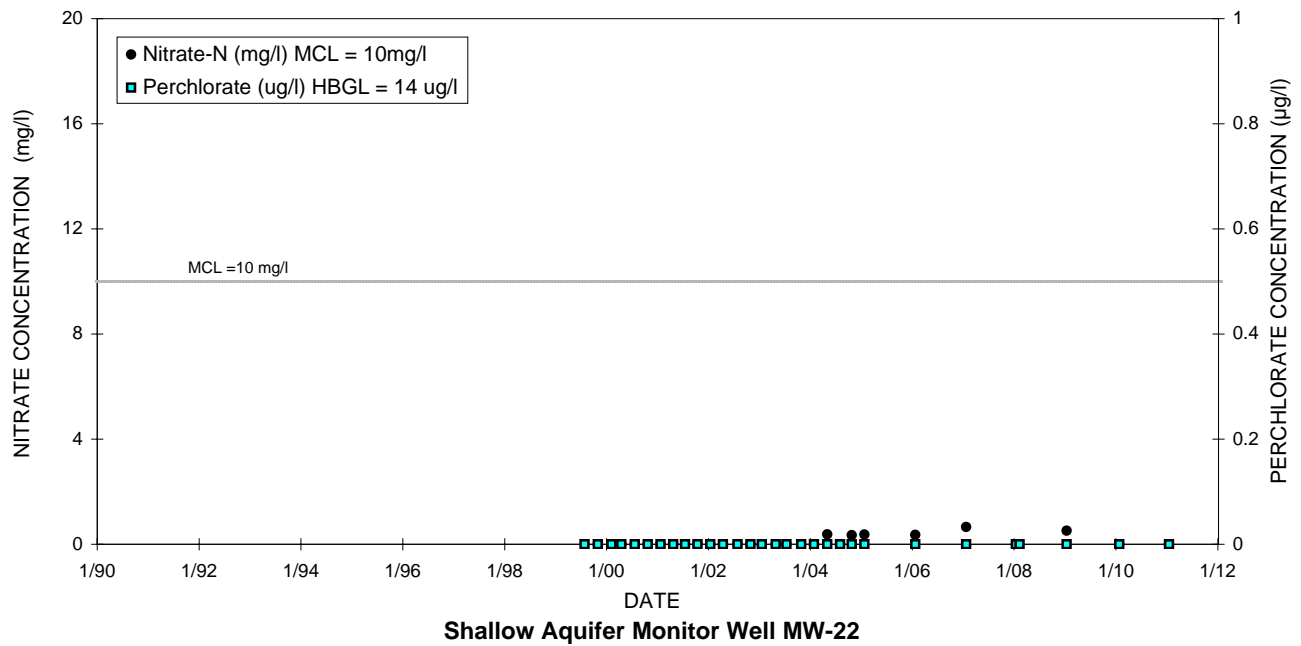
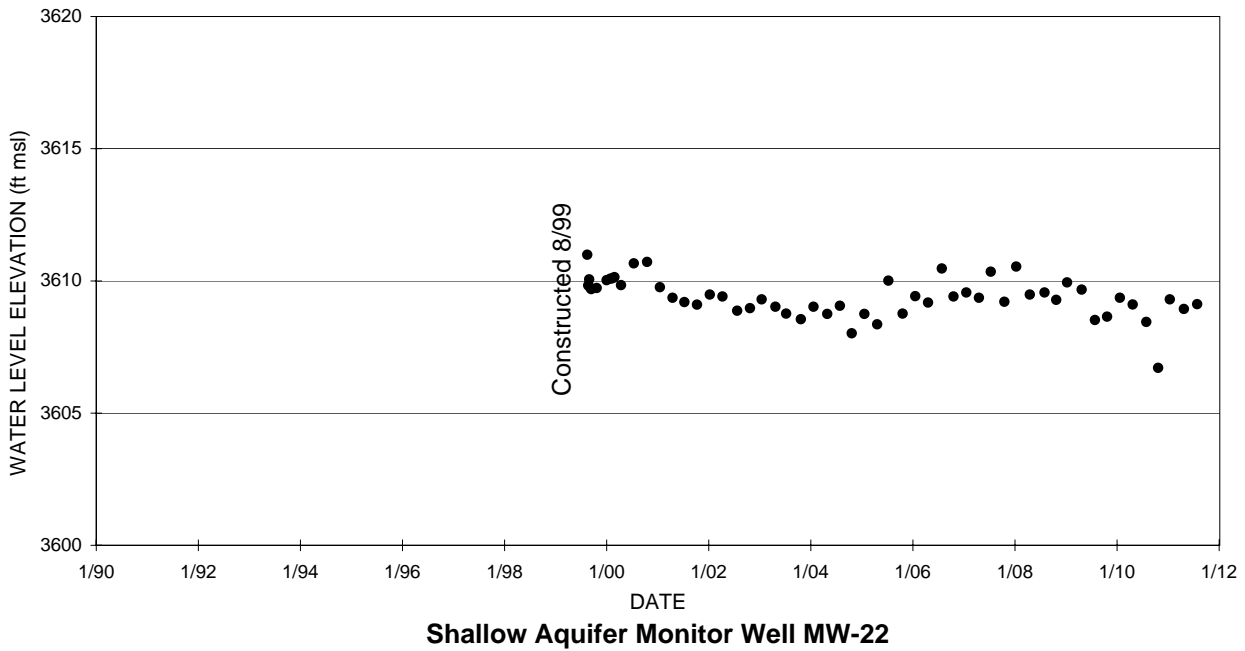


Shallow Aquifer Monitor Well MW-14

DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

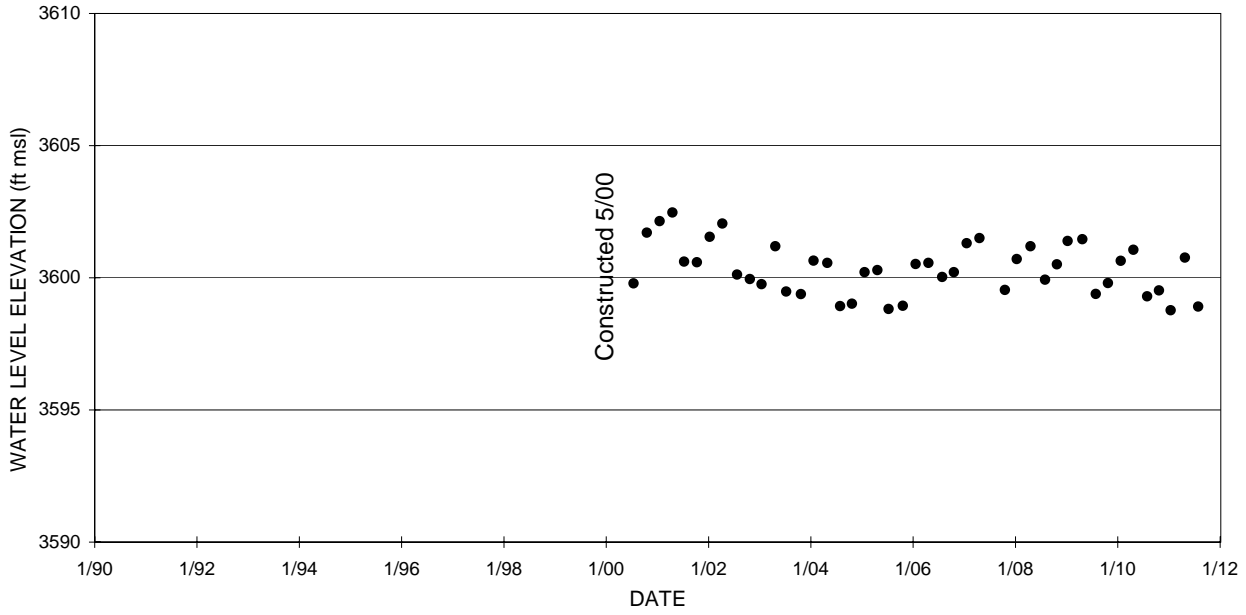
FIGURE A-14. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA SENTINEL MONITOR WELL MW-14



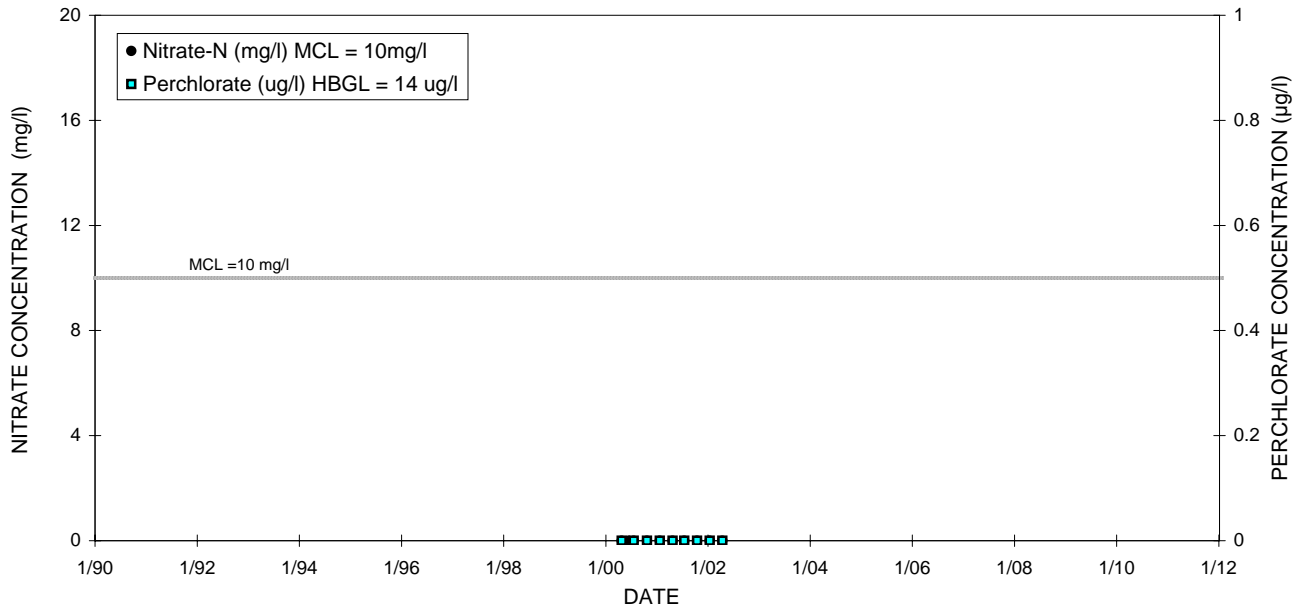
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-15. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA SENTINEL MONITOR WELL MW-22



Shallow Aquifer Monitor Well MW-25

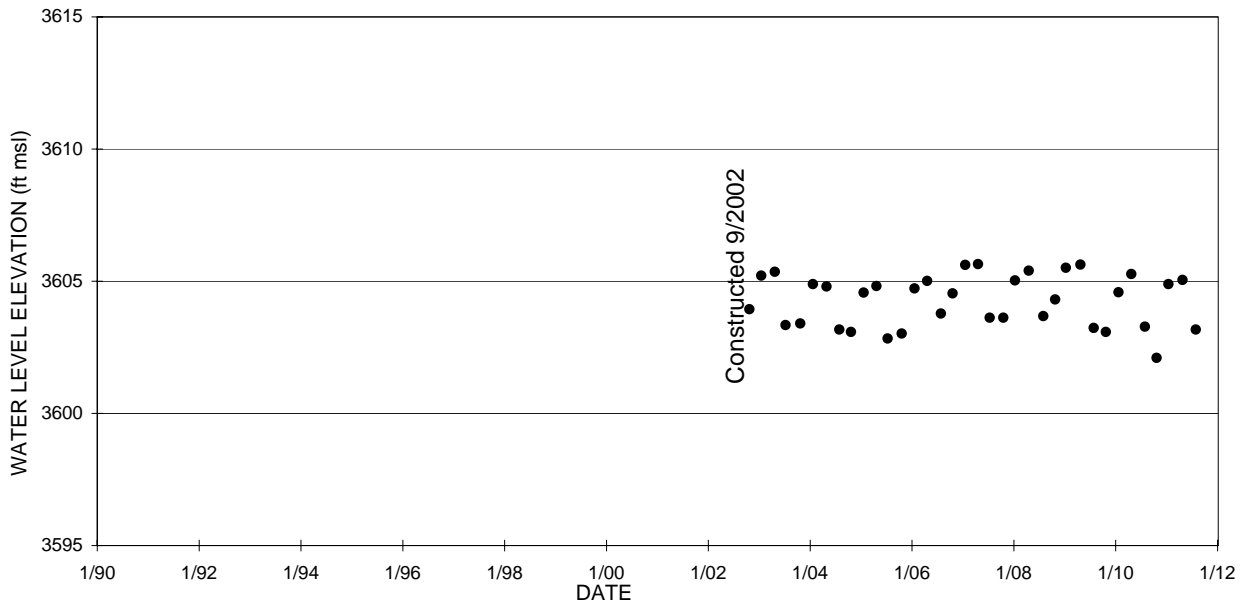


Shallow Aquifer Monitor Well MW-25

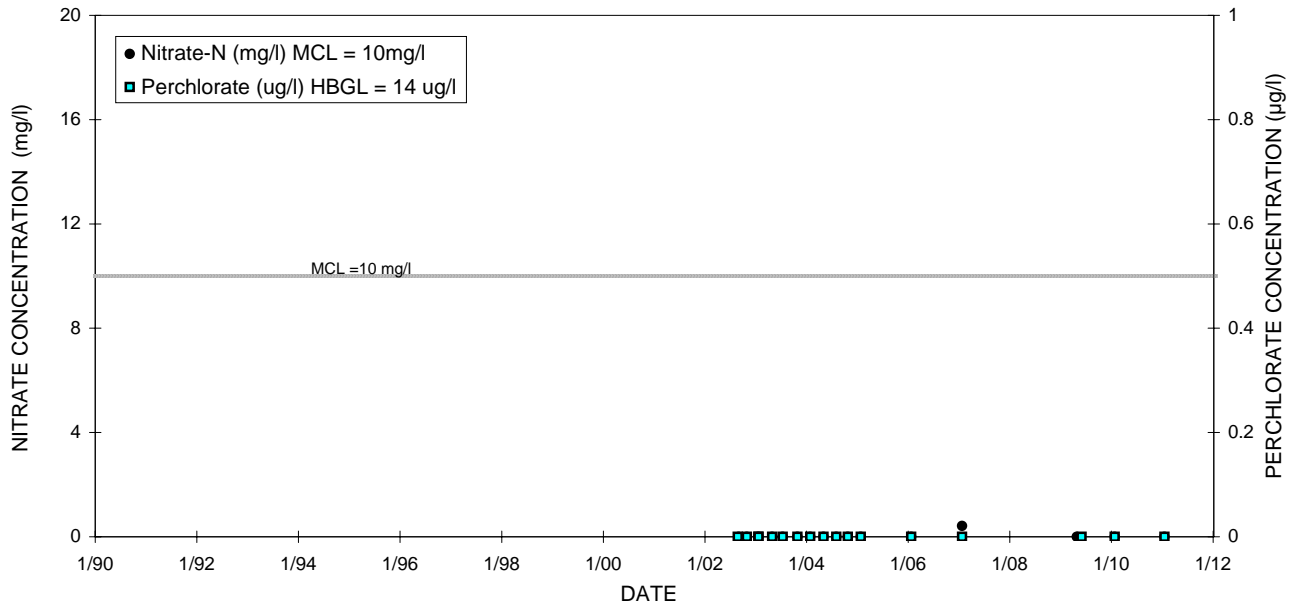
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-16. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA BUFFER ZONE MONITOR WELL MW-25



Shallow Aquifer Monitor Well MW-33

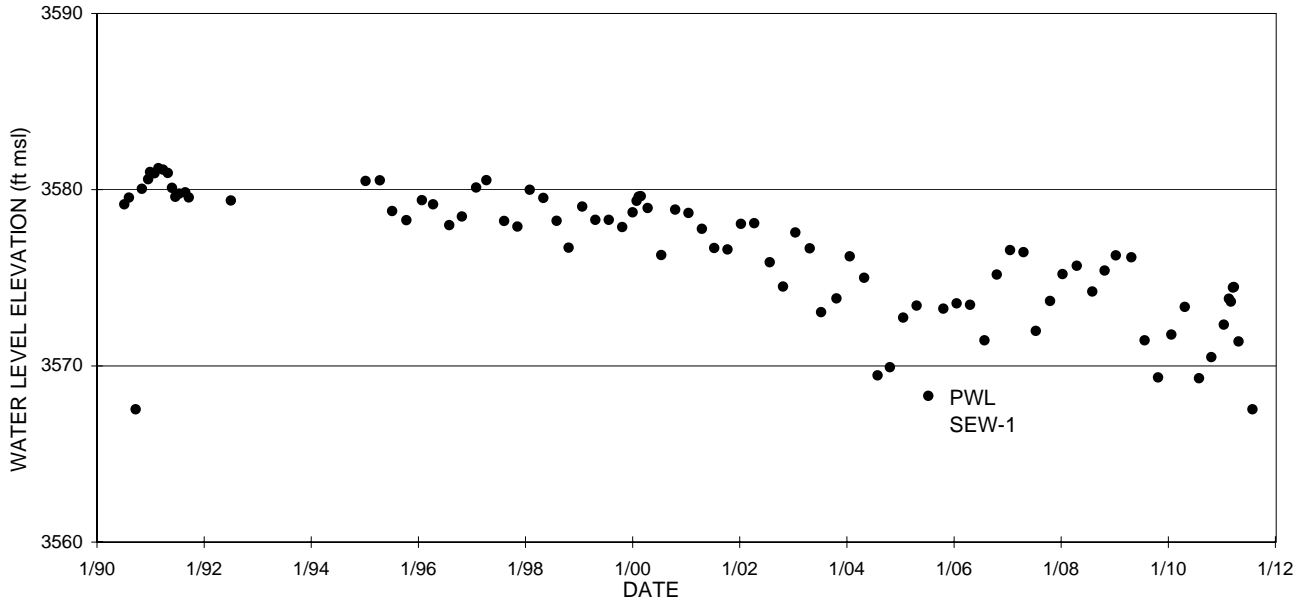


Shallow Aquifer Monitor Well MW-33

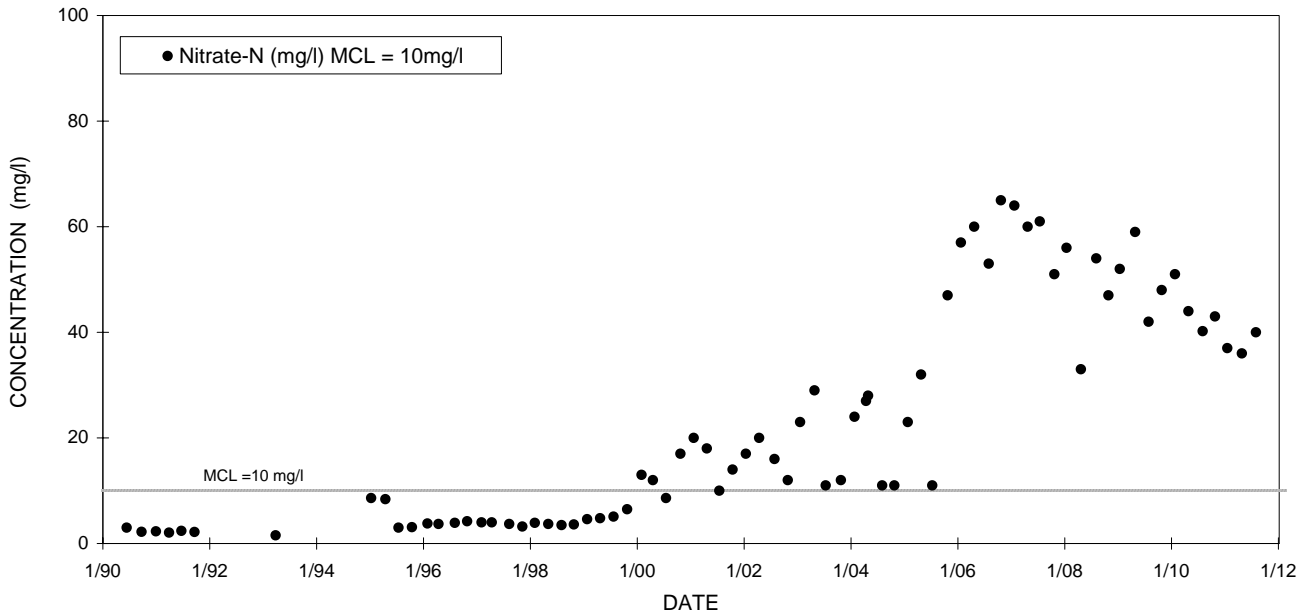
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-17 WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR SOUTHERN AREA MNA BUFFER ZONE MONITOR WELL MW-33



Shallow Aquifer Monitor Well MW-08

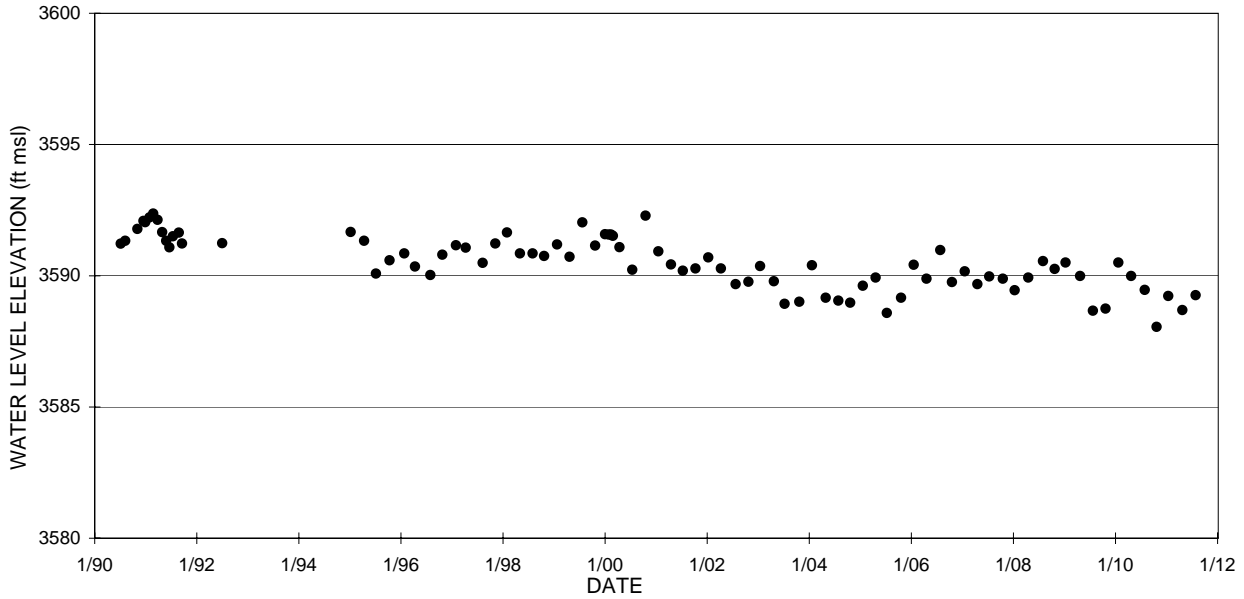


Shallow Aquifer Monitor Well MW-08

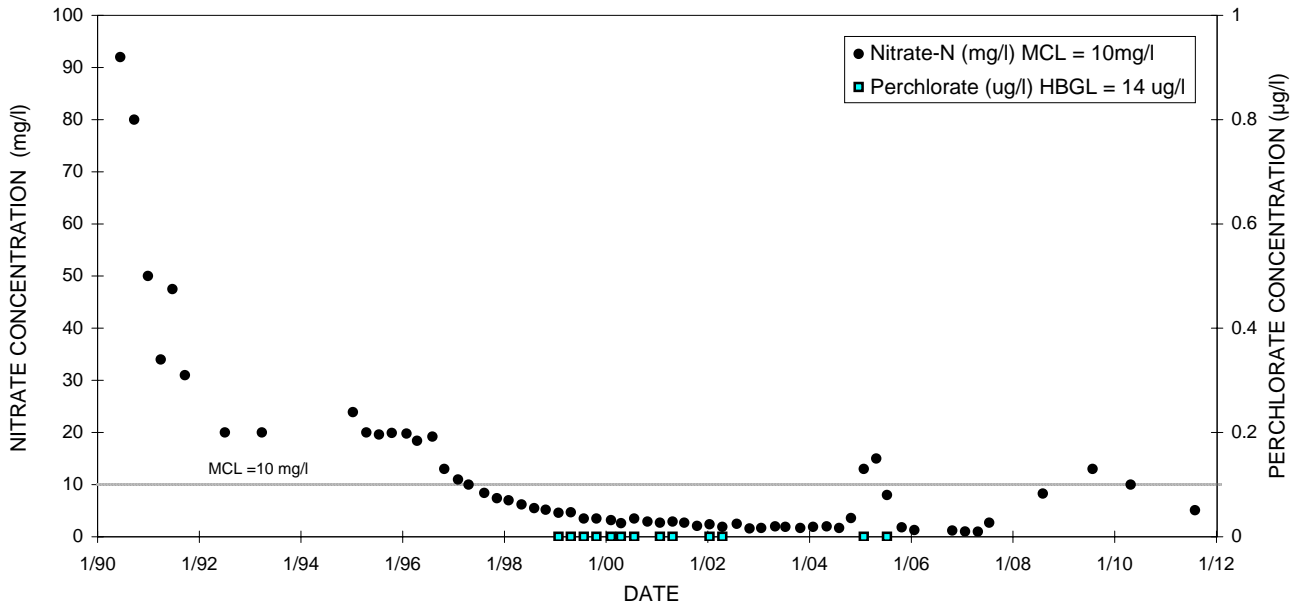
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level
PWL SEW-I = Pumping water level for Shallow Aquifer Extraction well.

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-18. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-08



Shallow Aquifer Monitor Well MW-11

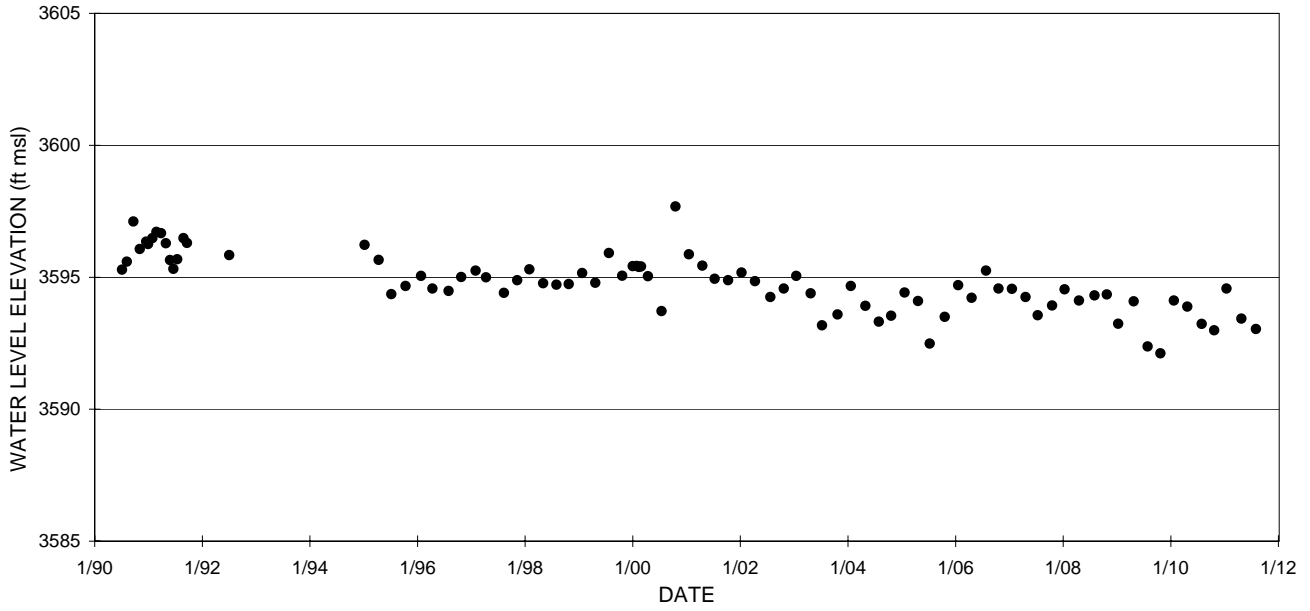


Shallow Aquifer Monitor Well MW-11

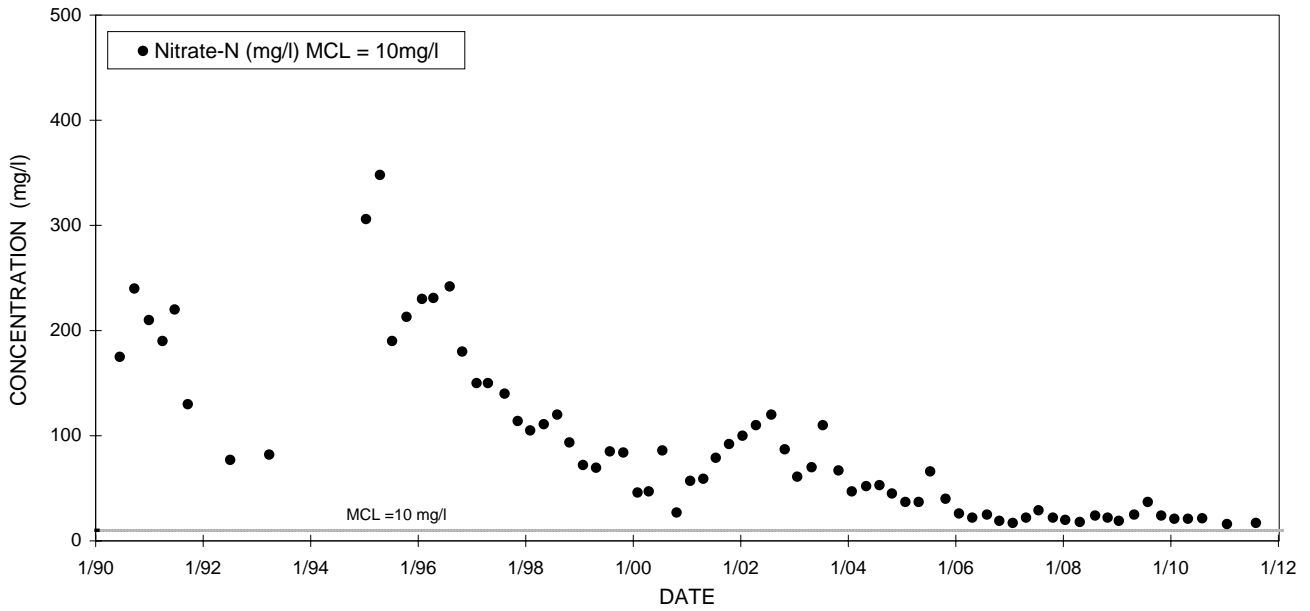
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-19. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-11



Shallow Aquifer Monitor Well MW-13

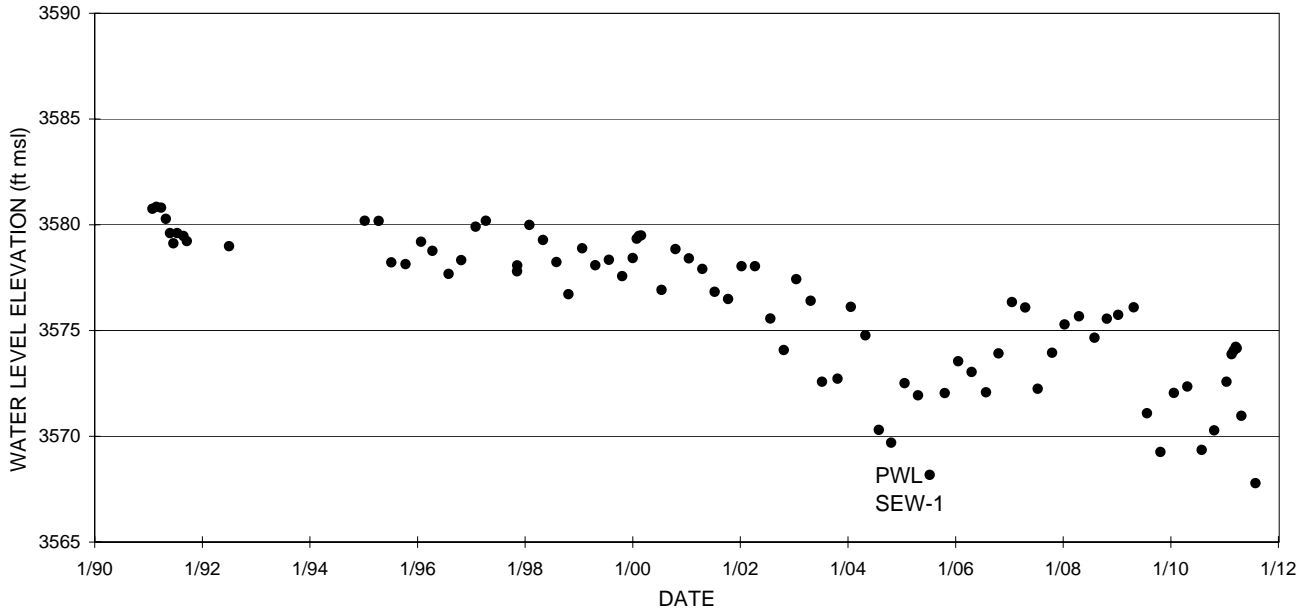


Shallow Aquifer Monitor Well MW-13

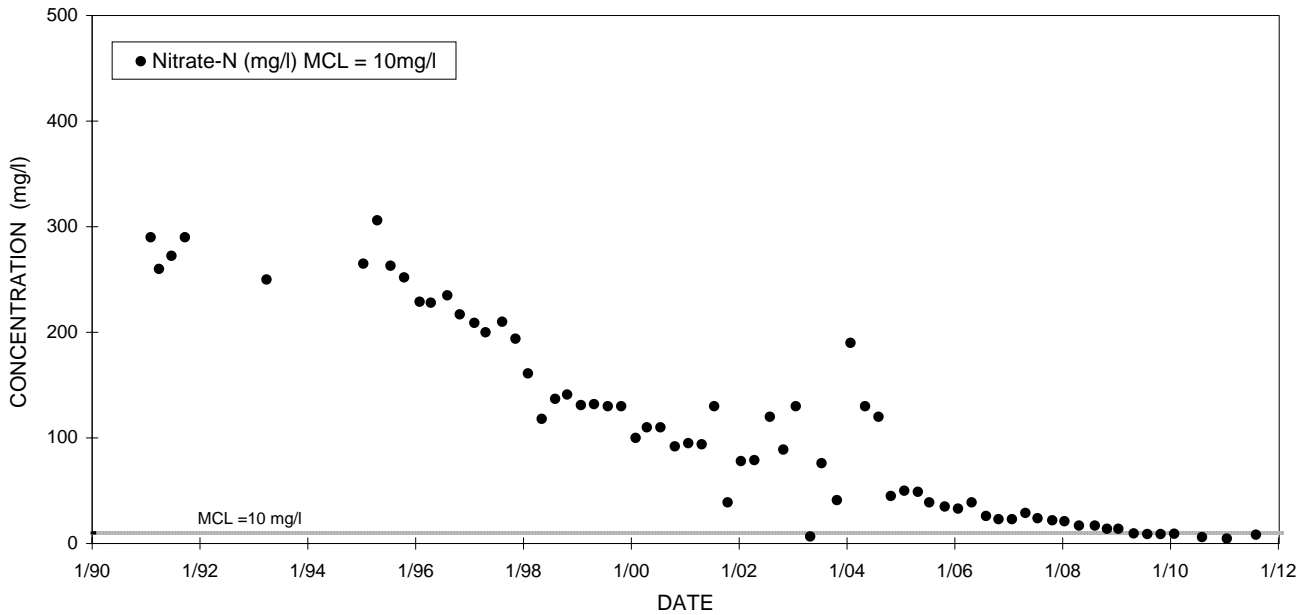
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-20. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-13



Shallow Aquifer Monitor Well MW-17

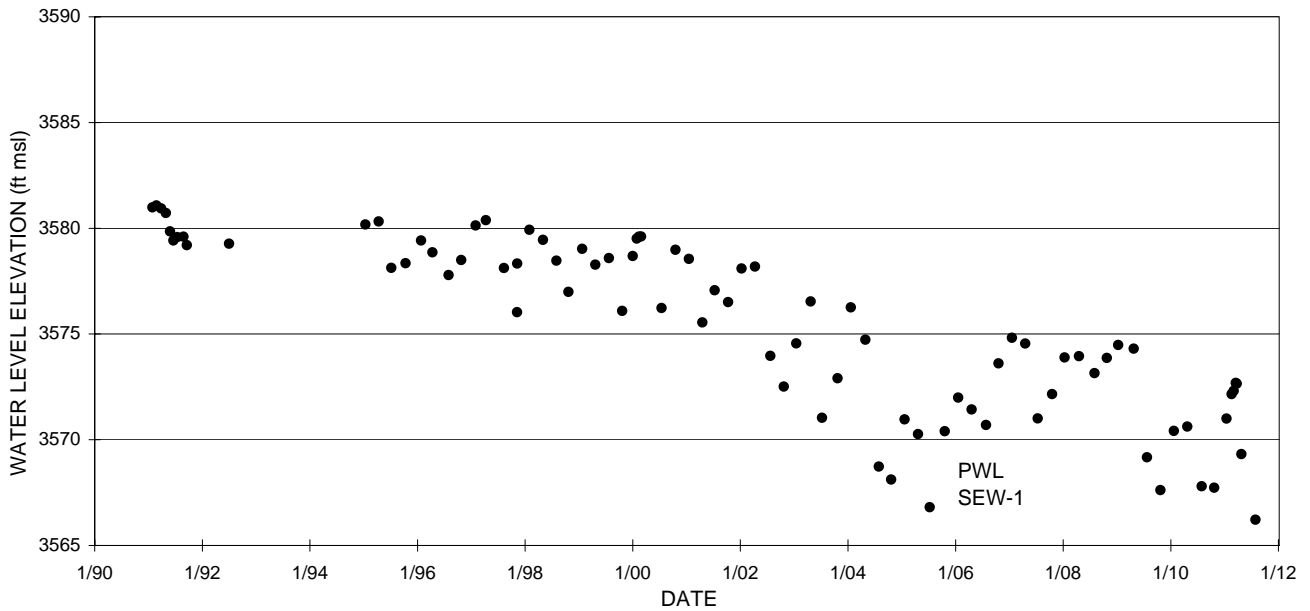


Shallow Aquifer Monitor Well MW-17

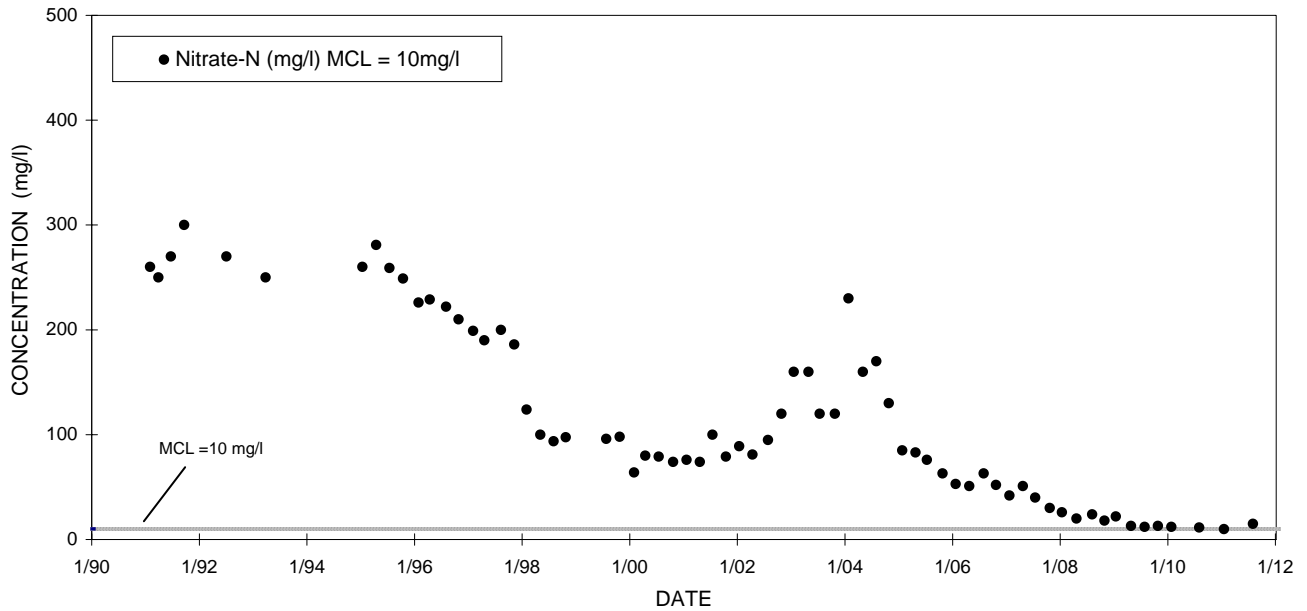
DRY = Water level below bottom of screen; No formation water is present.
 ft msl = feet above mean sea level
 PWL SEW-1 = Pumping water level for Shallow Aquifer Extraction well.

MCL = Maximum Contaminant Level
 HBGL = Health Based Guidance Level
 ug/l = micrograms per liter
 mg/l = milligrams per liter

FIGURE A-21. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS WELL MW-17



Shallow Aquifer Monitor Well MW-18



Shallow Aquifer Monitor Well MW-18

DRY = Water level below bottom of screen; No formation water is present.

ft msl = feet above mean sea level

PWL SEW-1 = Pumping water level for Shallow Aquifer Extraction well.

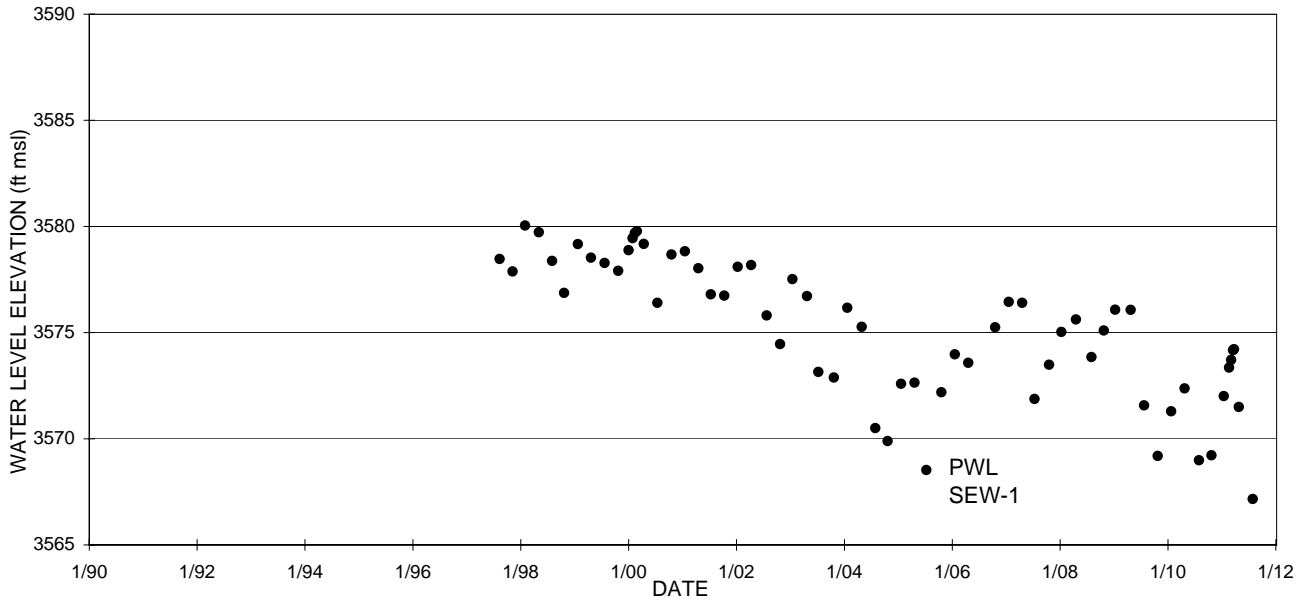
MCL = Maximum Contaminant Level

HBGL = Health Based Guidance Level

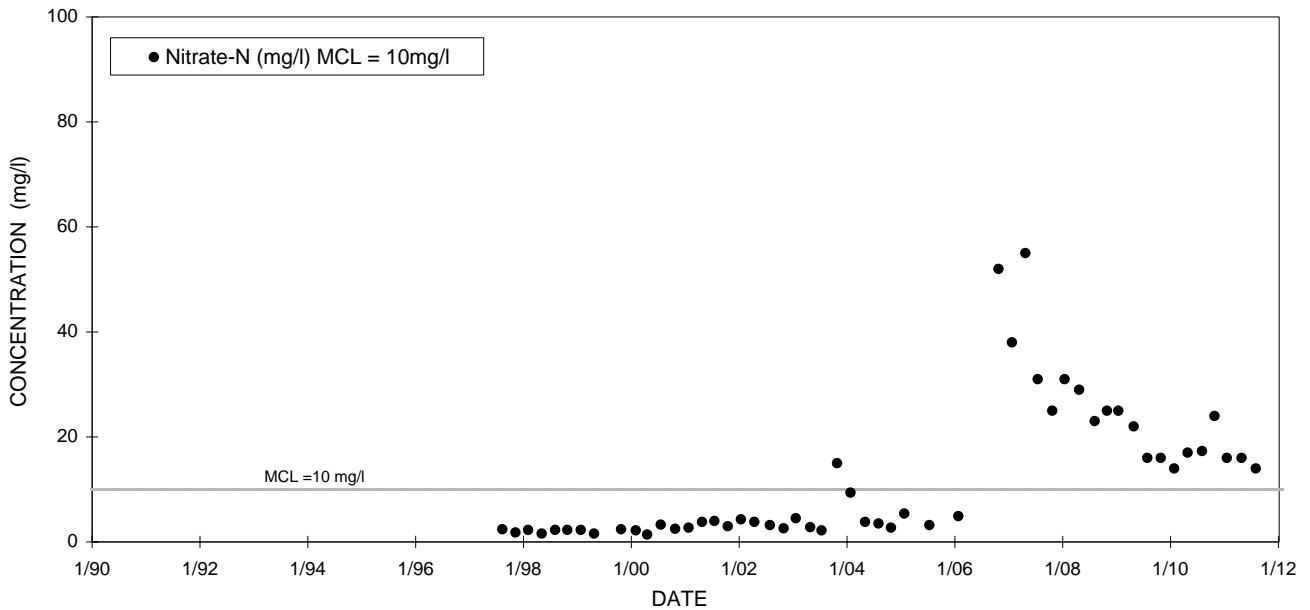
ug/l = micrograms per liter

mg/l = milligrams per liter

FIGURE A-22. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-18



Shallow Aquifer Monitor Well MW-19

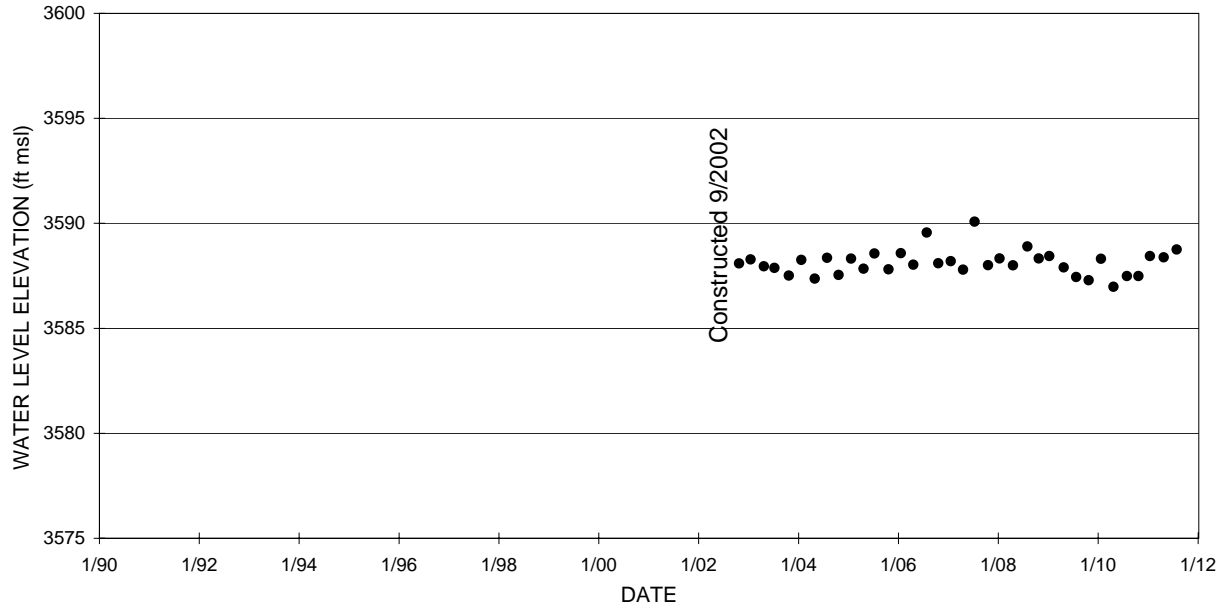


Shallow Aquifer Monitor Well MW-19

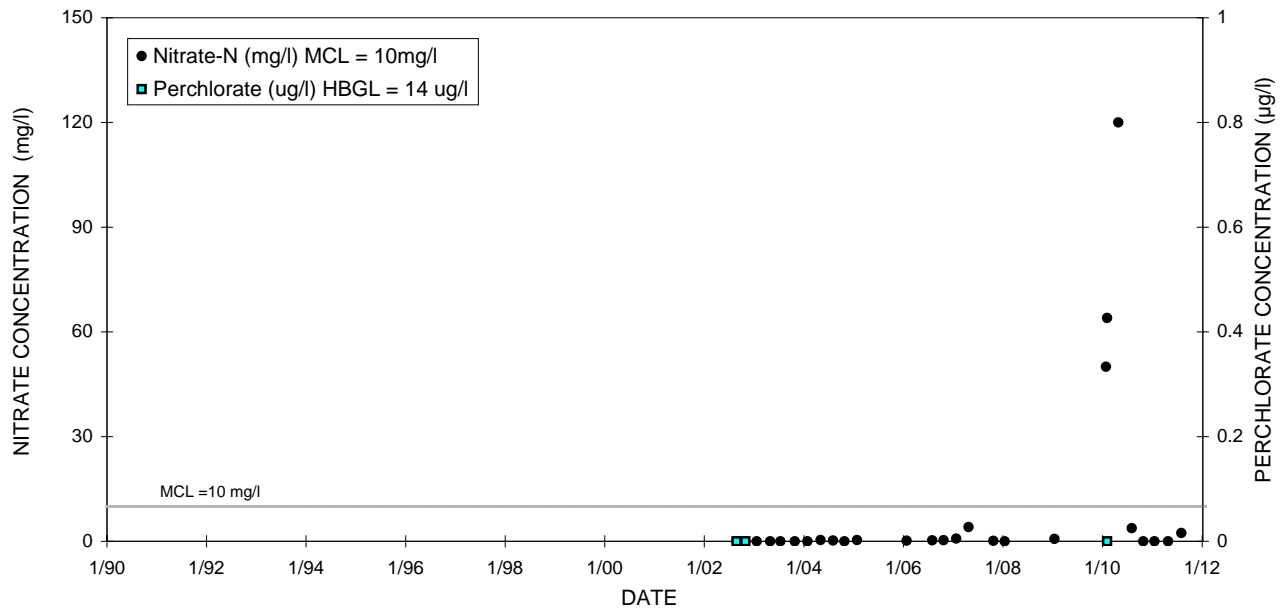
DRY = Water level below bottom of screen; No formation water is present.
 ft msl = feet above mean sea level
 PWL SEW-I = Pumping water level for Shallow Aquifer Extraction well.

MCL = Maximum Contaminant Level
 HBGL = Health Based Guidance Level
 ug/l = micrograms per liter
 mg/l = milligrams per liter

FIGURE A-23. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-19



Shallow Aquifer Monitor Well MW-34

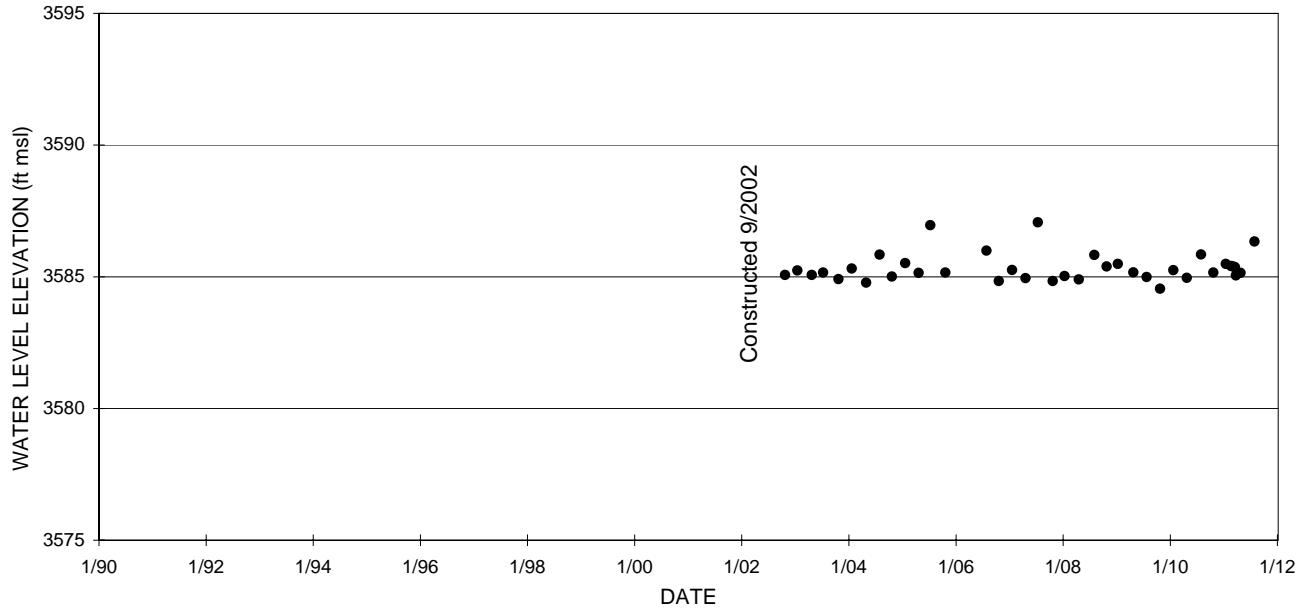


Shallow Aquifer Monitor Well MW-34

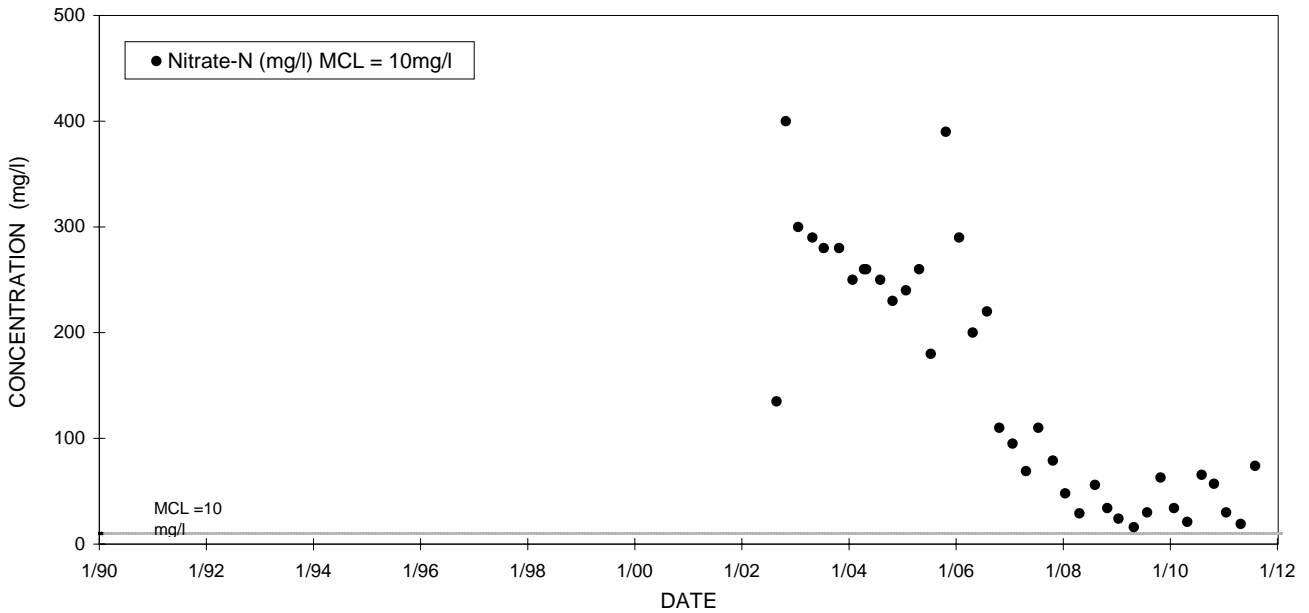
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-24. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-34



Shallow Aquifer Monitor Well MW-35

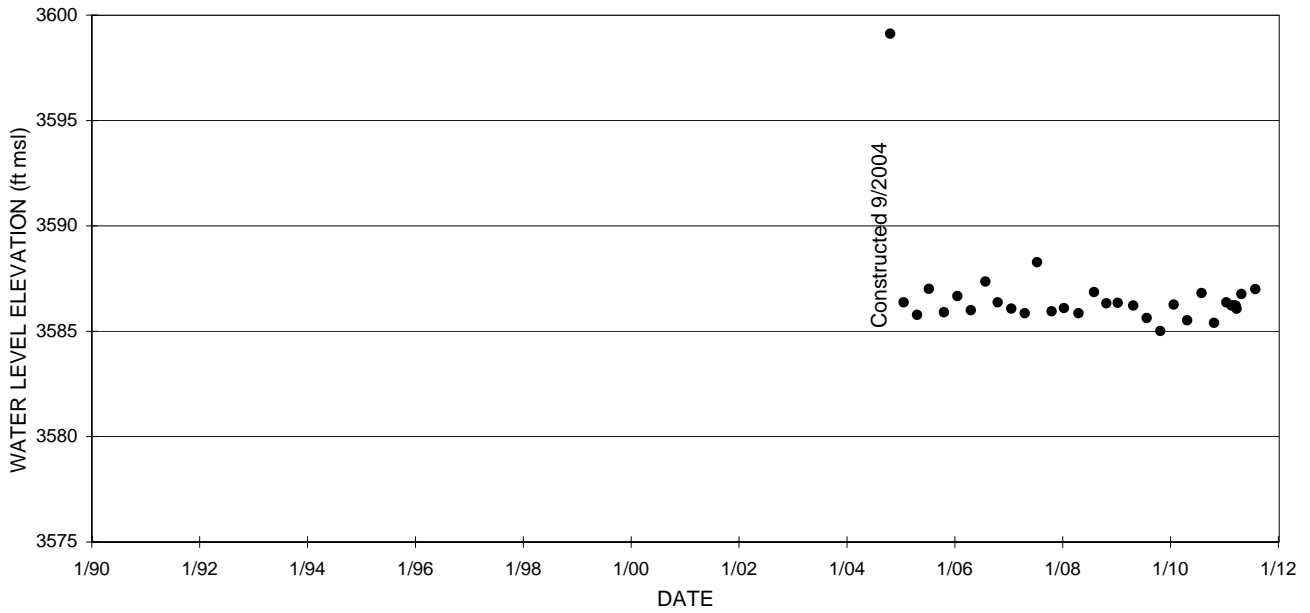


Shallow Aquifer Monitor Well MW-35

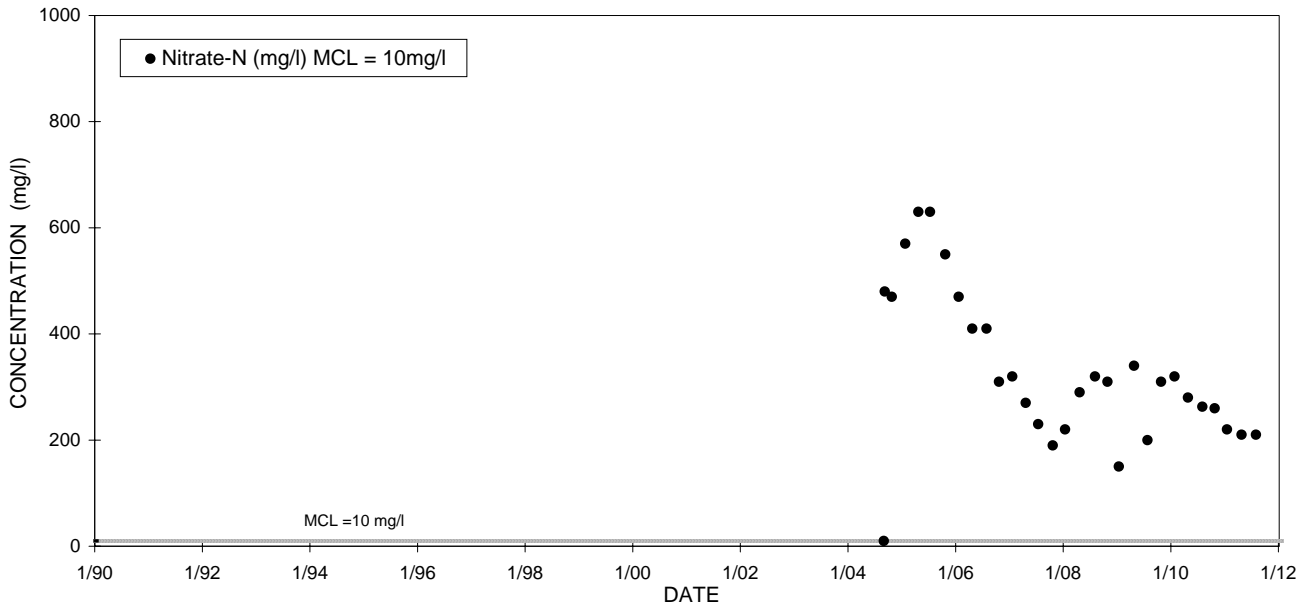
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-25. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-35



Shallow Aquifer Monitor Well MW-36

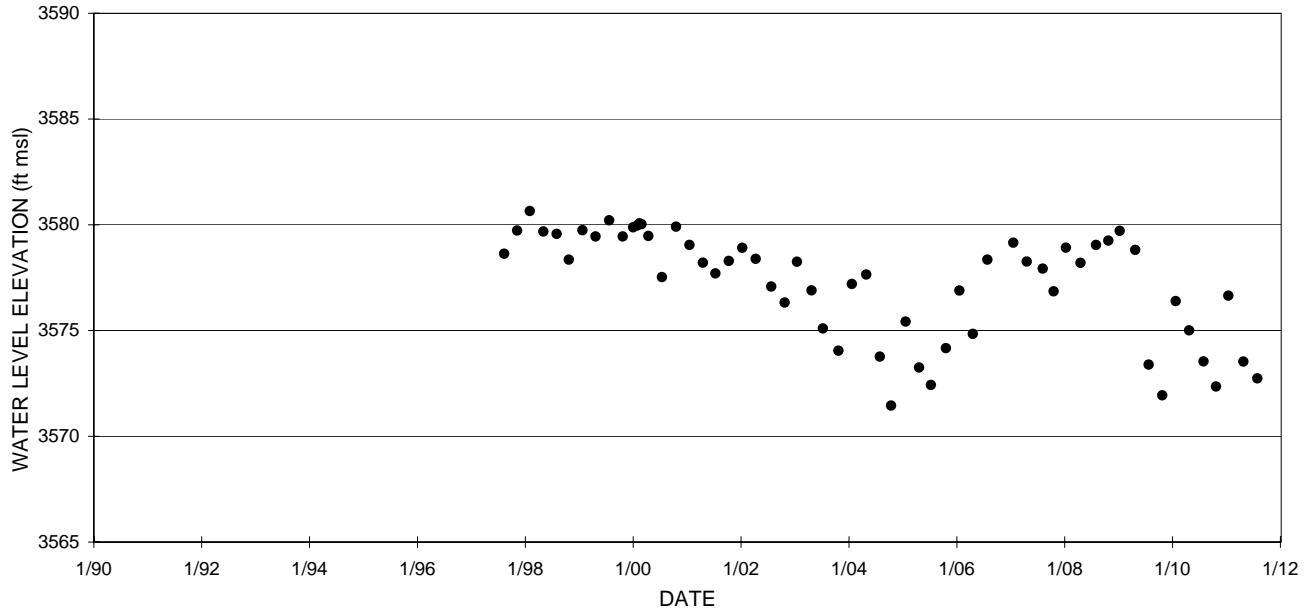


Shallow Aquifer Monitor Well MW-36

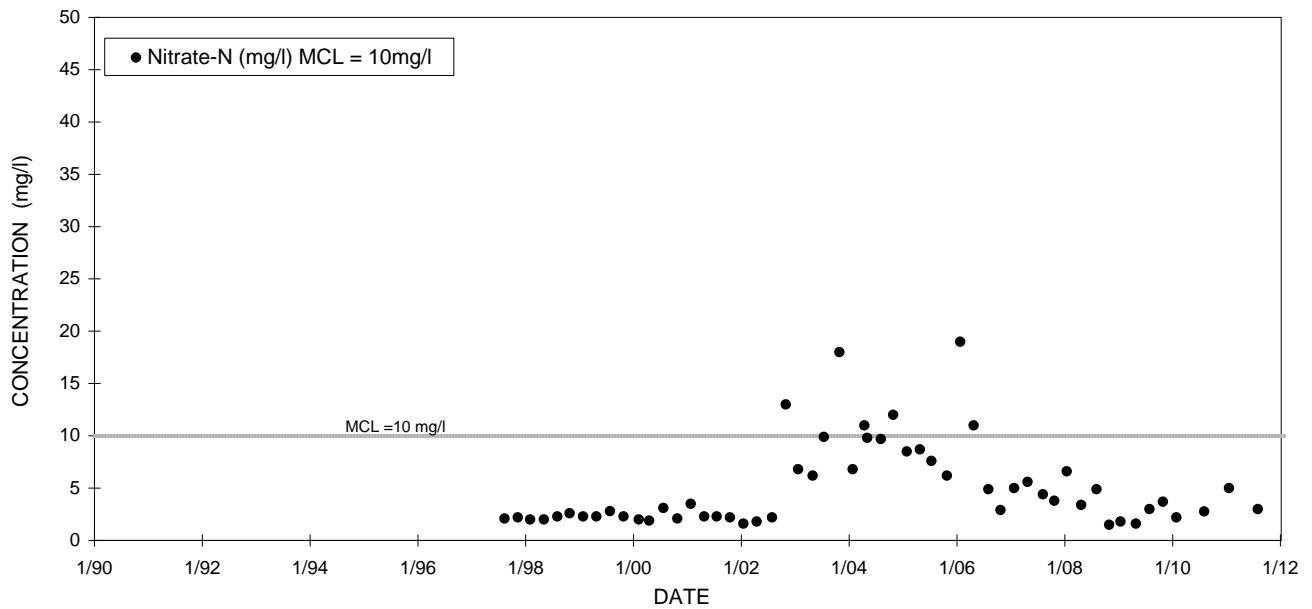
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-26. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NARS MONITOR WELL MW-36



Shallow Aquifer Monitor Well MW-20

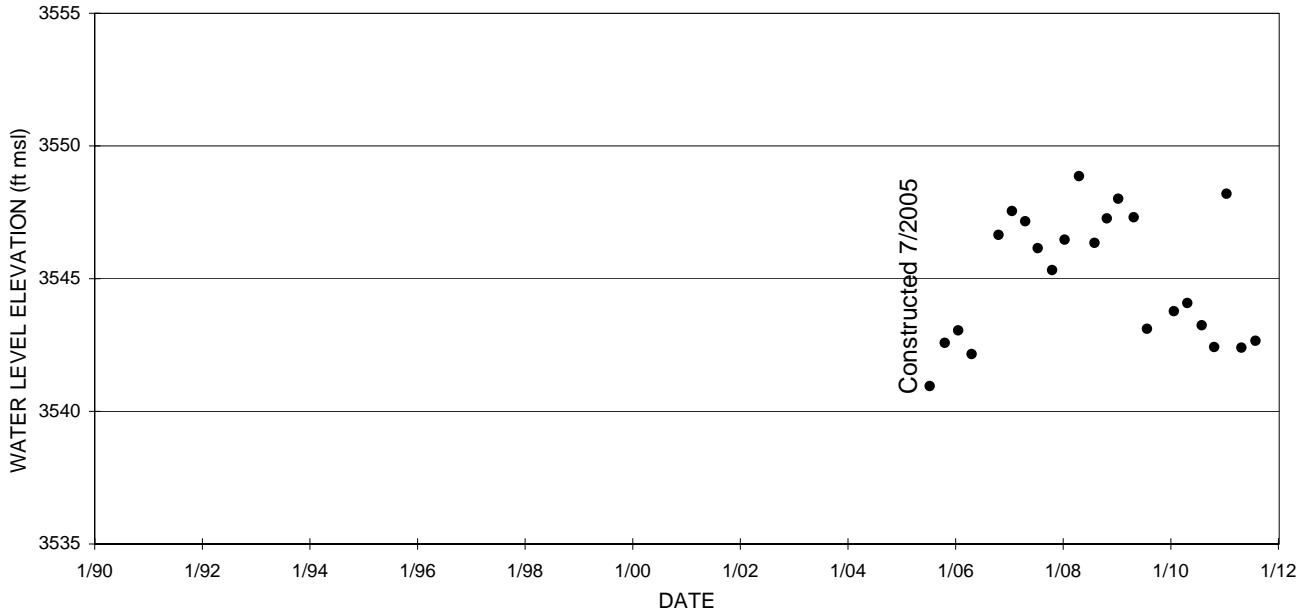


Shallow Aquifer Monitor Well MW-20

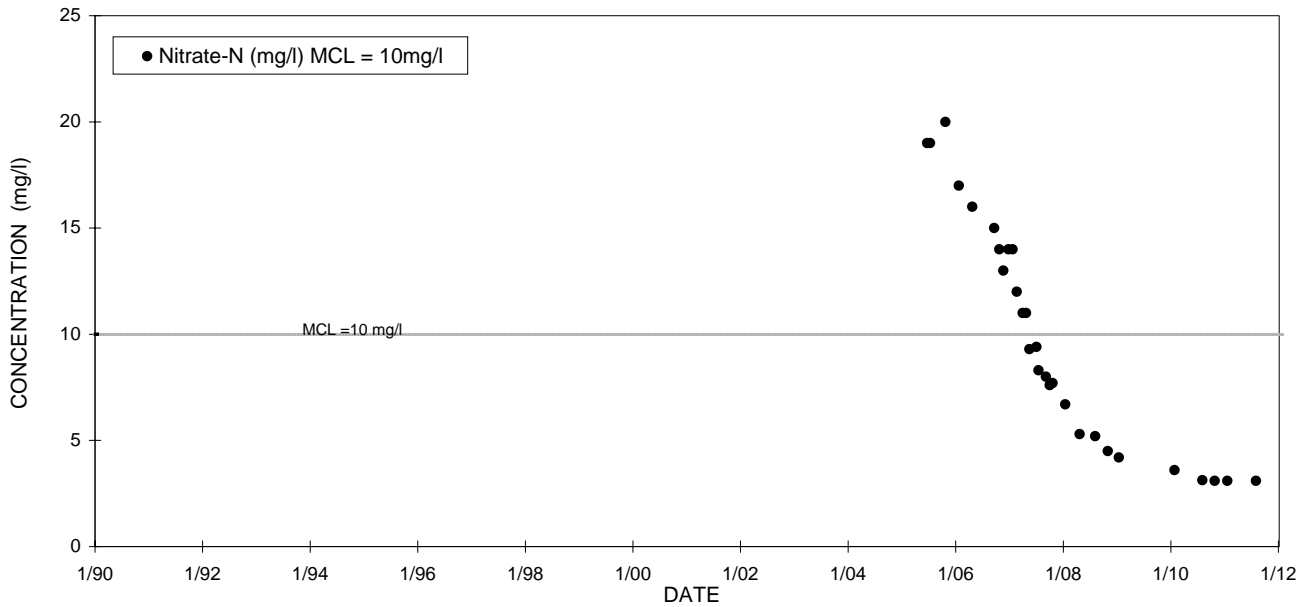
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-27. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-20



Shallow Aquifer Monitor Well MW-38

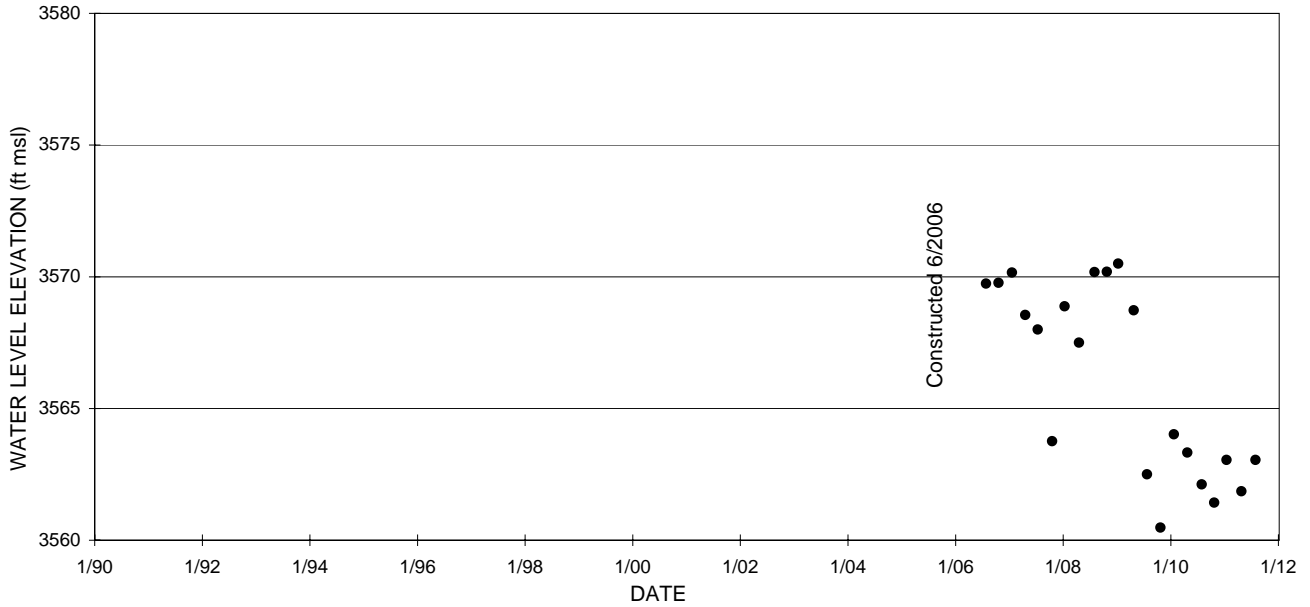


Shallow Aquifer Monitor Well MW-38

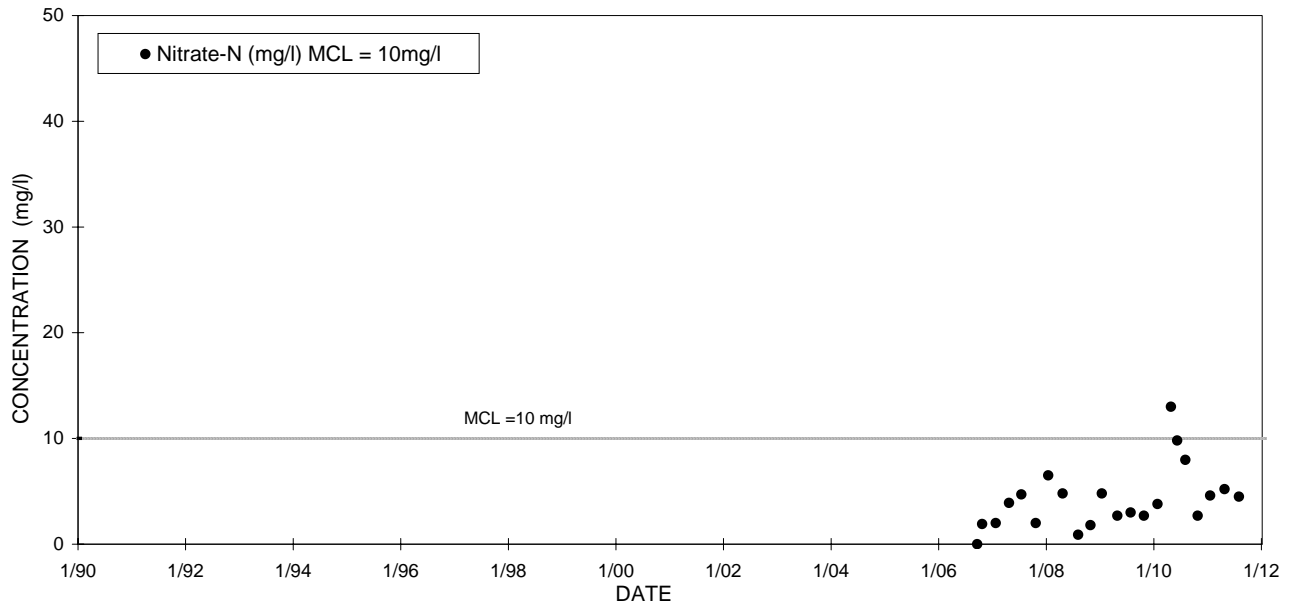
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-28. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-38



Shallow Aquifer Monitor Well MW-40

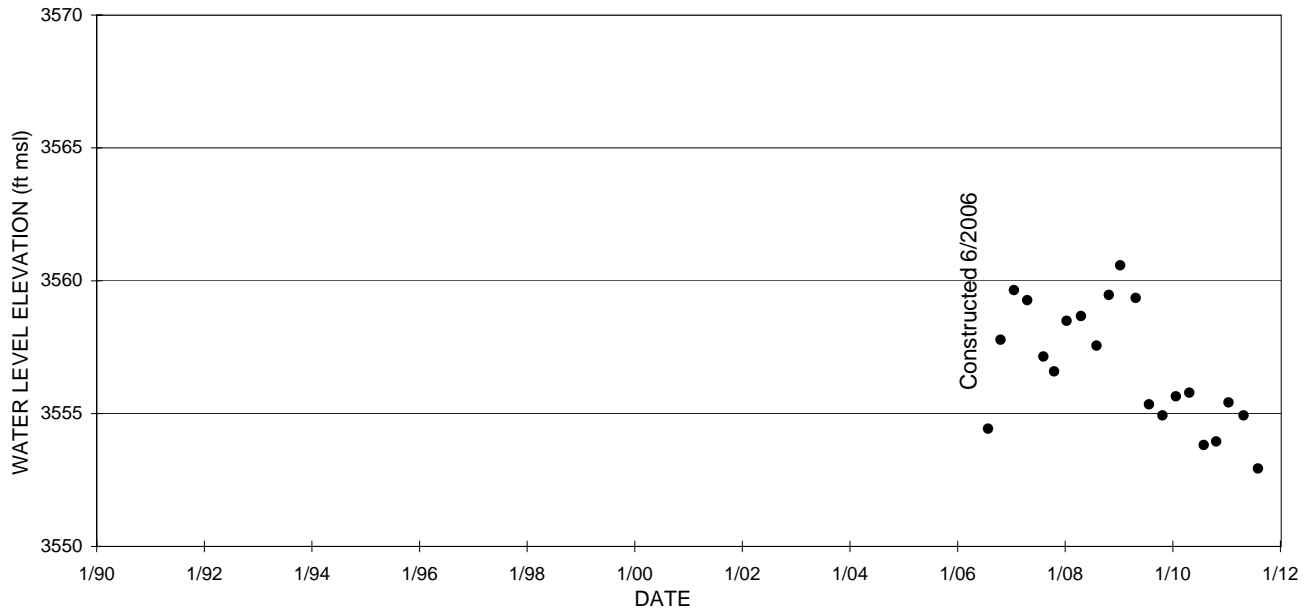


Shallow Aquifer Monitor Well MW-40

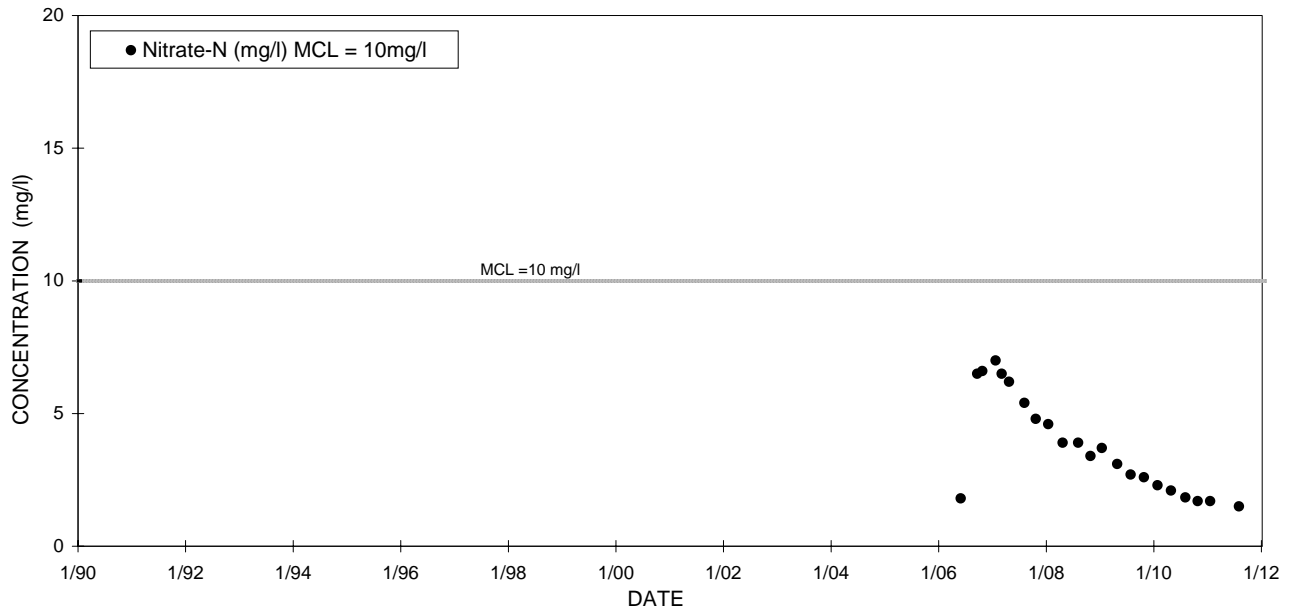
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-29. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA SENTINEL MONITOR WELL MW-40



Shallow Aquifer Monitor Well MW-41A

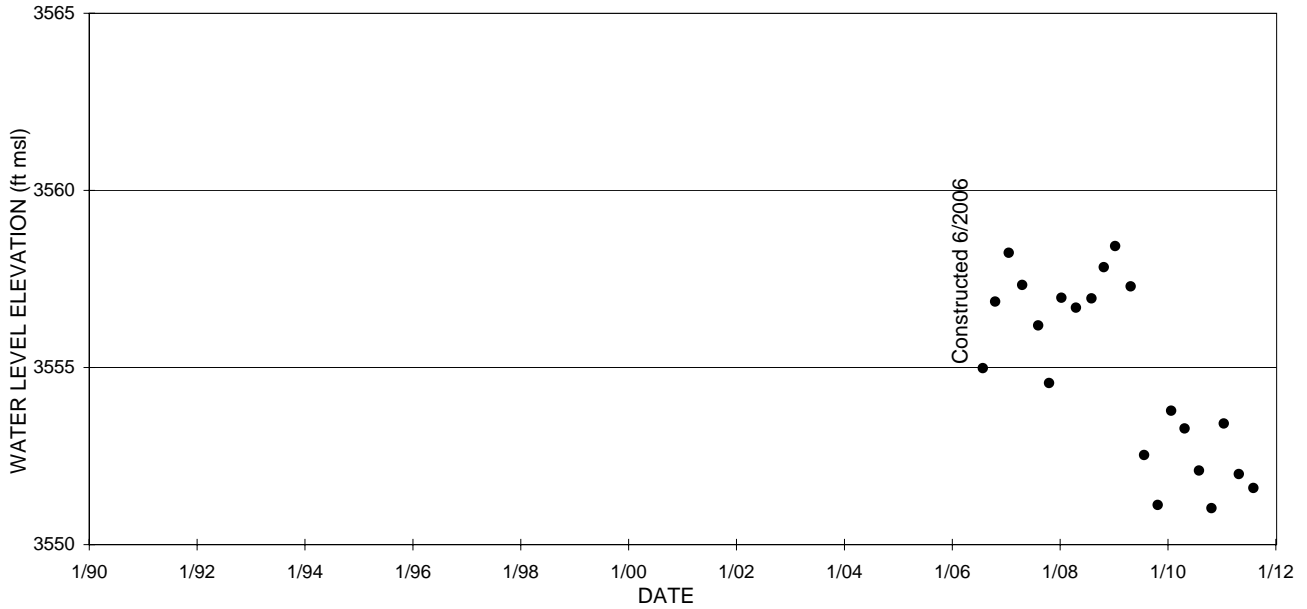


Shallow Aquifer Monitor Well MW-41A

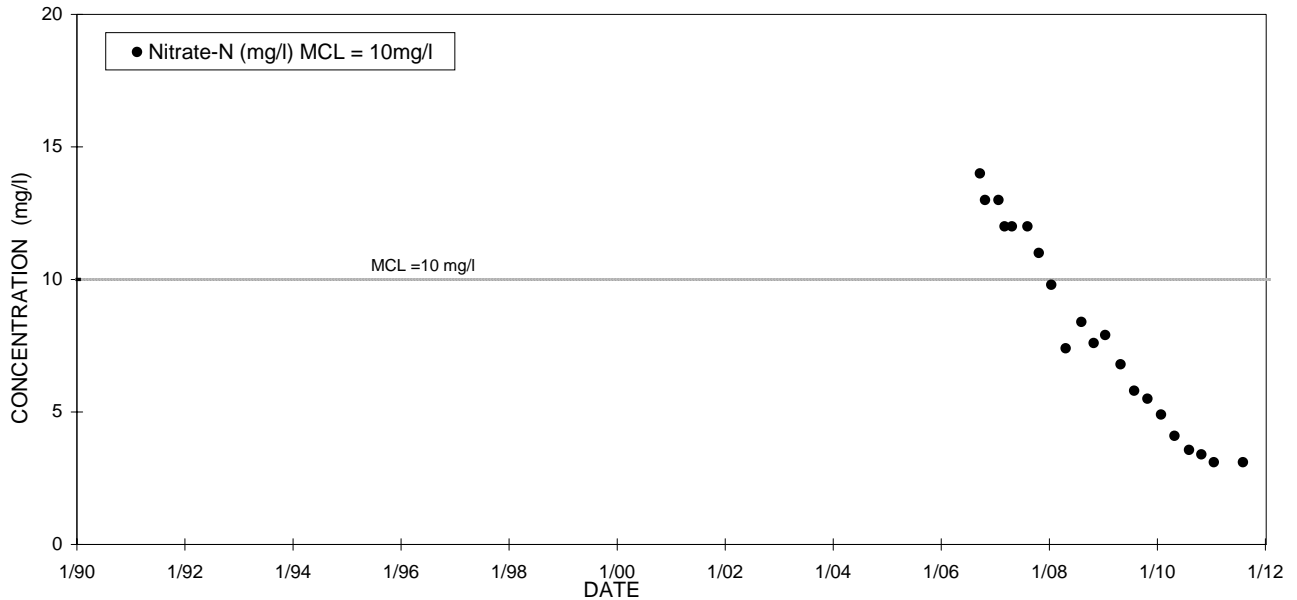
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-30. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-41A



Shallow Aquifer Monitor Well MW-41B

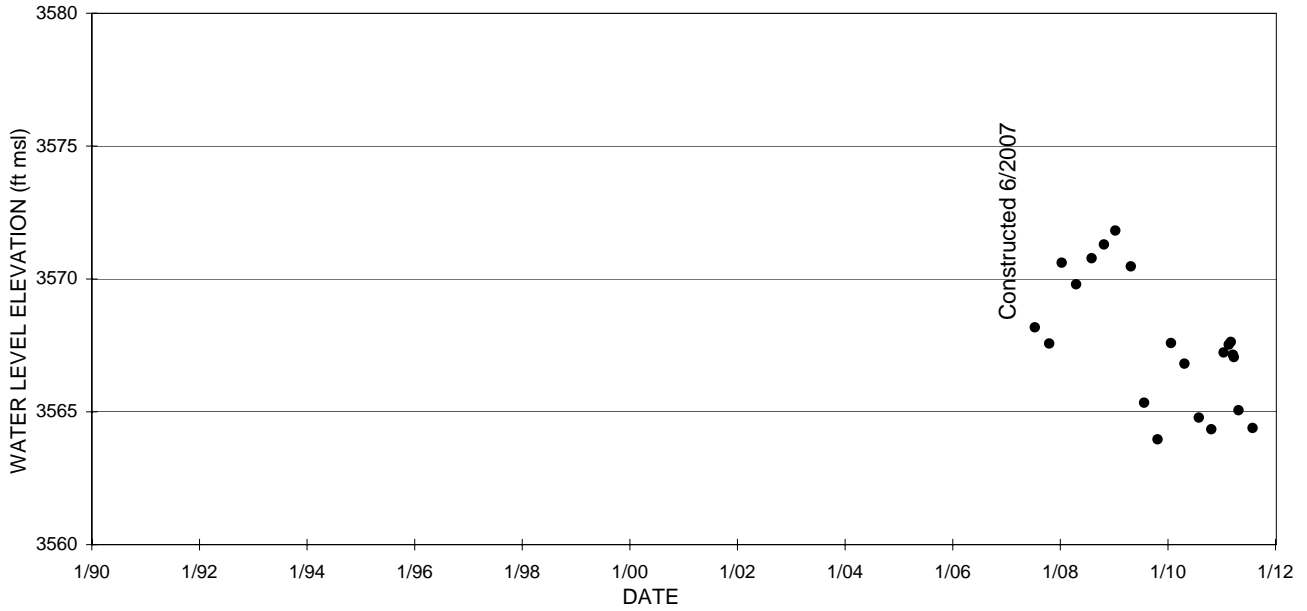


Shallow Aquifer Monitor Well MW-41B

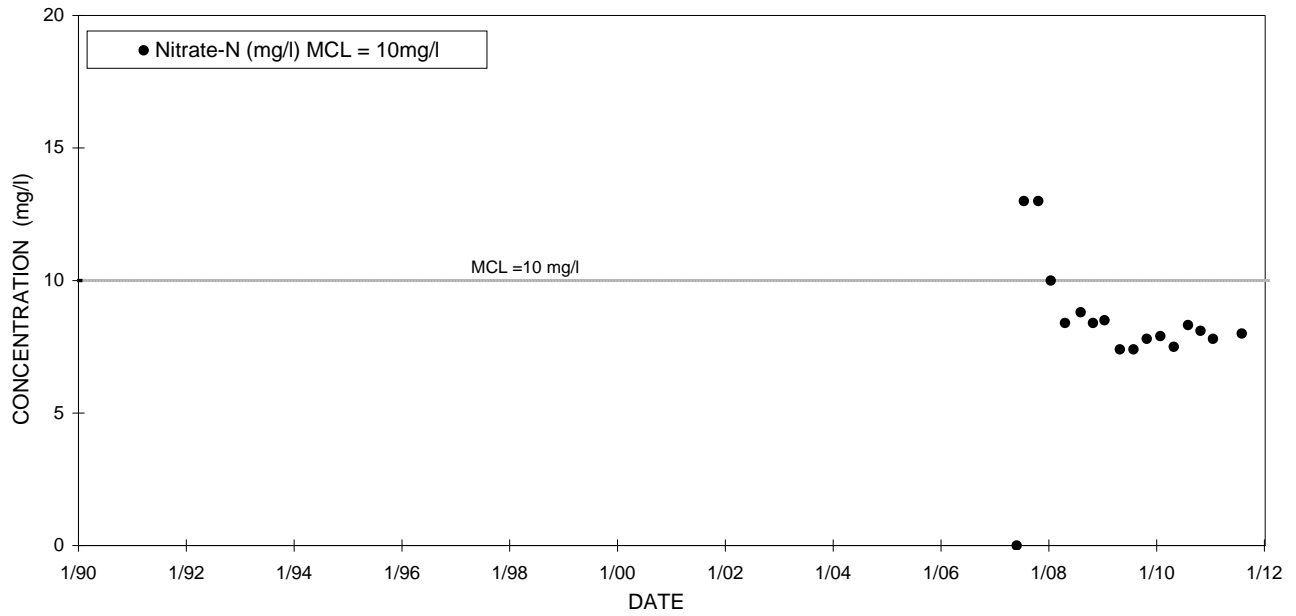
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-31. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-41B



Shallow Aquifer Monitor Well MW-42

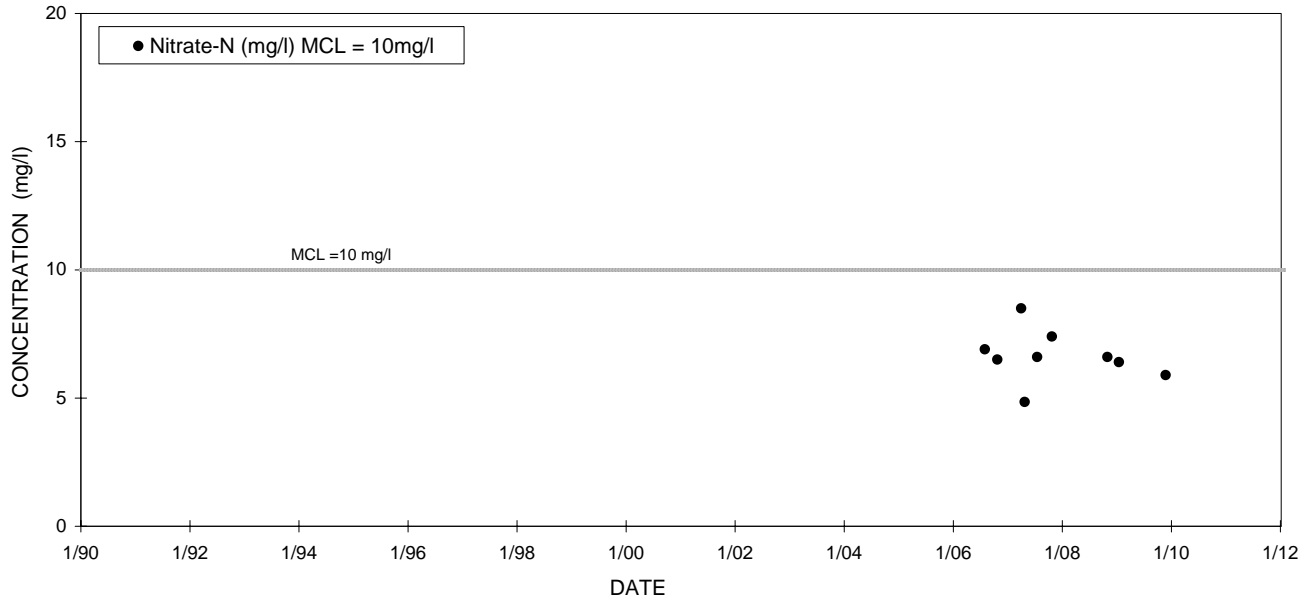


Shallow Aquifer Monitor Well MW-42

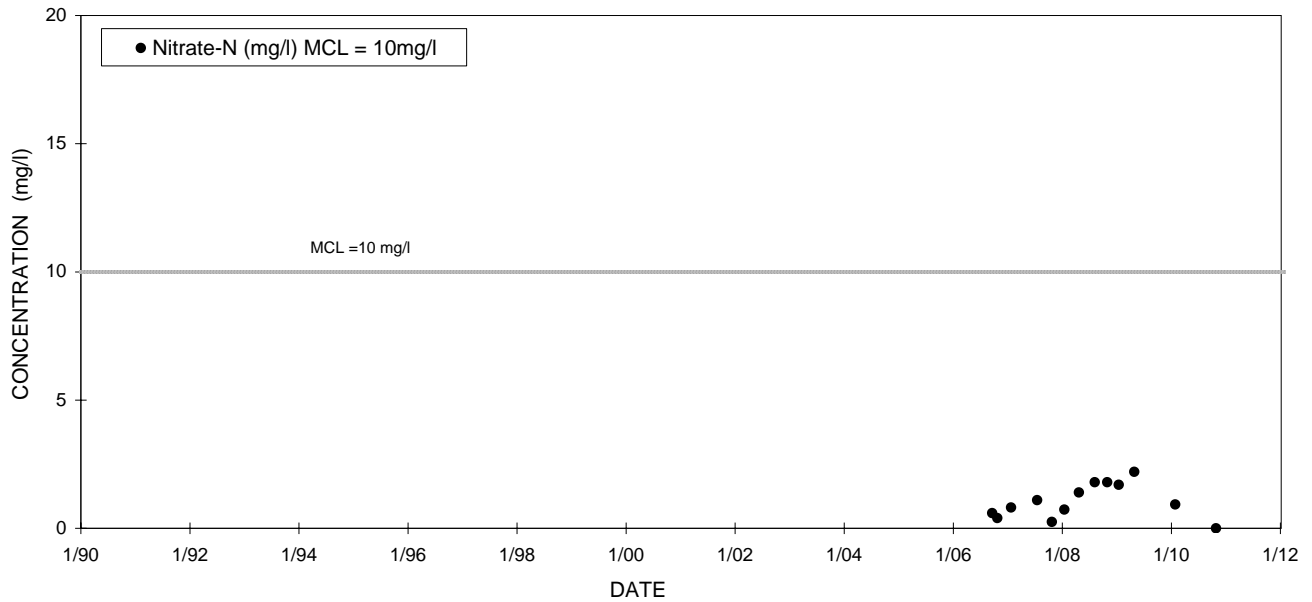
DRY = Water level below bottom of screen; No formation water is present.
ft msl = feet above mean sea level

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-32. WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE MONITOR WELL MW-42



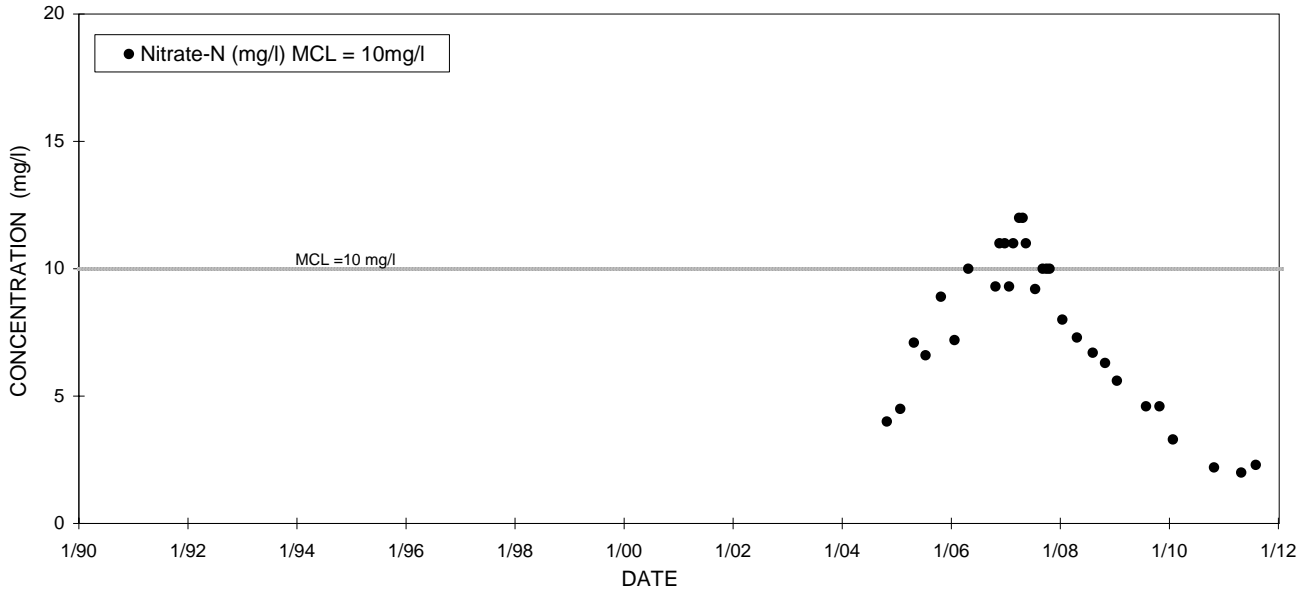
Shallow Aquifer Private Well D(17-20)23acd



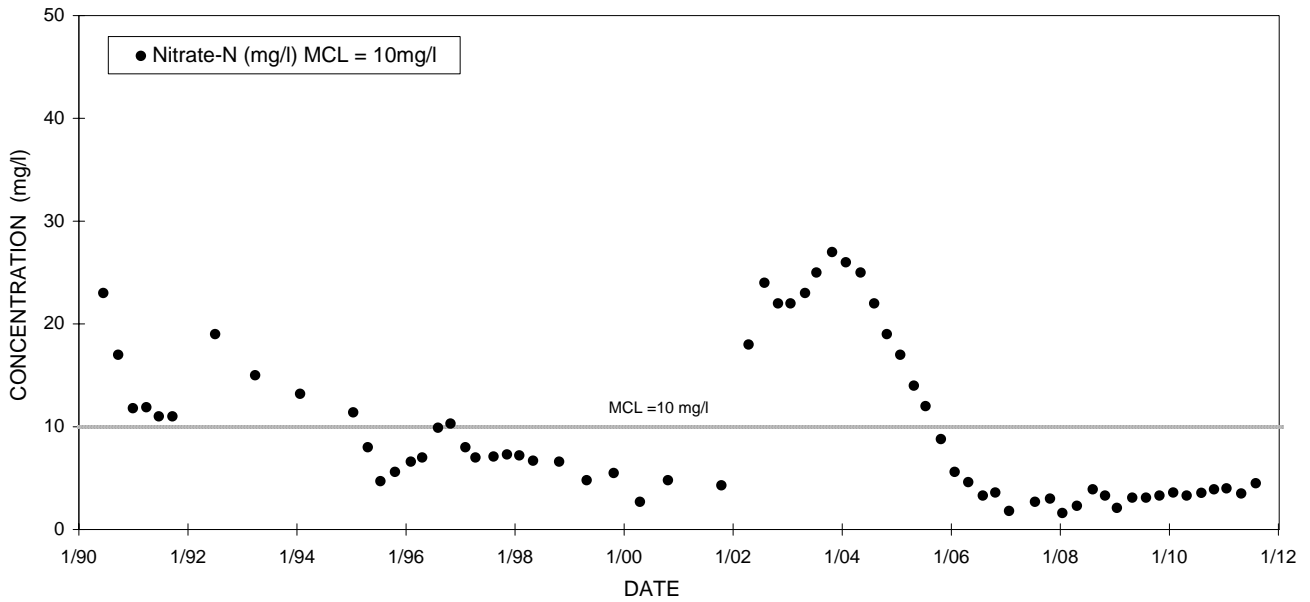
Shallow Aquifer Private Well D(17-20)23ada

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-33. WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA BUFFER ZONE PRIVATE WELLS D(17-20)23acd AND D(17-20)23ada



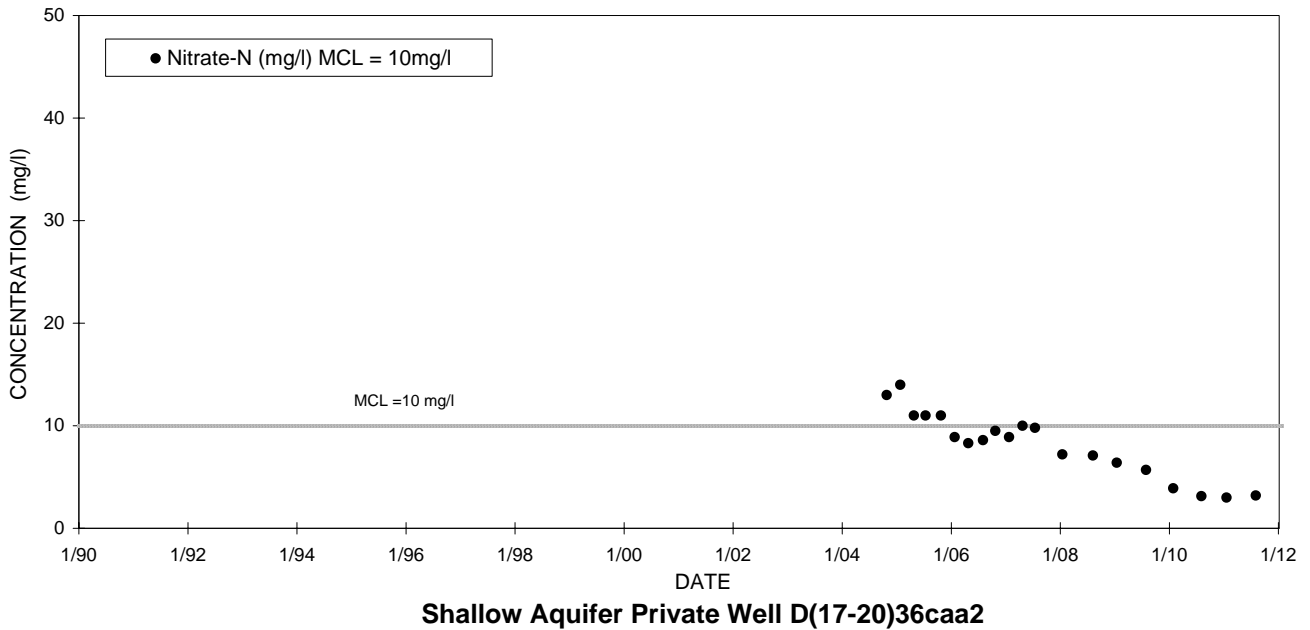
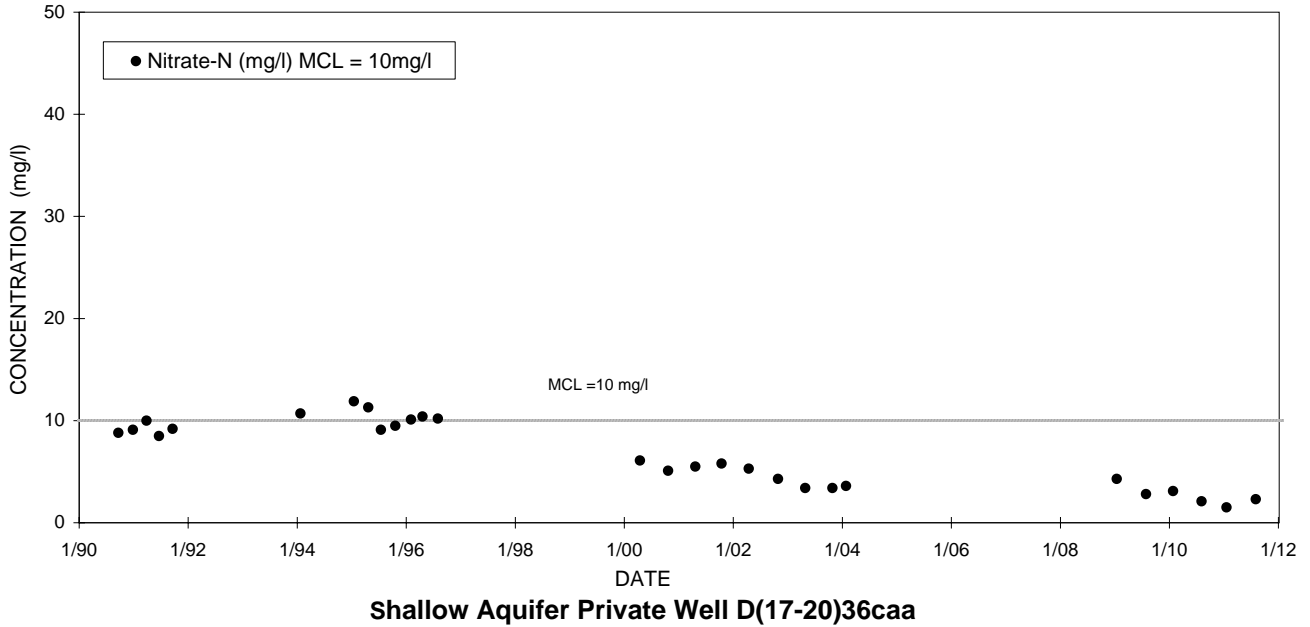
Shallow Aquifer Private Well D(17-20)25bad



Shallow Aquifer Private Well D(17-20)36aad1

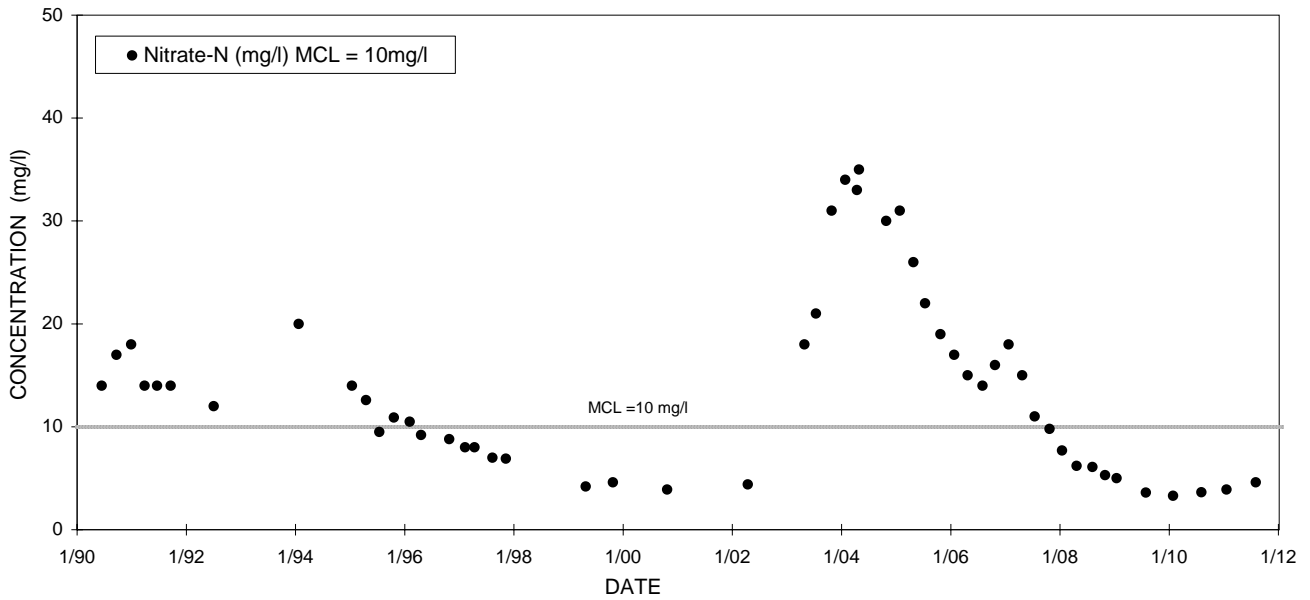
MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-34. WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE PRIVATE WELLS D(17-20)25bad AND D(17-20)36aad1

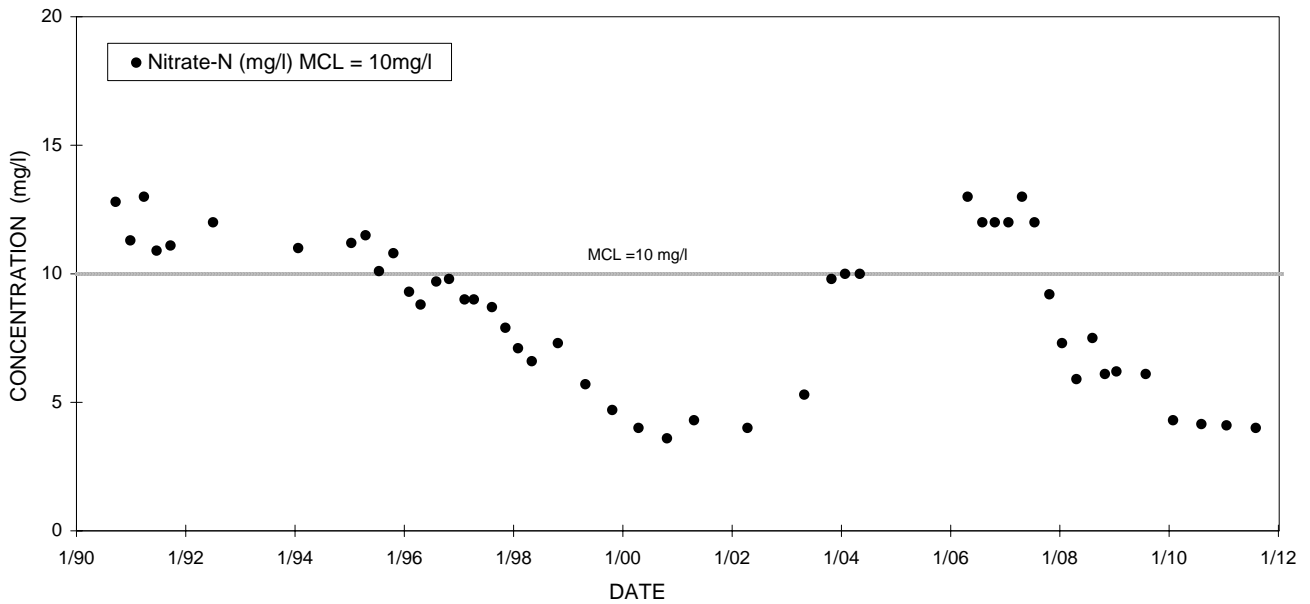


MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-35. WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE PRIVATE WELLS D(17-20)36caa AND D(17-20)36caa2



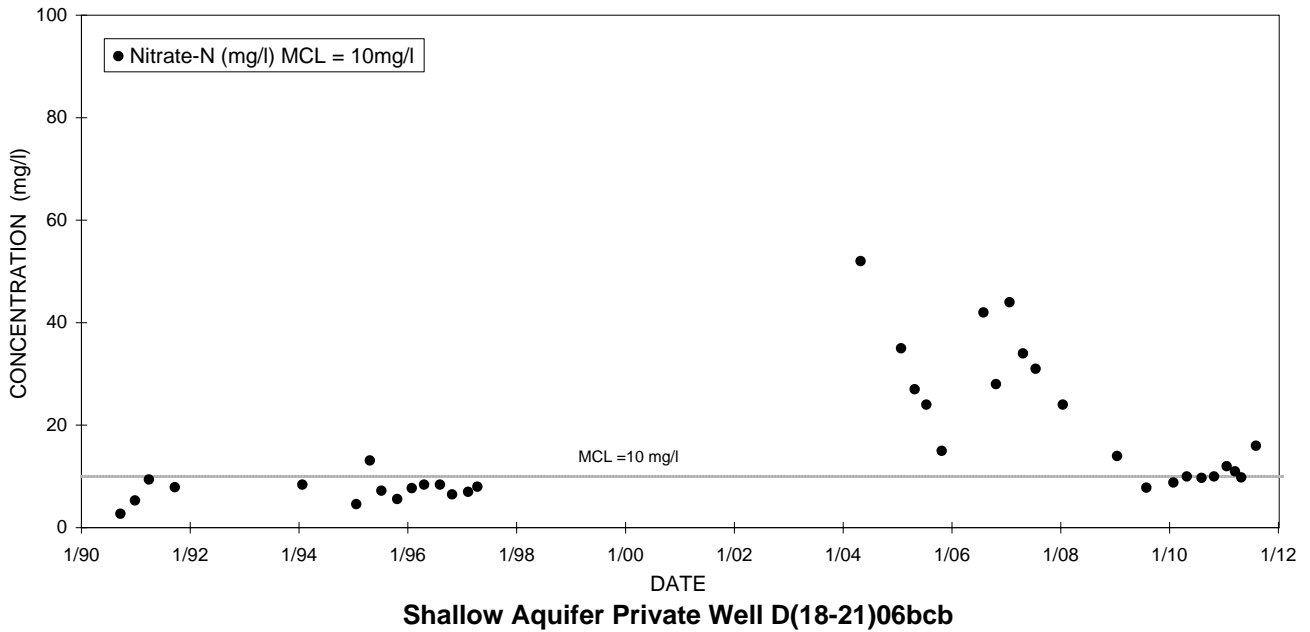
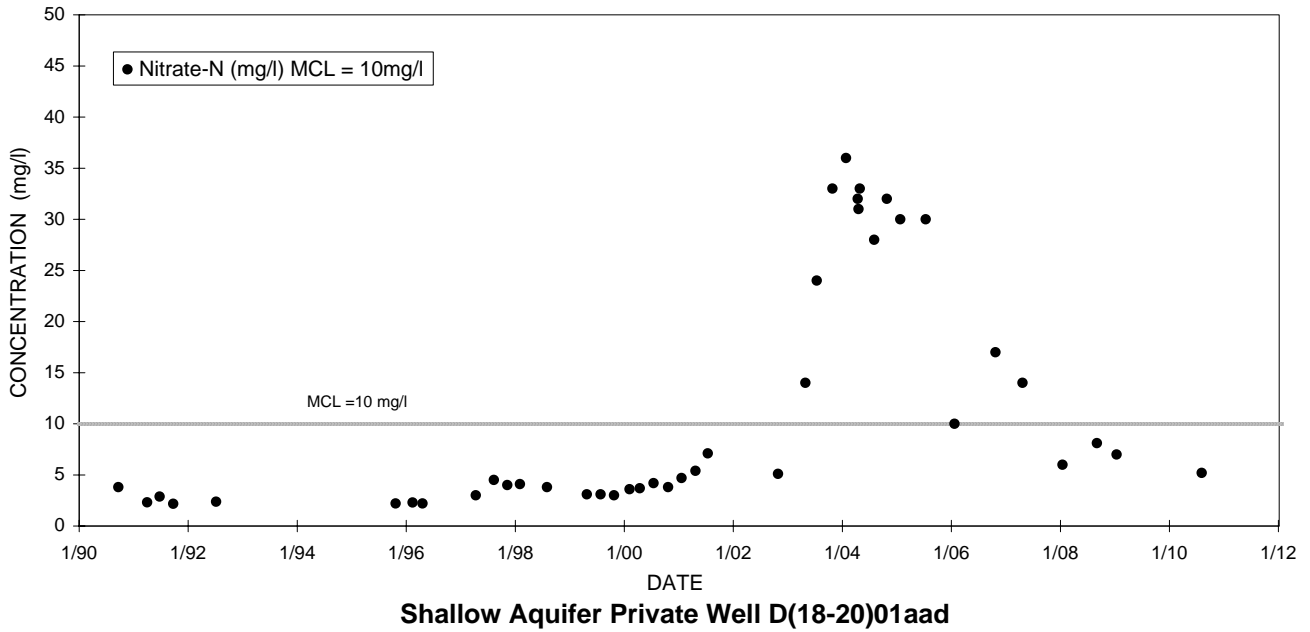
Shallow Aquifer Private Well D(17-20)36cdb



Shallow Aquifer Private Well D(17-20)36ddc

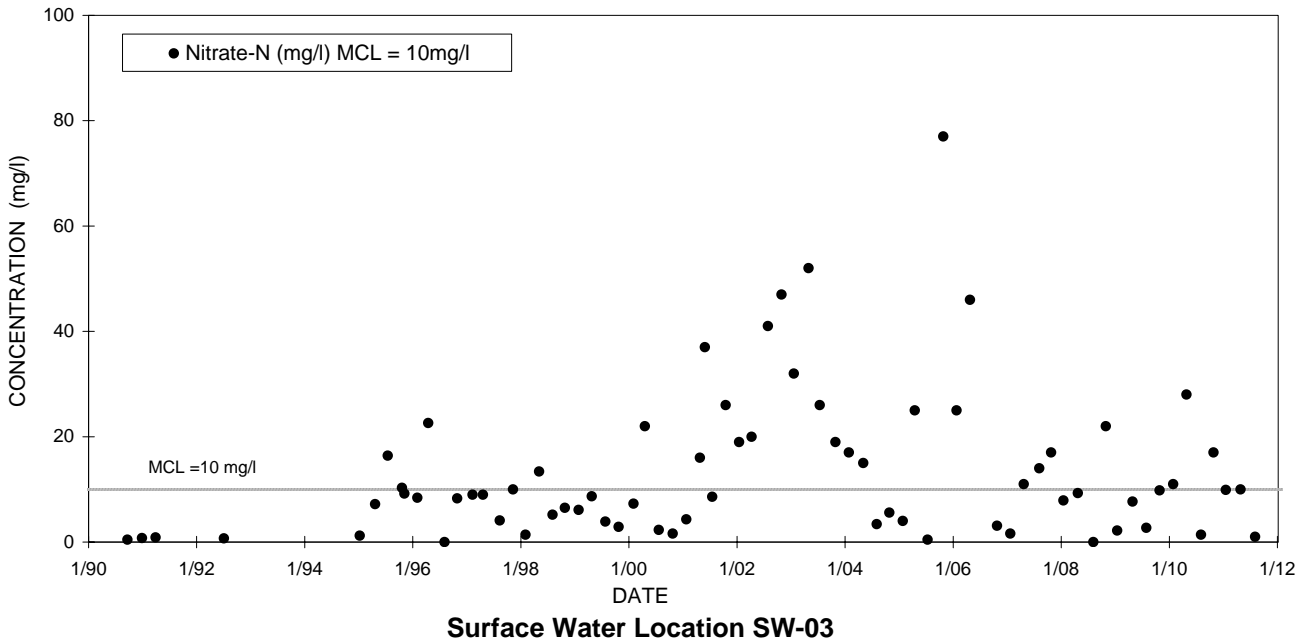
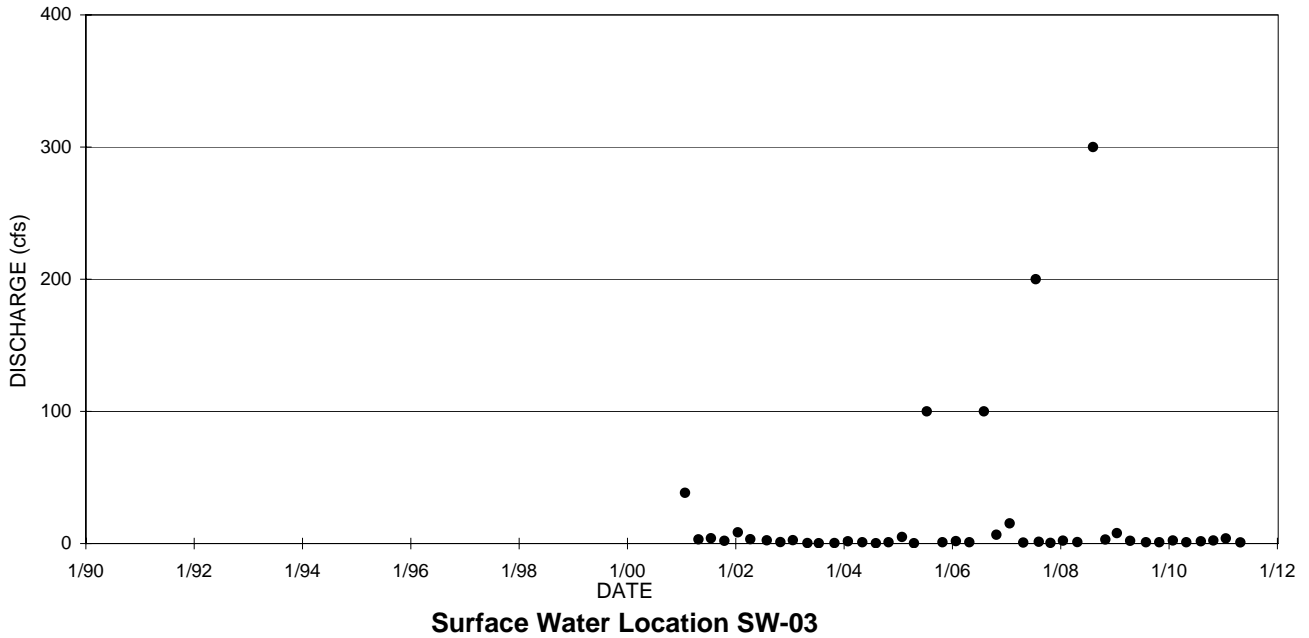
MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-36. WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE PRIVATE WELLS D(17-20)36cdb AND D(17-20)36ddc



MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

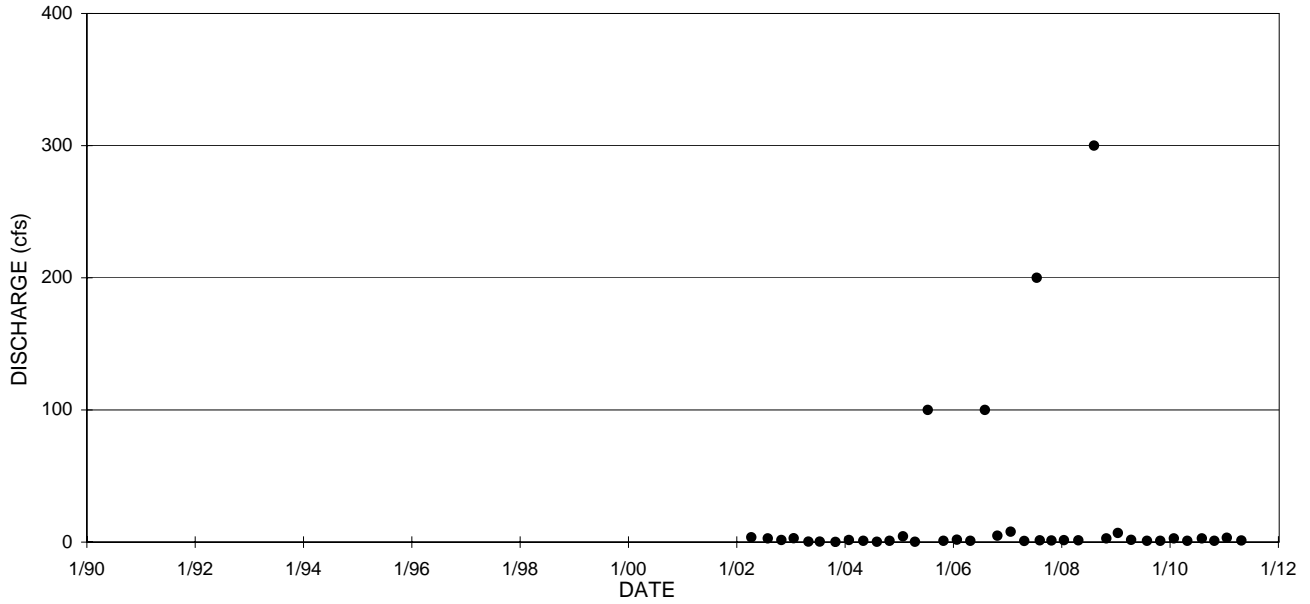
FIGURE A-37. WATER QUALITY HYDROGRAPHS FOR NORTHERN AREA MNA MANAGEMENT ZONE PRIVATE WELLS D(18-20)01aad AND D(18-21)06bcb



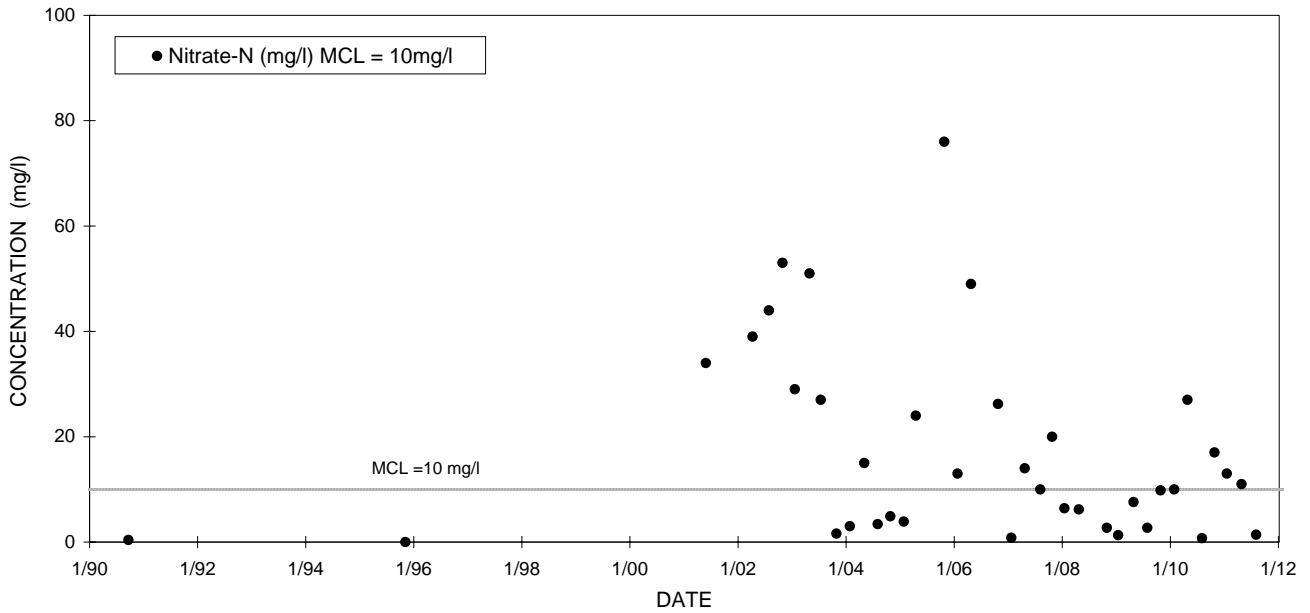
cfs = cubic feet per second

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-38. SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-03



Surface Water Location SW-04

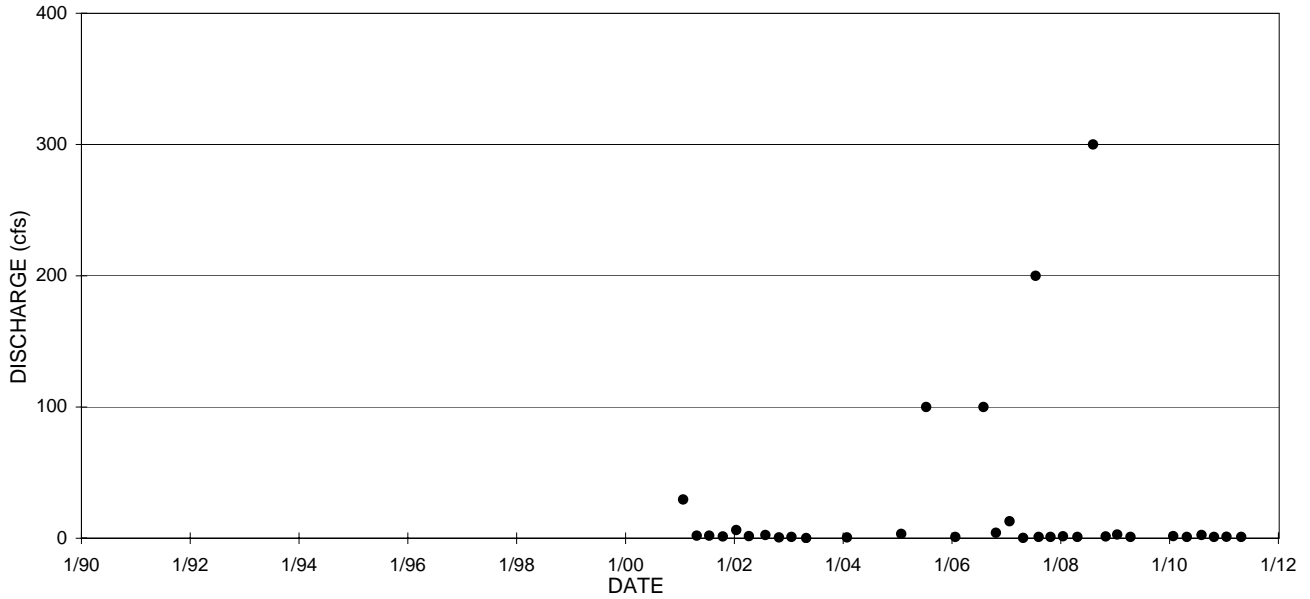


Surface Water Location SW-04

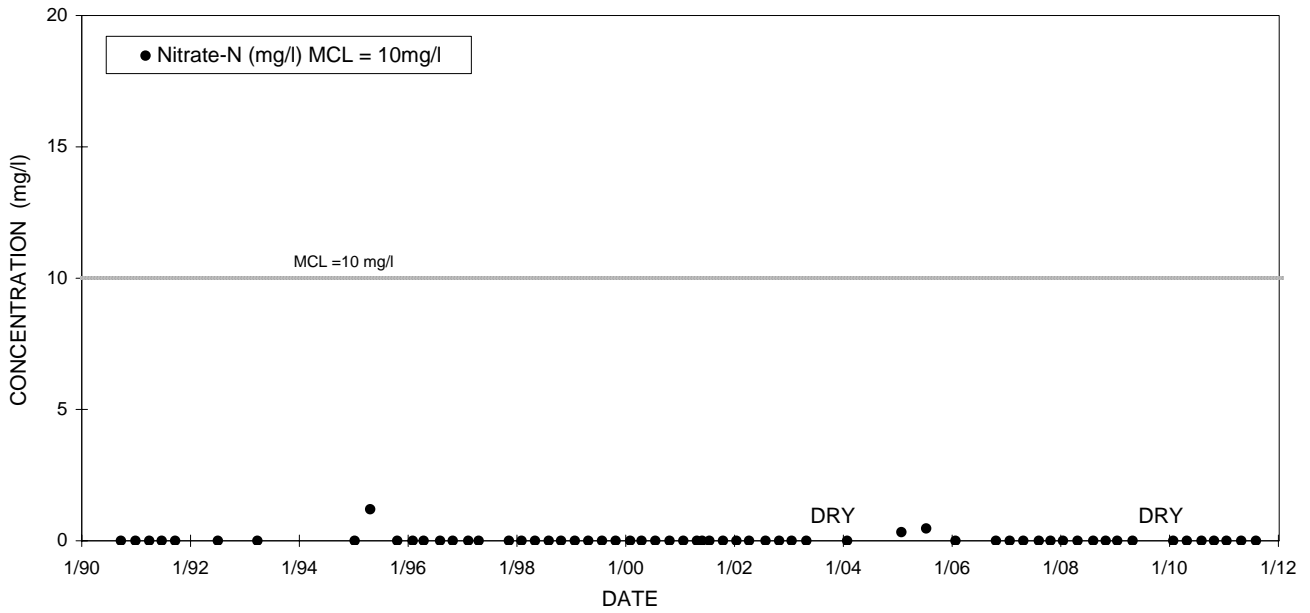
cfs = cubic feet per second

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-39. SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-04



Surface Water Location SW-12

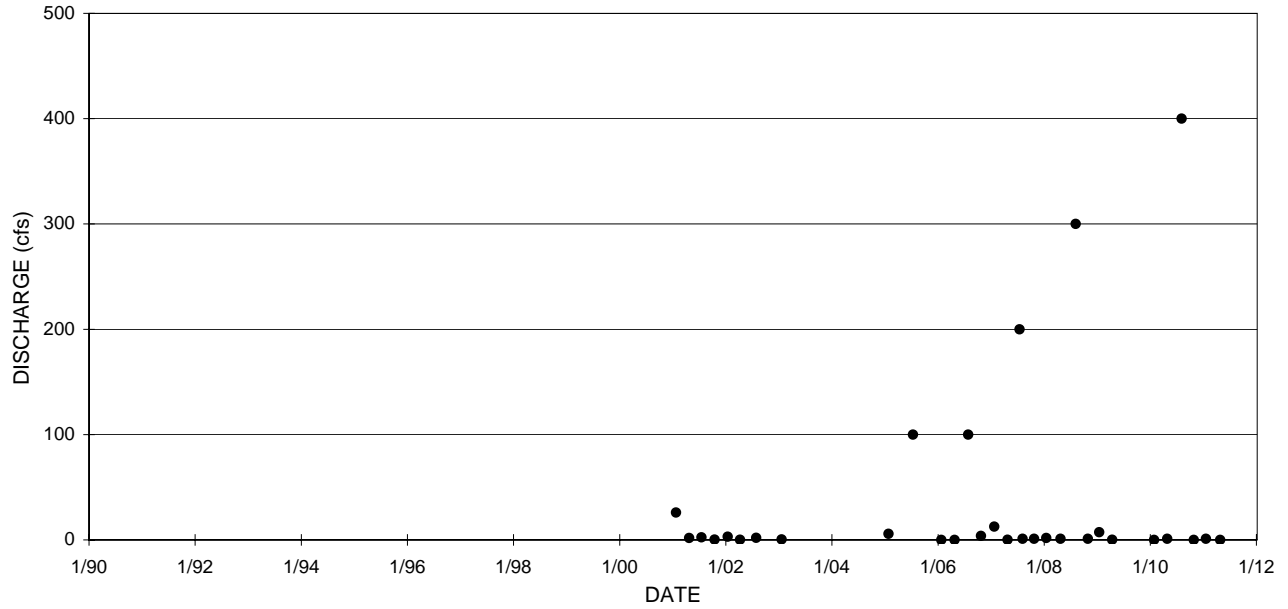


Surface Water Location SW-12

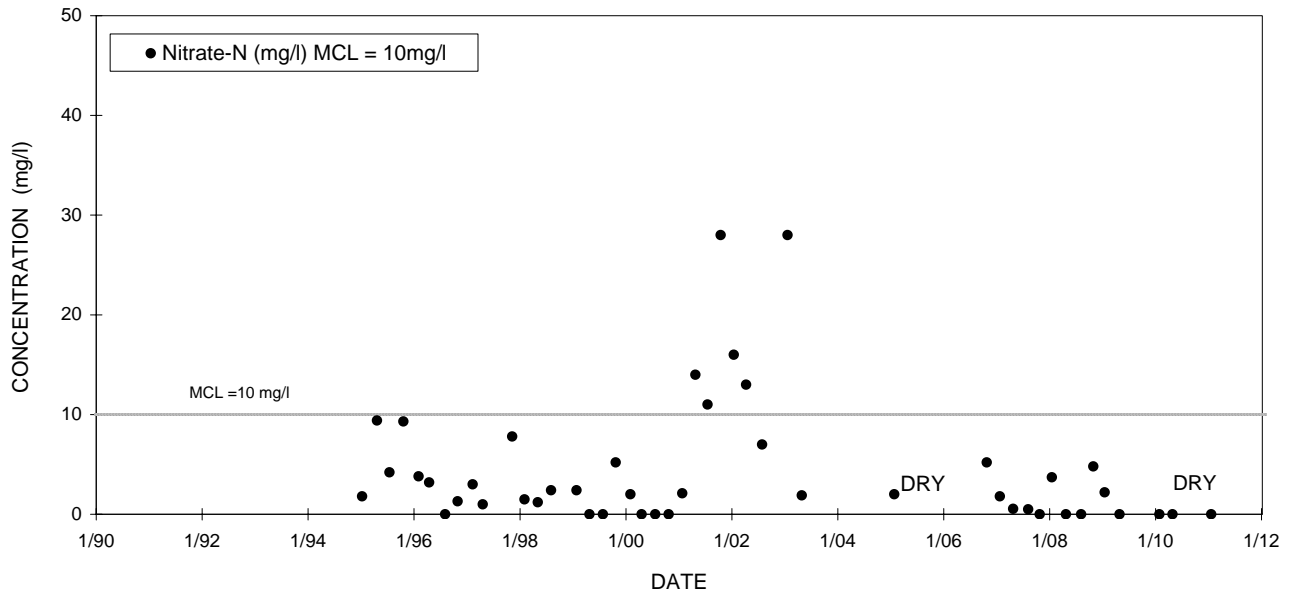
DRY = Surface water was not flowing
cfs = cubic feet per second

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-40. SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-12



Surface Water Location SW-13



Surface Water Location SW-13

DRY = Surface water was not flowing
cfs = cubic feet per second

MCL = Maximum Contaminant Level
HBGL = Health Based Guidance Level
ug/l = micrograms per liter
mg/l = milligrams per liter

FIGURE A-41. SURFACE FLOW AND WATER QUALITY HYDROGRAPHS FOR SURFACE WATER LOCATION SW-13

