ANNUAL REPORT ON RESULTS OF MAMMOTH COMMUNITY WATER DISTRICT GROUNDWATER MONITORING PROGRAM FOR OCTOBER 2002-SEPTEMBER 2003

Prepared for
Mammoth Community Water District
Mammoth Lakes, California

by
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December 11, 2003

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December 11, 2003

Mr. Dennis Erdman, General Manager
Mammoth Community Water District
P.O. Box 597
Mammoth Lakes, CA 93546

Re: Annual Report on Groundwater Monitoring

Dear Dennis:

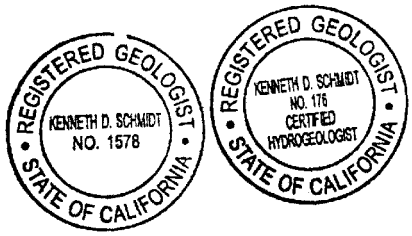
Submitted herewith is our annual report on the results of the District groundwater monitoring program for the period October 2002-September 2003. I appreciate the cooperation of District personnel in conducting this monitoring and providing data tabulations.

Sincerely yours,

Kenneth D. Schmidt

KDS/pe

cc: Steve Kronick



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INTRODUCTION

In Summer 1992, the Mammoth County Water District contracted for the drilling of five new test wells in Mammoth Lakes. One of these wells (No. 15) was converted to a supply well and pumping began on an emergency basis in Summer 1992. In December 1992, the California Department of Fish and Game filed an action against the District in Superior Court. Concerns were expressed by the Department about the potential impact of pumping of these wells on wildlife, vegetation, and fishery resources of Mammoth Creek and the Hot Creek headsprings, which is located downstream of the District wells. Kenneth D. Schmidt and Associates completed a hydrogeologic evaluation (July 6, 1993) on behalf of the District, to respond to these concerns. In August 1993, a settlement agreement was made between the Department and the District. As part of this agreement, the District was to:

1. Conduct routine monitoring in all District supply and monitor wells.
2. Install a new monitor well tapping consolidated rock at a location south of the District office.
3. Conduct monitoring in the new monitor well.
4. Prepare an annual interpretive report on the results of groundwater monitoring for the water year.

Data available to the District from Wells SC-1 and SC-2 (part

of the Long Valley hydrologic monitoring program) were to be included in this evaluation. This report comprises the eleventh annual report pursuant to the settlement agreement. The Mammoth County Water District is now the Mammoth Community Water District.

SUMMARY AND CONCLUSIONS

The District pumped 2,673 acre-feet of water from eight supply wells during the 2003 water year. This was slightly less than during the previous water year. A comprehensive water-level monitoring program was conducted for District supply wells and monitor wells. In addition, water-level measurements were available for two other monitor wells east of the District wells, and flow measurements were available for two springs at the University of California Valentine Reserve for the 2001 water year.

Water levels in many shallow wells tapping the uppermost glacial till strata fell during 2002-03. These declines were associated with less recharge due to low precipitation during Winter 2002-2003. Groundwater is generally present in the uppermost strata only in the westerly part of the area, in the meadow and near Mammoth Creek. Water levels in many of the deep monitor wells tapping the consolidated rock also fell during the 2003 water year. These declines were due to less recharge and significant District pumping during 2002-03. A water-level elevation contour map was prepared for September 2003. This map and other information indicate that the extent of the cone of depression due to pumping of District wells was limited in size, and did not

extend east of the easterly District monitor well (No. 24).

The results of water quality monitoring indicate no significant changes during the 2003 water year, compared to previously. However, pH of water from the westernmost supply wells has apparently decreased over the long-term.

The results of the 2002-2003 monitoring indicate that District pumping did not influence Mammoth Creek streamflow. District pumping was not indicated to have influenced flows at the Valentine Reserve springs through the 2001 water year. Flow data for the springs at the Valentine Reserve for the 2002-03 water years were not available at the time of this report. In addition, water-level declines due to pumping did not extend beyond the vicinity of the well field. Thus, there was no influence on the Hot Creek headsprings, which are much more distant from the District water supply wells than the monitor wells utilized for the District monitoring program.

WELL CONSTRUCTION DATA

Figure 1 shows locations of District wells, a private supply well, a subsurface geologic cross section, two other monitor wells to the east (SC-1 and SC-2), and the spring area at the Valentine Reserve. Table 1 summarizes construction data for the District supply wells. All of these wells tap consolidated rock, primarily basalt and scoria layers, and some also tap interbedded glacial till and conglomerate. Well No. 1 has been in service since the 1970's and Wells No. 6 and 10 have been in service since 1988.

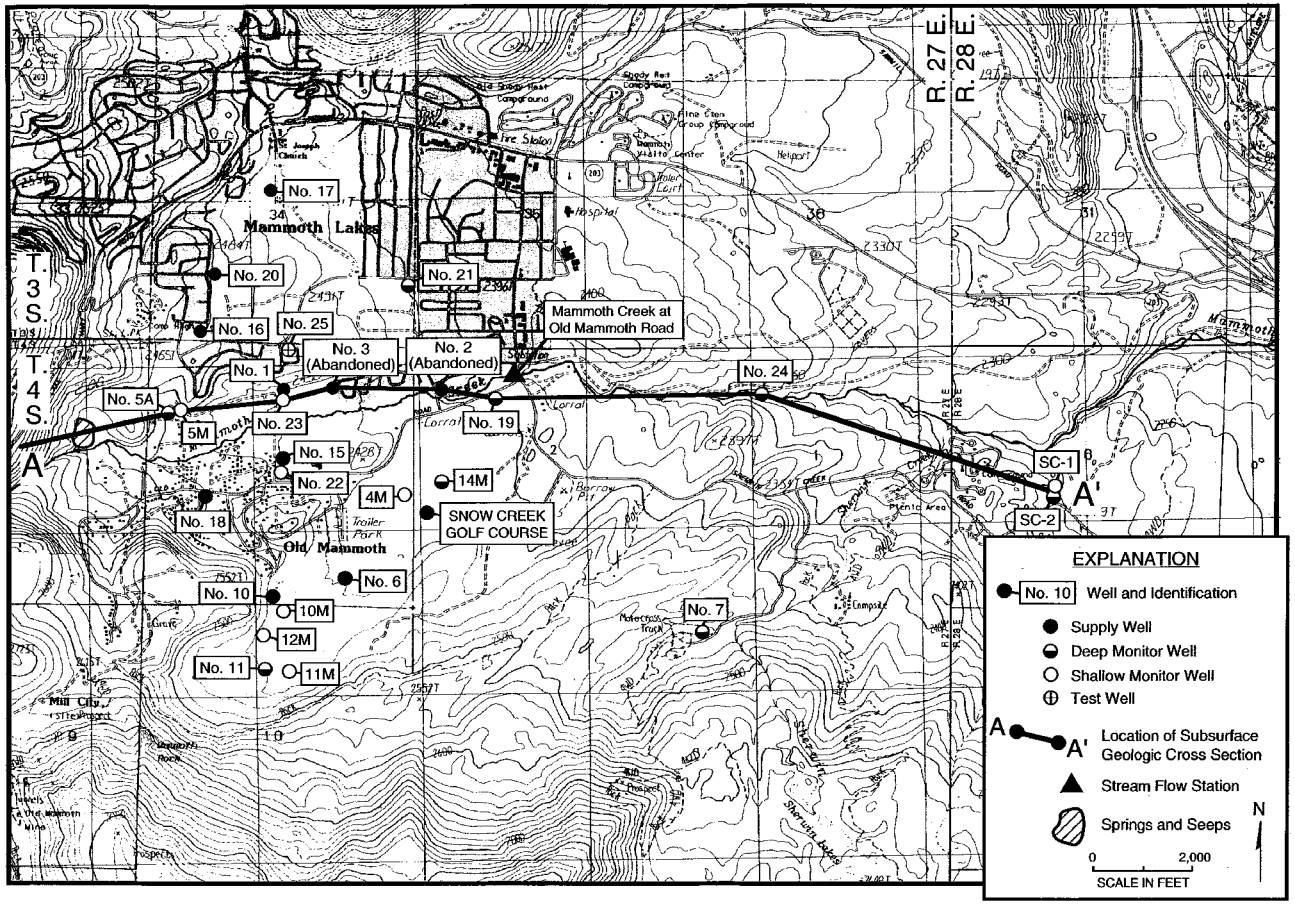

FIGURE 1 - LOCATION OF WELLS AND SUBSURFACE GEOLOGIC CROSS-SECTION A-A'

TABLE 1 - CONSTRUCTION DATA FOR DISTRICT SUPPLY WELLS

Well No.	Date Drilled	Drilled Depth (feet)	Cased Depth (feet)	Perforated or Open Interval (feet)	Annular Seal (feet)
1	1976	382	370	200-370	0-90
6	11/87	670	670	146-670	0-52
10	10/87	700	700	136-700	0-52
15	8/92	720	407	407-720	0-135
16	8/92	710	715	420-470 500-680	0-60
17	7/92	710	513	400-710	0-60
18	8/92	710	480	90-150 240-470	0-60
20	9/92	710	420	420-710	0-60

Wells No. 16, 17, 18, and 20 were modified in June 1994 in preparation for being put into service. The test wells that were drilled in 1992 and subsequently converted to production wells are termed herein the "new District supply wells".

These three wells are termed the "earlier" District supply wells in this report. Well No. 15 was first put in service in July 1992 on an emergency basis. Well No. 18 was put in service in September 1994. Wells No. 16 and 20 were put in service in March 1995; and Well No. 17 was put in service in June 1995. Wells put in service in the 1992-95 time period are termed the "newer" District supply wells in this report. Test Well No. 25 was drilled in August 2002, and was not in service during the 2003 water year. This well was drilled to a depth of 700 feet, at a site north of Well No. 1 and east of Well No. 16. Wells No. 2, 3, 4, 5, and 7 (shown in Figure 1) were not put in service by the District because of low well yields. Wells No. 2 and 3 were subsequently destroyed, whereas the other wells were converted to monitor wells. A small amount of water was pumped from Well No. 7 in Summer 2003 for use at the Boys Camp.

Table 2 summarizes construction data for District monitor wells. Five of these wells (No. 5A, 14M, 19, 21, and 24) are deep and primarily tap water in fractured volcanic rock. Well No. 7 is a deep well located south of the basalt flow and taps water in a glacial morraine near Sherwin Creek. Well No. 11 is a deep well located south of the basalt flow and taps water in glacial till and granitic rocks. An annular seal was placed in Well No. 21 in July 1997, to preclude surface water and shallow groundwater from entering the well. Well No. 5M taps water in the shallow fractured volcanic rock, just beneath the glacial till. The remaining

TABLE 2 - CONSTRUCTION DATA FOR DISTRICT MONITOR WELLS

Well No.	Date Drilled	Drilled Depth (feet)	Cased Depth (feet)	Perforated or Open Interval (feet)	Annular Seal (feet)
4M	1984	89	89	69-89	0-50
5A	7/82(8/93)	357	357	112-357	0-112
5M	8/93	80	80	20-75	0-20
7	8/87	480	480	290-480	0-50
10M	6/88	27	27	7-27	0-5
11	7/88	600	600	170-360	0-50
11M	6/88	43	43	5-43	0-5
12M	9/88	27	27	7-27	0-5
14M	9/88	520	501	100-310	0-100
19	8/92	700	344	200-700	0-140
21	10/92(7/97)	640	145(157)	145-640(157-640)	(70-157)
22	9/92	85	85	55-85	0-25
23	9/92	65	65	30-65	0-25
24	8/93	450	430	300-450	0-20

Well No. 5 was modified in August 1993, so as to be sealed off opposite the glacial till and be perforated only opposite the volcanic rock, and re-designated Well No. 5A. An annular seal was placed in No. 21 in July 1997, and the values in parentheses are for the modified well.

monitor wells are shallow and tap groundwater in the uppermost glacial till.

SUBSURFACE GEOLOGIC SECTION A-A'

Cross Section A-A' was developed during a previous evaluation, and was updated (Figure 2) by adding more recent water-level data. The locations of wells used for this section are shown in Figure 1. Cross Section A-A' shows that the uppermost till layer and volcanic rocks are continuous along the section. Groundwater has been found in the uppermost glacial till layer only in the vicinity of District Wells No. 1, 4, 6, 10, 11, 12, and 15. Most of these wells are either in the meadow or near Mammoth Creek. Water production in the District supply wells is from highly fractured rock, often scoria layers, and sometimes from interbedded glacial till. The intervening less fractured rock probably acts as local confining layers. At Well No. 24, water was not found in the upper part of the basalt or in either of the till layers. Water in this well is in a fractured scoria layer. A lost circulation zone present in this well may influence the water level. In September 2002, there was a fairly uniform water-level slope (about 250 feet per mile) from Well No. 1 to No. 19 to No. 24. The part of the section east of Well No. 24 is oriented almost perpendicular to the direction of groundwater flow (shown later).

PRECIPITATION

Precipitation (inches of water) is routinely measured at the

Lake Mary Store, and is an indication of the potential recharge to groundwater. During water years 1991-94, annual precipitation ranged from about 20 to 29 inches and averaged about 22.5 inches. During water years 1995-2000, annual precipitation ranged from about 30 to 46 inches and averaged about 39 inches. During water years 2001-03, the annual precipitation ranged from about 21 to 26 inches and averaged 23 inches. These trends in precipitation are useful when evaluating water-level changes in wells that have been measured as part of this program.

DISTRICT PUMPAGE

Pumpage records for District supply wells are provided in Appendix A. Table 3 shows monthly pumpage from District wells during the 2003 water year. The total pumpage was 2,673 acre-feet, or about 3 percent less than that for the previous water year. Of this, 846 acre-feet were from Well No. 10, 826 acre-feet were from Well No. 15, 328 acre-feet were from Well No. 6, 190 acre feet were from Well No. 1, and 153 acre-feet were from Well No. 17. The remaining District pumpage (331 acre-feet) was from Wells No. 16, 18, and 20. About 86 acre-feet of water were pumped during the 2003 water year from the Snow Creek Golf Course Well (in the general vicinity of Well No. 14M). This well is owned by Dempsey Construction. From June through September, 2003, about 100,000 gallons were pumped from Well No. 7 for use at the Boys Camp.

WATER LEVELS

District Supply Wells

Water-level measurements (static and pumping) for District supply wells are provided in Appendix A. Water-level hydrographs for the earlier wells (No. 1, 6, and 10) are provided in Appendix B. The years discussed for hydrographs in the following sections are for calendar years, unless specified otherwise.

New Wells

Figure 3 is a water-level and pumpage hydrograph for Well No. 15, extending back to when it was initially put in service in July 1992. The static water level fell about 80 feet after several months of pumping, and normally ranged from about 260 to 280 feet during periods when the well was being significantly used through early 1995. During periods when the well was not used much for supply (i.e., May 1995-June 1998), the water level rose substantially. In June 1998, the depth to water in Well No. 15 was 156 feet, or the shallowest of record. In May 2003, depth to water in this well was 248 feet. The shallowest annual water level in this well fell from 156 feet in 1998 to 248 feet in 2003. Depth to water in Well No. 15 appears to be influenced primarily by the previous pumping history of the well and recharge.

Figure 4 is a water-level and pumpage hydrograph for Well No. 16. The water level in this well changed substantially after the casing was installed (July 1994) and after the pump was installed (February 1995). After the casing was installed and prior to the pump installation, an access tube was not in the well, and the

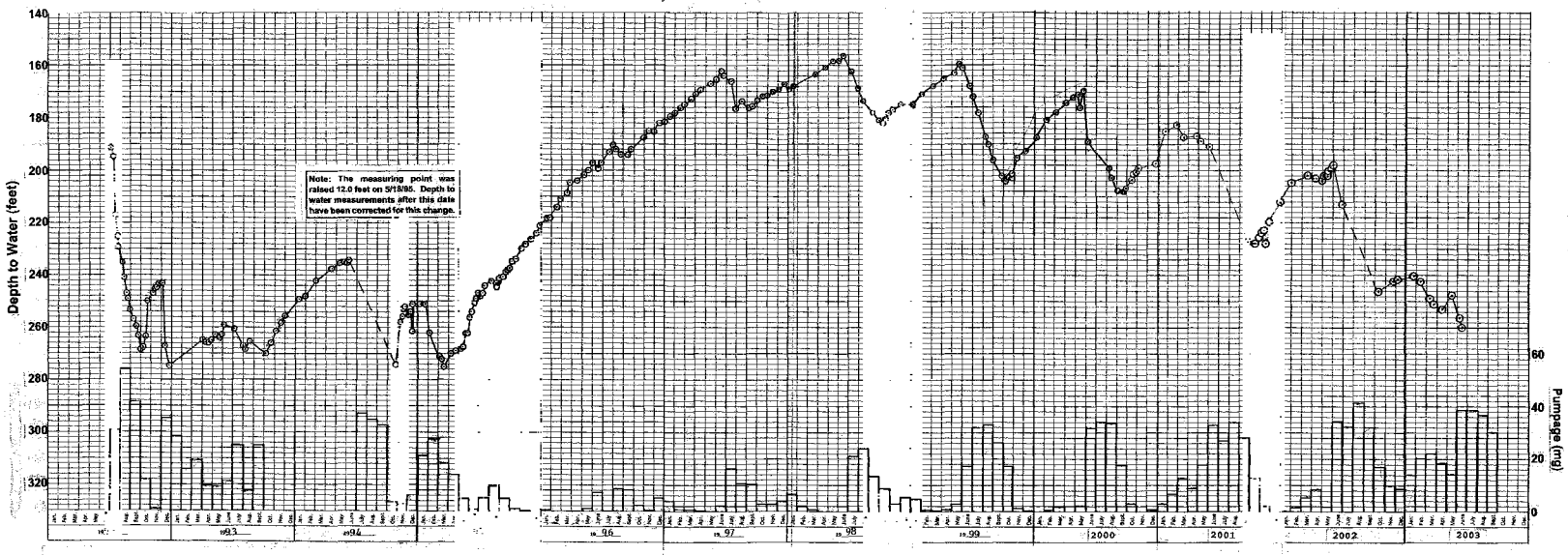

FIGURE 3- WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 15

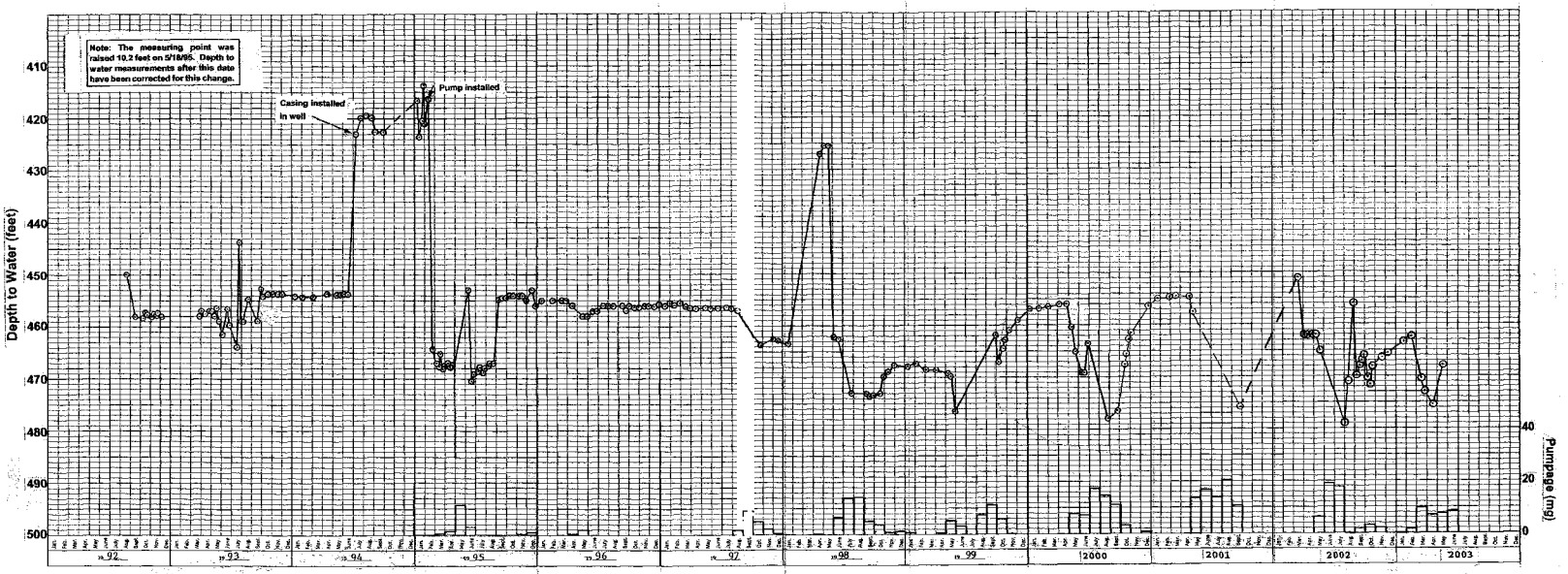

FIGURE 4- WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 16

measurements during that period were apparently affected by cascading water. The measurements for July 1994-early February 1995, and for April-May, 1998 appear not to be representative. During heavy pumping periods of Well No. 20, the static level in Well No. 16 has been about 12 feet lower than during periods of lower pumping of Well No. 20. There were seasonal declines of about 20 to 30 feet during pumping periods of this well in 2002. Overall, shallow static levels in Well No. 16 were relatively stable between 1992 and 2002, and fell in 2003.

Figure 5 is a water-level and pumpage hydrograph for Well No. 17. Measurements in early 1995 indicated that the water level apparently rose about eight feet, probably due to recharge. The water level in Well No. 17 appears to be influenced by pumpage of Well No. 20. During operational periods of both of these wells, the static level in Well No. 17 has been about four feet lower than during periods of little pumpage. The water level in Well No. 17 gradually rose during November 1995-August 1999, except during some pumping periods. The shallowest depth to water yet measured in this well was in January 2000. During 2000-2003, the water level in this well fell, due to heavier pumping of this well and less recharge compared to previously.

Figure 6 shows water levels and pumpage for Well No. 18. The overall trend for this well during non-operational periods was a slight water-level rise through 1997. The water level was relatively constant during 1998-early 2002. In early June 1998, the water level in Well No. 18 was 30 feet deep, the shallowest yet

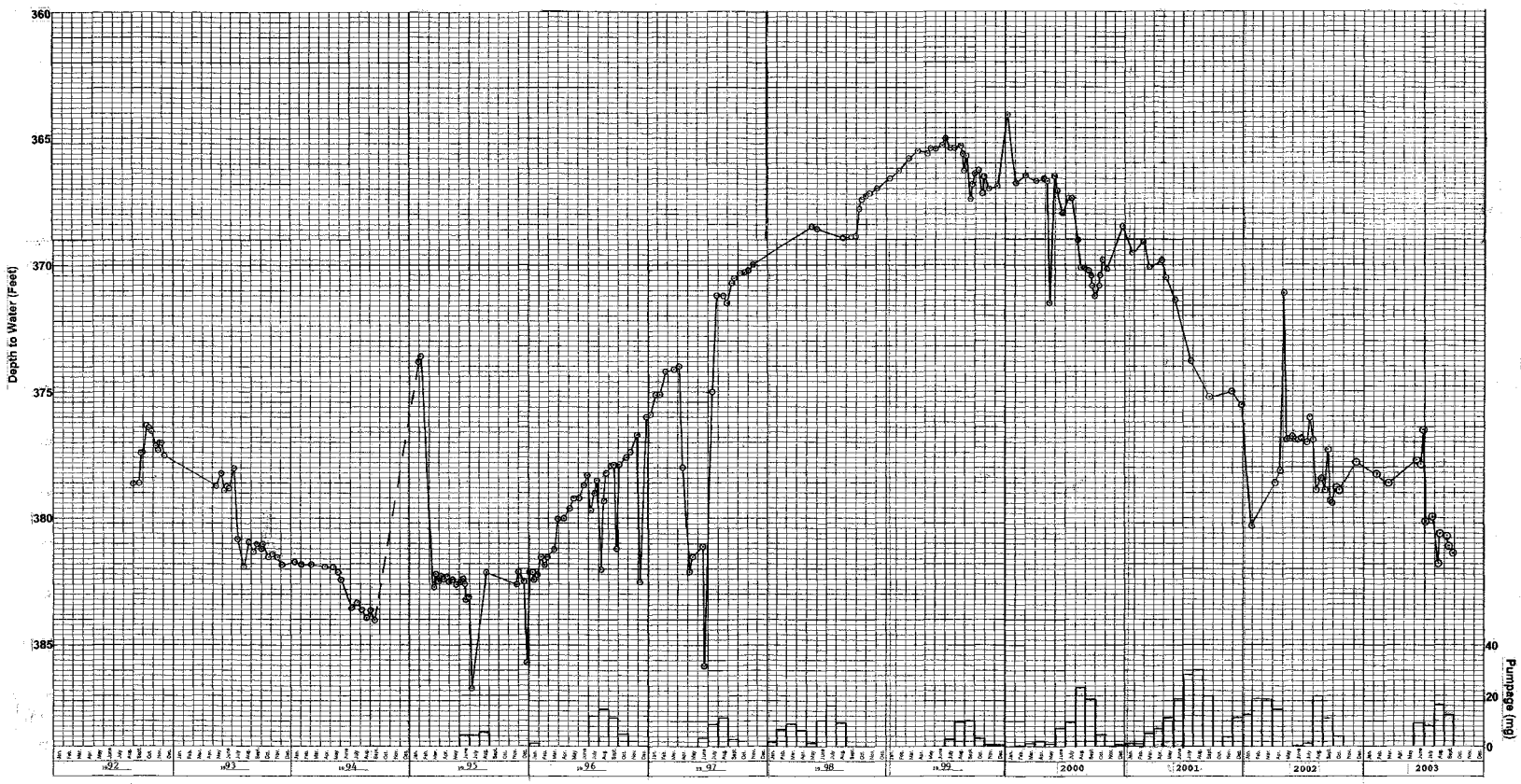

FIGURE 5- WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 17

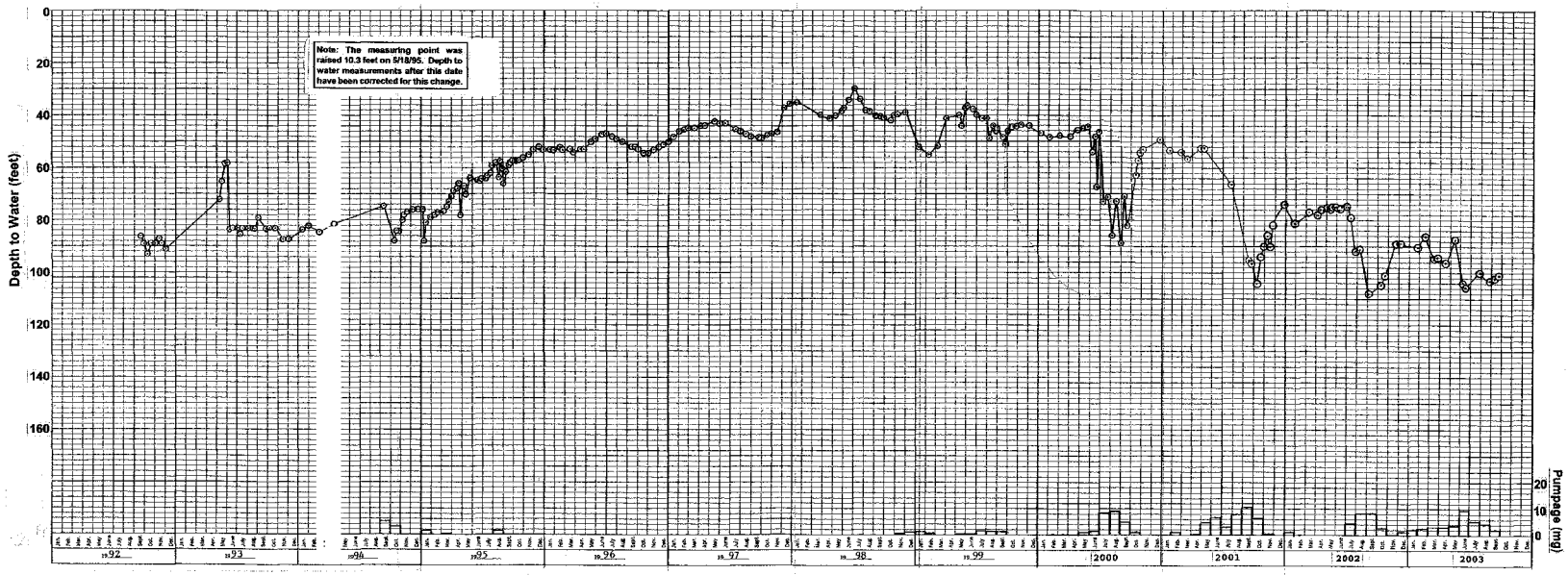

FIGURE 6- WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 18

measured. The water-level decline of about ten feet in this well during July 1998 appears to have been due to pumping of Wells No. 10 and 15. The water level in this well was 108 feet in September 2002, the lowest for the period of record.

Figure 7 is a water-level and pumpage hydrograph for Well No. 20. From 1994-98, the overall trend was a rising water level. The shallowest levels in Well No. 20 to date were in late 1998 and early 1999. The water level in this well fell after early 2001. The water-level declines in this well during the summers of 1999-2002 were mainly due to pumping of the well itself. The water level in this well may also be affected by pumpage of Well No. 17. The water level in Well No. 20 recovered significantly in 2003, due to a lack of pumping prior to August.

Earlier Wells

Water-level and pumpage hydrographs for Wells No. 1, 6, and 10 are provided in Appendix B. The static water level in Well No. 1 has ranged from about 160 to 200 feet during low pumping periods to an average of about 270 feet during heavy pumping periods (i.e., August 1994). Overall, the water level in this well rose between 1992 and 1997, and slightly declined from 1997 to Spring 2002, then fell during 2002-03. In June 1998, depth to water in this well was 160 feet, or the shallowest measured since 1990. Depth to water in this well was 203 feet in May 2003. The static water level in Well No. 6 has ranged from less than 30 feet during low pumping periods (after September 1995) to more than 160 feet during

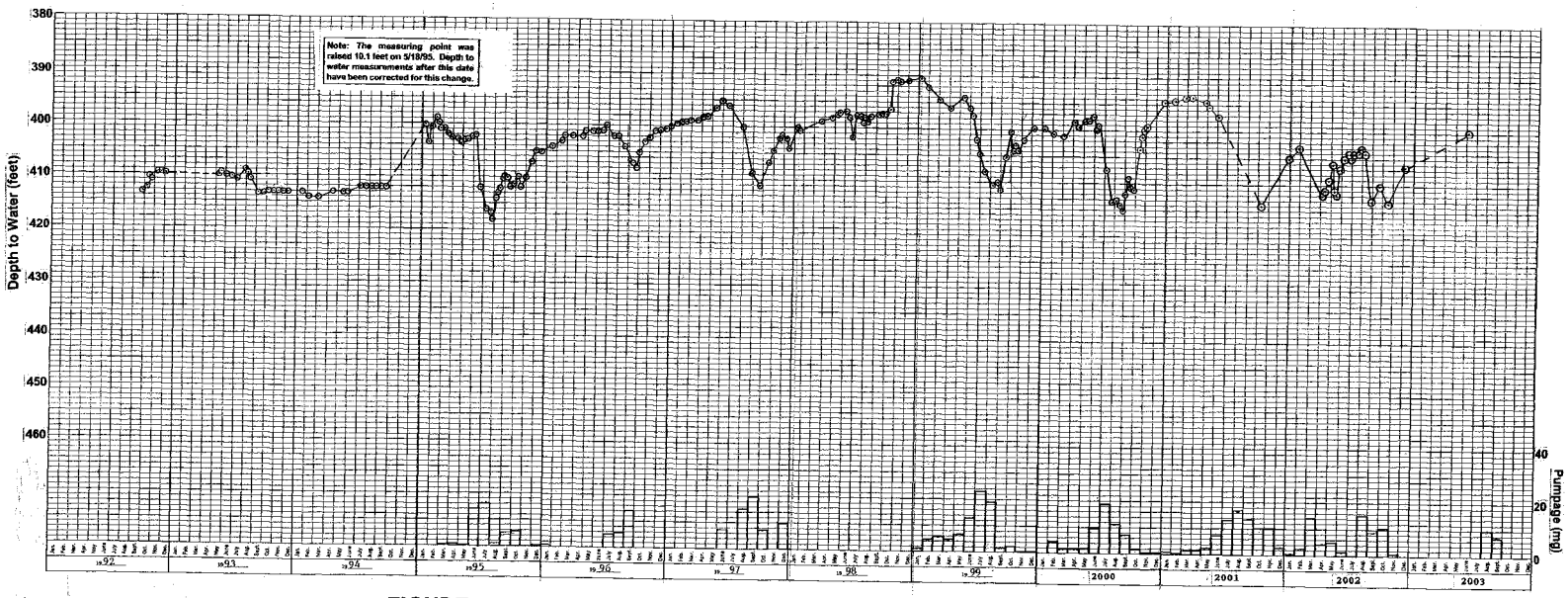

FIGURE 7- WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 20

heavy pumping periods (August-September, 1994). During May-September, 1996, in part of 1997, and during late 1999 through Fall 2001, the static level in this well was at or above the land surface. This well wasn't pumped during September 1997-September 2001. After pumping of the well resumed in October 2001, the water level fell to about 50 to 70 feet deep through May 2003. During Summer 2003, the water level fell to a depth of about 115 feet, due to increased pumping from the well. The static water level in Well No. 10 has ranged from less than 30 feet deep during the low pumping periods (July 1995), to more than 160 feet during heavy pumping periods (Summer 1993). During the 1996-2000 water years, depth to water was usually less than 30 feet, except for short periods. In August 2001, the well began to be pumped more and the water level was usually about 70 to 90 feet deep during the 2002 water year. During Summer 2003, the water level fell to a depth of about 115 feet.

Deep Monitor Wells

Water-level measurements for monitor wells are provided in Appendix C, and supplementary water-level hydrographs are provided in Appendix D. Transducers were installed in four of the deep monitor wells (No. 14M, No. 19, No. 21, and No. 24), and continuous water-level measurements commenced in December 1995. Well No. 5A is located between Well No. 1 and the Valentine Reserve North Spring (Figure 1). Measurements for Well No. 5A indicate that depth to water has ranged from near the land surface to about seven

feet. From 1995-99, the annual shallowest level was near the land surface, and overall the water level rose. Seasonal water level declines in this well ranged from about three to four feet during 2000-2002. These declines are indicated to have been due to pumping of Well No. 18 and possibly Well No. 15. The shallowest annual water level in Well No. 5-A fell about four and a half feet between 1999 and 2003. Well No. 7 is located in the Sherwin Creek campground, about one and a third miles east of Well No. 6. Measurements for Well No. 7 indicate that depth to water has ranged from 241 to 292 feet. The water level in this well appears to be primarily influenced by recharge from Sherwin Creek. The influence of recharge during 1995 is apparent. The shallowest water level of record in Well No. 7 was measured in September 1997. Drawdowns of about 10 to 20 feet during 2000-2003 were apparently due to the pumping of the well itself. The shallowest annual level in this well fell about twenty feet between 1998 and 2003. The lower water levels in 2003 are attributed partly to more pumpage from the well than previously.

Well No. 11 is located in the meadow area, about one quarter mile south of Well No. 10. The water-level measurements for Well No. 11 indicate that the deepest level (51 feet) was in May 1993, and the shallowest levels were near the land surface during most of the period after July 1995. The water level in this well is influenced by pumping of Wells No. 6 and 10, and surface flow, particularly in the Bodle Ditch, which passes through the meadow area. The water levels were deepest during drought conditions and

heavy pumping of Wells No. 6 and 10. The shallowest water levels occurred during wet years and less pumping of Wells No. 6 and 10. As of 2003, the water level in this well was still near the land surface.

Well No. 14M is located about two-thirds mile east of Well No. 15. The manual water-level measurements for Well No. 14M (Figure 8) indicate that the depth to water normally ranged from about 350 to 360 feet prior to June 1995. The annual shallowest water level in this well rose between 1994 and 1998 and between 1999 and 2000. The rise was primarily associated with recharge and the reduction in pumping of Wells No. 6 and 10 at those times. In July 2002, depth to water in Well No. 14M was 235 feet, or the shallowest of record. The water level in this well fell about 114 feet between July 2000 and July 2003, primarily due to pumping of Wells No. 6 and 10. The water level in this well shows the influence of recharge and pumping patterns of Wells No. 6 and 10, and the Snow Creek Golf Course well. Transducer measurements that are considered reliable are available for Well No. 14M for November 1, 1996-September 30, 2003, except for October 1997, June 1998, and March 2001. The transducer was re-calibrated in May 2003, and the 2001-03 measurements agree well with the manual measurements.

Well No. 19 is located about four-fifths of a mile east of Well No. 1. Based on manual measurements (Figure 9), the water level in Well No. 19 has ranged from about 312 to 357 feet deep. The water level in this well generally rose from 1995-98. In October 1997, depth to water was 312 feet, or the shallowest yet

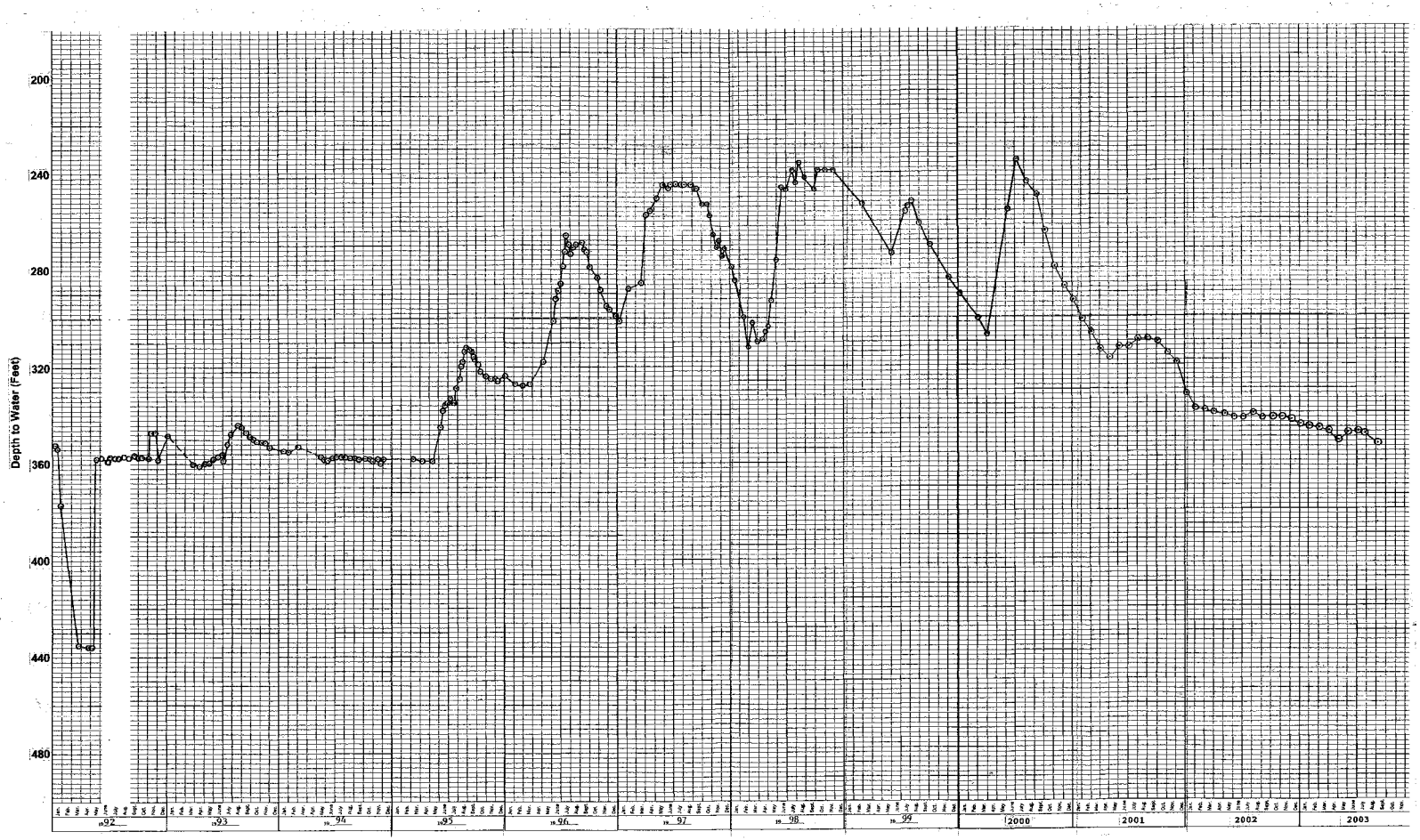

FIGURE 8- WATER-LEVEL HYDROGRAPH FOR WELL NO. 14M

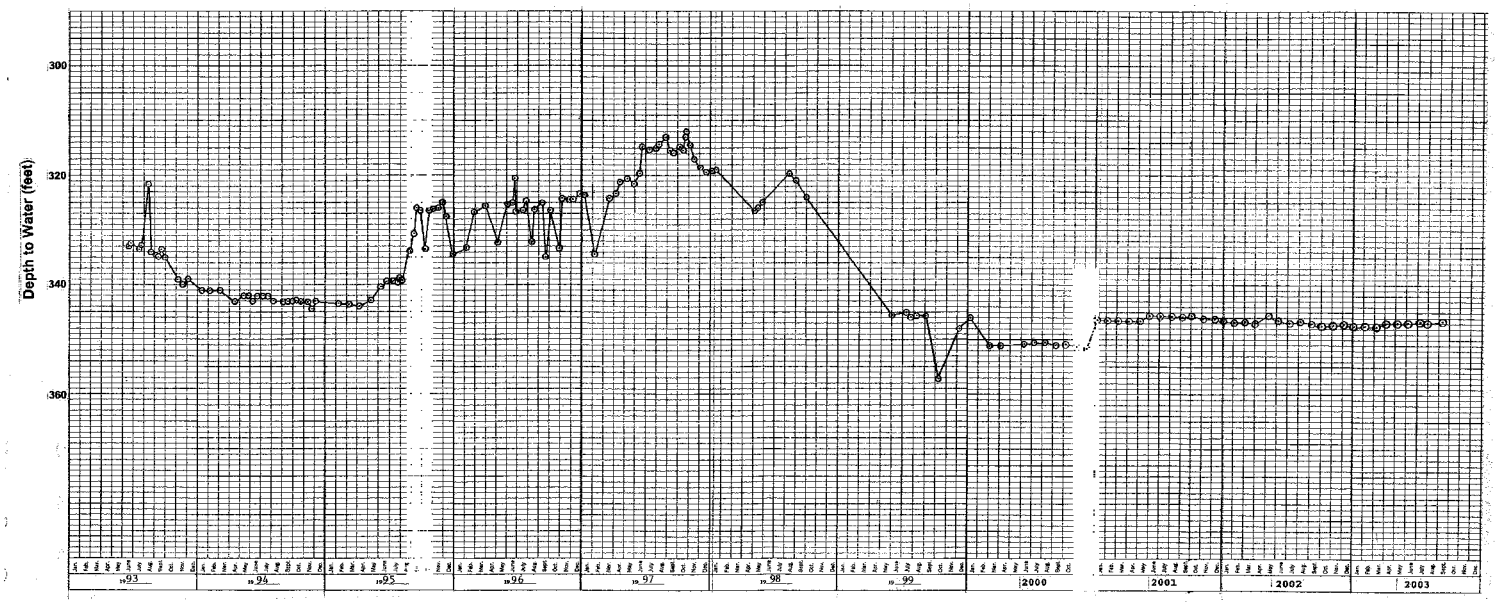

FIGURE 9- WATER-LEVEL HYDROGRAPH FOR WELL NO. 19

measured. During 1999, the water level in Well No. 19 fell about 30 feet, to below the levels in 1994 and early 1995. However, there was no decline during 2000-2003. During this period, depth to water in this well was usually about 340 to 345 feet. Transducer readings that are considered fairly reliable are available for this well from November 1, 1996-September 10, 1997, from November 1, 1997-September 30, 1998, except for June 1998, and from May 4- September 30, 2003 (Appendix D). The transducer in Well No. 19 was re-calibrated in May 2003.

Well No. 21 is located about three fourths of a mile east of Well No. 20. Based on manual measurements, the water level in Well No. 21 (Figure 10) has ranged from about 231 to 370 feet in depth. The water level in this well rose significantly between early 1995 and late 1996. There was a water-level decline in this well from December 1996-February 1997, and the water level then rose through June 1997. Most of the rise is attributed to recharge, which may have been enhanced due to a lack of an annular seal in the well. An annular seal was placed in this well during July 1997. Since July 1997, the water level in this well has been relatively constant (about 230 to 235 feet deep). Transducer measurements that are considered reliable are available for Well No. 21 from November 1, 1996-May 31, 1997, November 1, 1997-September 30, 1998 (except for June 1998), and May 4, 1999-September 30,2003 (Appendix D). The transducer in this well was re-calibrated in May 2003. The manual water-level measurements in this well have indicated no significant response due to pumping of District wells.

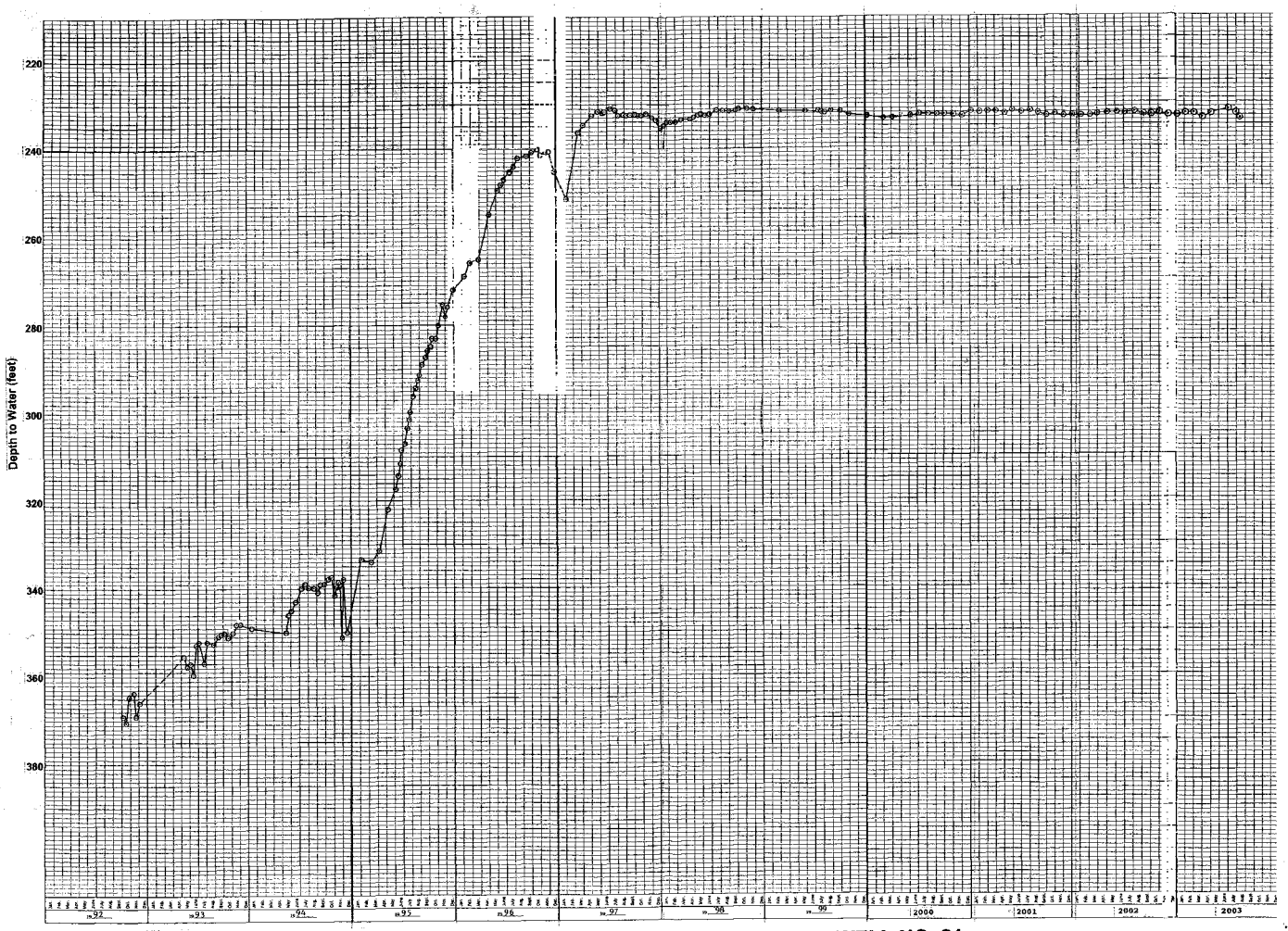

FIGURE 10- WATER-LEVEL HYDROGRAPH FOR WELL NO. 21

Well No. 24 is located about one mile east of Well No. 19. Figure 11 is a water-level hydrograph for Well No. 24, based on manual measurements. Measurements for this well began in Summer 1993, and depth to water has ranged from 352 to 394 feet. The water level rose after early 1995, to the shallowest depth yet measured in December 1998. Transducer measurements are not available for this well between April 3, 1997 and April 30, 1998, due to equipment failure. The transducer was recalibrated on January 1, 2001. Transducer measurements for this well after this calibration were generally consistent with manual measurements through early October 2001. Transducer measurements between mid October 2001 and early May 2002 were found to not be reliable. The transducer was removed from the well and recalibrated on May 9, 2002. Reliable measurements were available for the rest of the 2002 water year. Water levels fell during 2002-03. The water level in this well responds primarily to recharge, and no influence of District pumping is apparent.

Water levels in Wells No. 19 and 21 were relatively constant during the 2001-2003 water years, whereas the water level in Well No. 24 rose during early 2001, fell from May-October, 2001, rose through early 2002, then fell consistently during the rest of 2002-03. The best explanation for the historical water-level variations in Wells No. 19 and 21 is due to the amount of recharge, which is primarily related to climatic patterns. Water levels in these wells rose during and following periods of above average precipitation. In contrast, water levels in these wells tempor-

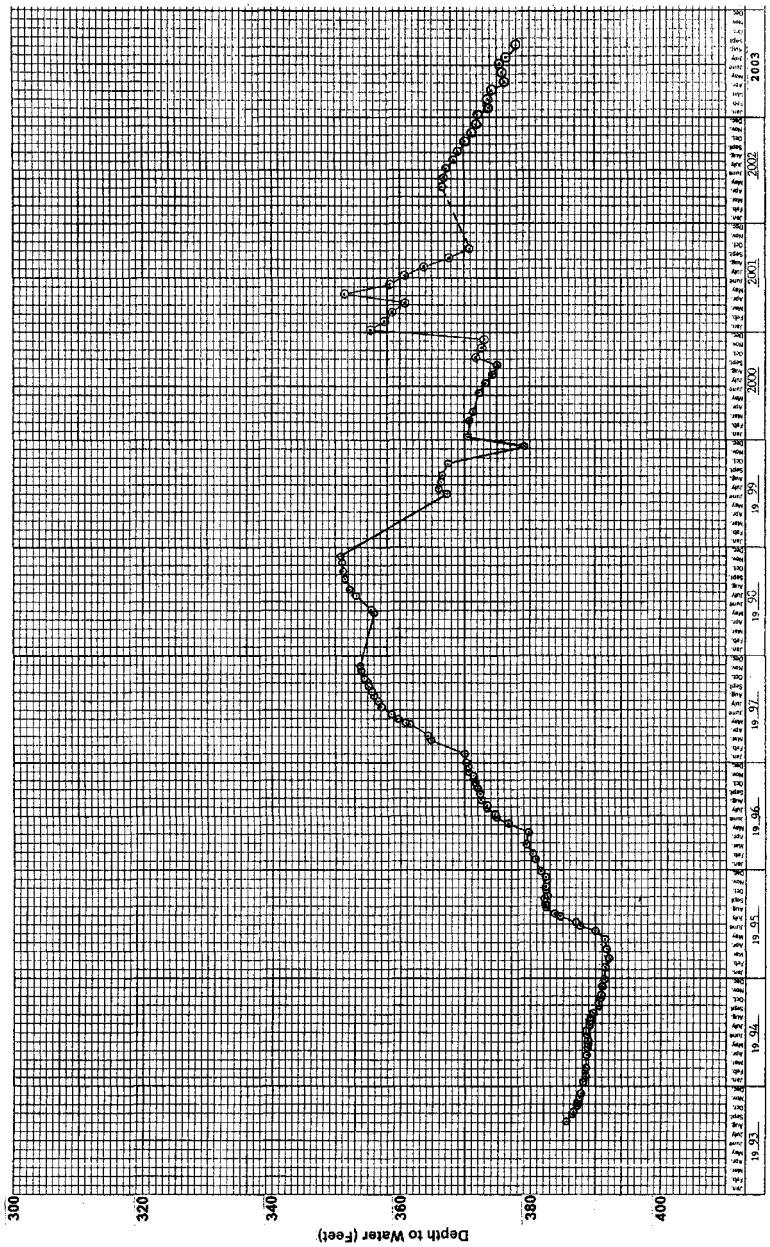

FIGURE 11- WATER-LEVEL HYDROGRAPH FOR WELL NO. 24

arily fell or stayed about the same during periods of below normal precipitation (i.e. the 2001, 2002, and 2003 water years). Water levels in Well No. 19 and 21 haven't been noticeably influenced by District pumping in recent years. The water level in Well No. 24 appears to be influenced by factors unrelated to District pumping.

Figure 12 is a water-level hydrograph for SC-1, which taps groundwater in the upper part of the basalt east of the District wells. The water level in this well generally fell from June 1983 through early 1995. However, some water-level rise occurred during this period due to recharge. Significant recharge was evident during 1995, 1996, and 1998. The shallowest water levels measured in SC-1 were in June 1983 and late July 1995. In July 1998, depth to water in SC-1 was near that in August 1983. Overall, the water level in this well was relatively stable during 1996-2000. The shallowest annual water level then fell about seven feet between 2000 and 2002, and rose slightly in 2003.

Figure 13 is a water-level hydrograph for SC-2, which taps groundwater in the deeper basalt near SC-1. Comparison of the hydrographs for SC-1 and SC-2 indicates that water levels in the two wells fluctuate similarly. However, the water-level rises are less in the deeper monitor well than in the shallower monitor well, as would be expected if the rises are mainly due to recharge, the source of which is from the land surface. The water level in SC-2 was about 151 feet deep in June 2003, or about the same as in June 1997. The water level in SC-2 generally recovered during 1995-98, was relatively stable during 1999-2002, and fell about 8 feet after

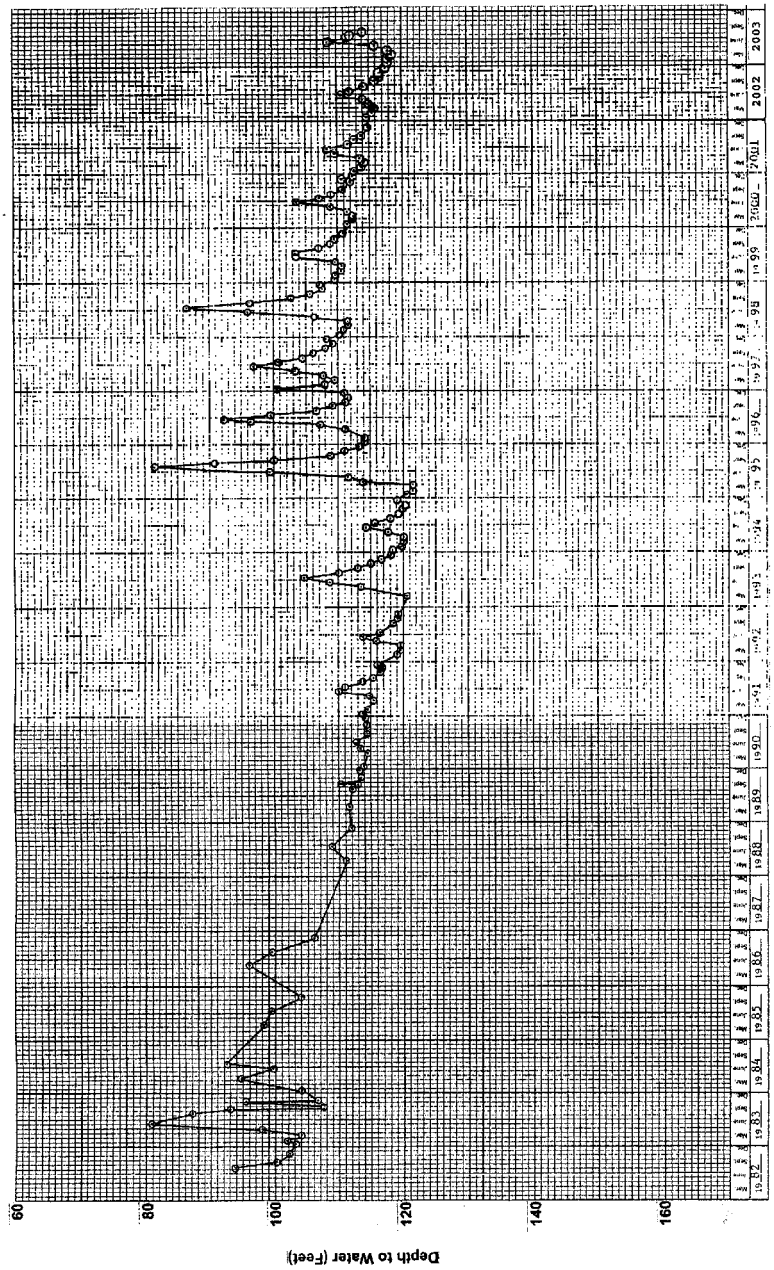

FIGURE 12- WATER-LEVEL HYDROGRAPH FOR SC-1

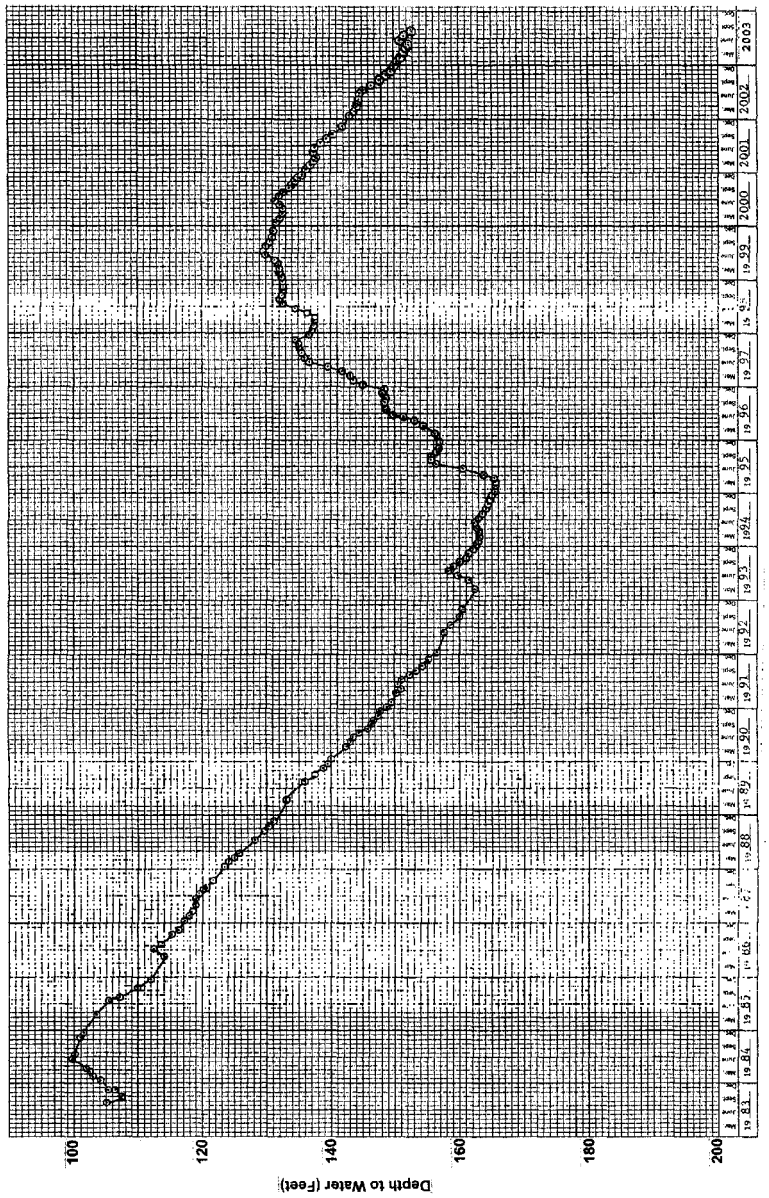

FIGURE 13- WATER-LEVEL HYDROGRAPH FOR SC-2

June 2002. Water-level variations in SC-1 and SC-2 are indicated to be due to climatic variations and not due to District well pumpage. This conclusion is based on the water-level hydrographs for Wells No. 19, 21, and 24 and water-level elevation data (Figures 2 and 18).

Shallow Monitor Wells

A water-level hydrograph for Well No. 22 is provided in Figure 14. Pumpage of nearby Well No. 15 is also plotted on this figure. The water level in Well No. 22 is not related to pumpage of Well No. 15, which taps groundwater in the deeper consolidated rock. The water level in this well responds primarily due to recharge from Mammoth Creek streamflow (Figure 15). Well No. 22 was dry until June 17, 1993 and during 1994-early 1995. There has been water in the well continuously since June 1995. The shallowest water level in Well No. 22 was in August 1995. Depth to water in this well rose about 12 feet during May-July, 1995, due to recharge corresponding to high flows (exceeding 40 cfs) in Mammoth Creek. During 1996-2003, the water-level trends in Well No. 22 also followed the pattern of streamflow in Mammoth Creek. Since early 1997, the water level in Well No. 22 was the lowest during December 2001-May 2002, associated with low streamflow during that time.

A water-level hydrograph based on manual measurements for Well No. 23 and pumpage for nearby Well No. 1 are shown in Figure 16. Depth to water in Well No. 23 has ranged from about 5 to 16 feet

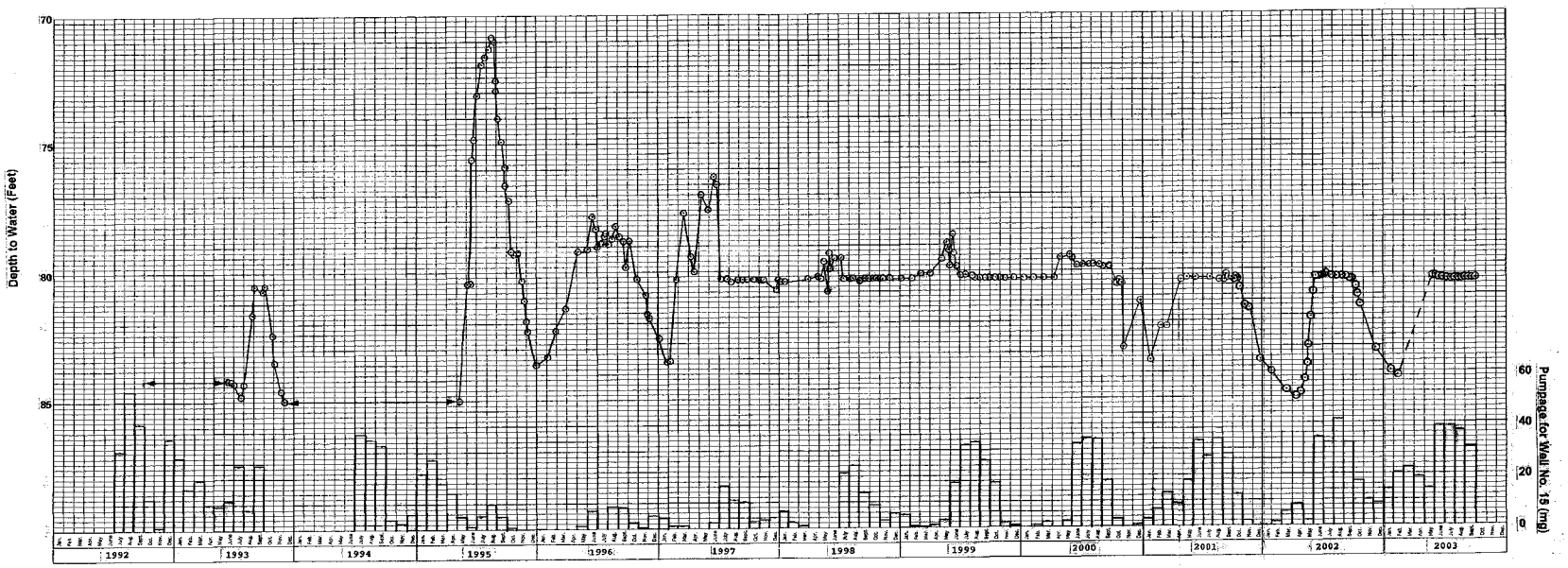

FIGURE 14- WATER-LEVEL HYDROGRAPH FOR WELL NO. 22 AND PUMPAGE FOR WELL NO. 15

FIGURE 15- WATER-LEVEL HYDROGRAPH FOR WELL NO. 22 AND MAMMOTH CREEK STREAMFLOW

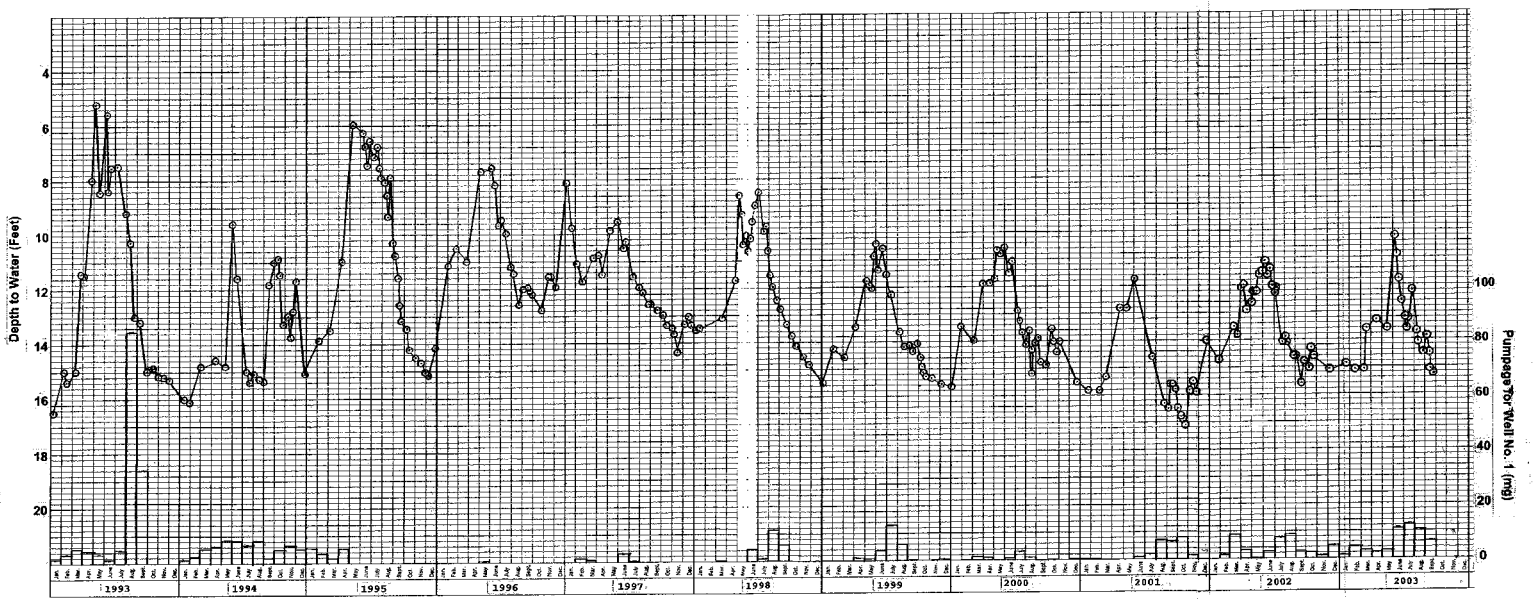

FIGURE 16- WATER-LEVEL HYDROGRAPH FOR WELL NO. 23 AND PUMPAGE FOR WELL NO. 1

during the period of record. The shallowest water levels were in the spring and early summer of 1993, 1995, and 1996. Depth to water in this well is not influenced by pumpage of Well No. 1, which taps groundwater in the deeper consolidated rock. Well No. 23 is located relatively close to Mammoth Creek and is clearly influenced by recharge from streamflow (Figure 17), and possibly from other local sources of recharge. On August 1, 1996, a float-type continuous water-level recorder was installed in Well No. 23. Some problems were experienced with this recorder, but reliable measurements were obtained during most of 1997-2003. The water-level recorder charts for Well No. 23 are provided in Appendix D.

Water-level hydrographs for the remaining shallow monitor wells are provided in Appendix D. Well No. 4M is located in the meadow area east of District Wells No. 6 and 10. The water level in this well rose significantly between early 1995 and early 1998, due to significant surface water flow in the meadow. Depth to water fluctuations in this well have followed patterns of Bodle Ditch flows, rising during periods when flows are present in the ditch. In May 1998, the water levels in this well were the shallowest since 1988. The annual shallowest water level in this well fell about 18 feet between 1998 and 2003.

Well No. 5M taps the shallow volcanic rock, and no water was observed in the overlying glacial till at the time of drilling of this well. Depth to water in Well No. 5M has ranged from about 2.5 to 9.5 feet. The shallowest levels have been in the spring and early summer, and the deepest in the summer. The annual shallowest

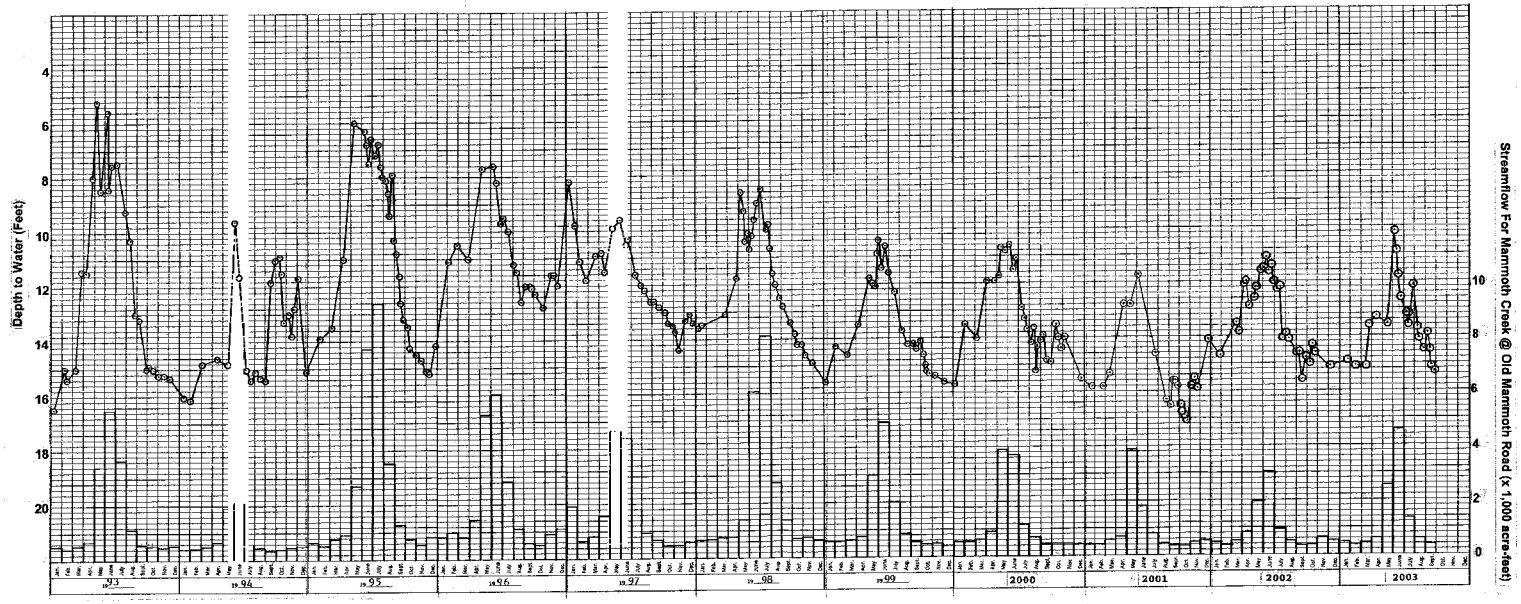

FIGURE 17- WATER-LEVEL HYDROGRAPH FOR WELL NO. 23 AND MAMMOTH CREEK STREAMFLOW

water level in this well fell about four feet between 1998 and 2003, due to decreased recharge.

Well No. 10M was dry from October 1992 through June 10, 1993. Some water appeared in this well during June 17-August 19, 1993, and during June 6-June 20, 1996. The well was otherwise dry from late 1992 through December 4, 1996. During 1998-mid 2001, there was water in Well No. 10M most of the time. This well is adjacent to District Well No. 10, and the water level in Well No. 10M is primarily influenced by pumping of this well and also by local recharge. Well No. 10M has been dry since July 2001, due to increased pumping from Well No. 10 during 2001-03.

Well No. 11M is located in the southwest part of the meadow area near the Bodle Ditch. Water levels in this well have seasonal fluctuations that correspond to flows in the ditch. The shallowest water levels have generally been in June-July. Water levels gradually declined during 1989-92, but rose significantly after 1992. The water level began to rise significantly in April 1996, and the shallowest level yet measured (about four feet deep) was in June 1996. The shallowest annual water level for Well No. 11M fell about nine feet between 1998 and 2001, due to decreased recharge. However, the shallowest annual water level in this well in 2002 was higher than in 2001, and near the level in 2000. The shallowest annual water level in Well 11M was about two and a half feet lower in 2003 than in 2002.

Well No. 12M is located in the western part of the meadow area. The water level in this well has responded significantly to

a number of recharge events. The water level in this well began to rise significantly in April 1996, and reached the shallowest level of record in June 1996. The shallowest annual water level in Well No. 12M fell about 17 feet between 1998 and 2003. In summary, the water levels in all of the shallow monitor wells generally rise during wet periods and fall during dry periods. This is due to varying amounts of recharge during these periods.

Water-Level Elevation Contours

Figure 18 shows water-level elevation contours for early September, 2003. The hydrologic boundary is shown north of Wells No. 1 and 5A and south of Wells No. 16, 17, and 20. This boundary is believed to be present only west of a line connecting Wells No. 14M and 21. A cone of depression was evident due to pumping of District Wells No. 6, 10, and 15. This cone of depression did not extend east of Well No. 19. The overall direction of groundwater flow in early September 2003 was similar to that shown in the previous annual reports. This map shows only the horizontal component of groundwater flow in the basalt and interbedded glacial till. Other evidence (i.e., water levels in SC-1 and SC-2) indicates that there is also significant downward flow of groundwater in most of the area.

CHEMICAL QUALITY AND TEMPERATURE OF GROUNDWATER

The results of chemical analyses and temperatures of water for the supply wells and monitor wells during the 2003 water year are

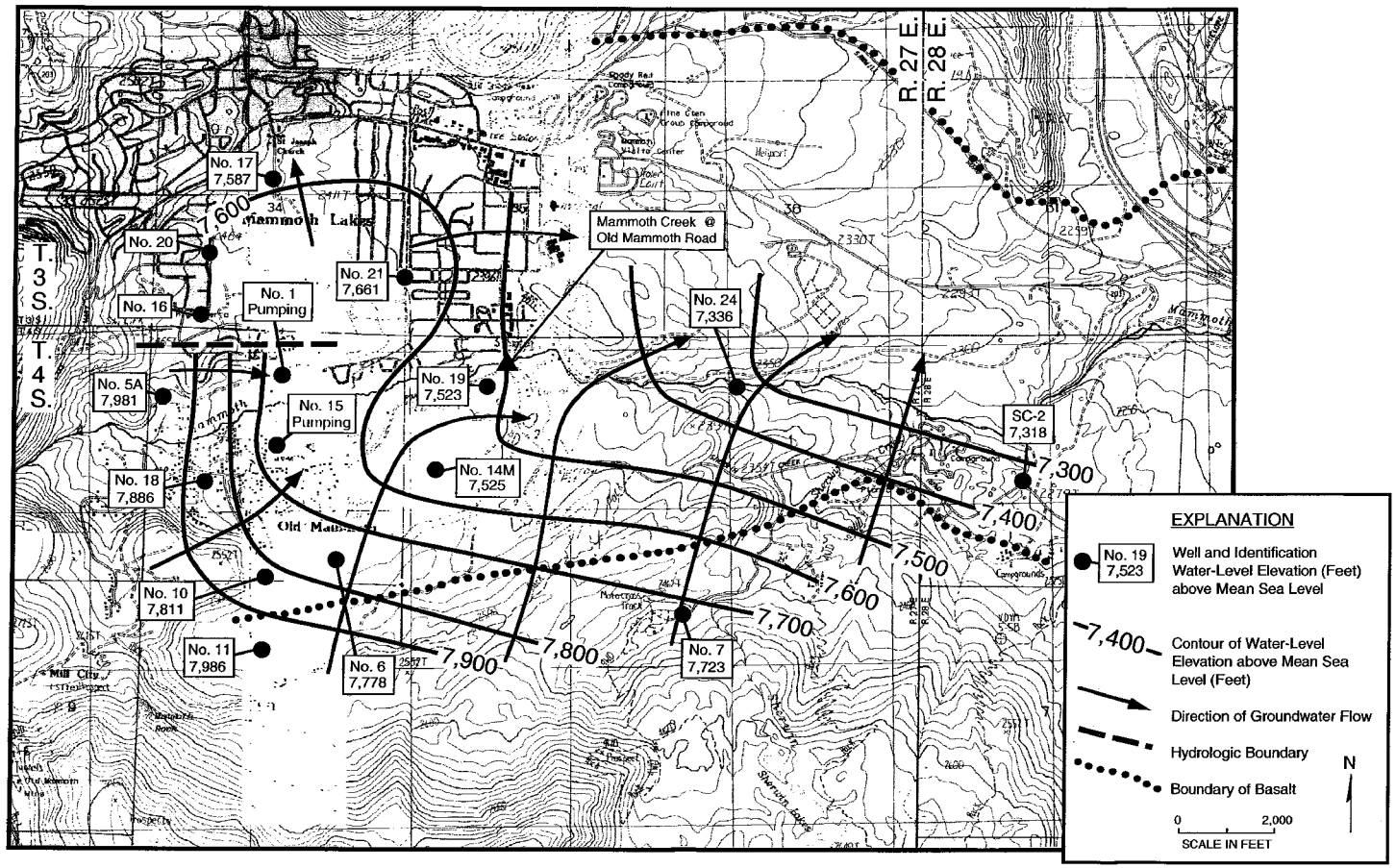

FIGURE 18 - WATER-LEVEL ELEVATIONS IN SEPTEMBER, 2003

provided in Appendix E. Water samples were collected from the supply wells and from the monitor wells that could be sampled in September 2003. Transducers are installed in most of the deep monitor wells to continuously measure water levels. Because of these transducers, it was not feasible to collect water samples from these wells during 2003. The coldest water (55°F or less) has normally been from shallow monitor wells in the meadow area and in water from the supply wells tapping consolidated rock, south of the hydrologic boundary. In contrast, the warmest water (60°F or greater) has been from the wells tapping consolidated rock north of the hydrologic boundary, closer to the known area of relatively shallow geothermal water in Mammoth Lakes, and from Well No. 18 (south of this boundary). The lowest electrical conductivity values (less than 200 micromhos per centimeter at 25°C) have normally been for shallow monitor wells and Wells No. 1, 7, and 11. The highest values (greater than 430 micromhos) have been for wells tapping the consolidated rock in the western part of the area.

Records for water from Well No. 20 indicate slight increases for temperature and electrical conductivity during 1996-2002. Water from Wells No. 16, 17, 18, and 20 has shown an overall decrease in pH during the period of record. These are the westernmost District supply wells. Low pH groundwater is known to be present beneath parts of Mammoth Mountain.

MAMMOTH CREEK STREAMFLOW

Records of streamflow at the outlet from Twin Lakes and the

Old Mammoth Road crossing during the 2003 water year are provided in Appendix F. The mean monthly flow at the Old Mammoth Road crossing ranged from 6.2 cfs in October 2002 to 76.8 cfs in June 2003. In 2003, the flow at the Old Mammoth Road crossing began to rise significantly in late May, and the highest flows were between May 25 and June 11.

Average daily flows are plotted in Appendix F for the two stations for each month during the 2003 water year. A comparison of these daily flows indicates that the streamflow at the Old Mammoth Road crossing normally equaled or exceeded that of the Twin Lakes outflow, except during October 2002, February and early March, 2003, and August-September, 2003. The downstream increase in flow is attributed to inflow from ungaged tributaries below the Twin Lakes outlet and possibly some groundwater flow. Such groundwater flow could enter Mammoth Creek locally from unconsolidated deposits. In contrast, during October 2002, the downstream streamflow averaged about one and a half cfs less than the upstream flow. However, the lower stream gage was re-calibrated on November 2, 2002, and it was found to have been reading about 1.4 cfs too low. During the last three weeks of February and first week of March, 2003, the downstream flow averaged between one and one and a half cfs lower than upstream. District Wells No. 10 and 15 were pumping an average of about two and a half cfs at this time. During August-September, 2003, downstream flows usually ranged from about 1 to 2 cfs less than those upstream. In August, District wells were pumping about 6

cfs. However, careful examination of pumping patterns for these wells indicates that the District well pumping did not cause the difference in flow at the two stream gages on Mammoth Creek. For example, the apparent difference in streamflow remained relatively constant, even though the District well pumpage varied substantially during these periods. The most likely explanation for these differences in flow is inaccuracy in streamflow measurements. The method of measurement of flow out of Twin Lakes was altered on May 23, 2002, pursuant to a request from the State Water Resources Control Board. According to the MCWD, the revised method is not as accurate as the weir plate that was previously used.

VALENTINE RESERVE SPRINGFLOW

Commencing in 2001, flow measurements at the Valentine Reserve were extended to another spring, which has a considerably larger flow than the previously monitored spring. Longer records are available for the previously monitored spring. Figure 19 shows flow of the previously monitored spring (1993-2001) and Mammoth Creek streamflow at Old Mammoth Road (1993-2003). The springflow correlated well with Mammoth Creek streamflow during the period of record. The lowest springflows were in 1993, 1994, and 2001, following periods of low winter precipitation. Springflow often increased in the fall prior to winter precipitation. This was primarily due to lower air temperatures and decreased evapotranspiration of shallow groundwater.

Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 2001-September 2002", December 12, 2002, 50 p.

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 1
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.000	0.000	0.000	0.000	0.000	0.432	0.000	0.000	0.000	0.428	0.159				
2	0.000	0.000	0.000	0.000	0.112	0.200	0.000	0.028	0.000	0.664	0.000				
3	0.000	0.192	0.000	0.000	0.000	0.224	0.000	0.000	0.000	0.772	0.000				
4	0.000	0.008	0.000	0.000	0.012	0.404	0.000	0.000	0.040	0.760	0				
5	0.068	0.000	0.000	0.000	0.000	0.604	0.000	0.256	0.852	0.482	0				
6	0.384	0.000	0.000	0.000	0.000	0.448	0.556	0.000	0.664	0.482	0				
7	0.548	0.000	0.000	0.000	0.000	0.208	0.120	0.000	0.300	0.614	0				
8	0.390	0.072	0.000	0.152	0.000	0.000	0.000	0.000	0.148	0.441	0				
9	0.000	0.000	0.000	0.032	0.000	0.000	0.000	0.000	0.432	0.565	0				
10	0.000	0.124	0.000	0.000	0.000	0.000	0.000	0.000	0.332	0.542	0	0.172			
11	0.324	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168	0.522	0	0.236			
12	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.144	0.522	0	0.236			
13	0.160	0.288	0.460	0.000	0.000	0.000	0.000	0.000	0.224	0.522	0	0.177			
14	0.024	0.000	0.492	0.000	0.000	0.156	0.000	0.000	0.168	0.522	0	0.241			
15	0.100	0.000	0.448	0.016	0.264	0.000	0.000	0.000	0.564	0.454	0	0.228			
16	0.052	0.000	0.192	0.032	0.392	0.000	0.000	0.000	0.360	0.560	0	0.189			
17	0.000	0.000	0.300	0.236	0.280	0.000	0.000	0.000	0.524	0.547	0	0.179			
18	0.000	0.000	0.196	0.124	0.240	0.000	0.000	0.000	0.732	0.466	0	0.163			
19	0.000	0.000	0.332	0.000	0.060	0.000	0.000	0.100	0.600	0.331	0	0.073			
20	0.000	0.000	0.352	0.000	0.496	0.000	0.000	0.828	0.632	0.325	0	0.147			
21	0.000	0.000	0.732	0.004	0.372	0.000	0.000	0.868	0.528	0.537	0	0.161			
22	0.000	0.224	0.000	0.000	0.468	0.000	0.000	0.840	0.428	0.540	0	0.200			
23	0.000	0.136	0.112	0.000	0.280	0.000	0.196	0.092	0.	0.151	0	0.163			
24	0.000	0.000	0.000	0.168	0.012	0.000	0.084	0.000	0.	0.206	0	0.142			
25	0.004	0.000	0.000	0.204	0.164	0.000	0.342	0.000	0.	0.253	0	0.209			
26	0.000	0.000	0.000	0.296	0.156	0.028	0.342	0.000	0.	0.000	0	0.114			
27	0.000	0.012	0.136	0.008	0.512	0.000	0.344	0.000	0.	0.170	0	0.198			
28	0.000	0.000	0.000	0.000	0.512	0.000	0.008	0.000	0.	0.008	0	0.040			
29	0.000	0.000	0.428	0.000		0.000	0.092	0.000	0.	0.000	0	0.110			
30	0.136	0.000	0.220	0.012		0.000	0.000	0.000	0.	0.135	0	0.254			
31	0.000	0.000	0.276	0.000		0.000		0.000		0.000	0				
TOTAL	2.282	1.056	4.676	1.284	4.332	2.704	2.084	3.012	11.316	12.521	10.163	6.389	0.000	0.000	0.000
MEAN	0.074	0.034	0.151	0.041	0.155	0.087	0.069	0.097	0.377	0.404	0.328	0.213	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.548	0.288	0.732	0.296	0.512	0.604	0.556	0.868	0.852	0.772	0.772	0.546	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AC-FT	7.000	3.239	14.344	3.939	13.288	8.294	6.393	9.239	34.712	38.408	31.175	19.598	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			189.629	TOTAL AC-FT JAN THRU DEC:			165.046								

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 16
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.048	0.304	0.000	0.000	0.000	0.160	0.256	0.000	0.544	0.000	0.000	0.000			
2	0.000	0.000	0.000	0.000	0.000	0.000	0.256	0.000	0.160	0.000	0.000	0.000			
3	0.000	0.000	0.000	0.000	0.000	0.464	0.192	0.000	0.000	0.000	0.000	0.000			
4	0.000	0.000	0.000	0.000	0.000	0.624	0.160	0.000	0.544	0.000	0.000	0.000			
5	0.000	0.304	0.000	0.000	0.000	0.128	0.256	0.000	0.640	0.000	0.000	0.000			
6	0.560	0.448	0.000	0.000	0.000	0.704	0.672	0.000	0.656	0.000	0.000	0.000			
7	0.624	0.064	0.000	0.000	0.000	0.656	0.176	0.016	0.608	0.000	0.000	0.000			
8	0.544	0.128	0.000	0.000	0.000	0.368	0.064	0.080	0.656	0.000	0.000	0.000			
9	0.224	0.224	0.000	0.000	0.000	0.000	0.080	0.000	0.640	0.000	0.000	0.000			
10	0.000	0.144	0.000	0.000	0.000	0.288	0	0.000	0.640	0.000	0.000	0.000			
11	0.080	0.176	0.000	0.000	0.000	0.000	0	0.000	0.528	0.000	0.000	0.000			
12	0.000	0.224	0.000	0.000	0.025	0.432	0	0.000	0.704	0.000	0.000	0.000			
13	0.016	0.032	0.000	0.000	0.039	0.192	0	0.000	0.672	0.000	0.000	0.000			
14	0.000	0.000	0.000	0.000	0.048	0.592	0	0.016	0.688	0.000	0.000	0.000			
15	0.000	0.000	0.000	0.000	0.000	0.528	0	0.000	0.672	0.000	0.000	0.000			
16	0.000	0.000	0.000	0.000	0.000	0.400	0	0.368	0.176	0.000	0.000	0.000			
17	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000			
18	0.000	0.000	0.000	0.000	0.128	0.000	0	0.	0.000	0.000	0.000	0.000			
19	0.000	0.000	0.000	0.000	0.176	0.304	0	0.	0.000	0.000	0.000	0.000			
20	0.000	0.000	0.000	0.000	0.176	0.224	0	0.	0.000	0.000	0.000	0.000			
21	0.192	0.000	0.000	0.000	0.000	0.272	0	0.	0.000	0.000	0.000	0.000			
22	0.240	0.000	0.000	0.000	0.000	0.384	0	0.	0.000	0.000	0.000	0.000			
23	0.064	0.000	0.000	0.000	0.000	0.320	0	0.	0.000	0.000	0.000	0.000			
24	0.000	0.000	0.000	0.000	0.032	0.320	0	0.	0.000	0.000	0.000	0.000			
25	0.000	0.000	0.000	0.000	0.064	0.176	0.000	0.	0.000	0.000	0.000	0.000			
26	0.000	0.000	0.000	0.000	0.080	0.432	0.000	0.	0.000	0.000	0.000	0.000			
27	0.000	0.000	0.000	0.000	0.560	0.448	0.000	0.	0.000	0.000	0.000	0.000			
28	0.000	0.000	0.000	0.000	0.480	0.448	0.000	0.	0.000	0.000	0.000	0.000			
29	0.000	0.000	0.000	0.032		0.400	0.016	0.	0.000	0.000	0.000	0.000			
30	0.480	0.000	0.000	0.000		0.160	0.000	0.	0.000	0.000	0.000	0.000			
31	0.144		0.000	0.000		0.240		0.		0.000	0.000				
TOTAL	3.216	2.048	0.000	0.032	1.808	9.664	6.832	7.616	8.528	0.000	0.000	0.000	0.000	0.000	0.000
MEAN	0.104	0.068	0.000	0.001	0.065	0.312	0.228	0.246	0.284	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.624	0.448	0.000	0.032	0.560	0.704	0.672	0.656	0.704	0.000	0.000	0.000	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AC-FT	9.865	6.282	0.000	0.098	5.546	29.644	20.957	23.362	26.160	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			121.914	TOTAL AC-FT JAN THRU DEC:			105.767								

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 18
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.200	0.024	0.000	0.164	0.160	0.252	0.004	0.000	0.416	0.312	0.000	0.116			
2	0.236	0.000	0.000	0.140	0.112	0.204	0.000	0.000	0.384	0.332	0.000	0.092			
3	0.084	0.000	0.000	0.184	0.076	0.056	0.032	0.000	0.344	0.328	0.000	0.056			
4	0.088	0.000	0.000	0.196	0.004	0.000	0.072	0.000	0.388	0.320	0.000	0.040			
5	0.192	0.032	0.000	0.148	0.000	0.000	0.320	0.000	0.404	0.320	0.000	0.096			
6	0.008	0.000	0.000	0.056	0.000	0.000	0.276	0.000	0.376	0.304	0.296	0.080			
7	0.000	0.000	0.000	0.072	0.000	0.092	0.160	0.016	0.340	0.312	0.296	0.056			
8	0.000	0.024	0.000	0.000	0.000	0.188	0.108	0.000	0.324	0.308	0.216	0.088			
9	0.152	0.040	0.000	0.000	0.000	0.240	0.004	0.000	0.284	0.304	0.272	0.056			
10	0.108	0.036	0.000	0.040	0.000	0.080	0.000	0.000	0.284	0.296	0.280	0.096			
11	0.204	0.000	0.000	0.036	0.000	0.080	0.260	0.000	0.336	0.272	0.208	0.096			
12	0.140	0.000	0.000	0.028	0.000	0.096	0.216	0.000	0.312	0.272	0.104	0.048			
13	0.156	0.000	0.000	0.000	0.000	0.100	0.244	0.000	0.328	0.272	0.232	0.064			
14	0.156	0.000	0.000	0.000	0.000	0.000	0.060	0.000	0.308	0.272	0.232	0.032			
15	0.232	0.000	0.000	0.016	0.000	0.128	0.228	0.000	0.236	0.192	0.224	0.040			
16	0.124	0.000	0.000	0.020	0.256	0.196	0.168	0.000	0.312	0.160	0.080	0.088			
17	0.100	0.000	0.000	0.000	0.164	0.048	0.032	0.000	0.340	0.040	0.184	0.072			
18	0.072	0.000	0.000	0.128	0.132	0.000	0.212	0.000	0.364	0.160	0.040	0.112			
19	0.020	0.000	0.000	0.124	0.100	0.124	0.196	0.000	0.352	0.096	0.032	0.056			
20	0.064	0.000	0.000	0.076	0.228	0.000	0.076	0.032	0.260	0.248	0.048	0.032			
21	0.040	0.000	0.000	0.024	0.280	0.140	0.060	0.000	0.328	0.008	0.048	0.056			
22	0.092	0.000	0.000	0.040	0.276	0.152	0.176	0.000	0.356	0.136	0.040	0.104			
23	0.004	0.000	0.132	0.060	0.324	0.120	0.044	0.296	0.312	0.080	0.040	0.080			
24	0.008	0.000	0.056	0.048	0.140	0.044	0.000	0.284	0.220	0.008	0.096	0.024			
25	0.028	0.000	0.024	0.168	0.252	0.004	0.000	0.388	0.280	0.000	0.080	0.152			
26	0.000	0.000	0.000	0.168	0.168	0.056	0.000	0.380	0.292	0.000	0.040	0.072			
27	0.000	0.000	0.164	0.184	0.000	0.000	0.000	0.380	0.288	0.000	0.144	0.064			
28	0.072	0.000	0.284	0.040	0.000	0.188	0.000	0.412	0.312	0.000	0.272	0.048			
29	0.000	0.020	0.224	0.000		0.160	0.000	0.340	0.260	0.000	0.240	0.096			
30	0.084	0.092	0.088	0.016		0.176	0.000	0.472	0.304	0.000	0.240	0.048			
31	0.000		0.084	0.048		0.036		0.428		0.000	0.200				
TOTAL	2.664	0.268	1.056	2.224	2.672	2.960	2.948	3.428	9.644	5.352	4.184	2.160	0.000	0.000	0.000
MEAN	0.086	0.009	0.034	0.072	0.095	0.095	0.098	0.111	0.321	0.173	0.135	0.072	#DIV/0!	0.000	0.000
MAX	0.236	0.092	0.284	0.196	0.324	0.252	0.320	0.472	0.416	0.332	0.296	0.152	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220	0.000	0.000	0.024	0.000	0.000	0.000
AC-FT	8.172	0.822	3.239	6.822	8.196	9.080	9.043	10.515	29.583	16.417	12.834	6.626	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			121.350	TOTAL AC-FT JAN THRU DEC:			109.117							0	0
															0

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 2002 - SEPTEMBER 2003

WELL NO. 1					**WELL NO. 6**			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/10/02	-216.00	03/26/03	-231.10		10/10/2002	-65.19	6/4/2003	-165.45
10/17/02	-213.18	06/04/03	-229.95		10/17/2002	-66.86	6/11/2003	-170.50
10/24/02	-212.83	06/11/03	-258.50		10/24/2002	-66.88	6/19/2003	-173.50
11/27/02	-211.03	06/19/03	-264.85		12/5/2002	-63.20	6/25/2003	-177.20
12/05/02	-208.68	07/02/03	-265.40		1/24/2002	-70.47	7/2/2003	-175.80
01/24/03	-204.22	07/08/03	-277.80		2/13/2002	-71.63	7/8/2003	-180.40
02/13/02	-206.12	08/06/03	-268.50		3/11/2003	-72.70	7/15/2003	-187.25
03/26/03	-205.25	08/13/03	-261.50		5/14/2003	-60.90	7/30/2003	-176.65
04/17/03	-204.50	08/27/03	-262.30		6/4/2003	-86.85	8/6/2003	-186.55
05/14/03	-203.10	09/03/03	-262.35		6/11/2003	-87.80	8/13/2003	-192.30
06/04/03	-203.15	09/10/03	-268.70		9/10/2003	-118.40	8/27/2003	-185.70
06/11/03	-230.80	09/17/03	-259.85				9/3/2003	-189.70
06/25/03	-246.55	09/24/03	-260.70				9/17/2003	-198.65
07/30/03	-225.40						9/24/2003	-195.90
Mean	-213.63		-259.35			-75.53		-182.54
Max	-246.55		-277.80			-118.40		-198.65
Min	-203.10		-229.95			-60.90		-165.45
Historical								
Mean	-195.39		-251.48			-46.05		-152.87
Max	-268.10		-295.00			-160.00		-200.00
Min	-149.75		-191.33			0.00		-77.43

prodwell

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 2002 - SEPTEMBER 2003

WELL NO. 16					**WELL NO. 17**			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/10/02	-480.52	03/26/03	-489.10		10/10/02	-378.84	10/24/02	-383.63
10/17/02	-482.02	06/04/03	-495.60		10/17/02	-378.96	07/02/03	-386.40
10/24/02	-478.41	06/11/03	-498.65		12/05/02	-377.84	08/06/03	-386.80
11/27/02	-476.91				02/13/03	-378.28	09/10/03	-386.70
12/05/02	-476.03				03/12/03	-378.60		
01/24/03	-473.82				06/04/03	-409.90		
02/13/03	-472.68				06/11/03	-377.70		
03/12/03	-480.80				06/19/03	-378.70		
03/26/03	-483.20				06/25/03	-376.50		
04/17/03	-485.90				07/08/03	-381.20		
05/14/03	-478.05				07/30/03	-379.55		
					08/13/03	-381.80		
					08/27/03	-380.60		
					09/03/03	-380.70		
					09/17/03	-381.10		
					09/24/03	-381.40		
Mean	-478.94		-494.45			-381.35		-385.88
Max	-485.90		-498.65			-409.90		-386.80
Min	-485.90		-498.65			-409.90		-386.80
Historical								
Mean	-468.26		-484.84			-374.66		-376.91
Max	-489.68		-498.65			-409.90		-386.80
Min	-413.65		-471.47			-364.06		-369.52

prodwell

provided in Appendix E. Water samples were collected from the supply wells and from the monitor wells that could be sampled in September 2003. Transducers are installed in most of the deep monitor wells to continuously measure water levels. Because of these transducers, it was not feasible to collect water samples from these wells during 2003. The coldest water (55°F or less) has normally been from shallow monitor wells in the meadow area and in water from the supply wells tapping consolidated rock, south of the hydrologic boundary. In contrast, the warmest water (60°F or greater) has been from the wells tapping consolidated rock north of the hydrologic boundary, closer to the known area of relatively shallow geothermal water in Mammoth Lakes, and from Well No. 18 (south of this boundary). The lowest electrical conductivity values (less than 200 micromhos per centimeter at 25°C) have normally been for shallow monitor wells and Wells No. 1, 7, and 11. The highest values (greater than 430 micromhos) have been for wells tapping the consolidated rock in the western part of the area.

Records for water from Well No. 20 indicate slight increases for temperature and electrical conductivity during 1996-2002. Water from Wells No. 16, 17, 18, and 20 has shown an overall decrease in pH during the period of record. These are the westernmost District supply wells. Low pH groundwater is known to be present beneath parts of Mammoth Mountain.

MAMMOTH CREEK STREAMFLOW

Records of streamflow at the outlet from Twin Lakes and the

Old Mammoth Road crossing during the 2003 water year are provided in Appendix F. The mean monthly flow at the Old Mammoth Road crossing ranged from 6.2 cfs in October 2002 to 76.8 cfs in June 2003. In 2003, the flow at the Old Mammoth Road crossing began to rise significantly in late May, and the highest flows were between May 25 and June 11.

Average daily flows are plotted in Appendix F for the two stations for each month during the 2003 water year. A comparison of these daily flows indicates that the streamflow at the Old Mammoth Road crossing normally equaled or exceeded that of the Twin Lakes outflow, except during October 2002, February and early March, 2003, and August-September, 2003. The downstream increase in flow is attributed to inflow from ungaged tributaries below the Twin Lakes outlet and possibly some groundwater flow. Such groundwater flow could enter Mammoth Creek locally from unconsolidated deposits. In contrast, during October 2002, the downstream streamflow averaged about one and a half cfs less than the upstream flow. However, the lower stream gage was re-calibrated on November 2, 2002, and it was found to have been reading about 1.4 cfs too low. During the last three weeks of February and first week of March, 2003, the downstream flow averaged between one and one and a half cfs lower than upstream. District Wells No. 10 and 15 were pumping an average of about two and a half cfs at this time. During August-September, 2003, downstream flows usually ranged from about 1 to 2 cfs less than those upstream. In August, District wells were pumping about 6

cfs. However, careful examination of pumping patterns for these wells indicates that the District well pumping did not cause the difference in flow at the two stream gages on Mammoth Creek. For example, the apparent difference in streamflow remained relatively constant, even though the District well pumpage varied substantially during these periods. The most likely explanation for these differences in flow is inaccuracy in streamflow measurements. The method of measurement of flow out of Twin Lakes was altered on May 23, 2002, pursuant to a request from the State Water Resources Control Board. According to the MCWD, the revised method is not as accurate as the weir plate that was previously used.

VALENTINE RESERVE SPRINGFLOW

Commencing in 2001, flow measurements at the Valentine Reserve were extended to another spring, which has a considerably larger flow than the previously monitored spring. Longer records are available for the previously monitored spring. Figure 19 shows flow of the previously monitored spring (1993-2001) and Mammoth Creek streamflow at Old Mammoth Road (1993-2003). The springflow correlated well with Mammoth Creek streamflow during the period of record. The lowest springflows were in 1993, 1994, and 2001, following periods of low winter precipitation. Springflow often increased in the fall prior to winter precipitation. This was primarily due to lower air temperatures and decreased evapotranspiration of shallow groundwater.

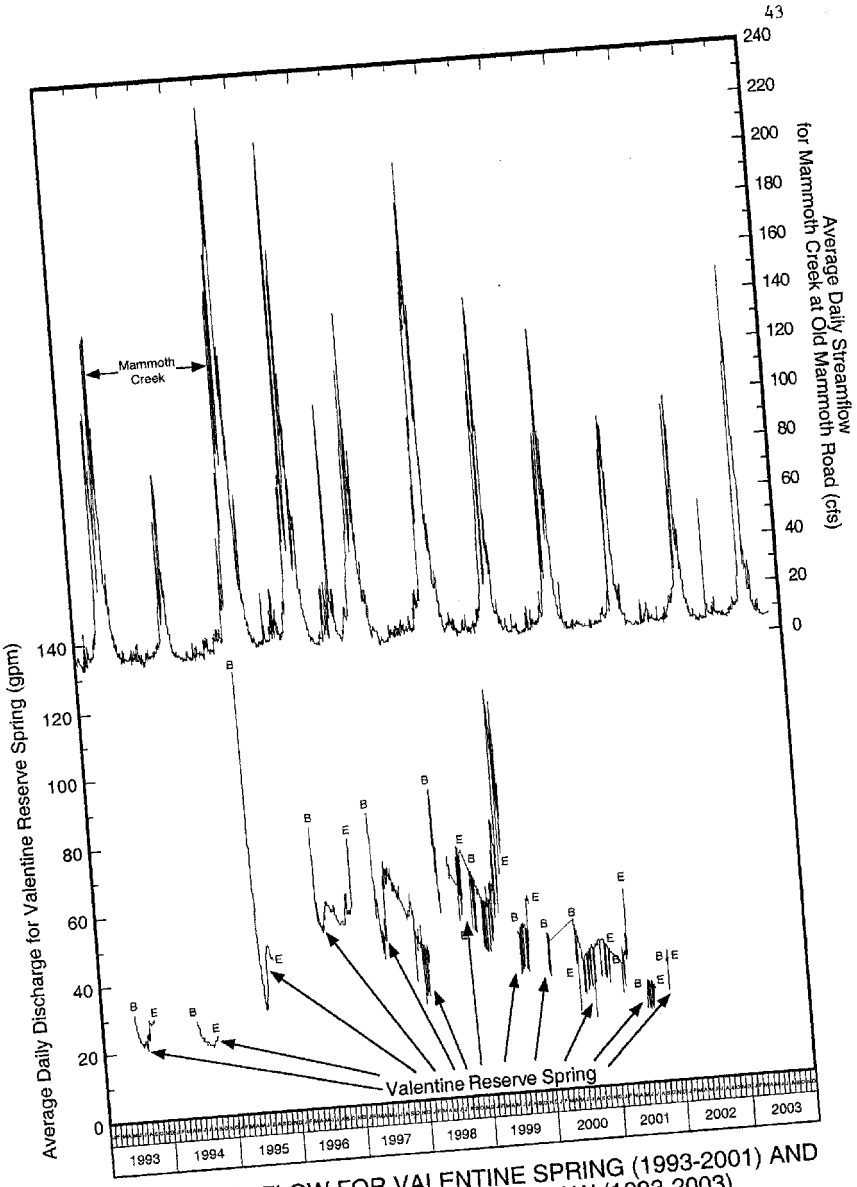

FIGURE 19- FLOW FOR VALENTINE SPRING (1993-2001) AND MAMMOTH CREEK STREAMFLOW (1993-2003)

The 2002 and 2003 water year flow measurements for the springs at the Valentine Reserve were not available at the time of this report. Monitoring results for the previous years indicate no noticeable impact of District pumping on spring flow at the Valentine Reserve.

DATA EVALUATION AND INTERPRETATION

Water-level hydrographs for the monitor wells tapping the uppermost glacial till strata in and near the District well field indicate falling water levels during the 2003 water year. Water-level hydrographs for most of the monitor wells tapping consolidated rock near the District well field indicated falling water levels, due to pumping of District wells. Water-level hydrographs for Wells No. 7, 21, 24, and SC-1, east of the District well field, indicate a stability or water-level declines during water year 2003. Recharge was indicated to be the primary factor influencing water-level trends, except in and near the District well field. Significant water-level declines due to pumping were observed in or near the pumped wells themselves.

The water-level elevation contour map for September 2003 confirms that the cone of depression due to pumping of District wells is localized, and does not extend east past Well No. 24. Because the water levels in the consolidated rock in the well field are well below the channel of Mammoth Creek, there is no apparent impact of District pumping on streamflow. There has been no impact on flow of the springs at the Valentine Reserve (for periods when

records are available), on streamflow in Mammoth Creek, or on the flow of the Hot Creek headsprings due to pumping of the District supply wells.

REFERENCES

Kenneth D. Schmidt and Associates, "Results of Summer 1993 Aquifer Test, Mammoth County Water District Well No. 15", November 9, 1993, 22 p.

Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth County Water District Groundwater Monitoring Program for October 1992-September 1993", December 13, 1993, 30 p.

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Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 1995-September 1996", December 12, 1996, 43 p.

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Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 2000-September 2001", December 11, 2001, 46 p.

Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 2001-September 2002", December 12, 2002, 50 p.

APPENDIX A

PUMPAGE AND WATER-LEVEL DATA FOR DISTRICT SUPPLY WELLS

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 1
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.000	0.000	0.000	0.000	0.000	0.432	0.000	0.000	0.000	0.428	0.159	0.332			
2	0.000	0.000	0.000	0.000	0.112	0.200	0.000	0.028	0.000	0.664	0.000	0.138			
3	0.000	0.192	0.000	0.000	0.000	0.224	0.000	0.000	0.000	0.772	0.000	0.169			
4	0.000	0.008	0.000	0.000	0.012	0.404	0.000	0.000	0.040	0.760	0.179	0.000			
5	0.068	0.000	0.000	0.000	0.000	0.604	0.000	0.256	0.852	0.482	0.772	0.195			
6	0.384	0.000	0.000	0.000	0.000	0.448	0.556	0.000	0.664	0.482	0.470	0.546			
7	0.548	0.000	0.000	0.000	0.000	0.208	0.120	0.000	0.300	0.614	0.321	0.493			
8	0.390	0.072	0.000	0.152	0.000	0.000	0.000	0.000	0.148	0.441	0.537	0.502			
9	0.000	0.000	0.000	0.032	0.000	0.000	0.000	0.000	0.432	0.565	0.491	0.382			
10	0.000	0.124	0.000	0.000	0.000	0.000	0.000	0.000	0.332	0.542	0.260	0.172			
11	0.324	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168	0.522	0.268	0.236			
12	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.144	0.522	0.170	0.236			
13	0.160	0.288	0.460	0.000	0.000	0.000	0.000	0.000	0.224	0.522	0.366	0.177			
14	0.024	0.000	0.492	0.000	0.000	0.156	0.000	0.000	0.168	0.522	0.557	0.241			
15	0.100	0.000	0.448	0.016	0.264	0.000	0.000	0.000	0.564	0.454	0.440	0.228			
16	0.052	0.000	0.	0.032	0.392	0.000	0.000	0.000	0.360	0.560	0.418	0.189			
17	0.000	0.000	0.	0.236	0.280	0.000	0.000	0.000	0.524	0.547	0.460	0.179			
18	0.000	0.000	0.	0.124	0.240	0.000	0.000	0.000	0.732	0.466	0.412	0.163			
19	0.000	0.000	0.	0.000	0.060	0.000	0.000	0.100	0.600	0.331	0.377	0.073			
20	0.000	0.000	0.	0.000	0.496	0.000	0.000	0.828	0.632	0.325	0.504	0.147			
21	0.000	0.000	0.	0.004	0.372	0.000	0.000	0.868	0.528	0.537	0.109	0.161			
22	0.000	0.224	0.	0.000	0.468	0.000	0.000	0.840	0.428	0.540	0.223	0.200			
23	0.000	0.136	0.112	0.000	0.280	0.000	0.196	0.092	0.308	0.151	0.245	0.163			
24	0.000	0.000	0.000	0.168	0.012	0.000	0.084	0.000	0.116	0.206	0.233	0.142			
25	0.004	0.000	0.000	0.204	0.164	0.000	0.342	0.000	0.240	0.253	0.251	0.209			
26	0.000	0.000	0.000	0.296	0.156	0.028	0.342	0.000	0.652	0.000	0.214	0.114			
27	0.000	0.012	0.136	0.008	0.512	0.000	0.344	0.000	0.556	0.170	0.263	0.198			
28	0.000	0.000	0.000	0.000	0.512	0.000	0.008	0.000	0.640	0.008	0.421	0.040			
29	0.000	0.000	0.428	0.000		0.000	0.092	0.000	0.528	0.000	0.390	0.110			
30	0.136	0.000	0.220	0.012		0.000	0.000	0.000	0.436	0.135	0.334	0.254			
31	0.000	0.000	0.276	0.000		0.000		0.000		0.000	0.319				
TOTAL	2.282	1.056	4.676	1.284	4.332	2.704	2.084	3.012	11.316	12.521	10.163	6.389	0.000	0.000	0.000
MEAN	0.074	0.034	0.151	0.041	0.155	0.087	0.069	0.097	0.377	0.404	0.328	0.213	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.548	0.288	0.732	0.296	0.512	0.604	0.556	0.868	0.852	0.772	0.772	0.546	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AC-FT	7.000	3.239	14.344	3.939	13.288	8.294	6.393	9.239	34.712	38.408	31.175	19.598	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			189.629	TOTAL AC-FT JAN THRU DEC:			165.046								

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 6
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.152	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.640	0.912	0.608	0.832			
2	0.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.544	1.072	0.592	0.736			
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.840	1.056	0.880	0			
4	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.872	0.936	0.608	0			
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.664	1.064	0.944	0			
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	1.120	1.056	0			
7	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.728	0.912	1.040	0			
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.912	1.008	0			
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.744	0.968	0.960	0			
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.776	1.032	1.008	0			
11	0.000	0.000	0.048	0.000	0.000	0.000	0.000	0.000	0.936	1.010	1.040	0			
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.184	0.856	1.010	0.880	0			
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.160	0.656	1.010	0.896	0			
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.488	1.010	0.896	0			
15	0.000	0.000	0.000	0.064	0.000	0.000	0.000	0.000	0.688	1.120	1.196	0			
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800	1.104	0.788	1			
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.944	1.064	0.637	0			
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.984	1.088	0.883	0			
19	0.000	0.000	0.048	0.000	0.000	0.000	0.000	0.264	1.136	1.040	0.688	0			
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.296	0.768	1.040	0.736	0			
21	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.880	1.040	0.864	0			
22	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.640	1.024	0.576	0			
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.152	0.944	0	0.656	0			
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.152	0.720	0	0.848	0			
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.952	0	0.816	1			
26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.184	0.832	0	0.688	0.912			
27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.192	0.920	0	0.880	0.752			
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.392	0.968	0	1.056	0.784			
29	0.000	0.000	0.000	0.000		0.000	0.000	0.168	0.840	0	1.008	0.912			
30	0.000	0.000	0.040	0.008		0.000	0.008	0.408	1.056	0	0.960	0.928			
31	0.000		0.000	0.000		0.000		0.616		0	0.944				
TOTAL	0.344	0.000	0.136	0.080	0.000	0.008	0.008	3.288	23.736	28.080	26.640	24.512	0.000	0.000	0.000
MEAN	0.011	0.000	0.004	0.003	0.000	0.000	0.000	0.106	0.791	0.906	0.859	0.817	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.152	0.000	0.048	0.064	0.000	0.008	0.008	0.616	1.136	1.120	1.196	1.008	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.480	0.576	0.400	0.000	0.000	0.000
AC-FT	1.055	0.000	0.417	0.245	0.000	0.025	0.025	10.086	72.810	86.135	81.718	75.190	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			327.706	TOTAL AC-FT JAN THRU DEC:			326.233								

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 10
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.200	0.992	1.152	1.184	1.120	1.088	0.640	0	0.832	0.736	0.704	0.672			
2	0.704	0.864	0.416	1.152	0.992	0.960	0.704	0	0.832	0.704	0.704	0.704			
3	1.088	0.960	0.416	1.120	1.024	0.992	0.640	0	0.800	0.736	0.704	0.672			
4	1.152	0.960	0.320	1.152	0.704	0.960	0.608	0	0.800	0.704	0.704	0.704			
5	1.232	1.008	0.352	1.152	1.024	0.992	0.768	0	0.608	0.768	0.704	0.704			
6	0.032	0.960	0.384	1.088	0.992	0.928	0.736	0	0.000	0.704	0.736	0.736			
7	0.000	0.976	0.416	1.024	0.992	0.892	0.576	0	0.736	0.736	0.672	0.704			
8	0.000	1.104	0.448	0.960	1.120	1.124	0.640	0	0.800	0.736	0.704	0.736			
9	1.008	0.944	0.320	1.088	1.120	0.992	0.640	0	0.736	0.704	0.704	0.704			
10	1.264	0.944	0.416	1.120	0.992	0.704	0.544	0	0.736	0.736	0.704	0.736			
11	1.264	1.072	0.480	1.152	0.896	0.704	0.736	0	0	0.720	0.704	0.544			
12	1.232	0.992	0.448	1.024	0.928	0.672	0.672	0	0	0.720	0.704	0.128			
13	1.264	0.720	0.672	1.152	1.056	0.704	0.768	0	0	0.720	0.624	0.000			
14	1.248	1.088	0.832	0.896	1.120	0.640	0.672	0	0	0.720	0.624	0.000			
15	1.264	1.008	0.736	0.960	0.960	0.768	0.672	0	0	0.704	0.672	0.000			
16	1.168	0.992	1.088	1.088	1.088	0.672	0.640	0	0	0.736	0.704	0.000			
17	1.104	0.928	1.120	1.152	1.024	0.736	0.640	0	0	0.704	0.672	0.000			
18	1.120	0.976	1.120	1.248	1.152	0.736	0.704	0	0	0.704	0.704	0.000			
19	1.184	1.088	0.928	1.120	1.024	0.672	0.768	0	0	0.736	0.640	0.000			
20	1.136	0.976	1.120	1.056	1.056	0.704	0.736	0.576	0	0.704	0.704	0.000			
21	1.120	0.832	1.088	1.056	0		0.640	0.544	0	0.704	0.672	0.000			
22	0.880	0.800	1.152	0.992	1		0.672	0.544	0	0.704	0.704	0.000			
23	1.024	0.896	1.120	1.088	0		0.160	0.800	0	0.704	0.672	0.000			
24	1.104	0.928	1.088	1.120	0		0.352	0.832	0	0.704	0.672	0.000			
25	2.192	0.288	0.896	1.184	0		0.064	0.896	0	0.672	0.672	0.000			
26	0.064	0.448	1.216	1.024	0		0.800	0.832	0	0.704	0.736	0.000			
27	0.960	1.056	1.184	1.024	0		0.800	0.864	0	0.608	0.672	0.000			
28	1.088	1.120	1.184	1.088	0		0.288	0.800	0.736	0.736	0.704	0.000			
29	1.040	1.088	1.152	0.960			0.224	0.864	0.736	0.672	0.704	0.000			
30	0.960	1.120	1.056	0.800			0.224	0.864	0.736	0.736	0.672	0.000			
31	1.104		1.152	1.120		0.768		0.800		0.672	0.704				
TOTAL	31.200	28.128	25.472	33.344	27.840	24.640	17.728	14.240	21.920	22.048	21.376	7.744	0.000	0.000	0.000
MEAN	1.006	0.938	0.822	1.076	0.994	0.795	0.591	0.459	0.731	0.711	0.690	0.258	#DIV/0!	#DIV/0!	#DIV/0!
MAX	2.192	1.120	1.216	1.248	1.152	1.124	0.800	0.896	0.832	0.768	0.736	0.736	0.000	0.000	0.000
MIN	0.000	0.288	0.320	0.800	0.704	0.576	0.064	0.032	0.000	0.608	0.624	0.000	0.000	0.000	0.000
AC-FT	95.706	86.262	78.135	102.282	85.399	75.583	54.380	43.681	67.239	67.632	65.571	23.755	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			845.644	TOTAL AC-FT JAN THRU DEC:			585.521								

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 15
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.864	0.416	0.	0.672	0	1.248	0.704		1.280	1.344	1.024	1.282			
2	0.928	0.256	0.	0.672	0	0.992	0.544		1.280	1.280	1.024	0.958			
3	0.800	0.608	0.	0.672	0	0.288	0.736		1.248	1.344	1.280	0.832			
4	0.736	0.288	0.	0.640	0	0.192	0.800		1.280	1.284	1.216	0.960			
5	0.832	0.704	0.	0.512	0	0.192	0.416		1.376	1.340	1.216	1.024			
6	0.000	0.384	0.	0.416	0	0.128	0.000		1.344	1.280	1.216	1.152			
7	0.000	0.320	0.	0.448	0	0.608	0.704		1.312	1.344	1.280	1.088			
8	0.000	0.576	0.	0.224	1	1.056	0.800		1.312	1.280	1.216	0.960			
9	0.736	0.384	0.	0.320	0	1.088	0.800		1.248	1.344	1.216	1.088			
10	0.640	0.416	0.	0.256	0	0.608	0.256		1.216	1.344	1.280	1.024			
11	1.088	0.672	0.	0.384	0	0.736	0.928		1.248	1.297	1.216	1.152			
12	0.704	0.224	0.	0.256	0	0.800	1.088		1.248	1.297	1.280	1.024			
13	0.896	0.256	0.	0.224	0	0.544	1.152		1.248	1.297	1.024	0.832			
14	0.928	0.192	0.	0.288	0	0.224	0.800		1.248	1.297	1.024	0.896			
15	0.832	0.224	0.	0.096	1.024	0.928	0.928		1.280	1.212	1.152	1.024			
16	0.800	0.192	0.	0.160	1.024	1.216	0.832		1.280	1.344	1.280	1.024			
17	0.512	0.256	0.	0.352	0.832	0.800	0.576		1.344	1.216	1.216	1.152			
18	0.448	0.256	0.	0.480	0.896	0.640	1.088		1.312	1.280	1.216	1.024			
19	0.384	0.256	0.	0.640	0.544	0.640	1.088	0.000	1.344	1.280	1.216	1.024			
20	0.352	0.256	0.	0.448	1.216	0.640	0.832	0.416	1.216	1.280	1.216	1.024			
21	0.288	0.352	0.	0.320	1.088	0.768	0.608	0.320	1.408	1.280	1.216	0.896			
22	0.352	0.160	0.	0.320	1.024	0.928	0.896	0.352	1.282	1.218	1.088	1.152			
23	0.288	0.256	0.	0.384	1.056	1.056	0.736	1.088	1.342	1.214	1.152	0.896			
24	0.256	0.288	0.	0.320	0.960	0.512	0.384	1.088	1.088	0.960	1.216	0.768			
25	0.352	0.064	0.	1.120	0.864	0.832	0.000	1.152	1.280	1.024	1.216	1.088			
26	0.224	0.128	0.	0.800	0.640	0.704	0.320	1.152	1.344	1.152	1.152	0.896			
27	0.288	0.160	0.992	0.832	0.288	0.192	0.320	1.280	1.280	1.088	1.152	1.152			
28	0.832	0.352	0.832	0.384	0.288	1.056	0.128	1.024	1.280	1.152	1.280	1.152			
29	0.416	0.448	0.928	0.384		1.088	0.160	1.184	1.344	1.152	1.152	0.896			
30	0.608	0.576	0.608	0.448		0.960	0.160	1.312	1.280	1.148	1.216	0.960			
31	0.576		0.672	0.576		0.704		1.280		1.028	1.152				
TOTAL	16.960	9.920	8.672	14.048	20.128	22.368	18.784	14.304	38.592	38.400	36.800	30.400	0.000	0.000	0.000
MEAN	0.547	0.331	0.280	0.453	0.719	0.722	0.626	0.461	1.286	1.239	1.187	1.013	#DIV/0!	#DIV/0!	#DIV/0!
MAX	1.088	0.704	0.992	1.120	1.216	1.248	1.152	1.312	1.408	1.344	1.280	1.282	0.000	0.000	0.000
MIN	0.000	0.064	0.032	0.096	0.288	0.128	0.000	0.000	1.088	0.960	1.024	0.768	0.000	0.000	0.000
AC-FT	52.025	30.429	26.601	43.092	61.742	68.613	57.620	43.877	118.380	117.791	112.883	93.252	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			826.307	**TOTAL AC-FT JAN THRU DEC:**			717.252								

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 16
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.048	0.304	0.000	0.000	0.000	0.160	0	0.000	0.544	0.000	0.000	0.000			
2	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0.160	0.000	0.000	0.000			
3	0.000	0.000	0.000	0.000	0.000	0.464	0	0.000	0.000	0.000	0.000	0.000			
4	0.000	0.000	0.000	0.000	0.000	0.624	0	0.000	0	0.000	0.000	0.000			
5	0.000	0.304	0.000	0.000	0.000	0.128	0	0.000	0	0.000	0.000	0.000			
6	0.560	0.448	0.000	0.000	0.000	0.704	0	0.000	0	0.000	0.000	0.000			
7	0.624	0.064	0.000	0.000	0.000	0.656	0	0.016	0	0.000	0.000	0.000			
8	0.544	0.128	0.000	0.000	0.000	0.368	0	0.080	0	0.000	0.000	0.000			
9	0.224	0.224	0.000	0.000	0.000	0.000	0	0.000	0	0.000	0.000	0.000			
10	0.000	0.144	0.000	0.000	0.000	0.288	0.416	0.000	0	0.000	0.000	0.000			
11	0.080	0.176	0.000	0.000	0.000	0.000	0.640	0.000	0	0.000	0.000	0.000			
12	0.000	0.224	0.000	0.000	0.025	0.432	0.448	0.000	0	0.000	0.000	0.000			
13	0.016	0.032	0.000	0.000	0.039	0.192	0.096	0.000	0	0.000	0.000	0.000			
14	0.000	0.000	0.000	0.000	0.048	0.592	0.208	0	0	0.000	0.000	0.000			
15	0.000	0.000	0.000	0.000	0.000	0.528	0.512	0	0	0.000	0.000	0.000			
16	0.000	0.000	0.000	0.000	0.000	0.400	0.320	0	0	0.000	0.000	0.000			
17	0.000	0.000	0.000	0.000	0.000	0.000	0.480	0	0	0.000	0.000	0.000			
18	0.000	0.000	0.000	0.000	0.128	0.000	0.368	0	0	0.000	0.000	0.000			
19	0.000	0.000	0.000	0.000	0.176	0.304	0.352	0	0	0.000	0.000	0.000			
20	0.000	0.000	0.000	0.000	0.176	0.224	0.272	0	0	0.000	0.000	0.000			
21	0.192	0.000	0.000	0.000	0.000	0.272	0.144	0	0.000	0.000	0.000	0.000			
22	0.240	0.000	0.000	0.000	0.000	0.384	0.368	0	0.000	0.000	0.000	0.000			
23	0.064	0.000	0.000	0.000	0.000	0.320	0.080	0	0.000	0.000	0.000	0.000			
24	0.000	0.000	0.000	0.000	0.032	0.320	0.000	0	0.000	0.000	0.000	0.000			
25	0.000	0.000	0.000	0.000	0.064	0.176	0.000	0	0.000	0.000	0.000	0.000			
26	0.000	0.000	0.000	0.000	0.080	0.432	0.000	0	0.000	0.000	0.000	0.000			
27	0.000	0.000	0.000	0.000	0.560	0.448	0.000	0	0.000	0.000	0.000	0.000			
28	0.000	0.000	0.000	0.000	0.480	0.448	0.000	0	0.000	0.000	0.000	0.000			
29	0.000	0.000	0.000	0.032		0.400	0.016	0	0.000	0.000	0.000	0.000			
30	0.480	0.000	0.000	0.000		0.160	0.000	0	0.000	0.000	0.000	0.000			
31	0.144		0.000	0.000		0.240		0		0.000	0.000				
TOTAL	3.216	2.048	0.000	0.032	1.808	9.664	6.832	7.616	8.528	0.000	0.000	0.000	0.000	0.000	0.000
MEAN	0.104	0.068	0.000	0.001	0.065	0.312	0.228	0.246	0.284	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.624	0.448	0.000	0.032	0.560	0.704	0.672	0.656	0.704	0.000	0.000	0.000	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AC-FT	9.865	6.282	0.000	0.098	5.546	29.644	20.957	23.362	26.160	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			121.914	**TOTAL AC-FT JAN THRU DEC:**			105.767								

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 17
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.704	0.000	0.480			
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.864	0.480	0.000			
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.088	0.640	0.000			
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.576	0.736	0.128			
5	0.432	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.832	0.416	0.480			
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.704	0.704	0.480			
7	0.416	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.736	0	0.160			
8	0.272	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.672	0	0.384			
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128	0	0.672			
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.704	0	0.640			
11	0.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.352			
12	0.320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.512			
13	0.288	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.448			
14	0.224	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.448			
15	0.256	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.480			
16	0.256	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.352			
17	0.272	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.352			
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.576			
19	0.368	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.008	0.000	0	0.512			
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.000	0	0.448			
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.000	0	0.512			
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.704	0.000	0	0.416			
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.768	0.000	0	0.480			
24	0.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.448	0.000	0	0.384			
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.608	0.480	0	0.544			
26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.640	0.000	0	0.416			
27	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.672	0.000	0	0.544			
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.736	0.000	0	0.512			
29	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.800	0.000	0	0.448			
30	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.768	0.672	0	0.384			
31	0.000		0.000	0.000		0.000		0.000		0.000	0				
TOTAL	3.952	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.752	8.160	16.480	12.544	0.000	0.000	0.000
MEAN	0.127	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.292	0.263	0.532	0.418	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.432	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.008	1.088	0.960	0.672	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AC-FT	12.123	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.847	25.031	50.552	38.479	0.000	0.000	0.000

TOTAL AC-FT OCT THRU SEP:	153.031	TOTAL AC-FT JAN THRU DEC:	140.908

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 18
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.200	0.024	0.000	0.164	0.160	0.252	0.004	0.000	0.416	0	0.000	0.116			
2	0.236	0.000	0.000	0.140	0.112	0.204	0.000	0.000	0.384	0	0.000	0			
3	0.084	0.000	0.000	0.184	0.076	0.056	0.032	0.000	0.344	0	0.000	0			
4	0.088	0.000	0.000	0.196	0.004	0.000	0.072	0.000	0.388	0	0.000	0			
5	0.192	0.032	0.000	0.148	0.000	0.000	0.320	0.000	0.404	0	0.000	0			
6	0.008	0.000	0.000	0.056	0.000	0.000	0.276	0.000	0.376	0	0.296	0			
7	0.000	0.000	0.000	0.072	0.000	0.092	0.160	0.016	0.340	0	0.296	0			
8	0.000	0.024	0.000	0.000	0.000	0.188	0.108	0.000	0.324	0	0.216	0			
9	0.152	0.040	0.000	0.000	0.000	0.240	0.004	0.000	0.284	0	0.272	0			
10	0.108	0.036	0.000	0.040	0.000	0.080	0.000	0.000	0.284	0	0.280	0			
11	0.204	0.000	0.000	0.036	0.000	0.080	0.260	0.000	0.336	0	0.208	0			
12	0.140	0.000	0.000	0.028	0.000	0.096	0.216	0.000	0.312	0	0.104	0			
13	0.156	0.000	0.000	0.000	0.000	0.100	0.244	0.000	0.328	0	0.232	0			
14	0.156	0.000	0.000	0.000	0.000	0.000	0.060	0.000	0.308	0	0.232	0			
15	0.232	0.000	0.000	0.016	0.000	0.128	0.228	0.000	0.236	0	0.224	0			
16	0.124	0.000	0.000	0.020	0.256	0.196	0.168	0.000	0.312	0	0.080	0			
17	0.100	0.000	0.000	0.000	0.164	0.048	0.032	0.000	0.340	0.040	0.184	0.072			
18	0.072	0.000	0.000	0.128	0.132	0.000	0.212	0.000	0.364	0.160	0.040	0.112			
19	0.020	0.000	0.000	0.124	0.100	0.124	0.196	0.000	0.352	0.096	0.032	0.056			
20	0.064	0.000	0.000	0.076	0.228	0.000	0.076	0.032	0.260	0.248	0.048	0.032			
21	0.040	0.000	0.000	0.024	0.280	0.140	0.060	0.000	0.328	0.008	0.048	0.056			
22	0.092	0.000	0.000	0.040	0.276	0.152	0.176	0.000	0.356	0.136	0.040	0.104			
23	0.004	0.000	0.132	0.060	0.324	0.120	0.044	0.296	0.312	0.080	0.040	0.080			
24	0.008	0.000	0.056	0.048	0.140	0.044	0.000	0.284	0.220	0.008	0.096	0.024			
25	0.028	0.000	0.024	0.168	0.252	0.004	0.000	0.388	0.280	0.000	0.080	0.152			
26	0.000	0.000	0.000	0.168	0.168	0.056	0.000	0.380	0.292	0.000	0.040	0.072			
27	0.000	0.000	0.164	0.184	0.000	0.000	0.000	0.380	0.288	0.000	0.144	0.064			
28	0.072	0.000	0.284	0.040	0.000	0.188	0.000	0.412	0.312	0.000	0.272	0.048			
29	0.000	0.020	0.224	0.000		0.160	0.000	0.340	0.260	0.000	0.240	0.096			
30	0.084	0.092	0.088	0.016		0.176	0.000	0.472	0.304	0.000	0.240	0.048			
31	0.000		0.084	0.048		0.036		0.428		0.000	0.200				
TOTAL	2.664	0.268	1.056	2.224	2.672	2.960	2.948	3.428	9.644	5.352	4.184	2.160	0.000	0.000	0.000
MEAN	0.086	0.009	0.034	0.072	0.095	0.095	0.098	0.111	0.321	0.173	0.135	0.072	#DIV/0!	0.000	0.000
MAX	0.236	0.092	0.284	0.196	0.324	0.252	0.320	0.472	0.416	0.332	0.296	0.152	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220	0.000	0.000	0.024	0.000	0.000	0.000
AC-FT	8.172	0.822	3.239	6.822	8.196	9.080	9.043	10.515	29.583	16.417	12.834	6.626	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			121.350	TOTAL AC-FT JAN THRU DEC:			109.117							0	0
															0

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL NO. 20
(FLOW IN MILLION GALLONS)

	2002			2003											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.112	0.112	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224			
2	0.000	0.192	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032			
3	0.000	0.240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048			
4	0.000	0.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
6	0.864	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
7	0.896	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
8	0.848	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
9	0.768	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
10	0.240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
11	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
12	0.256	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
13	0.288	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.384			
14	0.240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.352			
15	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.558	0.384			
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.498	0.368			
17	0.576	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.528	0.384			
18	0.608	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.816	0.544			
19	0.704	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.720	0.464			
20	0.640	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.896	0.416			
21	0.432	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.576	0.368			
22	0.416	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.464			
23	0.560	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.448			
24	0.672	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.432			
25	0.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.176			
26	0.416	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.464			
27	0.384	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.528			
28	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.464			
29	0.176	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.448			
30	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.[illegible]	0.048			
31	0.000		0.000	0.000		0.000		0.000		0.000	0.[illegible]				
TOTAL	10.528	0.688	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.984	7.440	0.000	0.000	0.000
MEAN	0.340	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.322	0.248	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.896	0.240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.896	0.544	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AC-FT	32.294	2.110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.626	22.822	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP			87.853	**TOTAL AC-FT JAN THRU DEC**			53.448								

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 2002 - SEPTEMBER 2003

WELL NO. 1					**WELL NO. 6**			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/10/02	-216.00	03/26/03	-231.10		10/10/2002	-65.19	6/4/2003	-165.45
10/17/02	-213.18	06/04/03	-229.95		10/17/2002	-66.86	6/11/2003	-170.50
10/24/02	-212.83	06/11/03	-258.50		10/24/2002	-66.88	6/19/2003	-173.50
11/27/02	-211.03	06/19/03	-264.85		12/5/2002	-63.20	6/25/2003	-177.20
12/05/02	-208.68	07/02/03	-265.40		1/24/2002	-70.47	7/2/2003	-175.80
01/24/03	-204.22	07/08/03	-277.80		2/13/2002	-71.63	7/8/2003	-180.40
02/13/02	-206.12	08/06/03	-268.50		3/11/2003	-72.70	7/15/2003	-187.25
03/26/03	-205.25	08/13/03	-261.50		5/14/2003	-60.90	7/30/2003	-176.65
04/17/03	-204.50	08/27/03	-262.30		6/4/2003	-86.85	8/6/2003	-186.55
05/14/03	-203.10	09/03/03	-262.35		6/11/2003	-87.80	8/13/2003	-192.30
06/04/03	-203.15	09/10/03	-268.70		9/10/2003	-118.40	8/27/2003	-185.70
06/11/03	-230.80	09/17/03	-259.85				9/3/2003	-189.70
06/25/03	-246.55	09/24/03	-260.70				9/17/2003	-198.65
07/30/03	-225.40						9/24/2003	-195.90
Mean	-213.63		-259.35			-75.53		-182.54
Max	-246.55		-277.80			-118.40		-198.65
Min	-203.10		-229.95			-60.90		-165.45
Historical								
Mean	-195.39		-251.48			-46.05		-152.87
Max	-268.10		-295.00			-160.00		-200.00
Min	-149.75		-191.33			0.00		-77.43

prodwell

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 2002 - SEPTEMBER 2003

WELL NO. 10					**WELL NO. 15**			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
12/05/02	-92.47	10/10/02	-146.28		10/10/02	-258.27	10/17/02	-274.38
03/26/03	-104.85	10/17/02	-146.67		11/27/02	-254.45	10/24/02	-272.17
05/14/03	-91.65	10/24/02	-147.37		12/05/02	-253.59	06/24/03	-276.20
06/04/03	-102.70	11/27/02	-142.81		01/24/03	-252.27	06/11/03	-285.10
06/11/03	-106.05	02/13/02	-142.23		02/13/03	-254.71	06/19/03	-289.10
09/17/03	-117.20	03/11/03	-140.40		03/11/03	-260.80	06/25/03	-297.10
09/24/03	-115.10	06/04/03	-147.95		03/26/03	-263.15	07/02/03	-296.40
		06/11/03	-147.40		04/17/03	-264.90	07/08/03	-299.75
		06/19/03	-150.80		05/14/03	-259.55	07/15/03	-303.50
		06/25/03	-153.20		06/04/03	-268.35	07/30/03	-308.10
		07/02/03	-155.90		06/11/03	-272.00	08/06/03	-310.40
		07/08/03	-159.30				08/13/03	-313.40
		07/15/03	-160.80				08/27/03	-317.90
		07/30/03	-162.10				09/10/03	-321.10
		08/06/03	-167.10				09/17/03	-322.30
		08/13/03	-135.00				09/24/03	-322.80
		08/27/03	-169.60					
		09/10/03	-172.75					
Mean	-104.29		-152.65			-260.19		-300.61
Max	-117.20		-172.75			-272.00		-322.80
Min	-91.65		-135.00			-252.27		-272.17
Historical								
Mean	-55.81		-126.35			-219.47		-259.90
Max	-164.00		-200.00			-275.07		-322.80
Min	-8.13		-40.92			-168.15		-183.42

prodwell

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 2002 - SEPTEMBER 2003

WELL NO. 16					**WELL NO. 17**			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/10/02	-480.52	03/26/03	-489.10		10/10/02	-378.84	10/24/02	-383.63
10/17/02	-482.02	06/04/03	-495.60		10/17/02	-378.96	07/02/03	-386.40
10/24/02	-478.41	06/11/03	-498.65		12/05/02	-377.84	08/06/03	-386.80
11/27/02	-476.91				02/13/03	-378.28	09/10/03	-386.70
12/05/02	-476.03				03/12/03	-378.60		
01/24/03	-473.82				06/04/03	-409.90		
02/13/03	-472.68				06/11/03	-377.70		
03/12/03	-480.80				06/19/03	-378.70		
03/26/03	-483.20				06/25/03	-376.50		
04/17/03	-485.90				07/08/03	-381.20		
05/14/03	-478.05				07/30/03	-379.55		
					08/13/03	-381.80		
					08/27/03	-380.60		
					09/03/03	-380.70		
					09/17/03	-381.10		
					09/24/03	-381.40		
Mean	-478.94		-494.45			-381.35		-385.88
Max	-485.90		-498.65			-409.90		-386.80
Min	-485.90		-498.65			-409.90		-386.80
Historical								
Mean	-468.26		-484.84			-374.66		-376.91
Max	-489.68		-498.65			-409.90		-386.80
Min	-413.65		-471.47			-364.06		-369.52

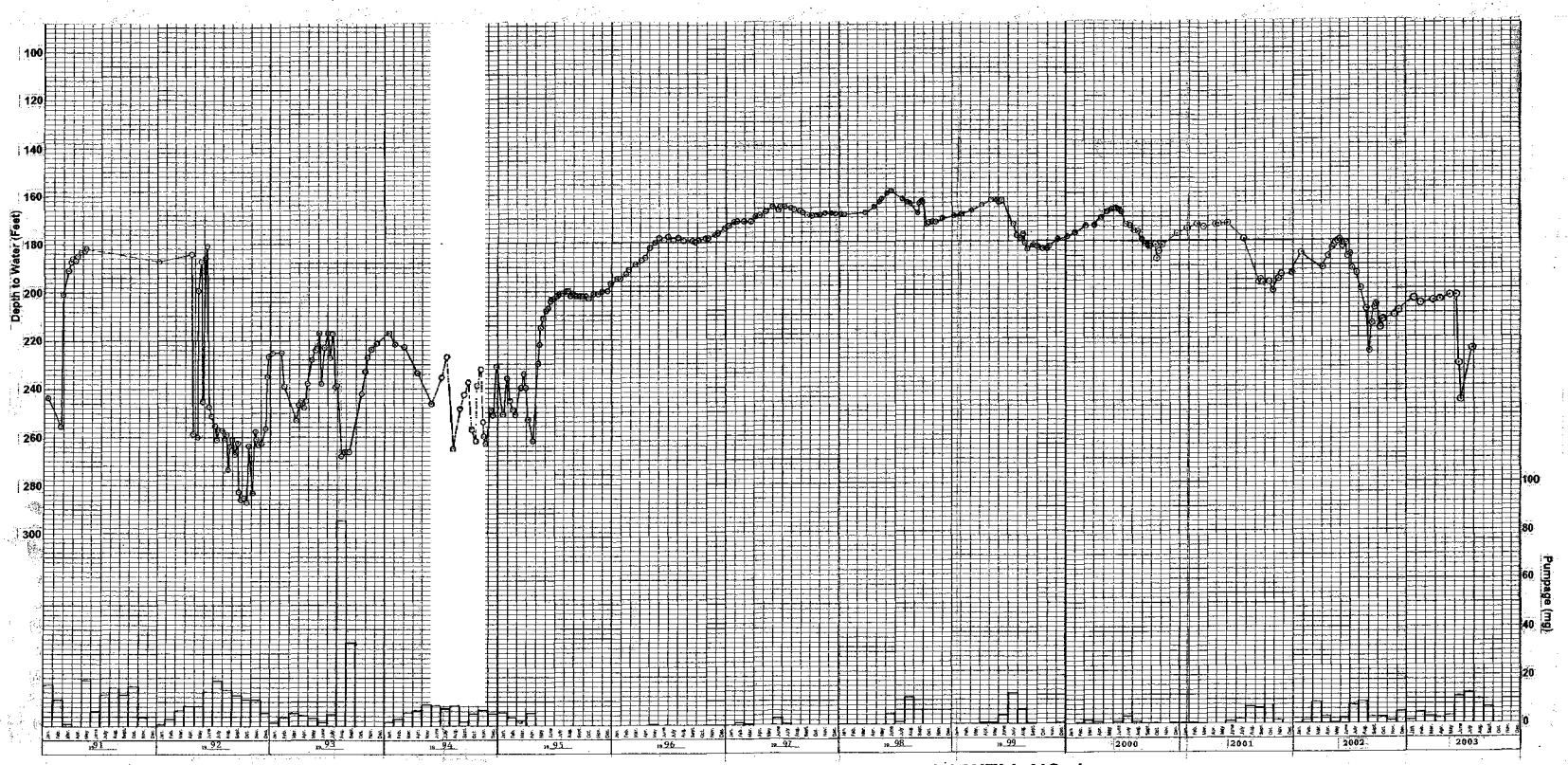
prodwell

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 2002 - SEPTEMBER 2003

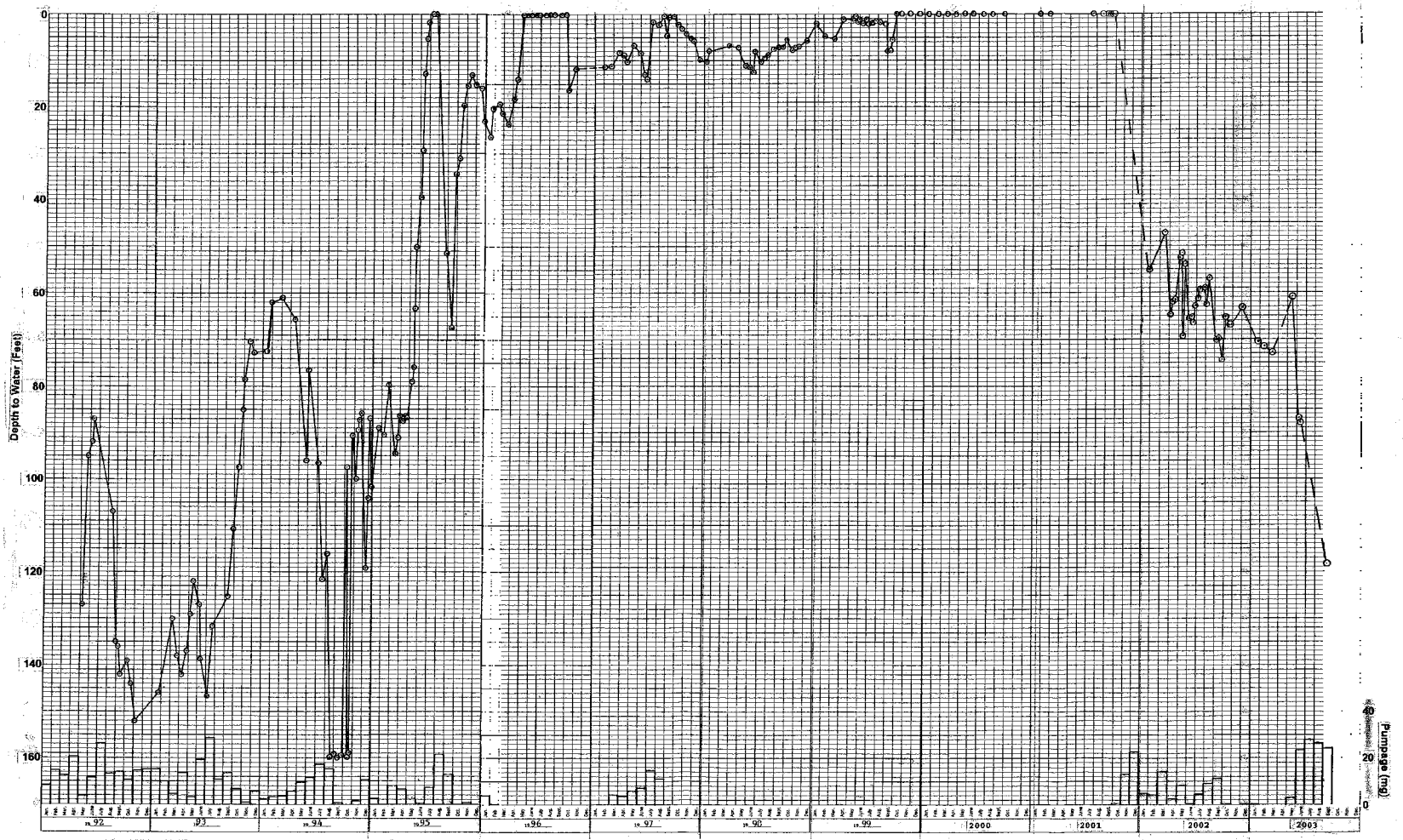
WELL NO. 18					**WELL NO. 20**			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/10/02	-114.90	10/17/02	-269.77		10/17/02	-423.39	10/10/02	-481.98
10/24/02	-111.22	03/26/03	-196.30		12/05/02	-416.88	10/24/02	-482.17
11/27/02	-98.95	06/04/03	-277.70		03/12/03	-470.95	08/27/03	-530.30
12/05/02	-98.92	06/11/03	-318.20		06/04/03	-376.10		
01/24/03	-100.77	06/19/03	-328.40		06/11/03	-410.00		
02/13/03	-96.41	06/25/03	-328.70					
03/11/03	-105.20	07/02/03	-334.40					
03/26/03	-104.55	07/08/03	-334.20					
04/17/03	-106.45	07/15/03	-339.20					
05/14/03	-97.55	08/06/03	-299.75					
06/04/03	-114.20	08/13/03	-324.10					
06/11/03	-115.90	09/17/03	-328.90					
07/30/03	-110.75							
08/27/03	-113.30							
09/10/03	-112.85							
09/24/03	-111.40							
Mean	-107.08		-306.64			-419.46		-498.15
Max	-115.90		-339.20			-470.95		-530.30
Min	-96.41		-196.30			-376.10		-481.98
Historical								
Mean	-67.11		-229.64			-411.87		-462.60
Max	-117.88		-339.20			-470.95		-530.30
Min	-40.00		-81.91			-376.10		-417.80

APPENDIX B

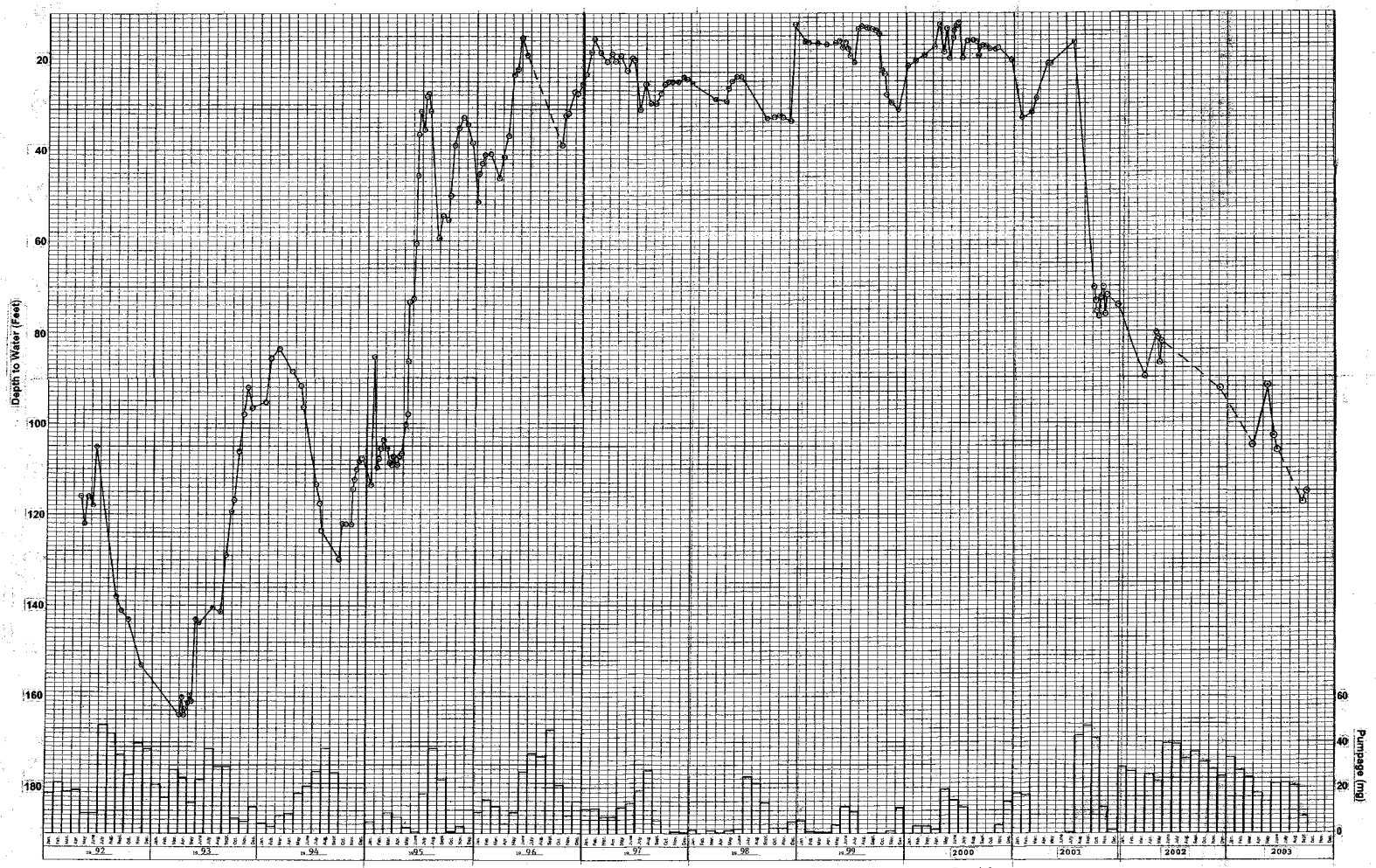
PUMPAGE AND WATER-LEVEL HYDROGRAPHS FOR EARLIER SUPPLY WELLS



WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 1



WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 6



WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 10

APPENDIX C

WATER-LEVEL MEASUREMENTS FOR MONITOR WELLS

MAMMOTH COMMUNITY WATER DISTRICT
MONITOR WELL LEVEL DATA

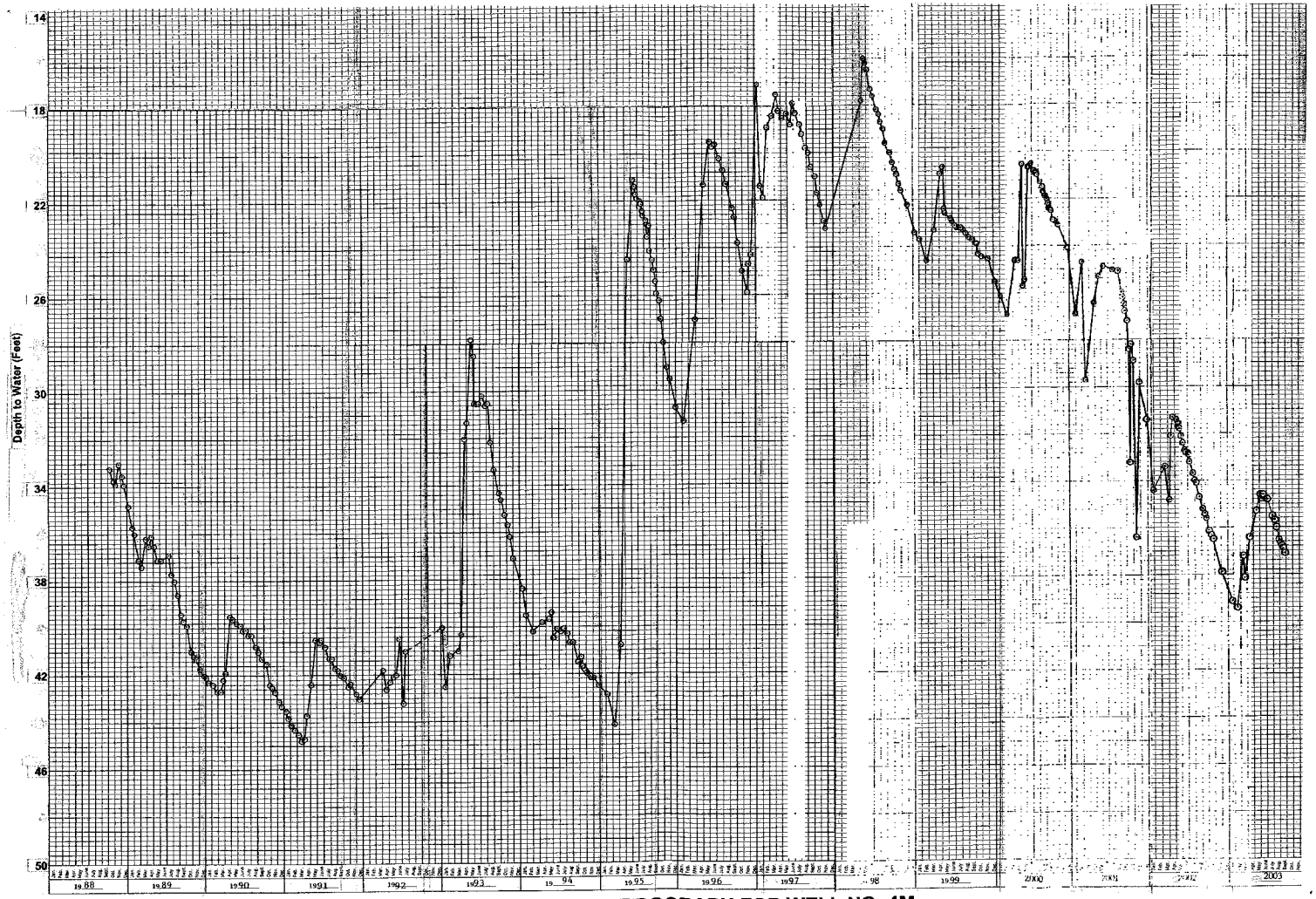
Date	Well 4M	Well 5A	Well 5M	Well 7	Well 10M	Well 11	Well 11M	Well 12M	Well 14M	Well 19	Well 21	Well 22	Well 23	Well 24
/02									342.13	347.63	232.93			370.09
/02	36.10	7.13	9.05	264.94	dry	art	26.25	dry				80.67	14.98	
/02	36.31	7.47	9.07	264.71	dry	art	27.06	dry				81.02	14.31	
/02	36.52	7.48	8.97	264.52	dry	art	27.85	dry				81.36	14.64	
/02									342.04	347.35	232.62			371.18
/02									343.25	347.19	233.12			371.81
/02	37.86	6.46	7.72	263.17	dry	art	29.63	dry				83.08	15.05	
/03									344.82	347.48	233.24			371.96
/03	39.14	6.45	7.7									83.99	14.92	
/03									345.46	347.44	232.48			373.81
/02	39.40	6.42	7.43									84.22	15.11	
/03									346.51	347.7	232.36			373.68
/03	37.20	6.05	7.3										15.1	
/03	38.05												13.6	
/03									347.5	347.1	233.37			374.3
04/17/03	36.40												13.3	
05/07/03									351.55	347.04	232.54			376.22
05/14/03	35.25												13.55	
05/29/03		4.7	6.41		dry	art	16.73	dry				80.30		
06/04/03	34.58	4.75	6.85	276.5	dry	Artesian 3"	13.70	dry	348.71	347.01		80.30	10.16	375.91
06/11/03	34.80	4.95	7.30	276.8	dry	Artesian 3"	11.55	dry				80.35	10.85	
06/19/03	34.60	5.40	7.65	275.9	dry	Artesian 5"	12.20	21.30				80.35	11.82	
06/25/03	34.75	5.50	7.85	275.5	dry	Artesian 2"	12.00	20.85				80.37	12.56	
07/02/03	34.75	5.81	8.05	283.0	dry	Artesian 2"	11.90	21.25				80.35	13.20	
07/03/03									348.02	346.78	231.69			375.44
07/08/03	34.75	6.10	8.25	291.0	dry	Artesian 2"	11.60	21.95				80.35	13.60	
07/15/03		6.42	8.47									80.35	13.17	
07/30/03	35.45	6.30	8.4	282.4	dry	Artesian 1.5"	15.05	dry				80.35	12.15	
07/31/03									348.84	346.86	232.48			376.62
08/06/03	35.70			282.1								80.34	13.65	
08/13/03	36.00	6.70	8.65	267.9	dry	Artesian 1/2"	14.75	dry				80.35	14.10	
08/27/03	36.50	6.75	8.65	278.2	dry	Artesian 1/2"	18.40	dry				80.35	14.45	
09/03/03	36.65												13.85	
09/09/03									352.85	346.71	233.66			378.03
09/10/03	36.75	6.75	8.70		dry	Artesian 1/2"	19.10	dry				80.35	14.50	
09/17/03	36.90	6.92	8.73		dry	Artesian 1/4"	20.60	dry				80.40	15.06	
09/24/03	37.05	7.00	8.78		dry	Artesian 1/16"	21.30	dry				80.36	15.28	
10/02/03									367.46	346.71	230.42			378.49

MAMMOTH COMMUNITY WATER DISTRICT
MONITOR WELL LEVEL DATA

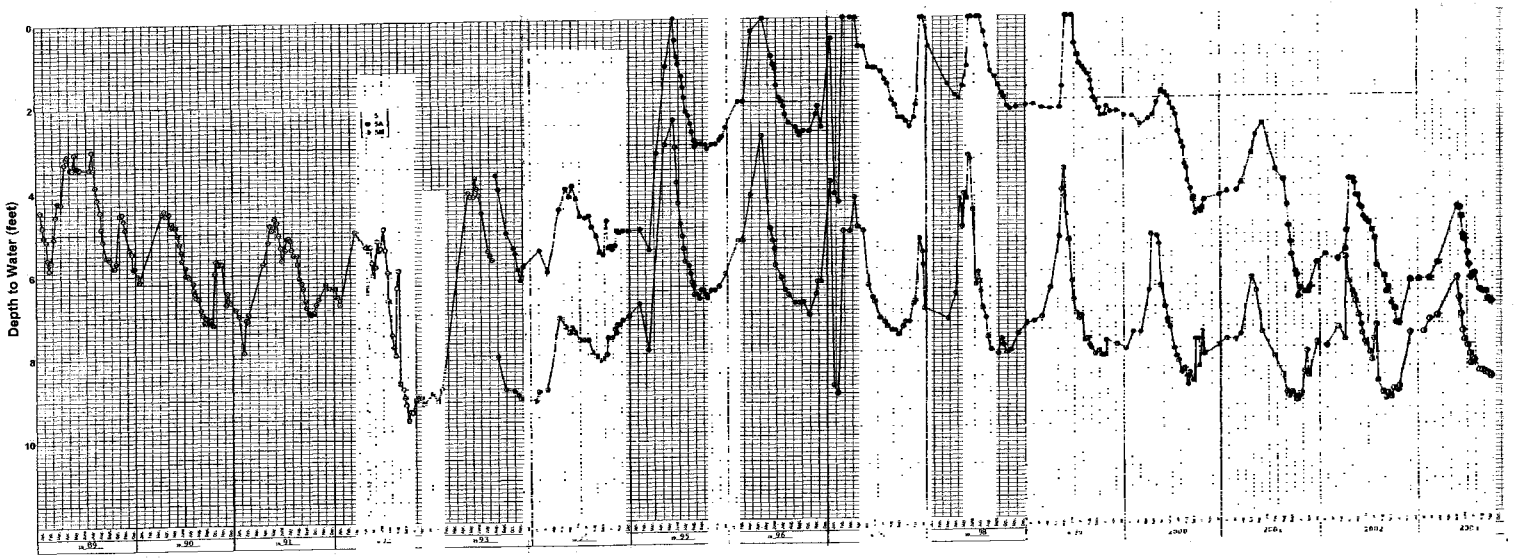
Date	Well 4M	Well 5A	Well 5M	Well 7	Well 10M	Well 11	Well 11M	Well 12M	Well 14M	Well 19	Well 21	Well 22	Well 23	Well 24
Mean	36.31	6.26	8.09	274.75	dry	#DIV/0!	18.22	21.34	348.40	347.15	232.58	80.93	13.72	374.43
Maximum	34.58	4.70	6.41	263.17	dry	0.00	11.55	20.85	342.04	346.71	230.42	80.30	10.16	370.09
Minimum	39.40	7.48	9.07	290.95	dry	0.00	29.63	21.95	367.46	347.70	233.66	84.22	15.28	378.49
Mean*	29.01	3.50	7.16	256.63	23.48	#DIV/0!	20.38	16.90	321.36	336.35	274.01	81.06	12.60	375.35
Maximum*	15.98	0.00	2.41	240.94	9.69	#DIV/0!	4.14	4.25	234.88	312.33	230.42	70.79	6.00	350.87
Minimum*	44.16	7.48	9.30	290.95	32.48	#DIV/0!	39.17	27.00	367.46	357.25	365.42	86.22	17.10	394.14
* Long term mean, maximum, and minimum														

APPENDIX D

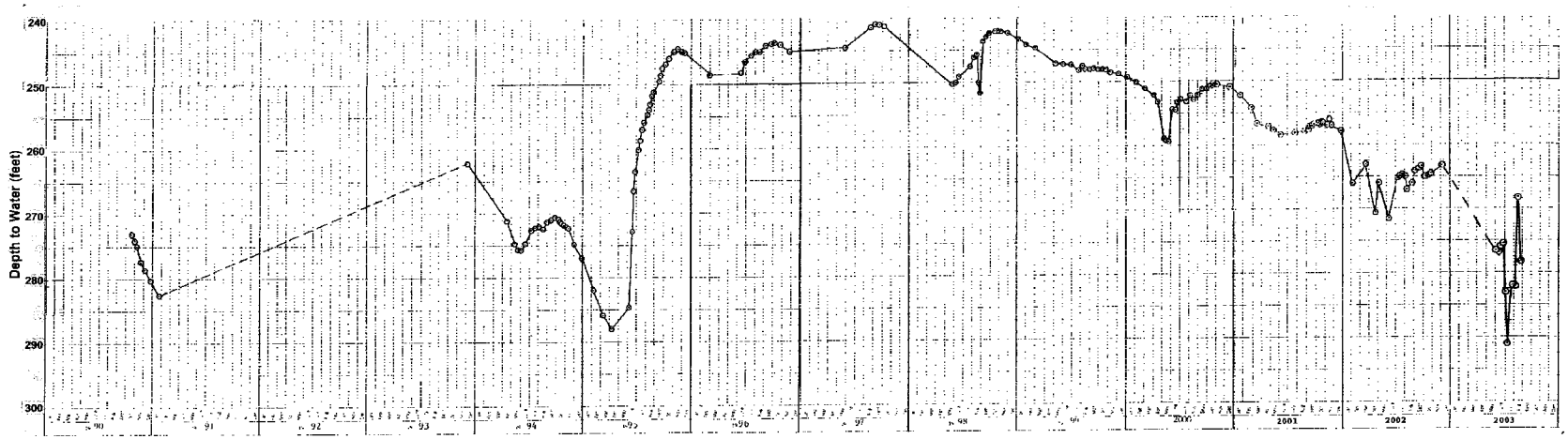
SUPPLEMENTARY WATER-LEVEL HYDROGRAPHS FOR MONITOR WELLS



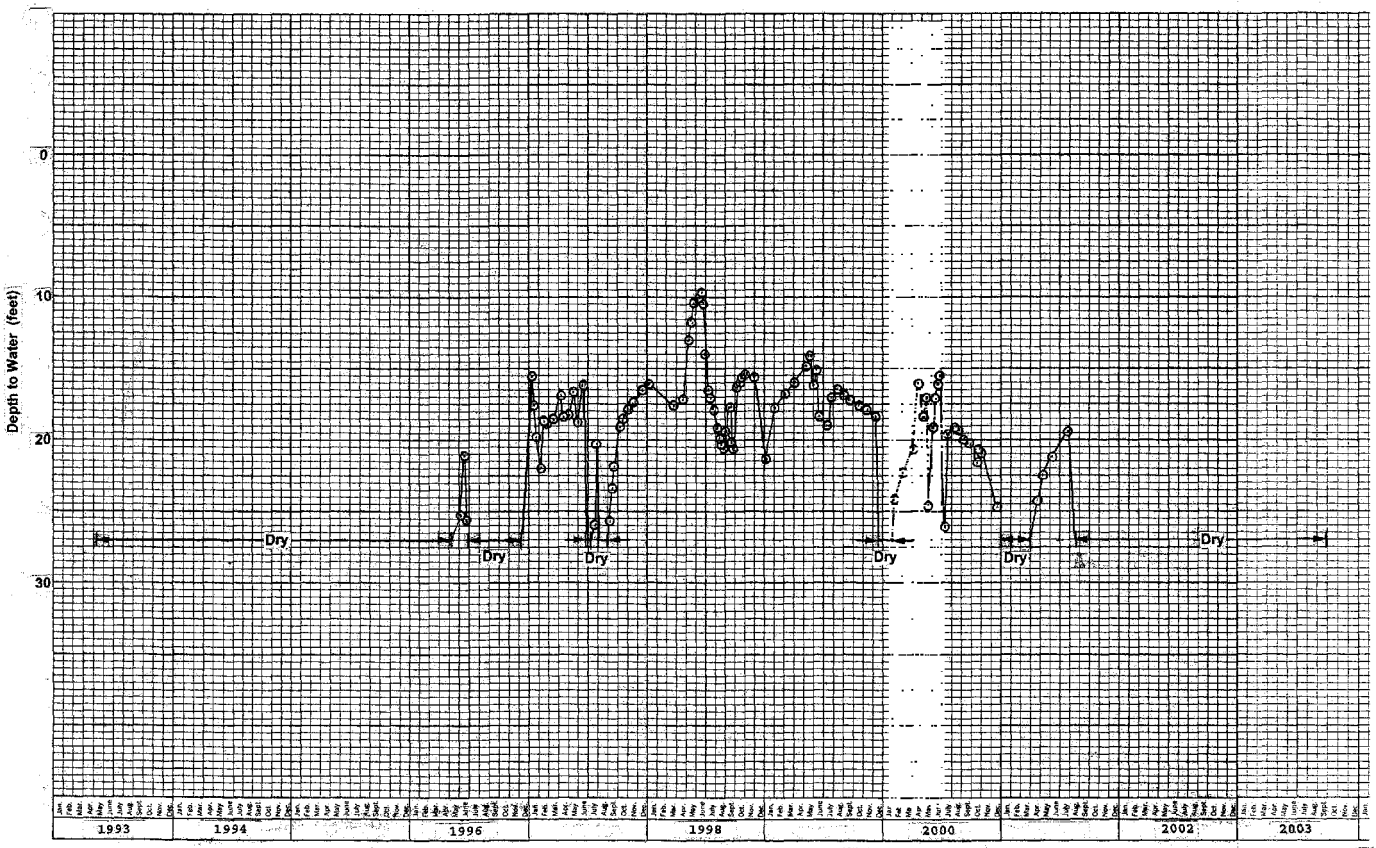
WATER-LEVEL HYDROGRAPH FOR WELL NO. 4M



WATER-LEVEL HYDROGRAPH FOR WELL NO. 5, No. 5A, AND NO. 5M



WATER-LEVEL HYDROGRAPH FOR WELL NO. 7



WATER-LEVEL HYDROGRAPH FOR WELL NO. 10M

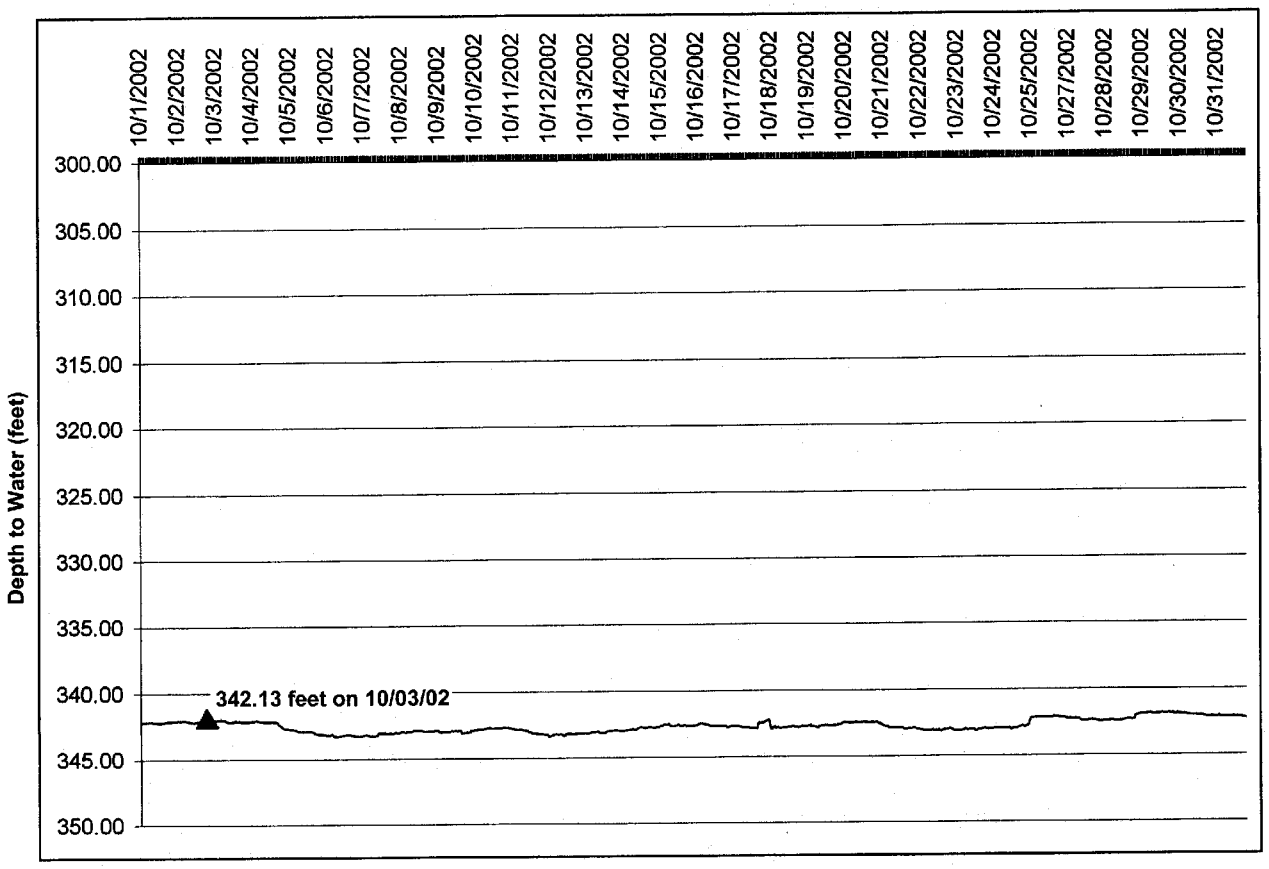
WATER-LEVEL HYDROGRAPH FOR WELL NO. 11

WATER-LEVEL HYDROGRAPH FOR WELL NO. 11M

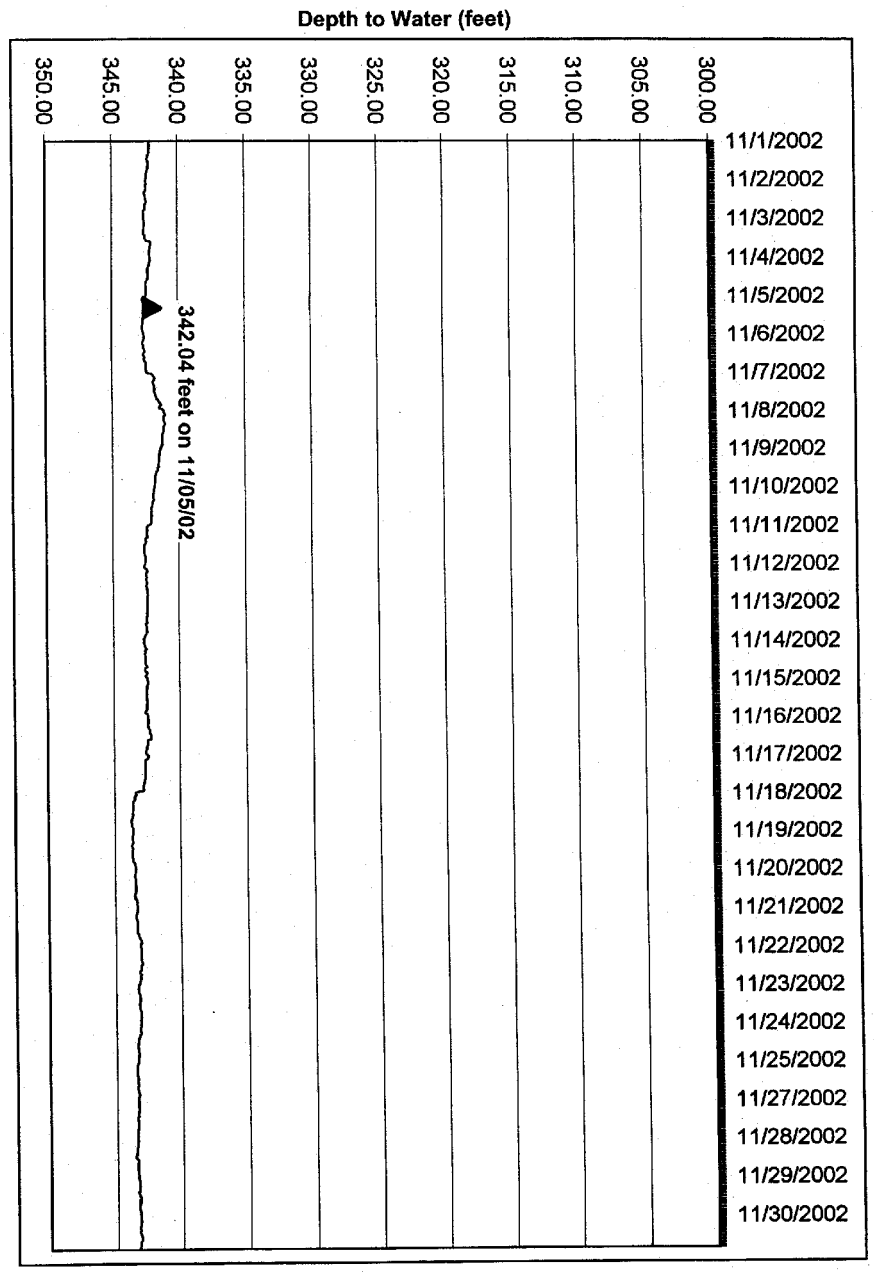
WATER-LEVEL HYDROGRAPH FOR WELL NO. 12M

Water-Level Hydrographs from Transducer Measurements for Well MW-14M

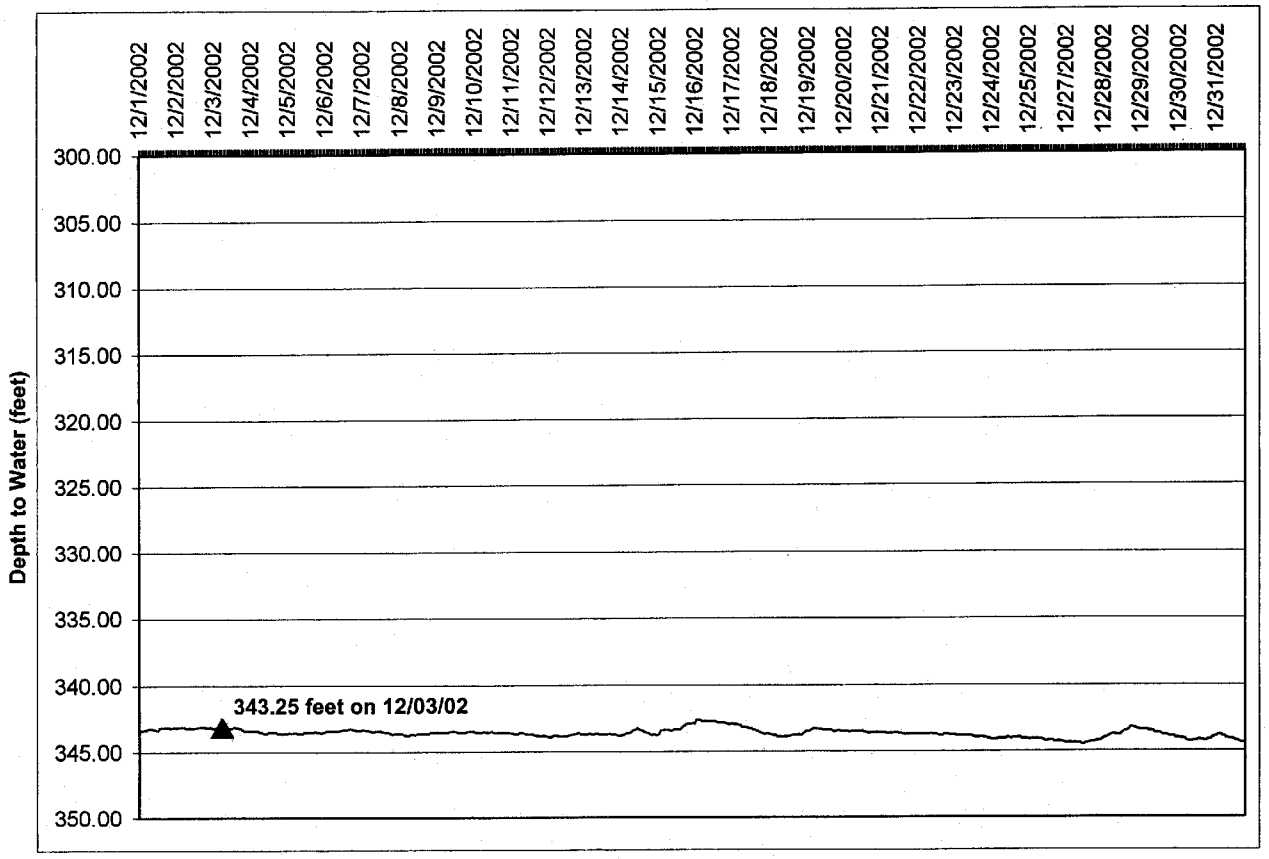
Note: Solid triangle and adjoining depth to water measurement on graphs are from an electric sounder.



WATER-LEVEL HYDROGRAPH FOR MW-14M IN OCTOBER 2002

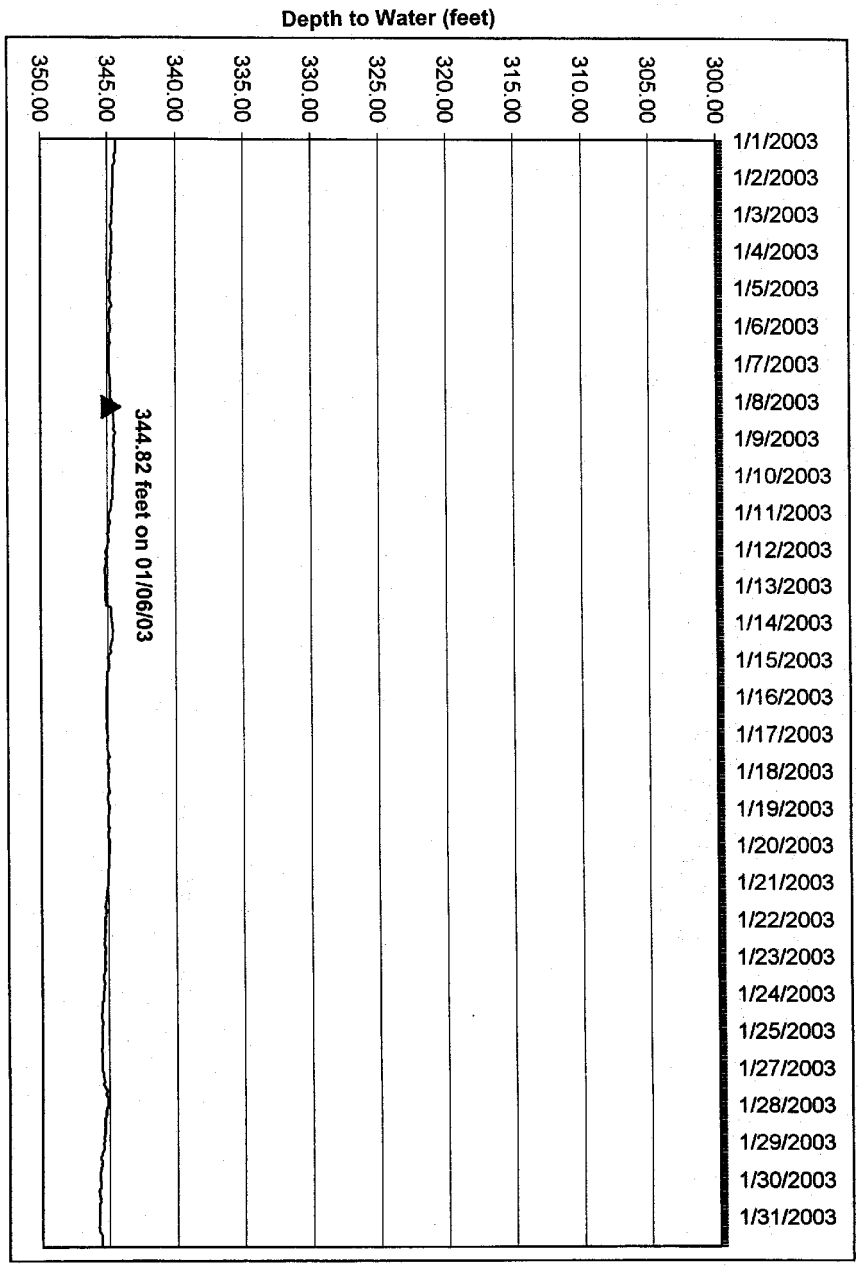


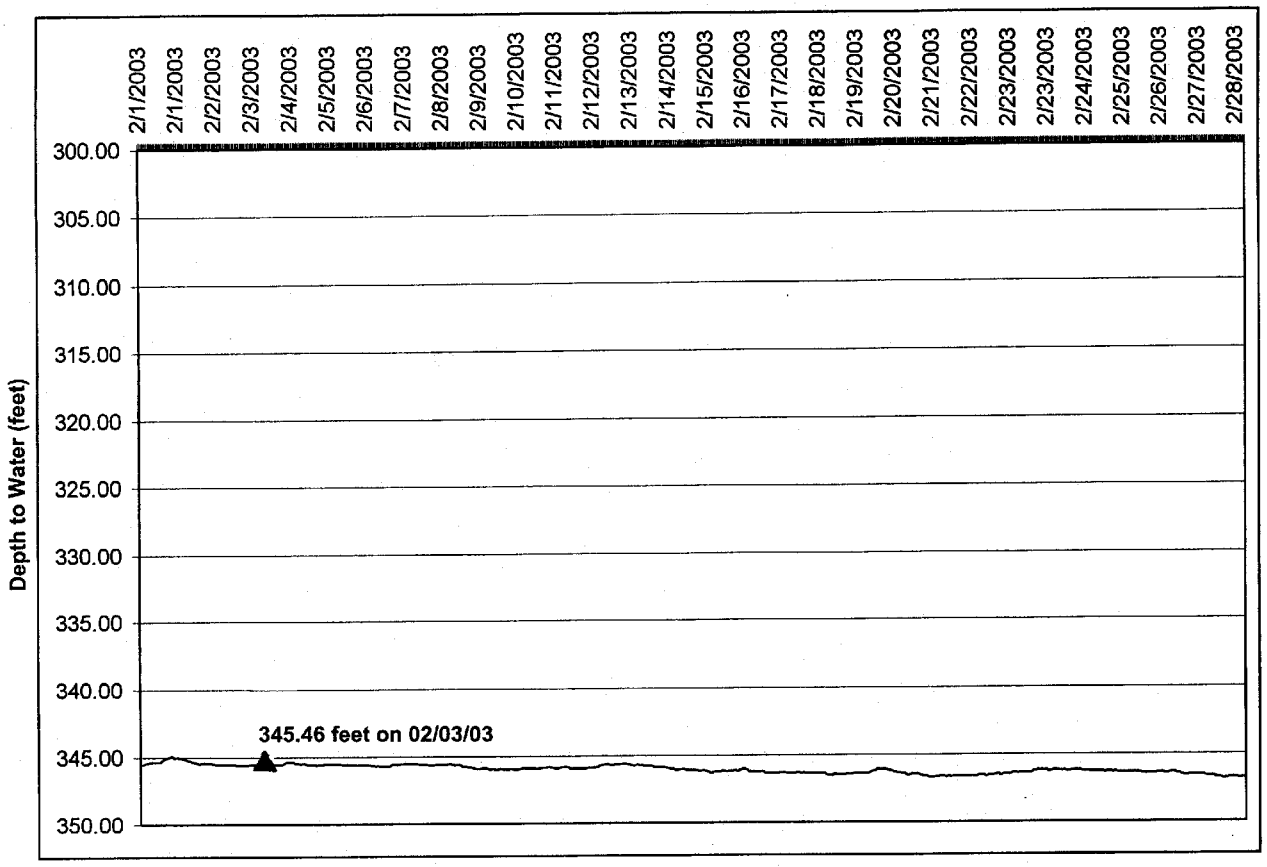
WATER-LEVEL HYDROGRAPH FOR MW-14M IN NOVEMBER 2002



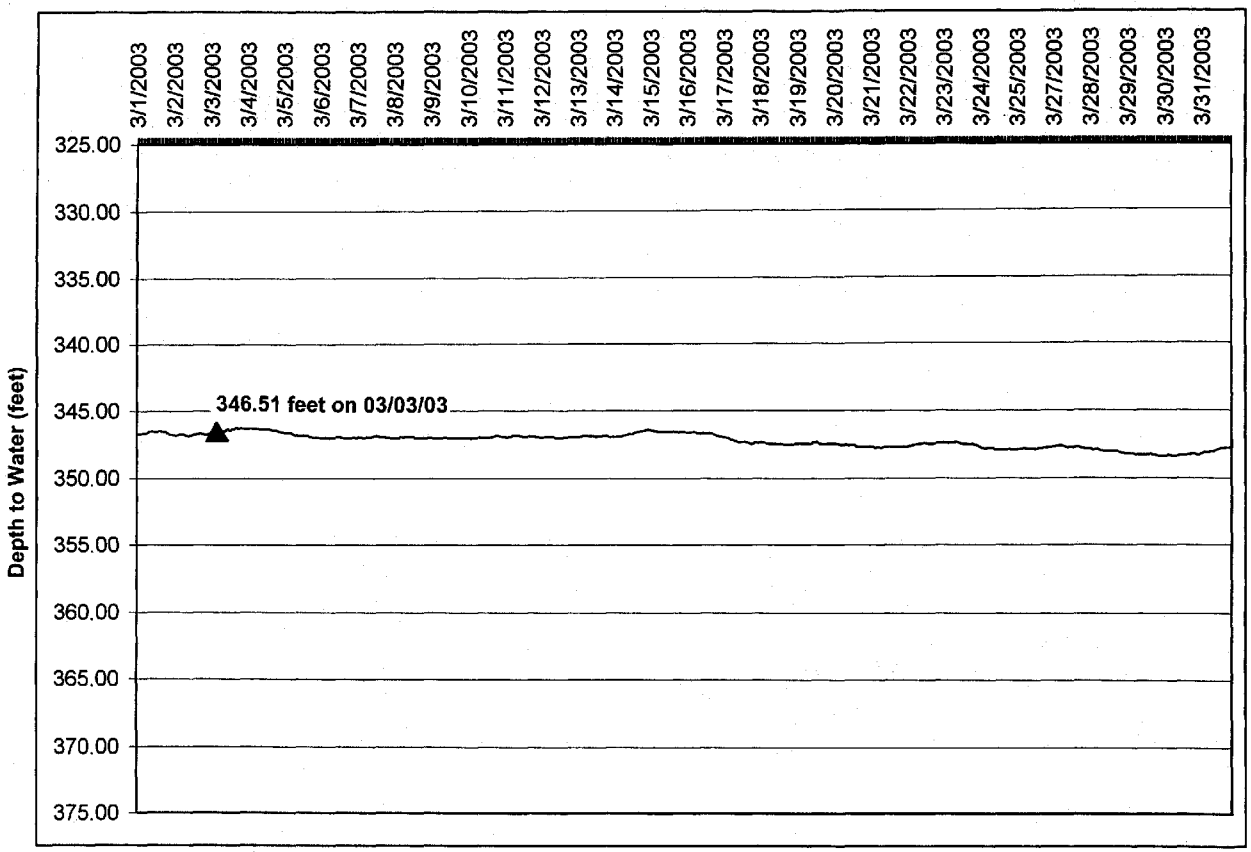
WATER-LEVEL HYDROGRAPH FOR MW-14M IN DECEMBER 2002

WATER-LEVEL HYDROGRAPH FOR MW-14M IN JANUARY 2003

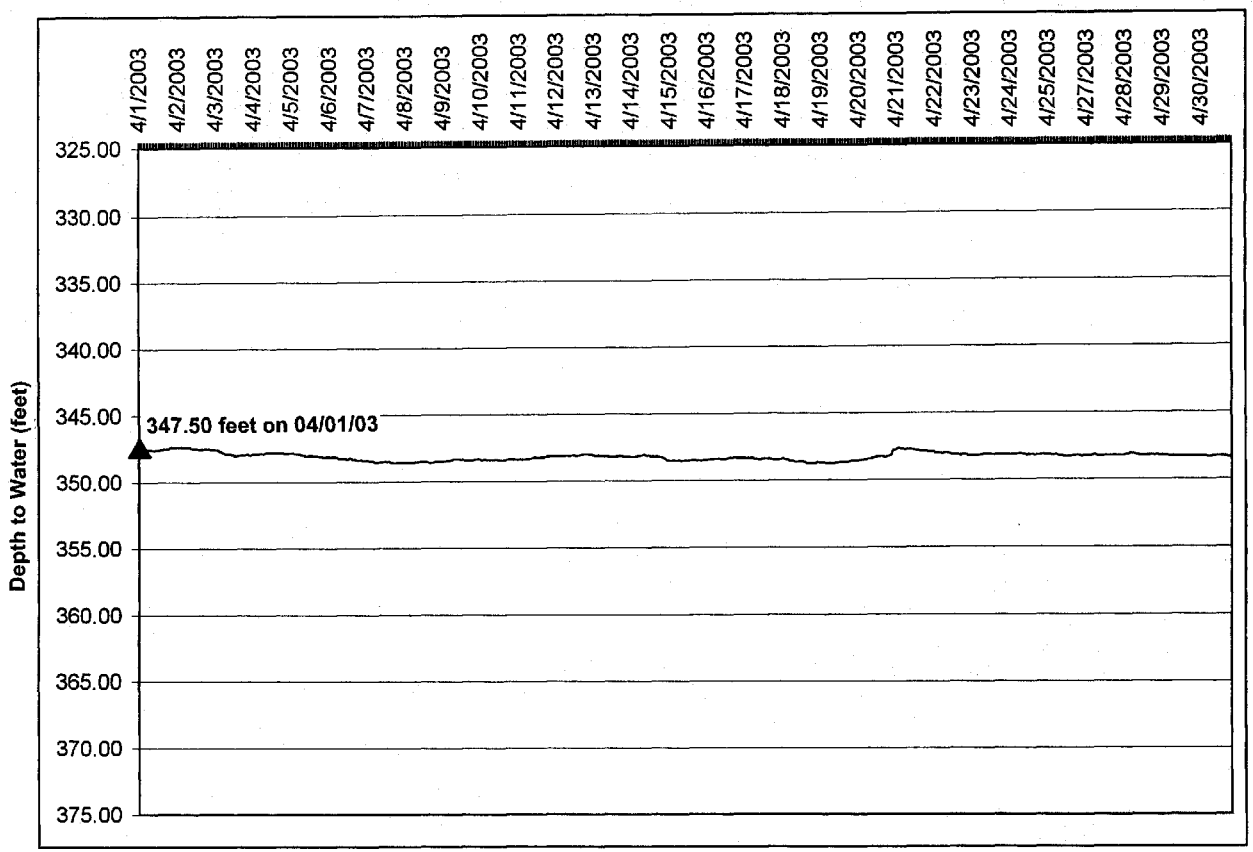




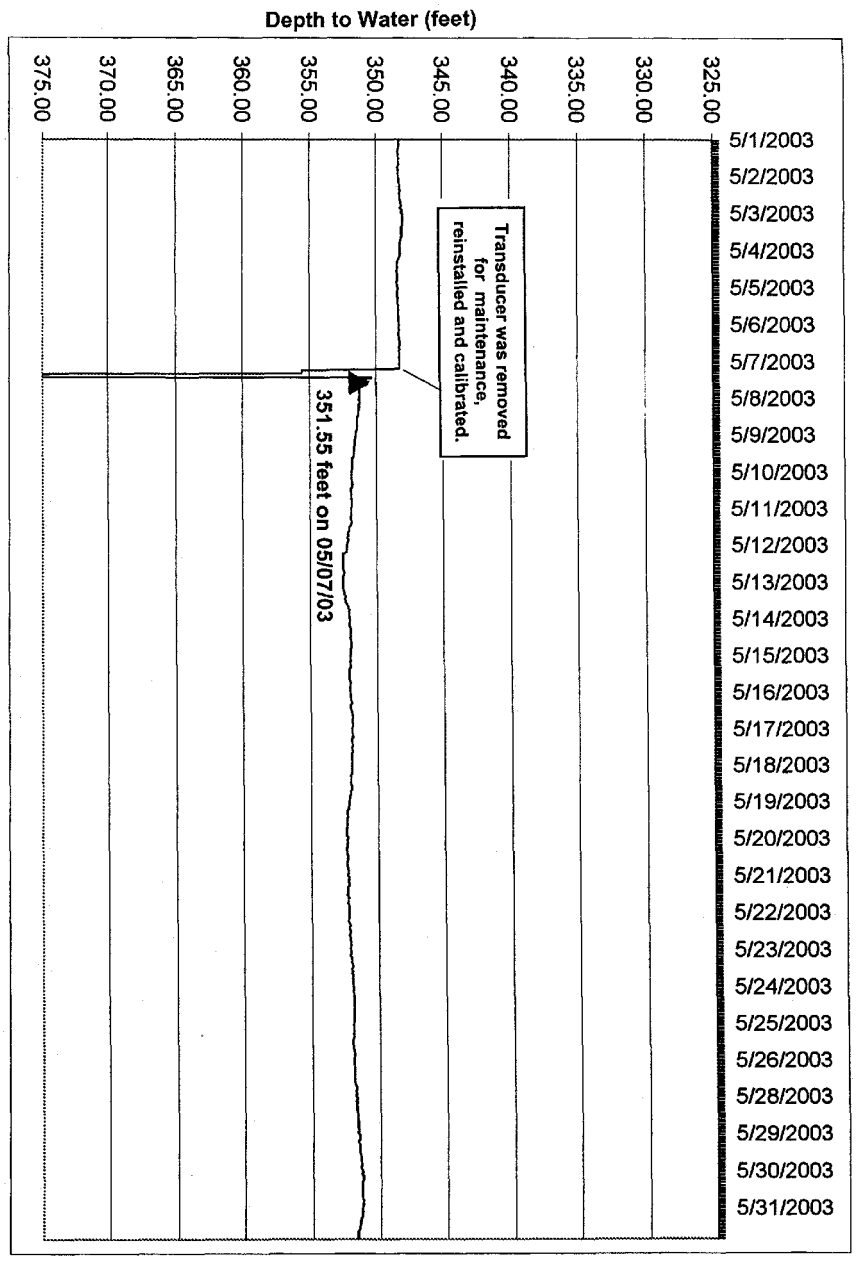
WATER-LEVEL HYDROGRAPH FOR MW-14M IN FEBRUARY 2003



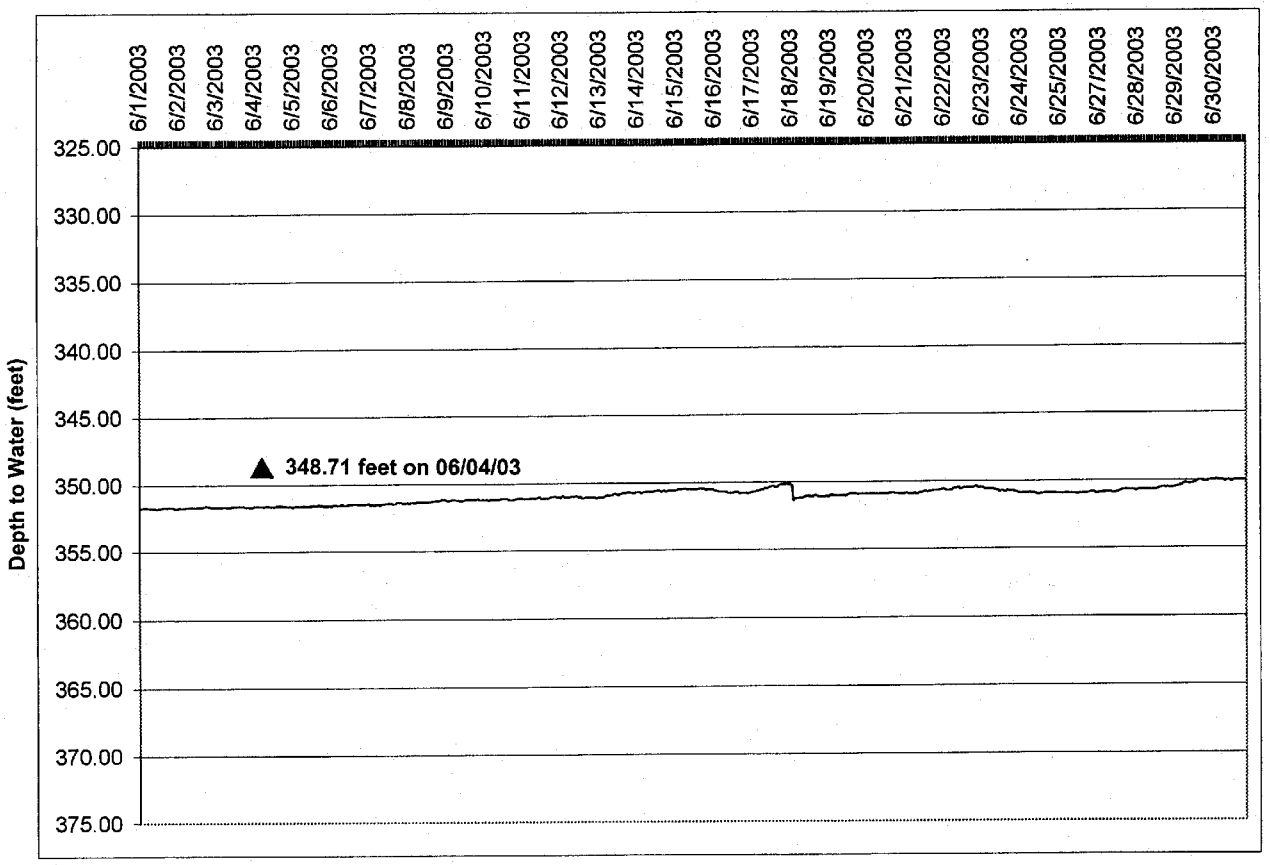
WATER-LEVEL HYDROGRAPH FOR MW-14M IN MARCH 2003



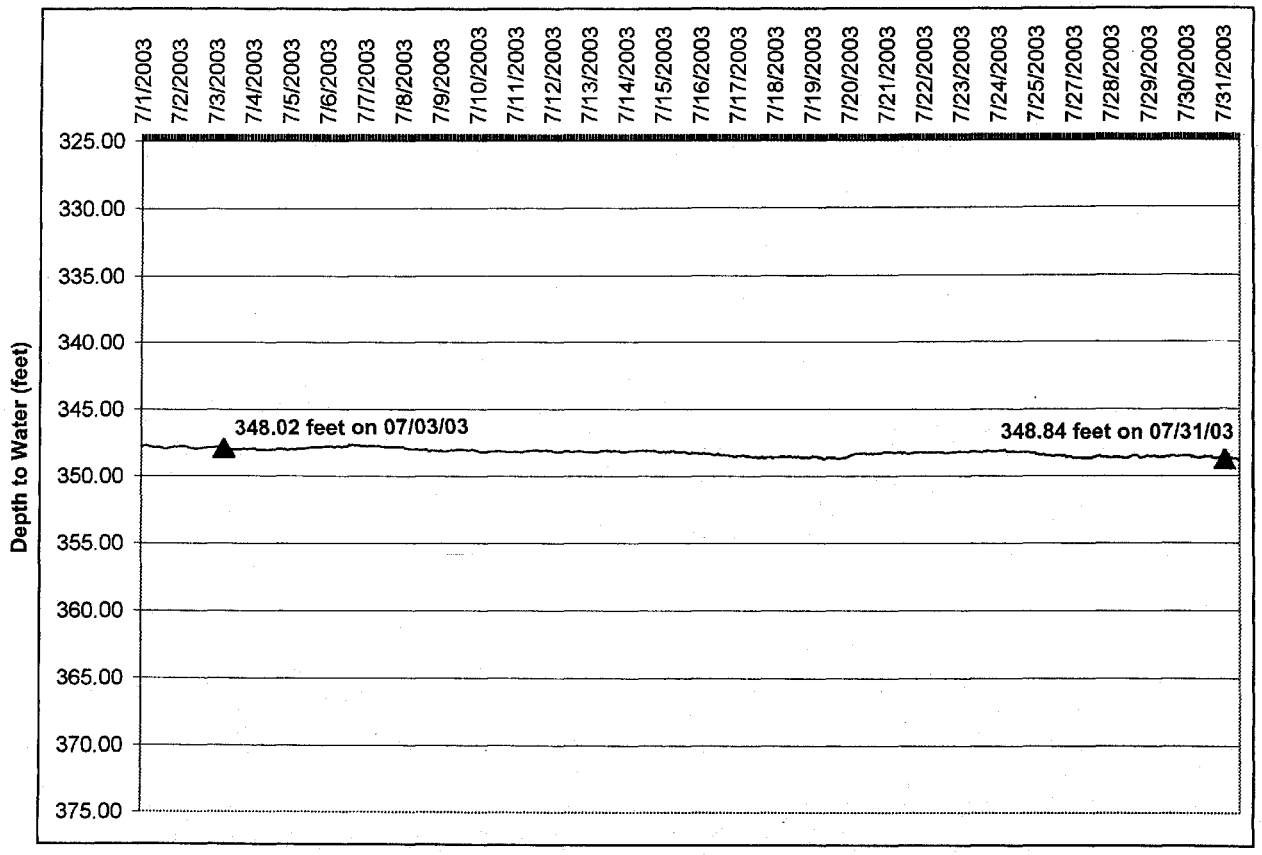
WATER-LEVEL HYDROGRAPH FOR MW-14M IN APRIL 2003



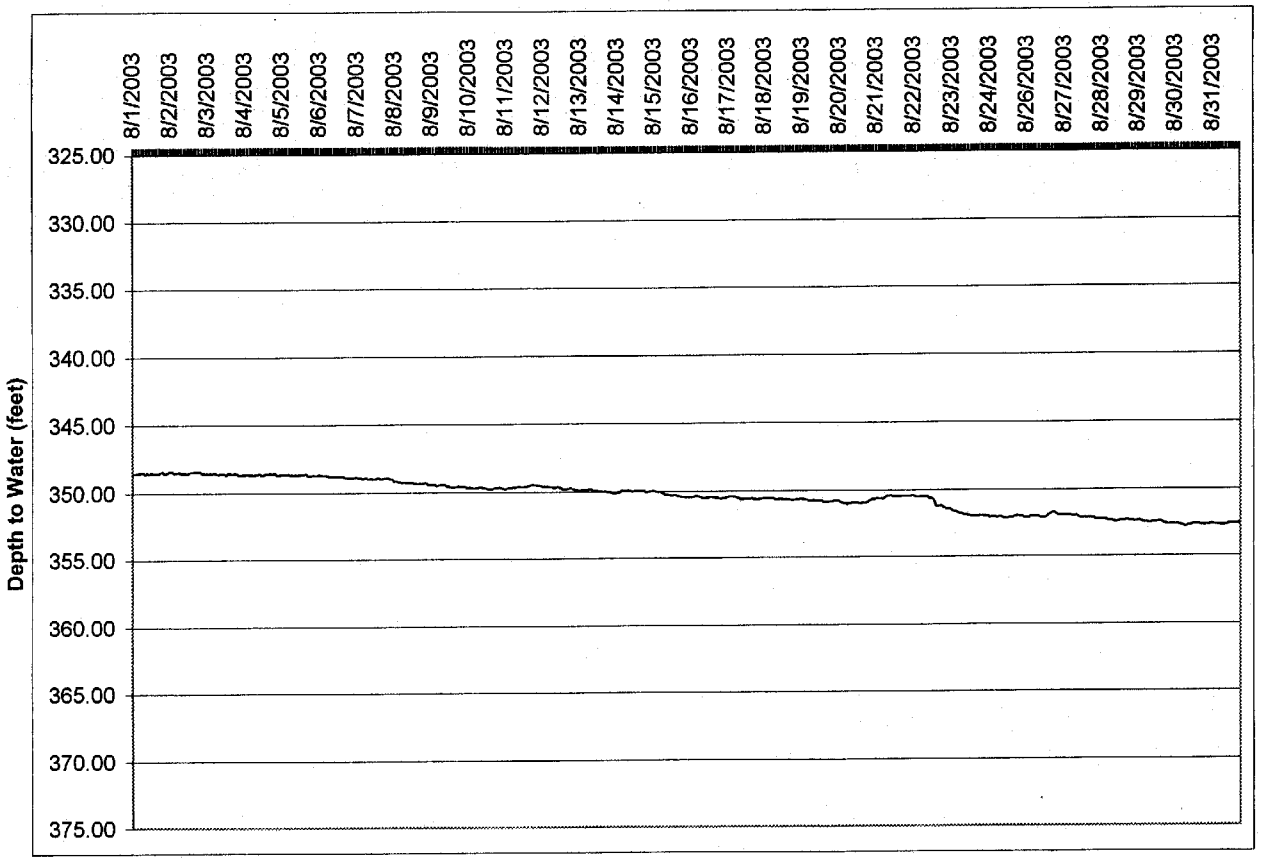
WATER-LEVEL HYDROGRAPH FOR MW-14M IN MAY 2003



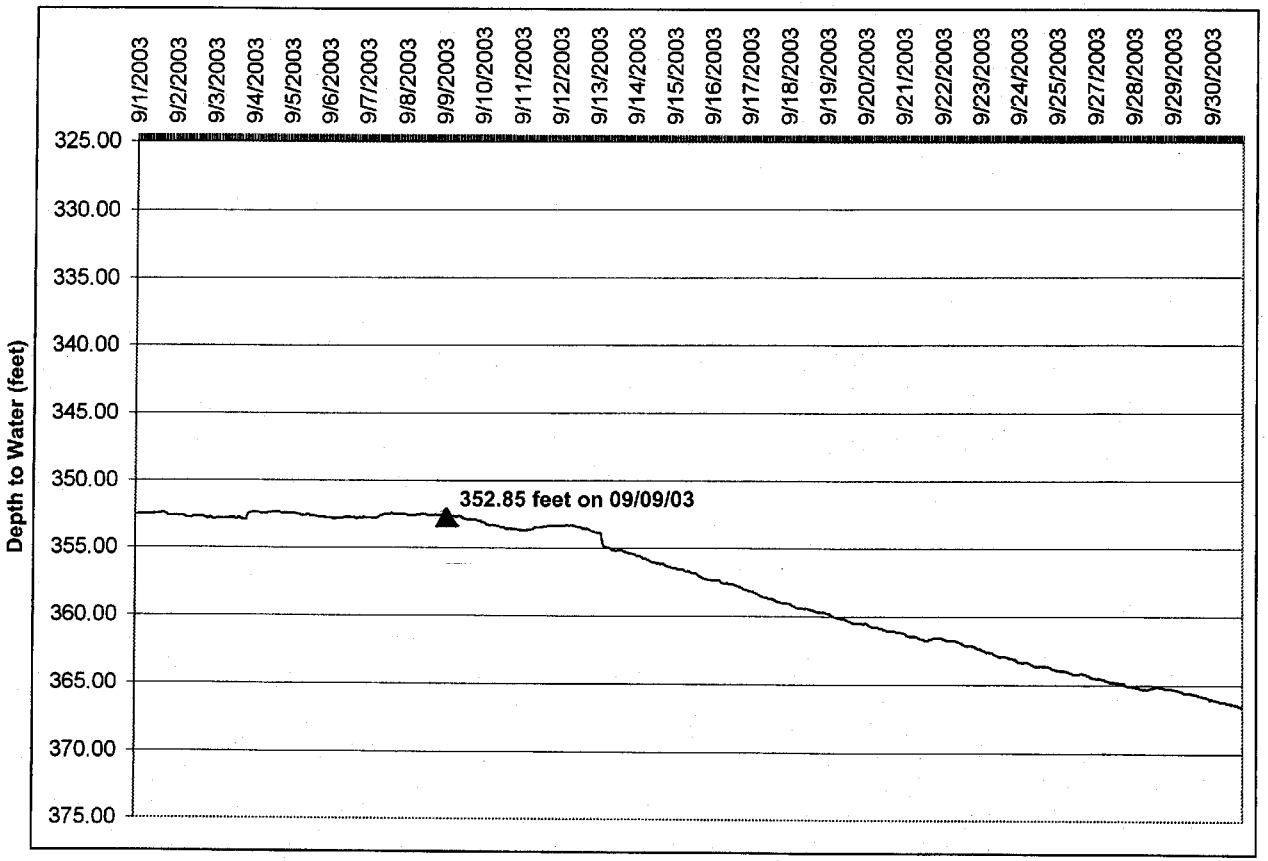
WATER-LEVEL HYDROGRAPH FOR MW-14M IN JUNE 2003



WATER-LEVEL HYDROGRAPH FOR MW-14M IN JULY 2003



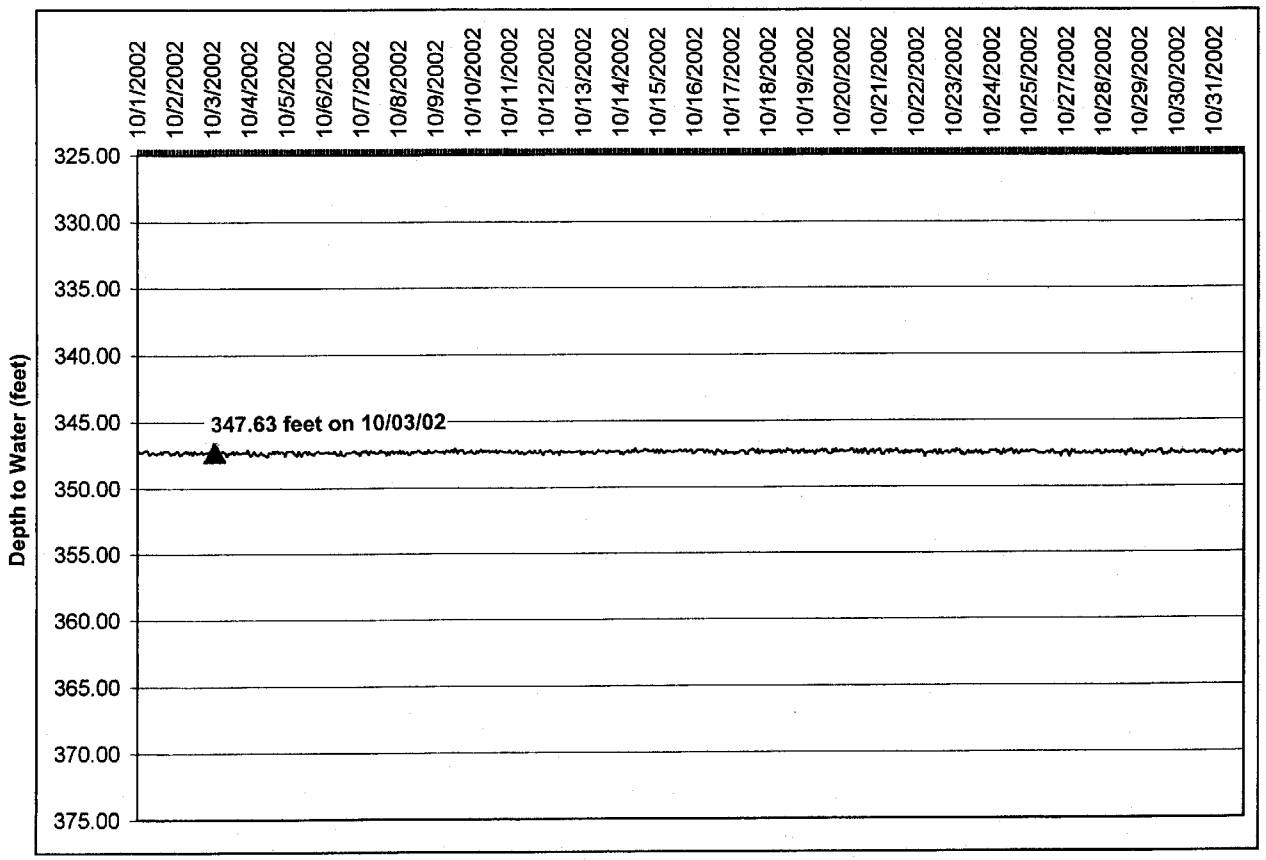
WATER-LEVEL HYDROGRAPH FOR MW-14M IN AUGUST 2003



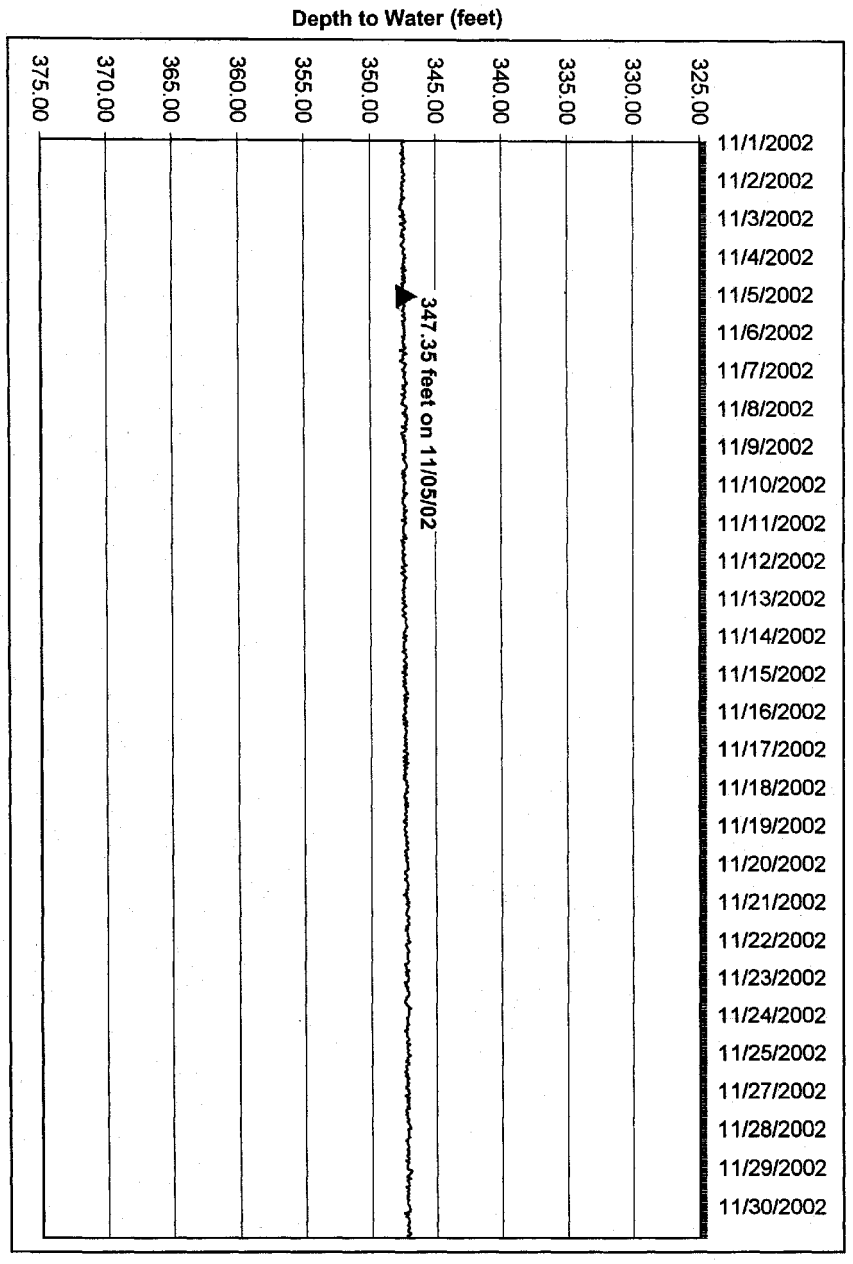
WATER-LEVEL HYDROGRAPH FOR MW-14M IN SEPTEMBER 2003

Water-Level Hydrographs from Transducer Measurements for Well No. 19

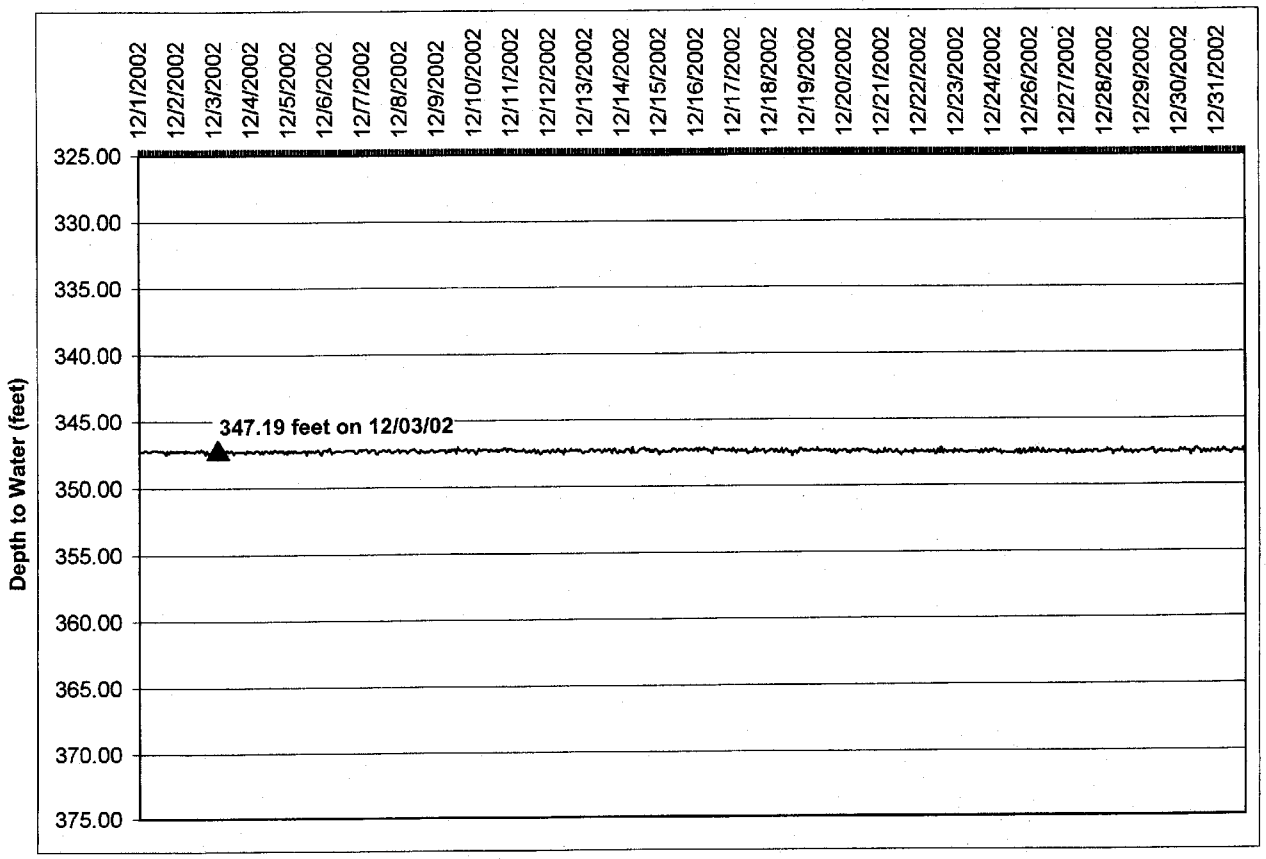
Note: Solid triangle and adjoining depth to water measurement on graphs are from an electric sounder.



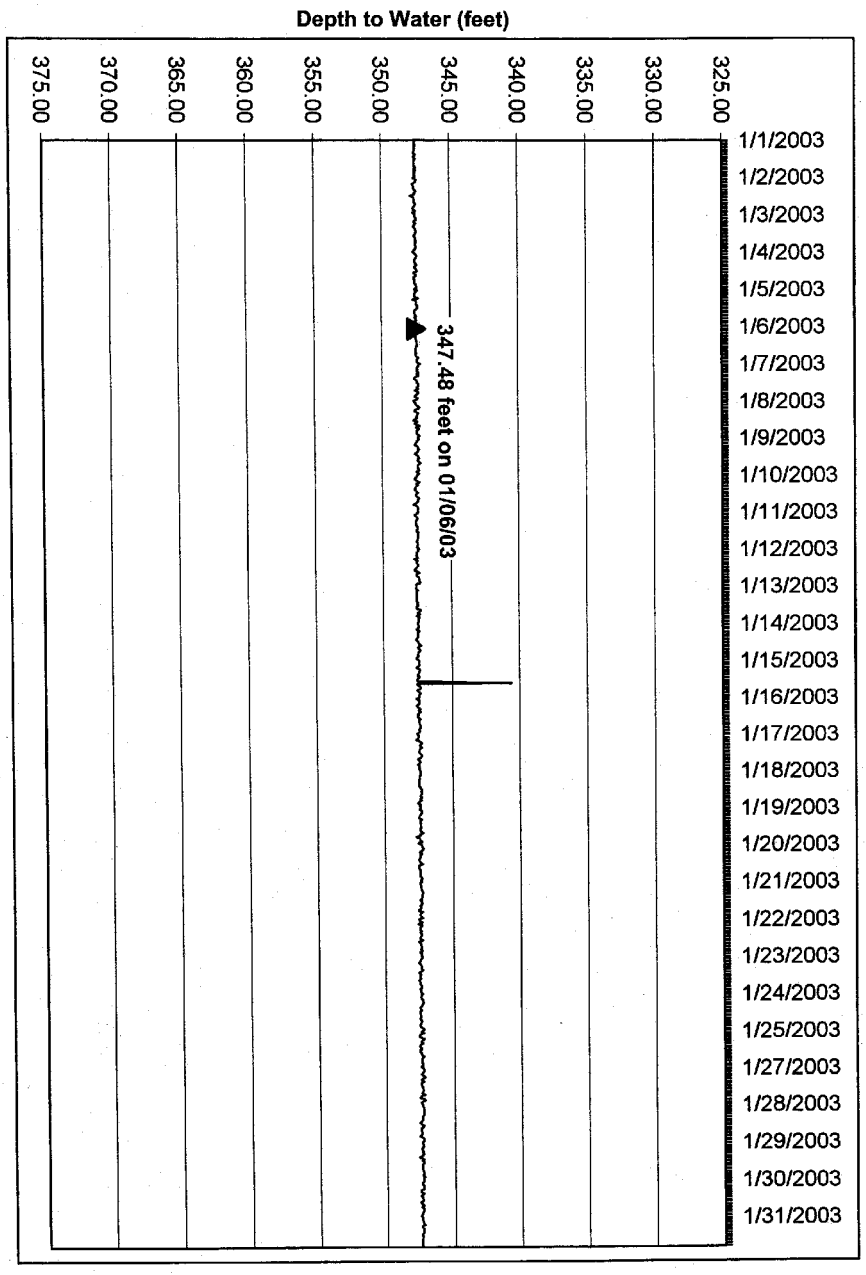
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN OCTOBER 2002



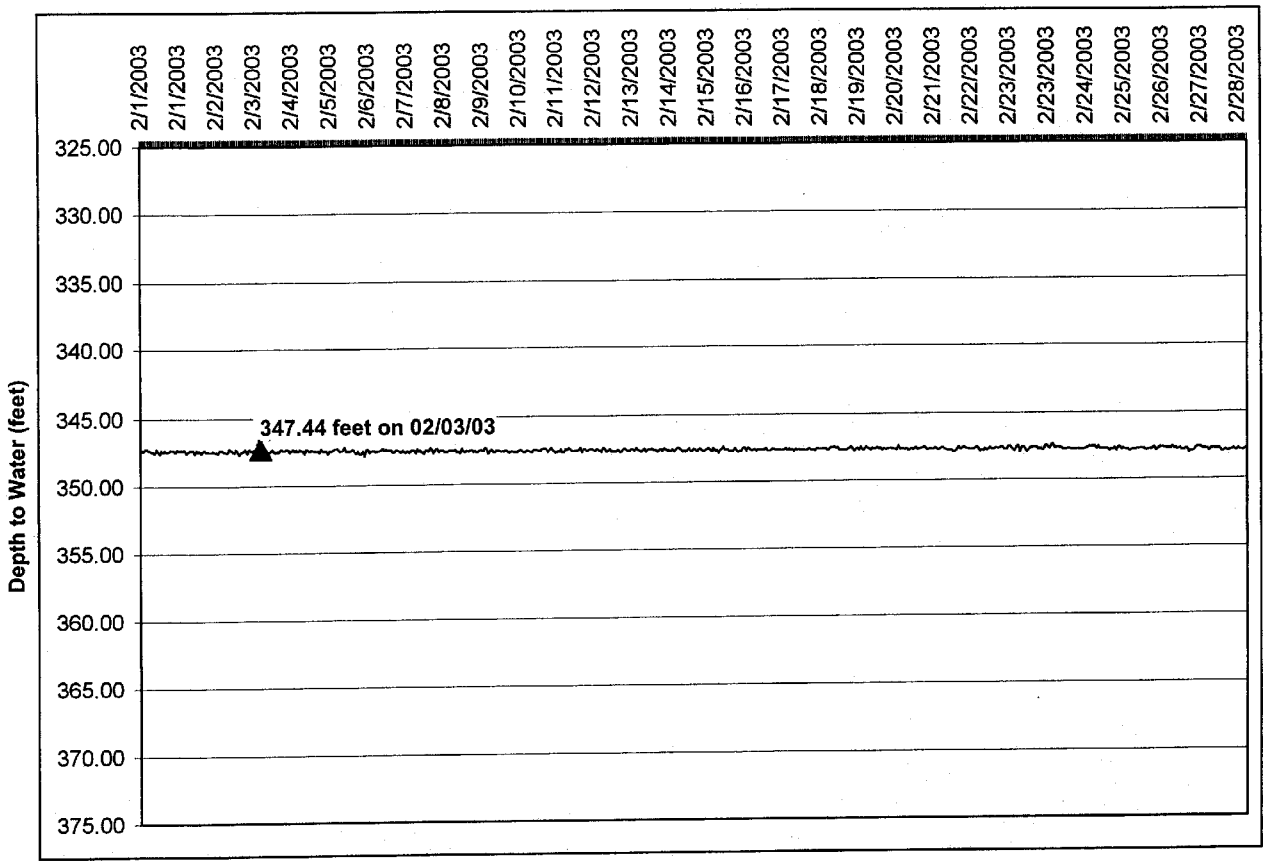
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN NOVEMBER 2002



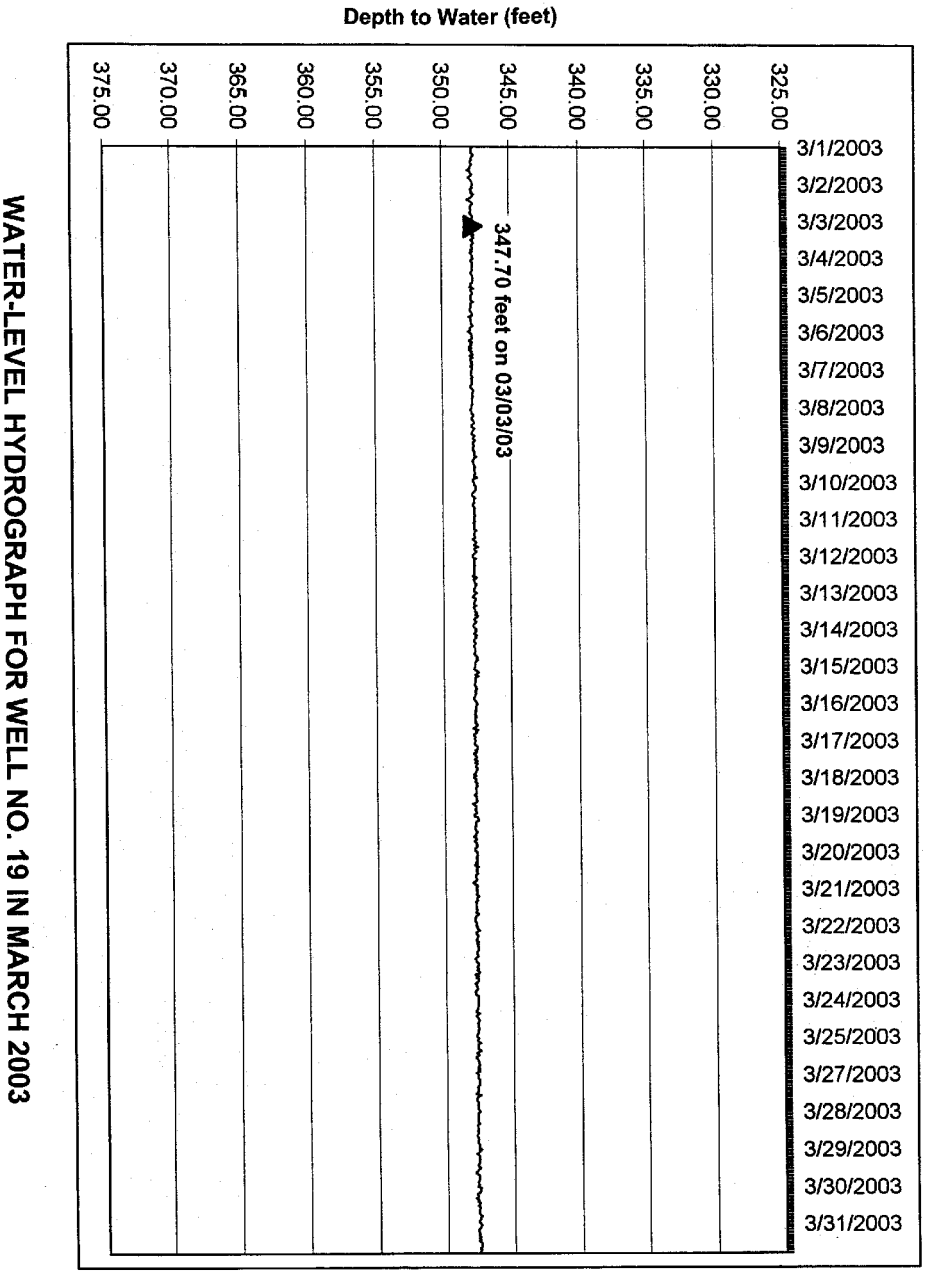
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN DECEMBER 2002



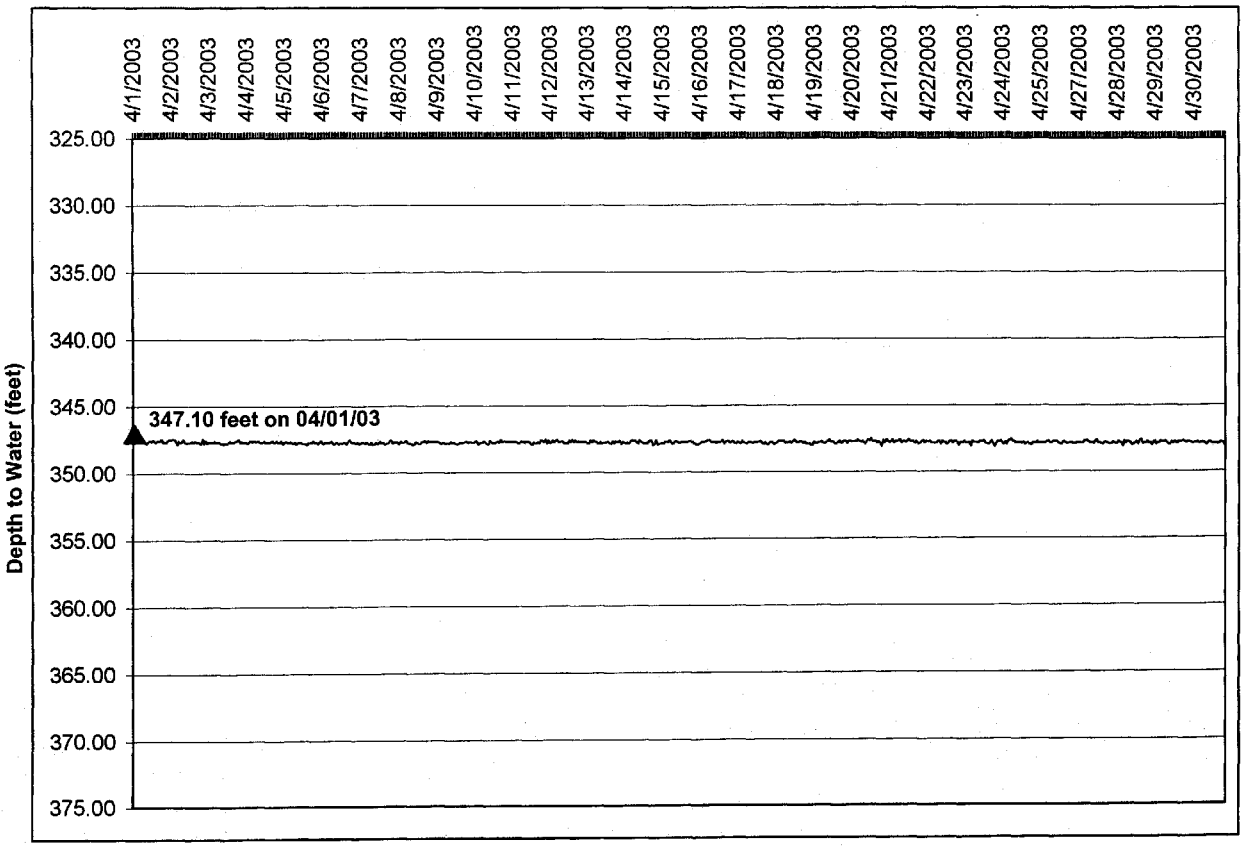
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN JANUARY 2003



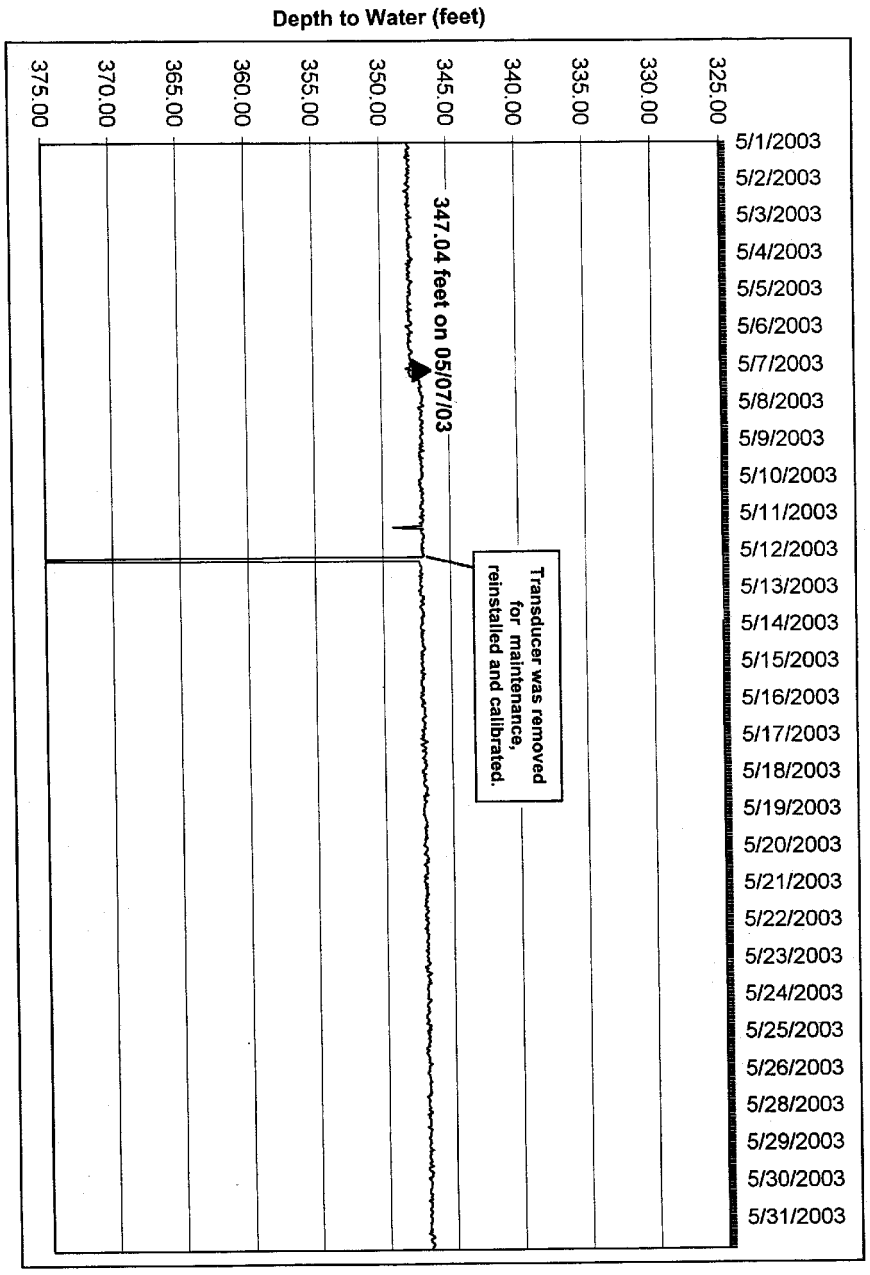
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN FEBRUARY 2003



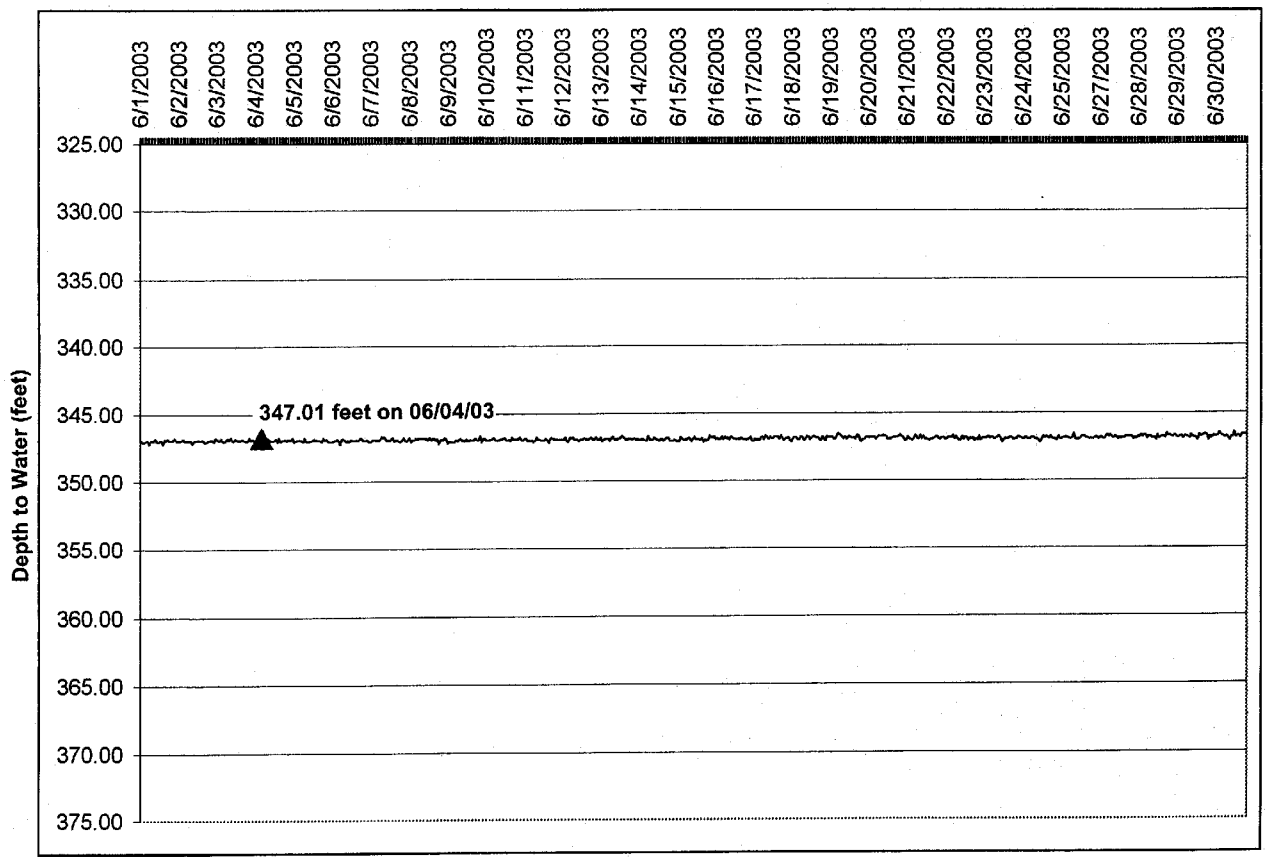
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN MARCH 2003



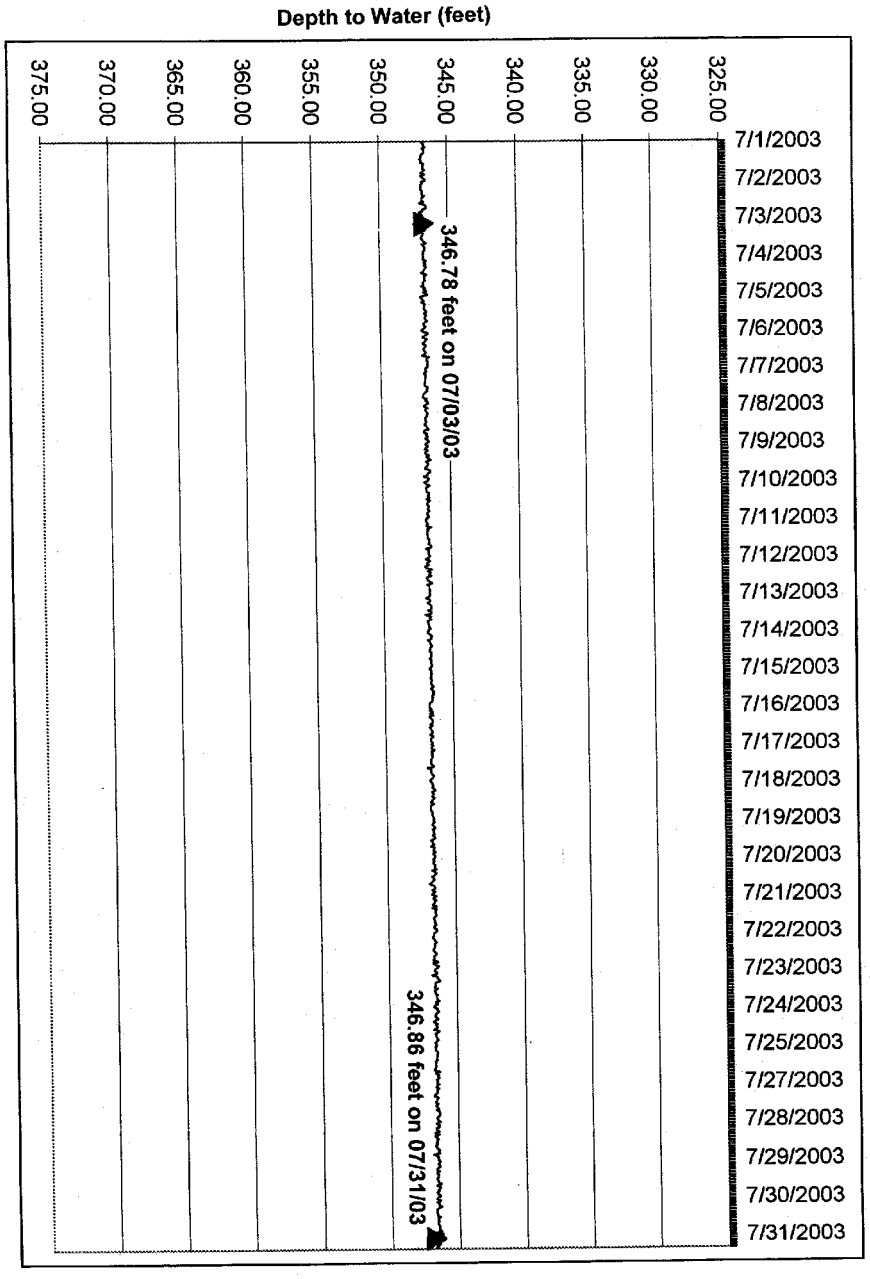
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN APRIL 2003



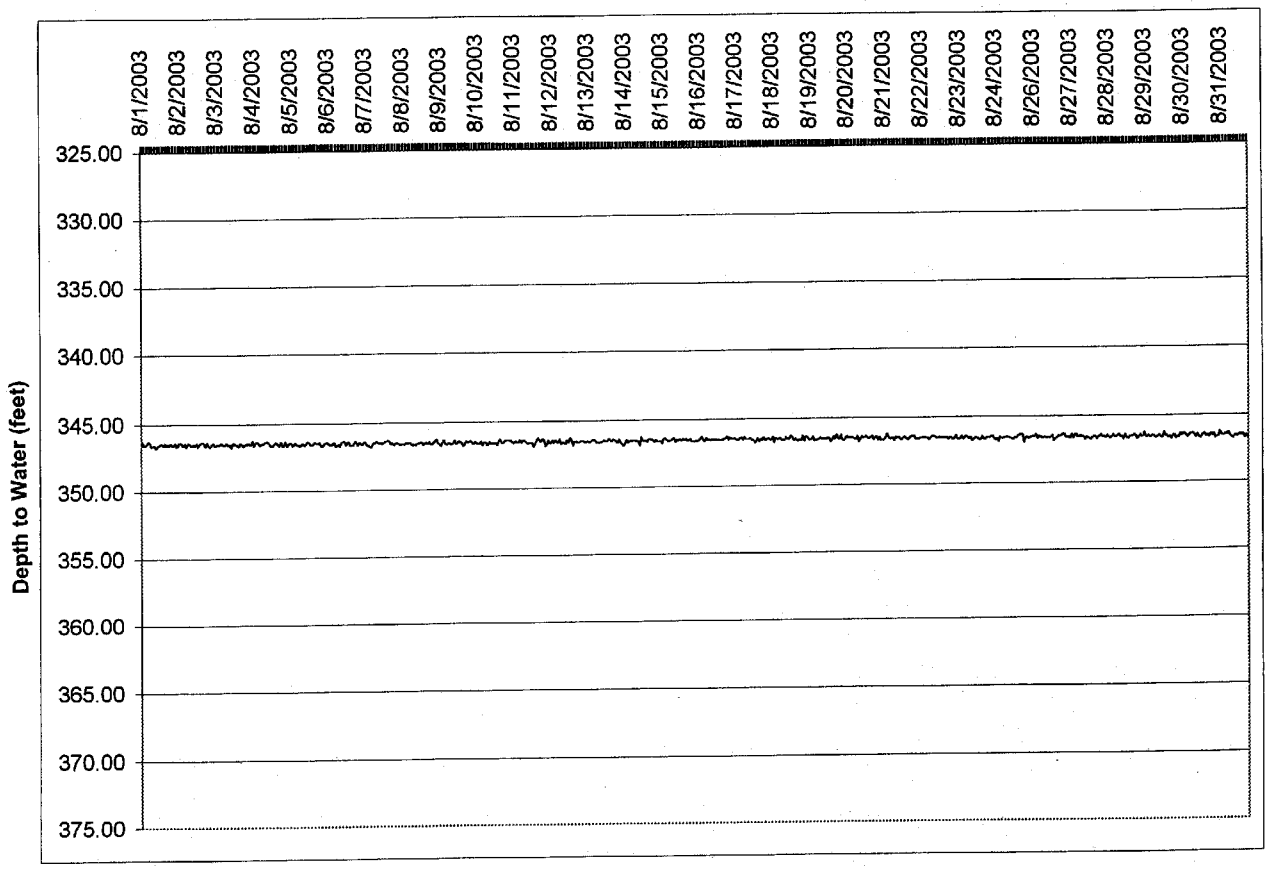
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN MAY 2003



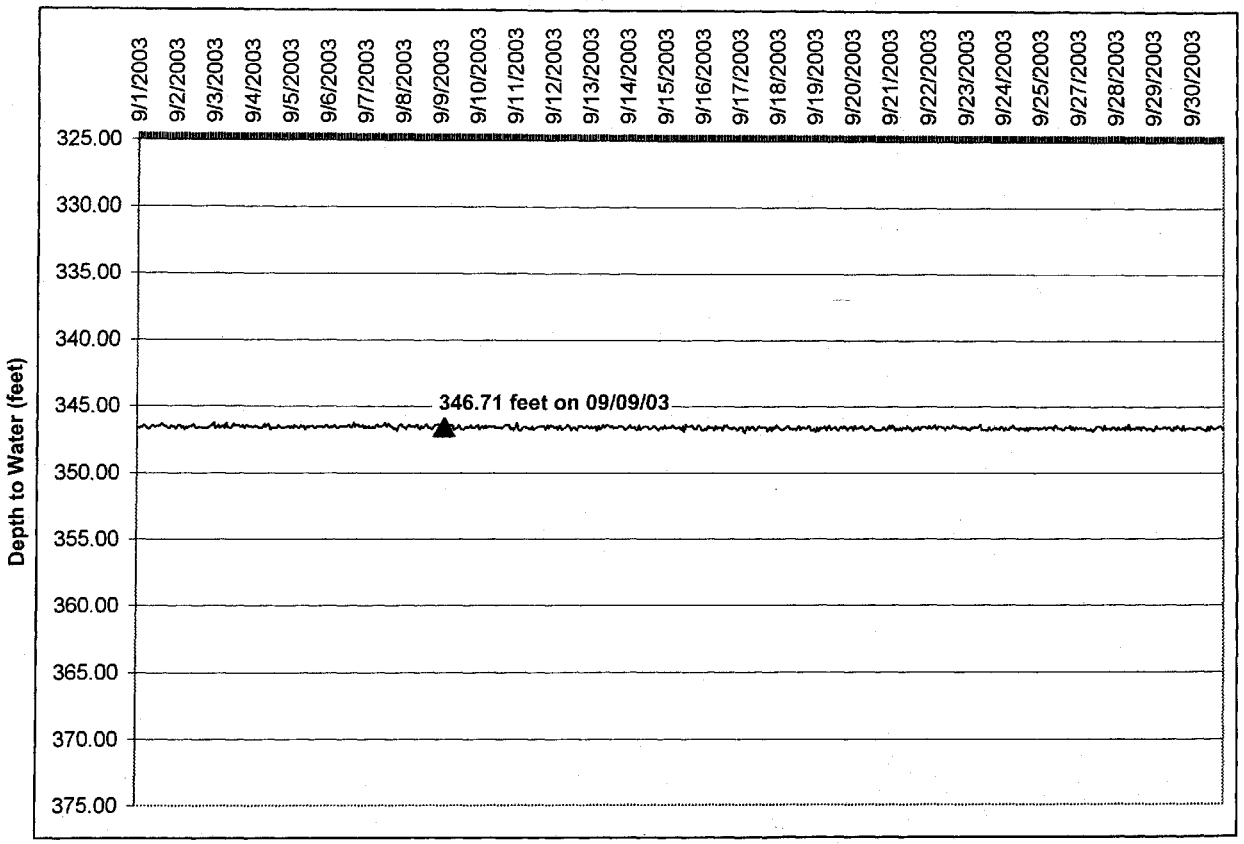
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN JUNE 2003



WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN JULY 2003



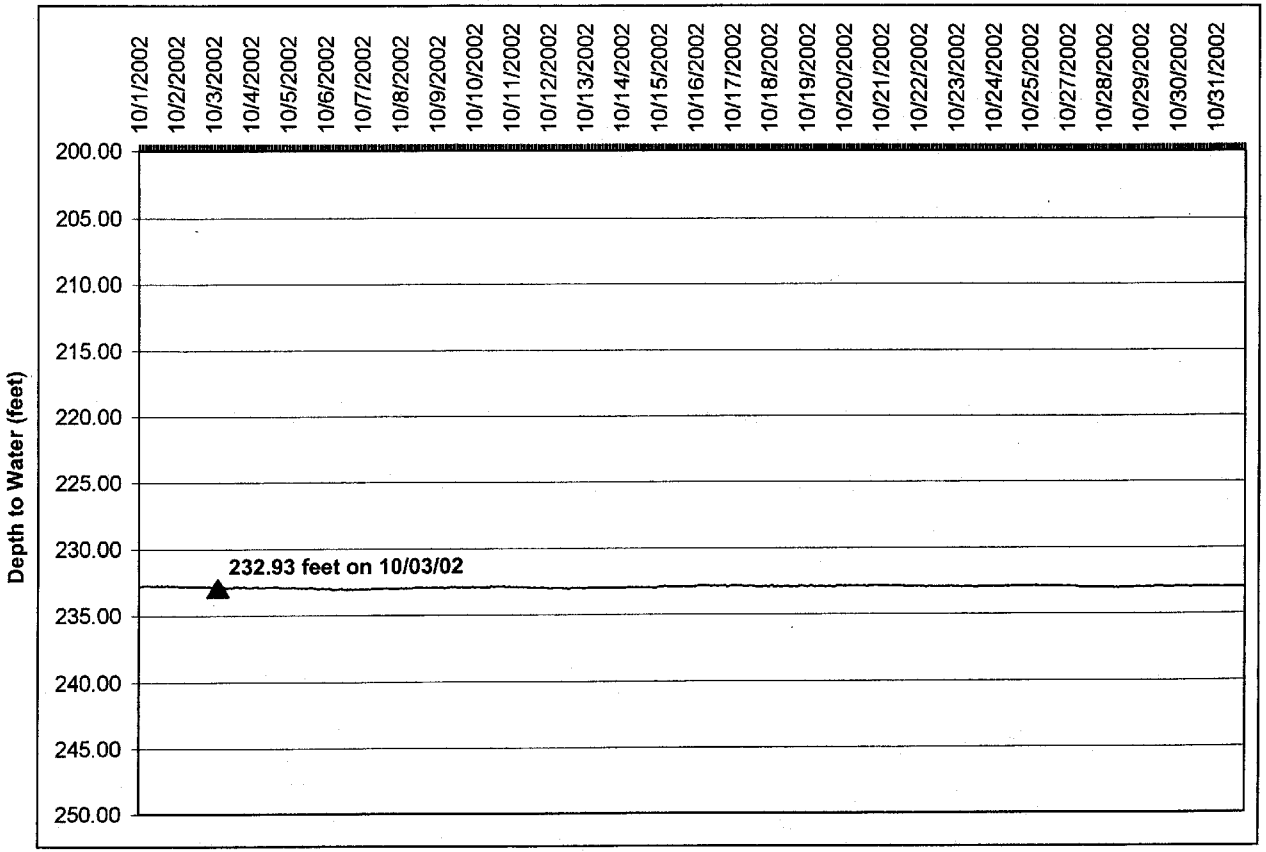
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN AUGUST 2003



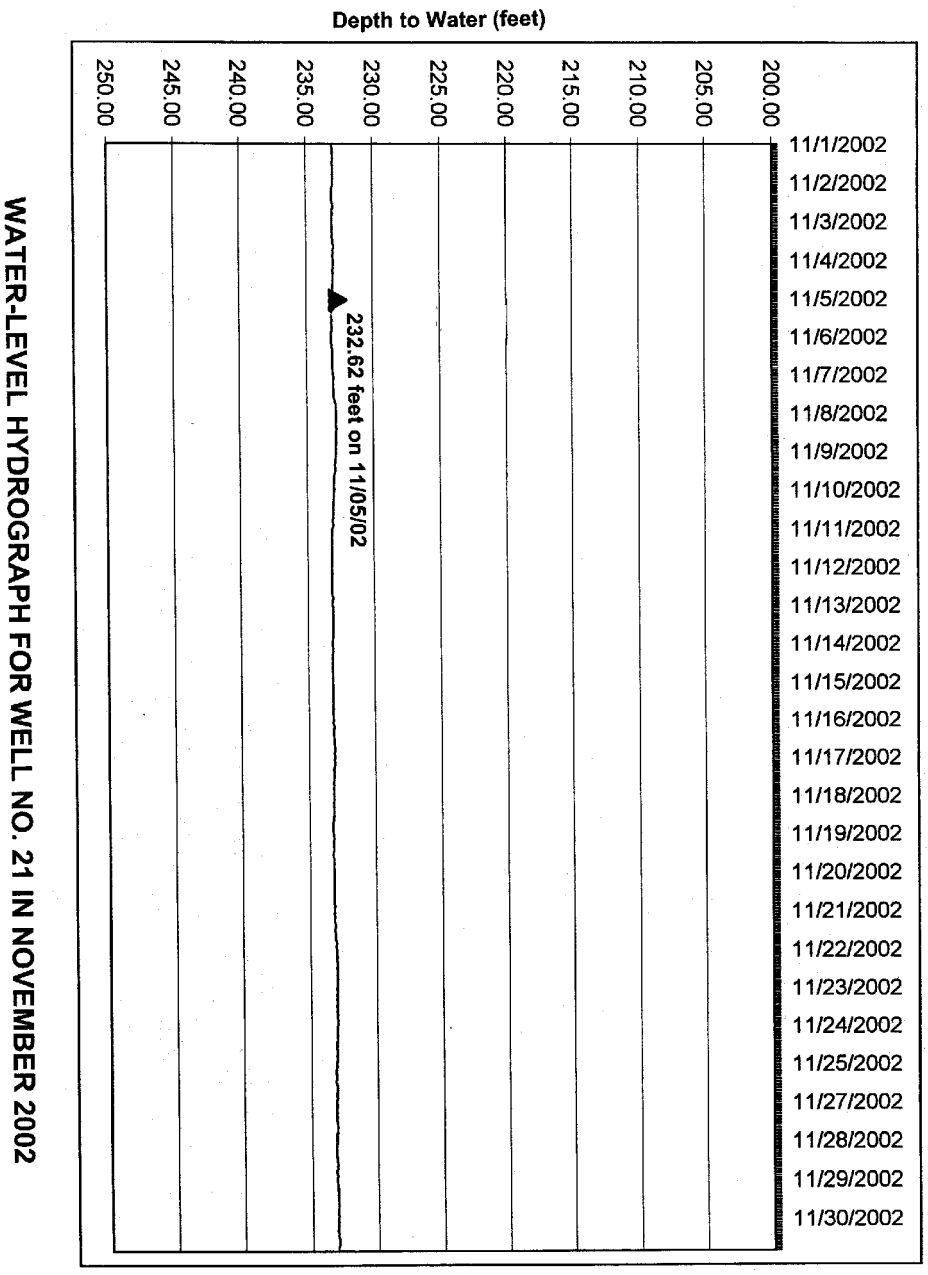
WATER-LEVEL HYDROGRAPH FOR WELL NO. 19 IN SEPTEMBER 2003

Water-Level Hydrographs from Transducer
Measurements for Well No. 21

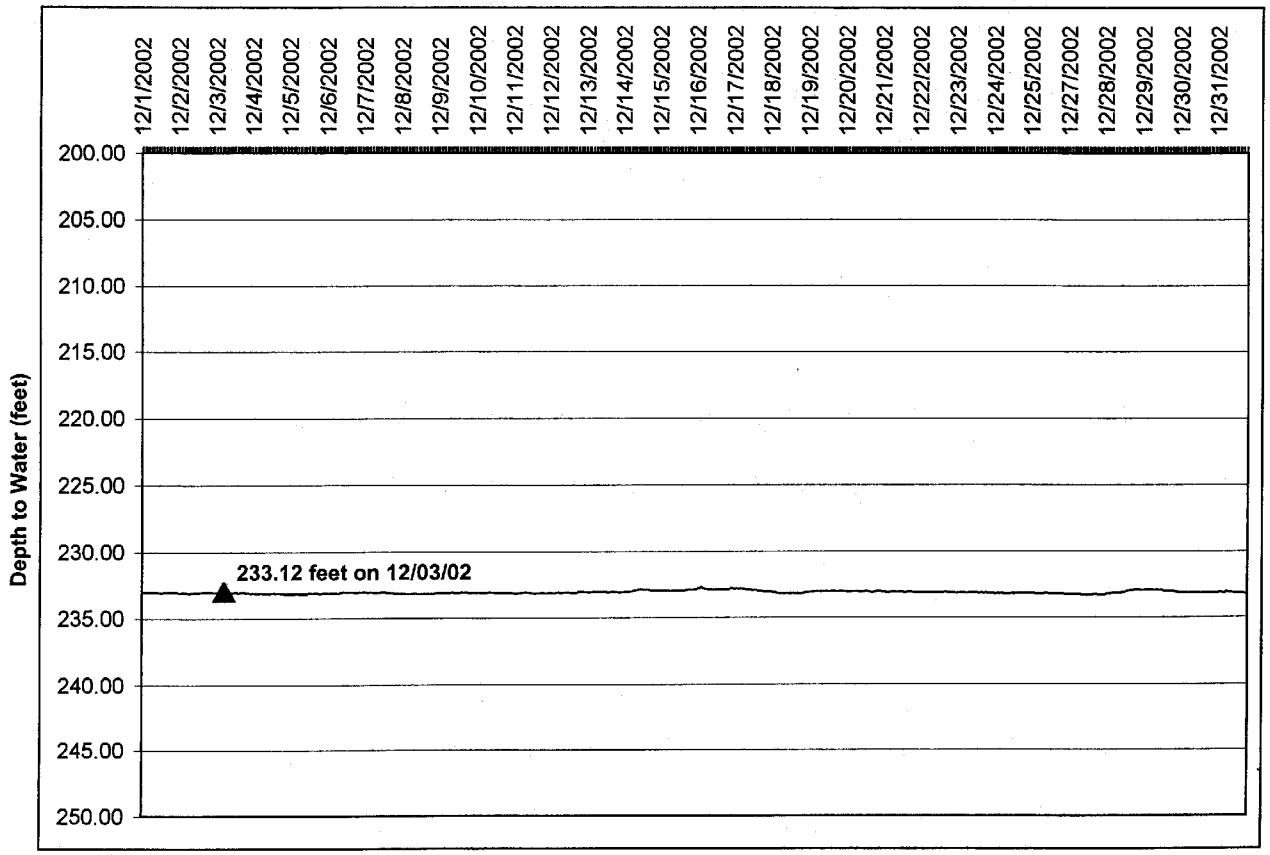
Note: Solid triangle and adjoining depth to water measurement on graphs are from an electric sounder.



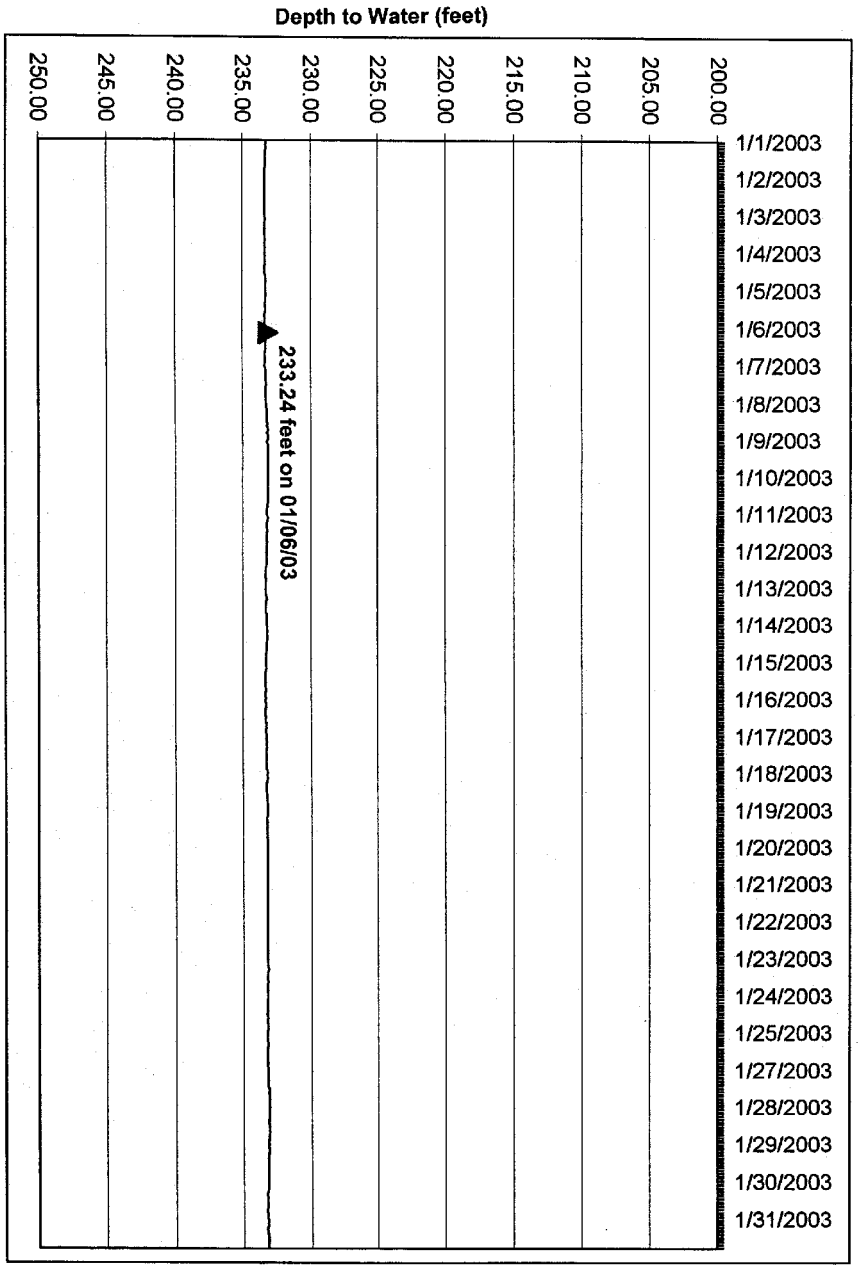
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN OCTOBER 2002



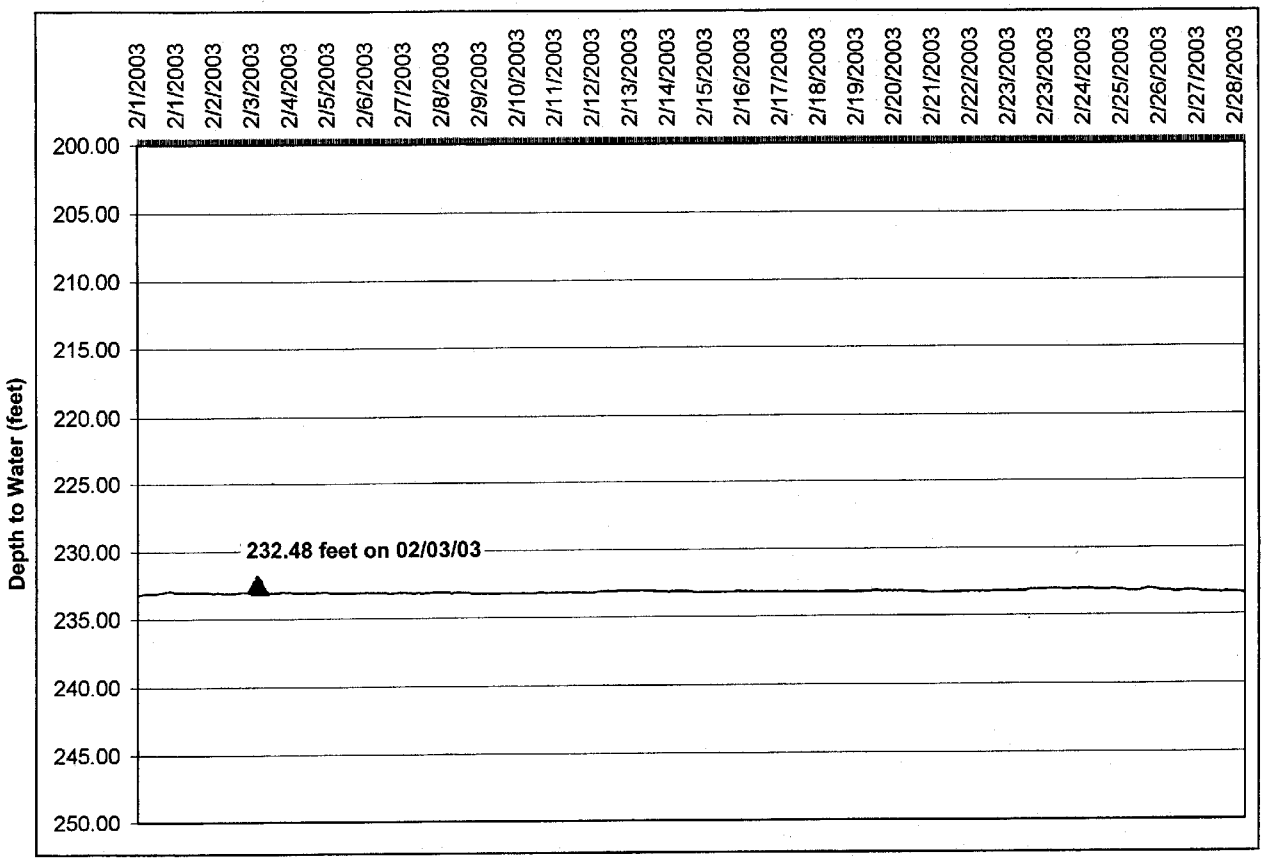
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN NOVEMBER 2002



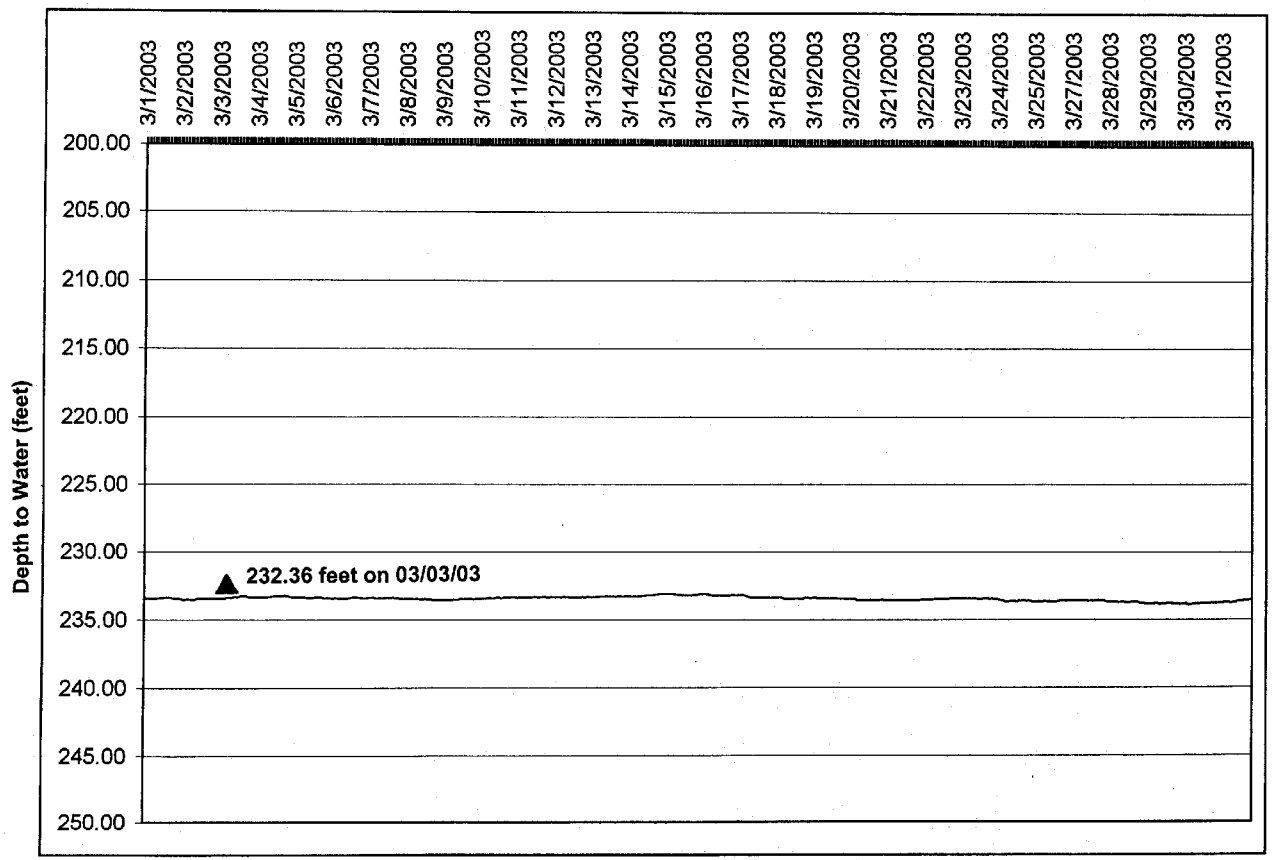
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN DECEMBER 2002



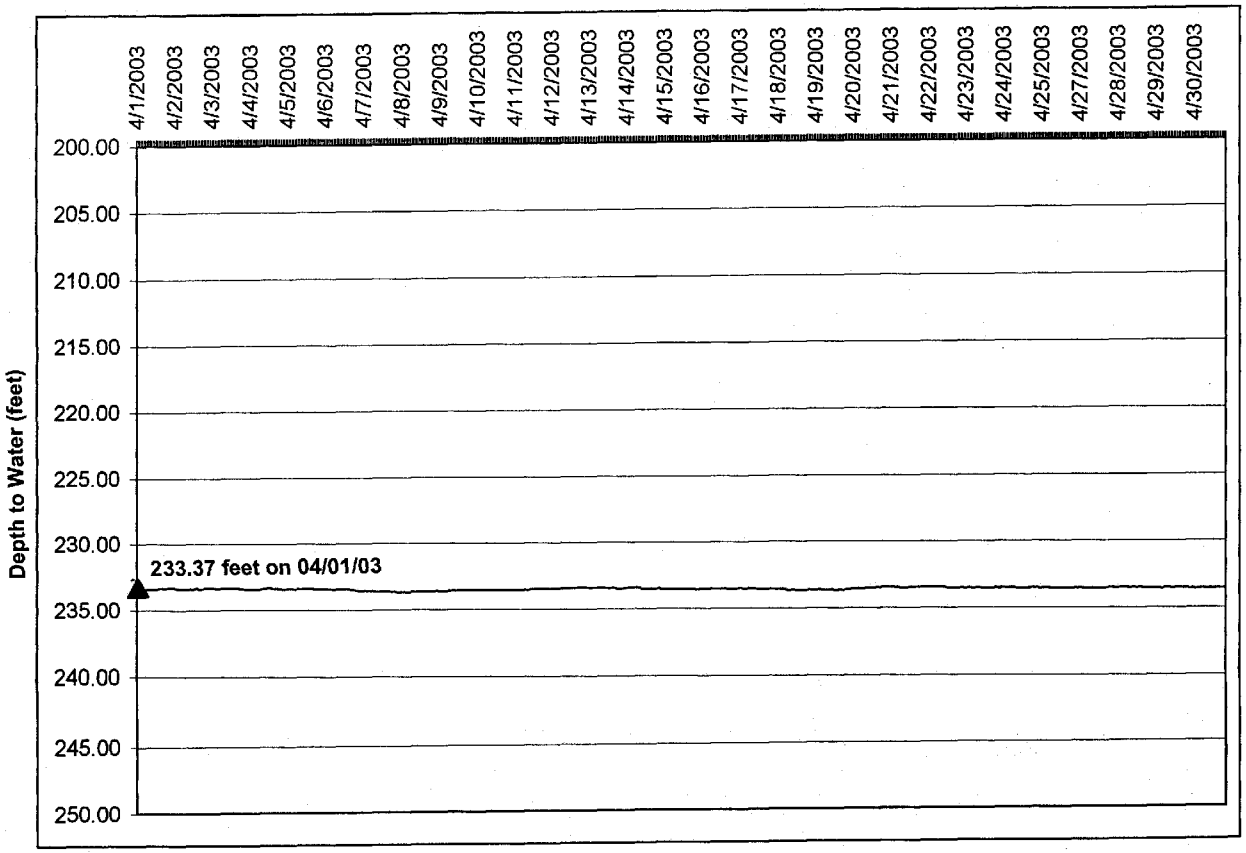
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN JANUARY 2003



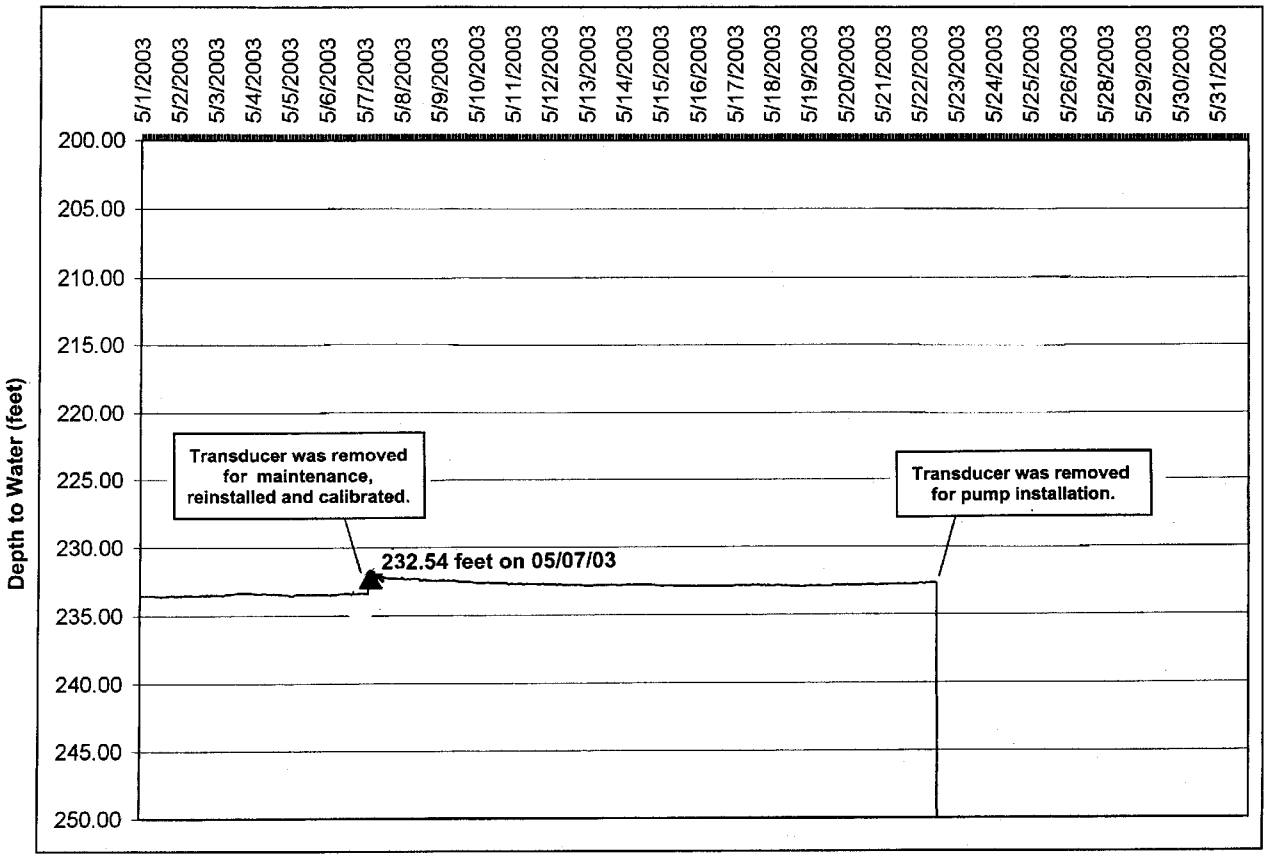
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN FEBRUARY 2003



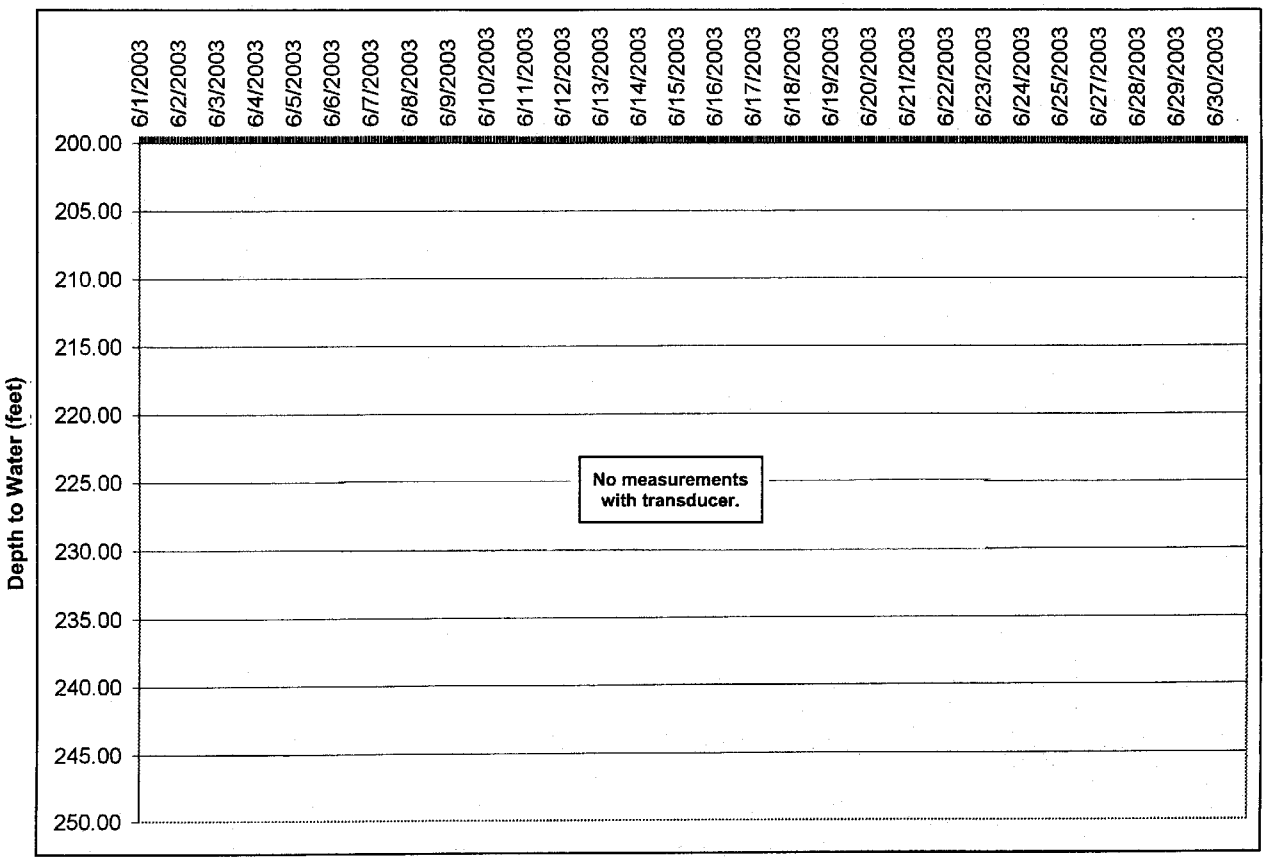
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN MARCH 2003



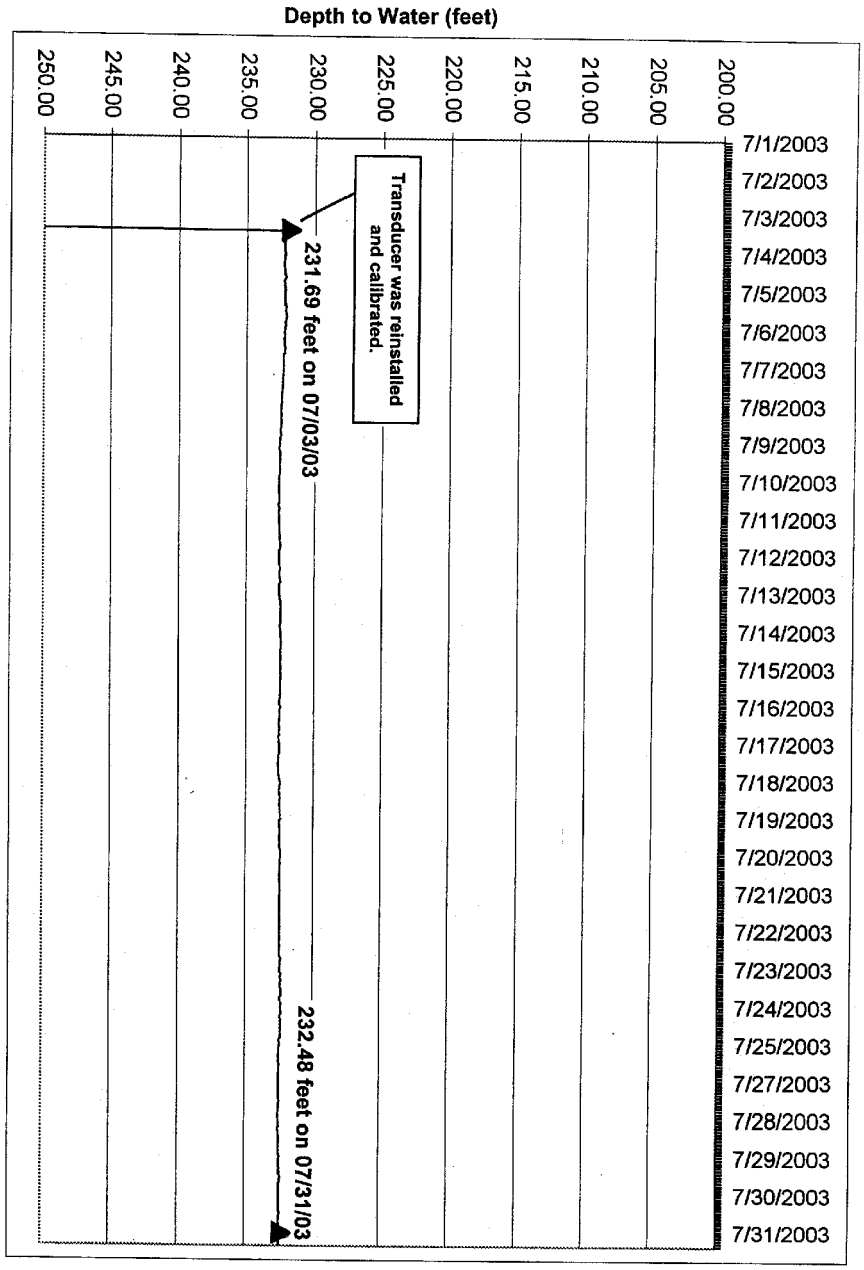
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN APRIL 2003



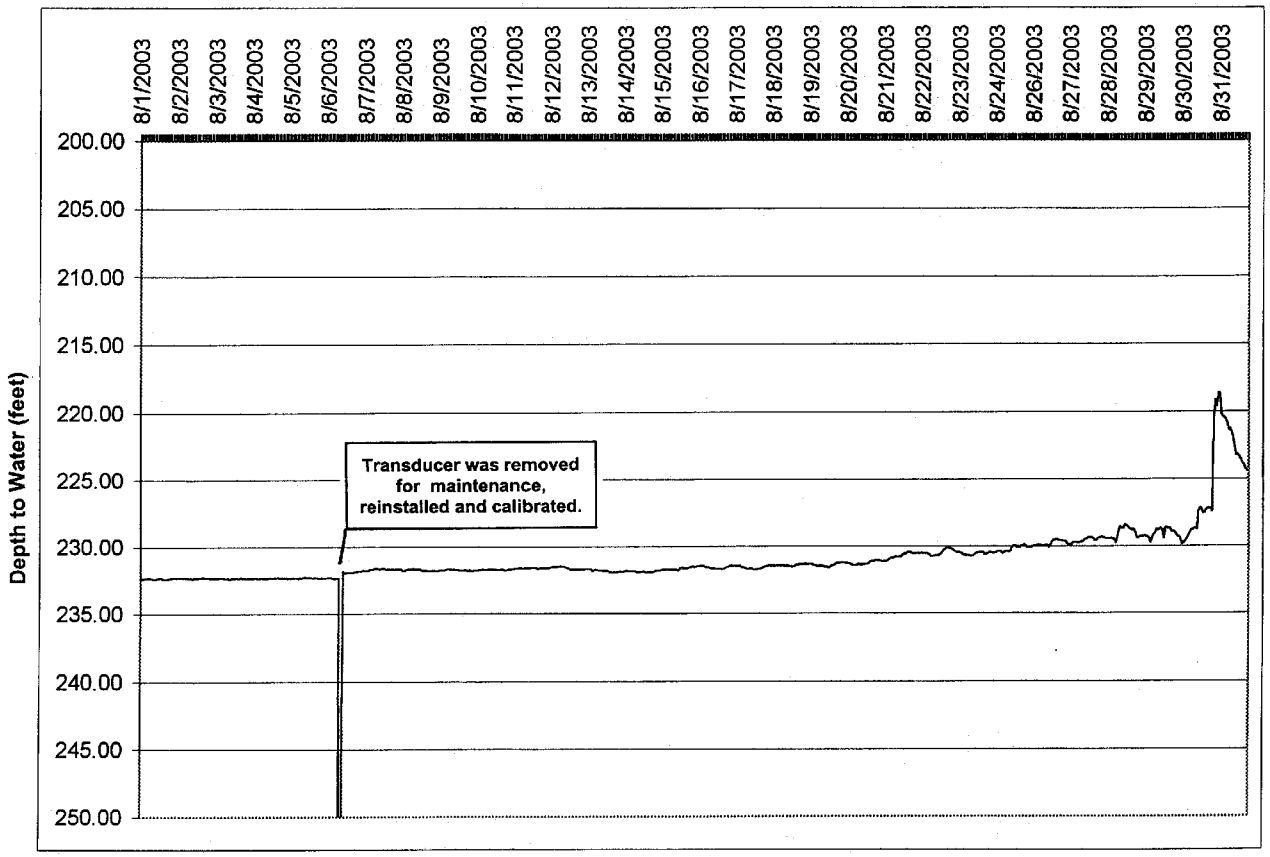
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN MAY 2003



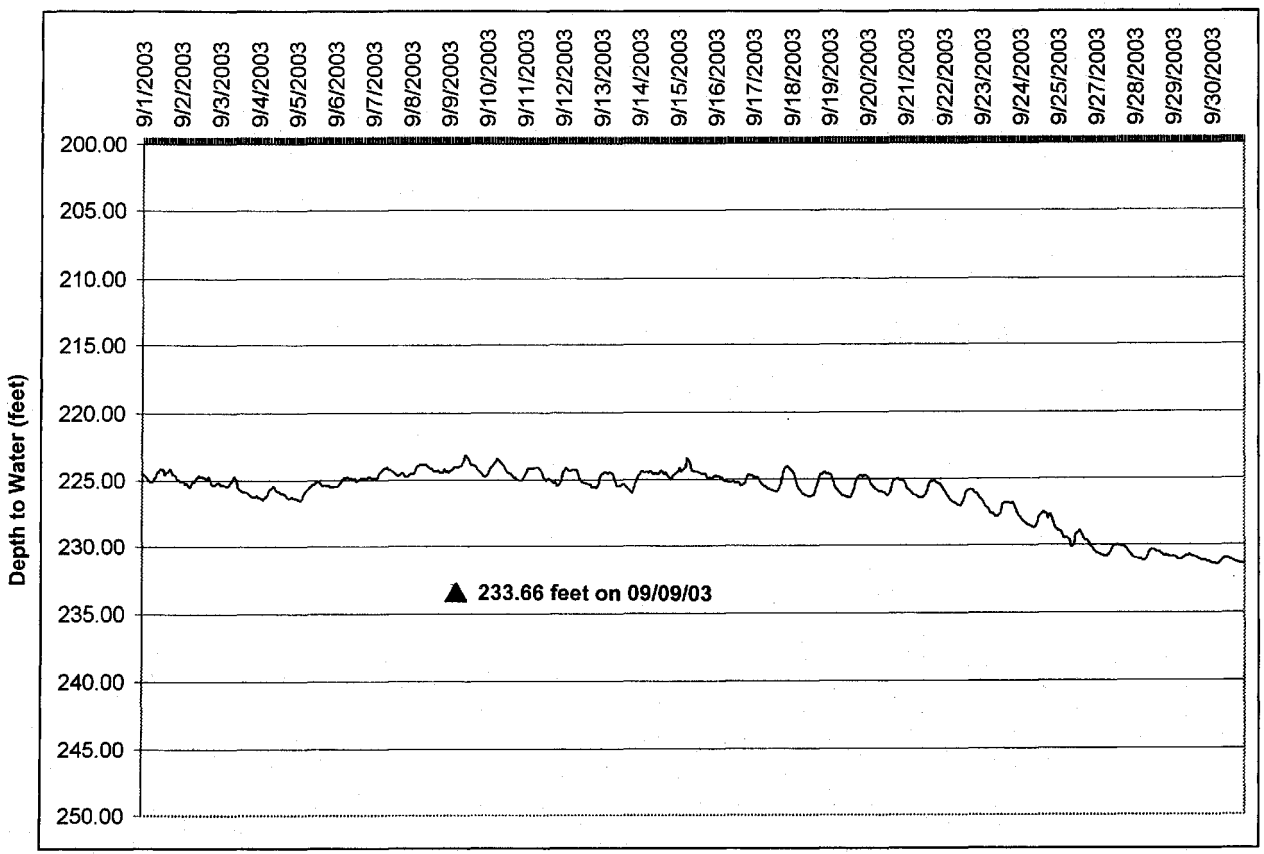
WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN JUNE 2003



WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN JULY 2003

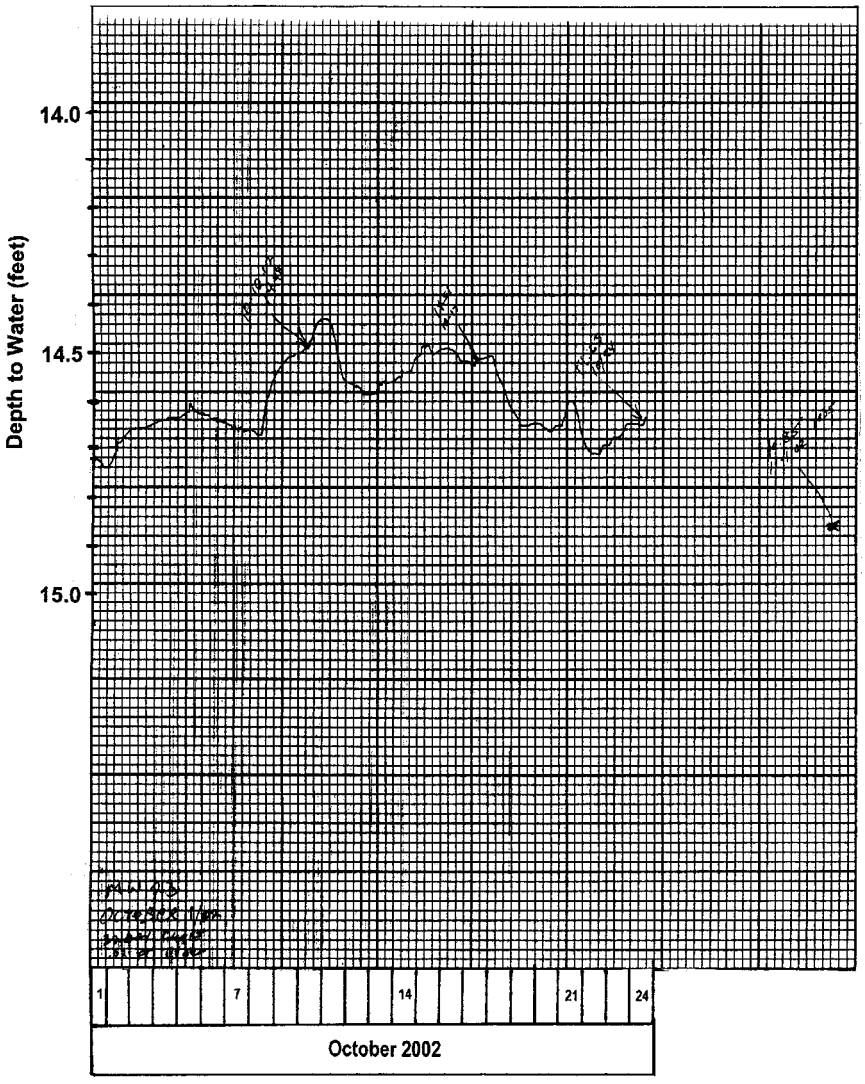


WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN AUGUST 2003

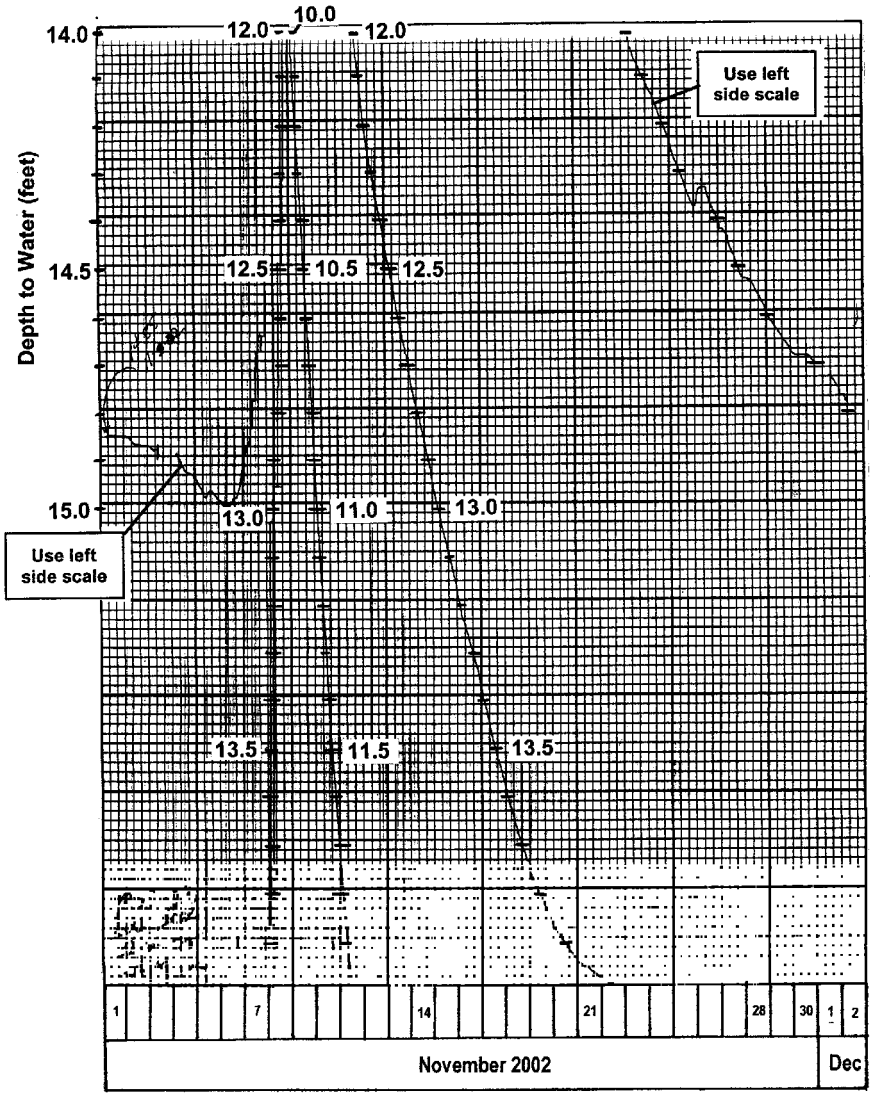


WATER-LEVEL HYDROGRAPH FOR WELL NO. 21 IN SEPTEMBER 2003

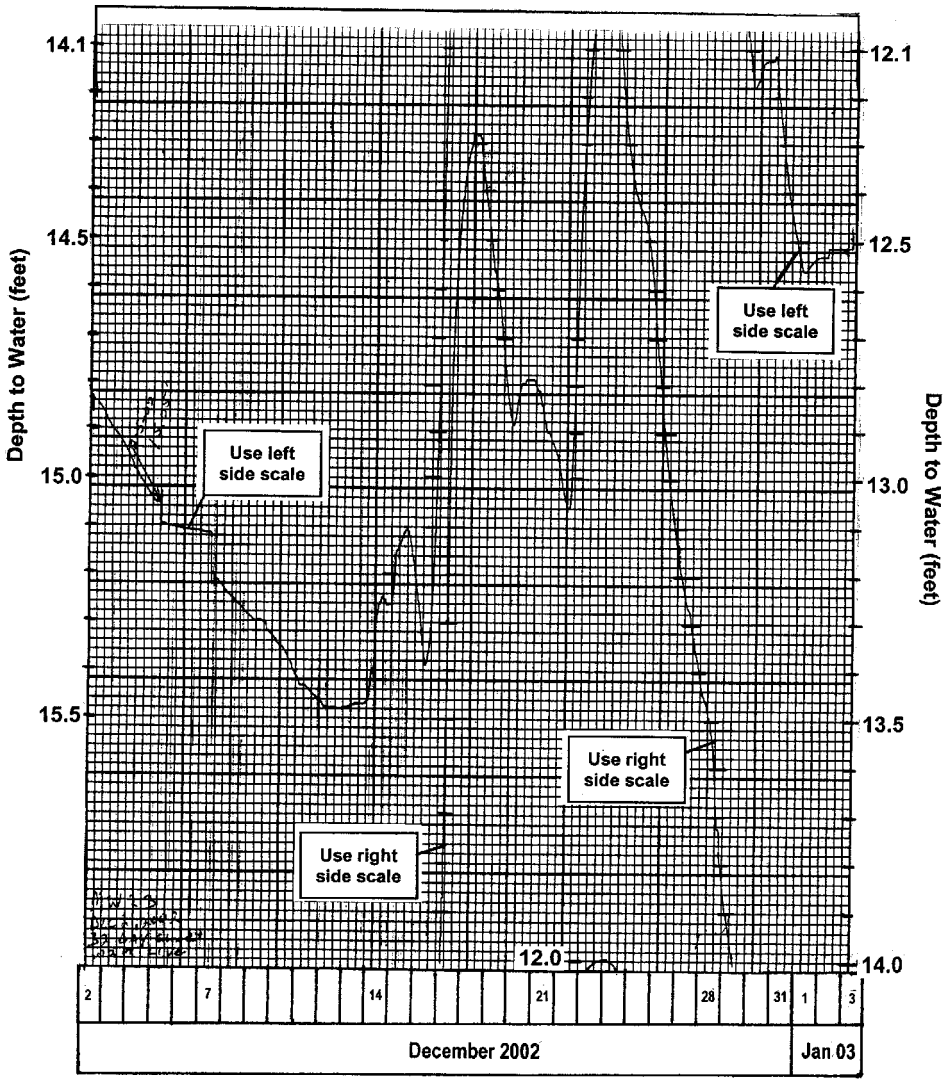
Water-Level Hydrographs from Float
Chart Recorder for Well MW-23



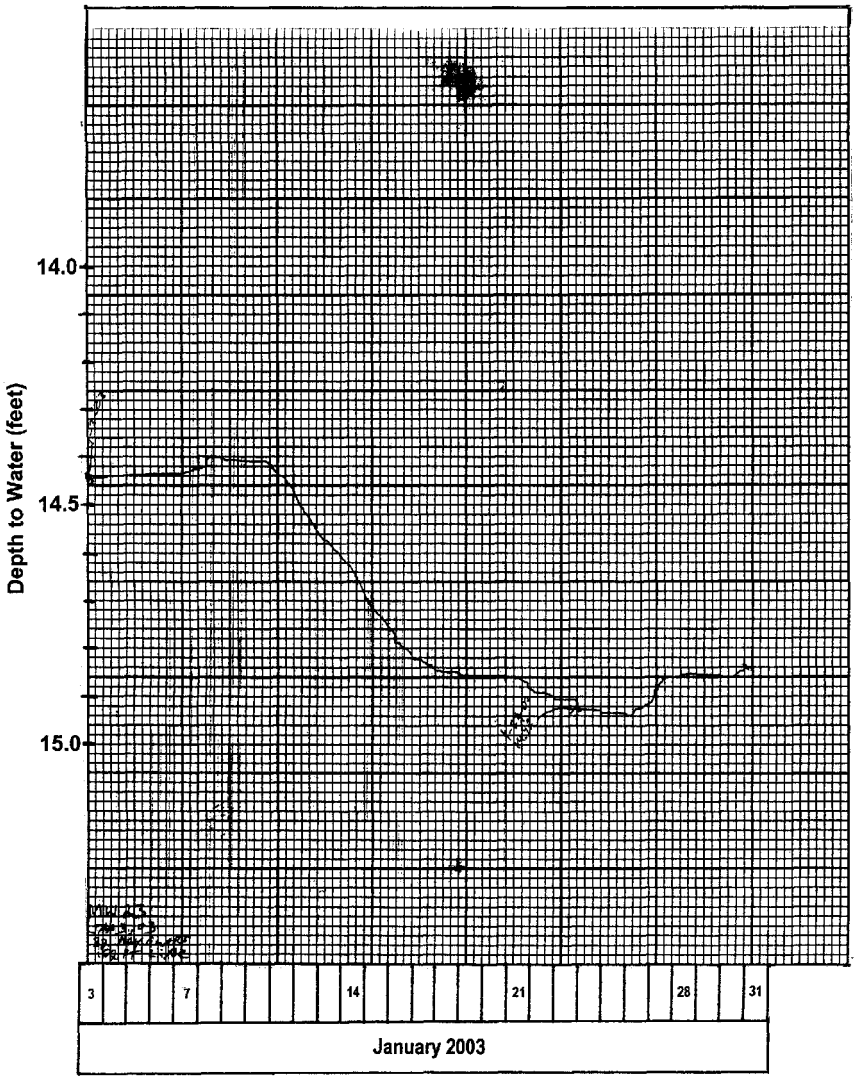
WATER-LEVEL HYDROGRAPH FOR MW-23



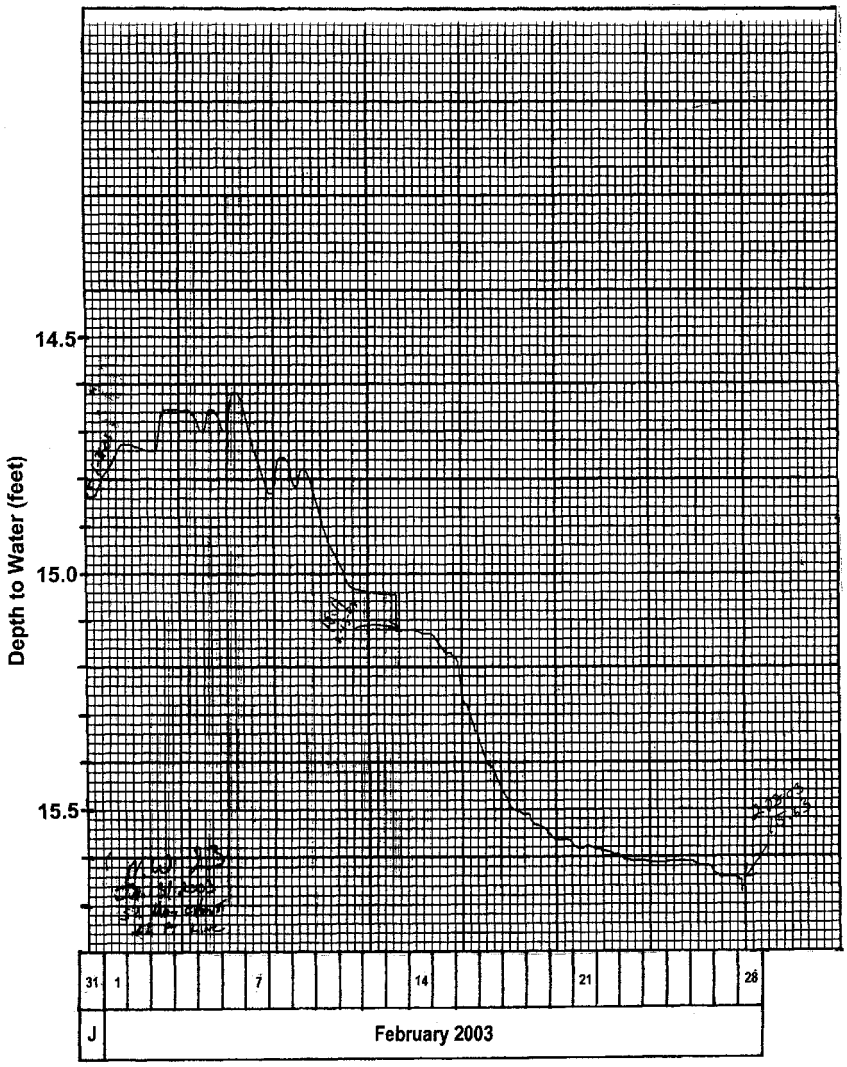
WATER-LEVEL HYDROGRAPH FOR MW-23



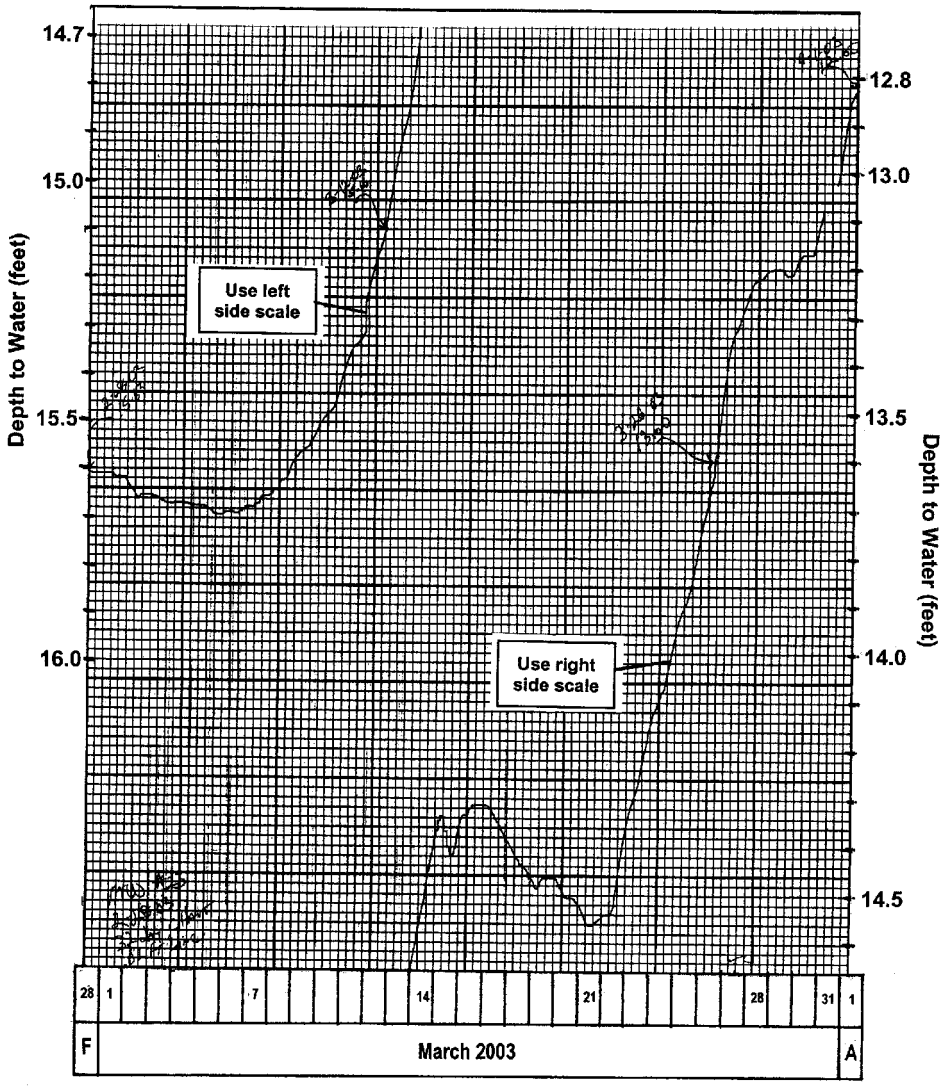
WATER-LEVEL HYDROGRAPH FOR MW-23



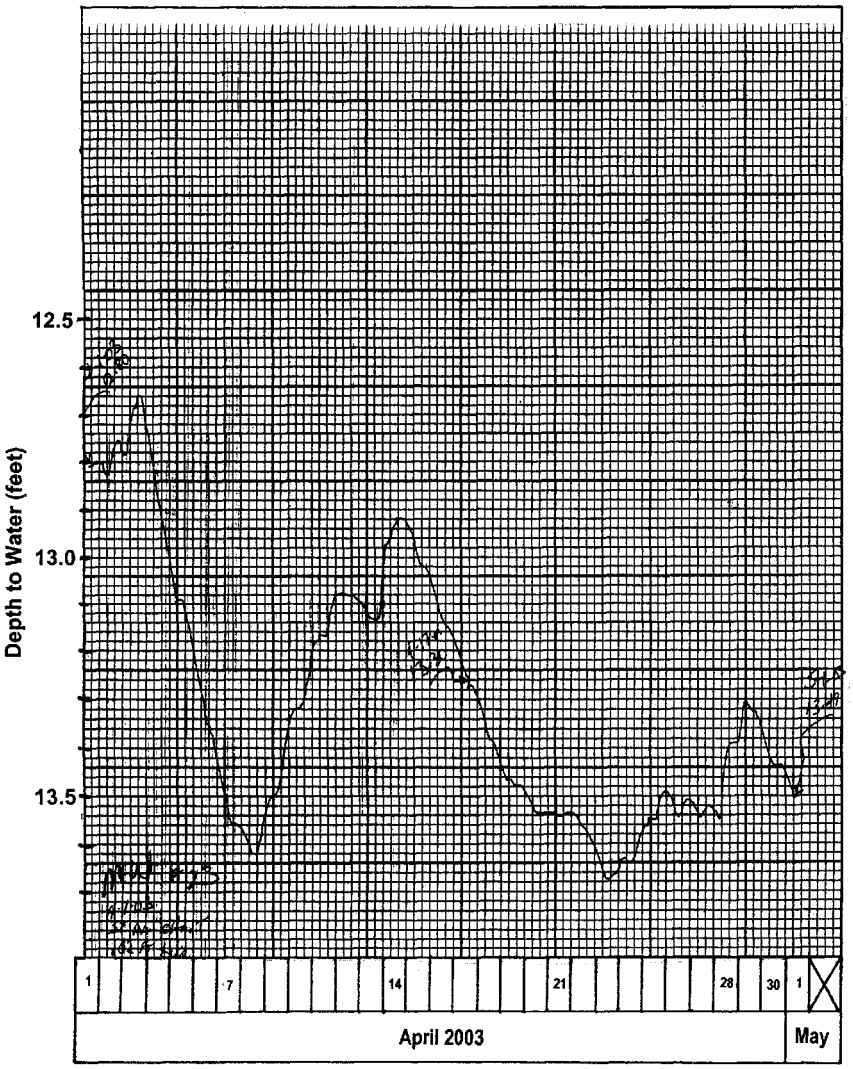
WATER-LEVEL HYDROGRAPH FOR MW-23



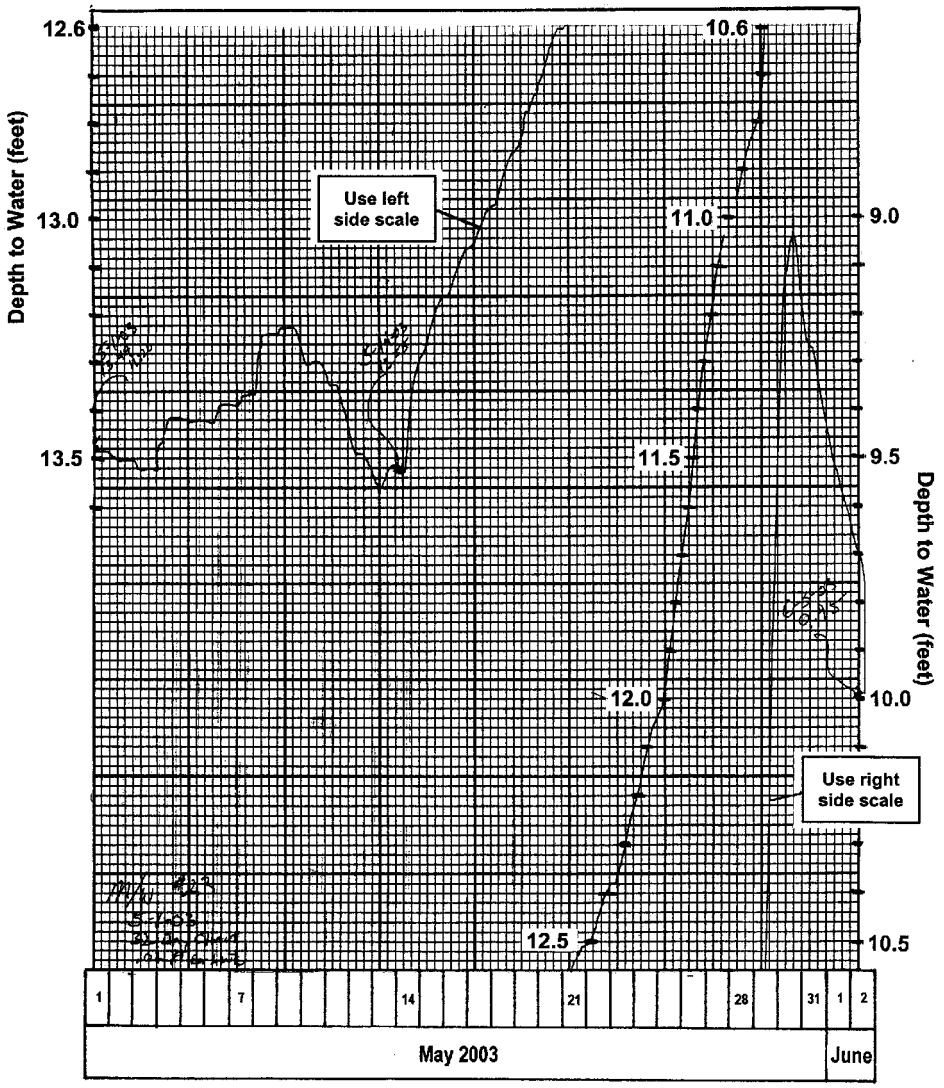
WATER-LEVEL HYDROGRAPH FOR MW-23



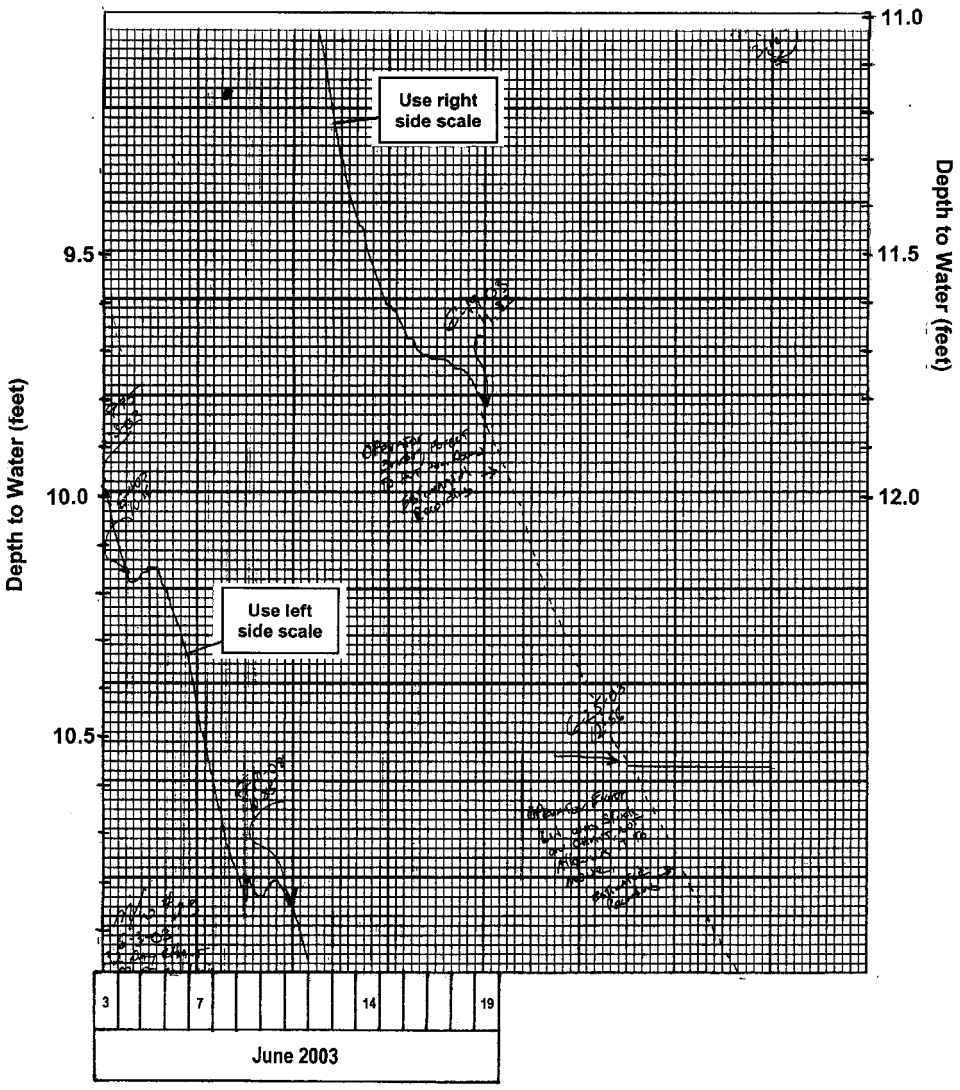
WATER-LEVEL HYDROGRAPH FOR MW-23



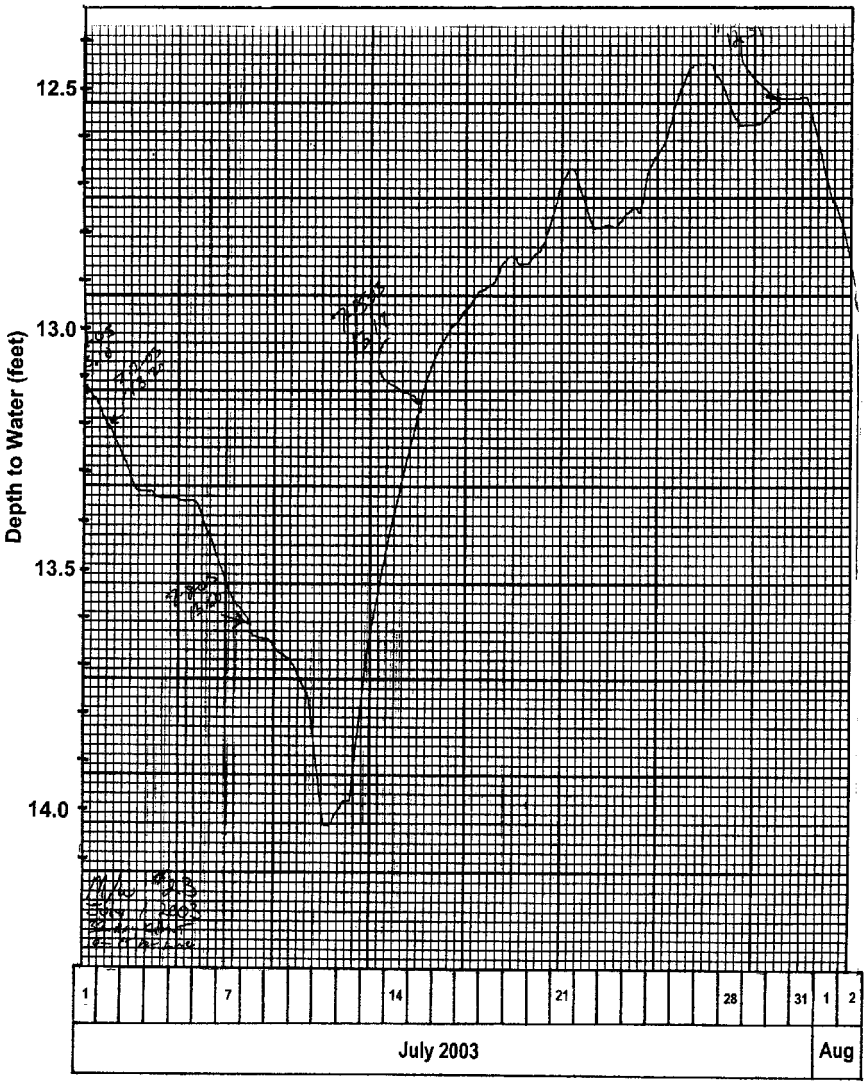
WATER-LEVEL HYDROGRAPH FOR MW-23



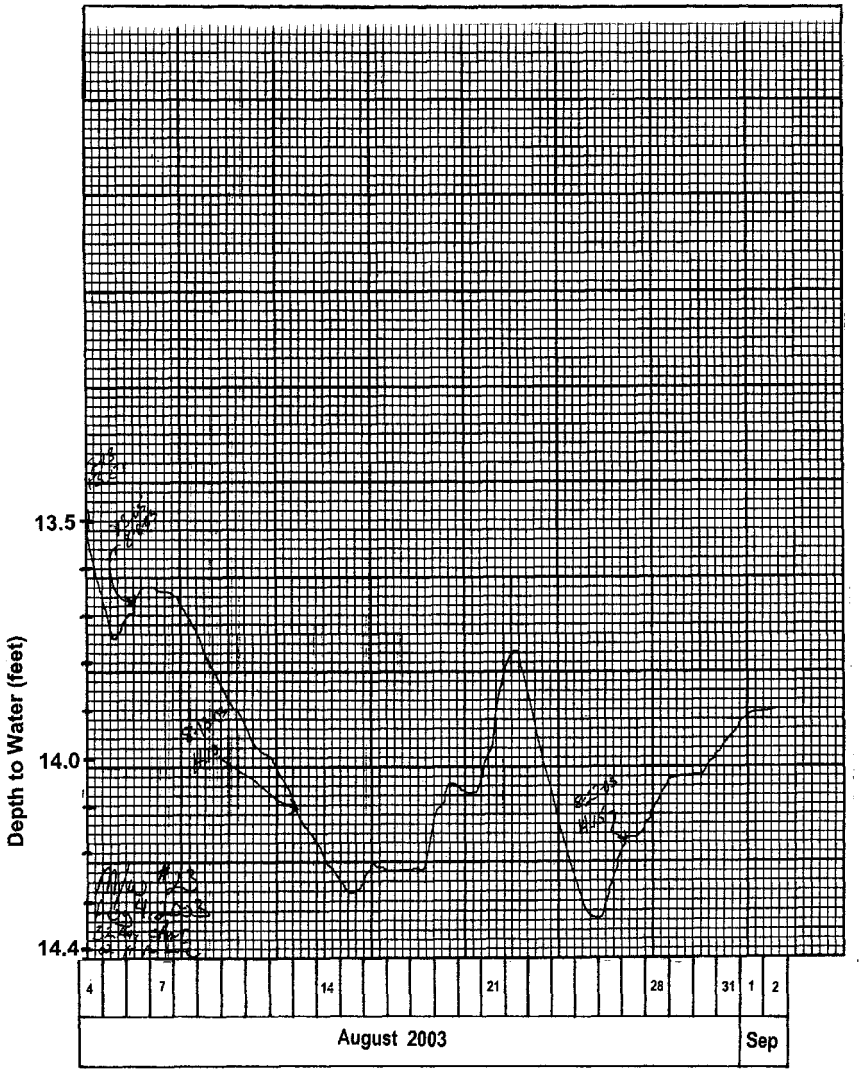
WATER-LEVEL HYDROGRAPH FOR MW-23



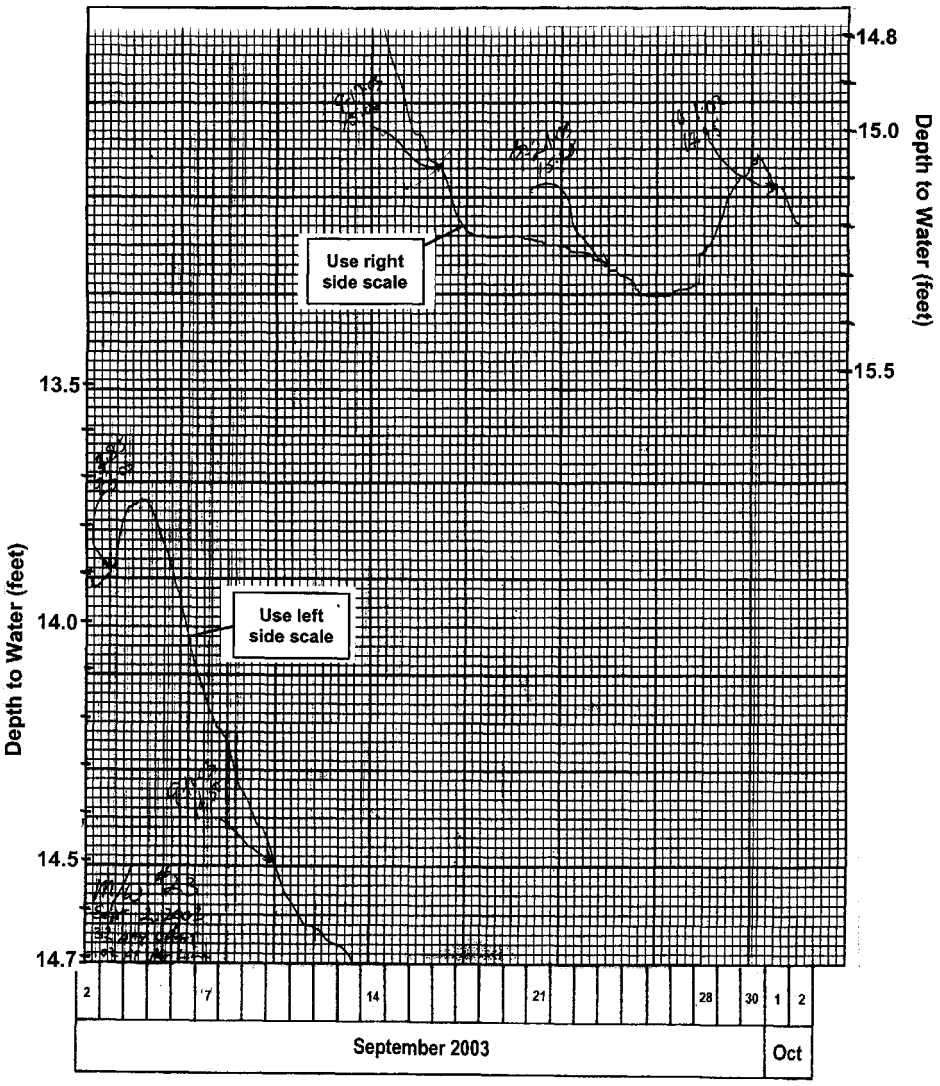
WATER-LEVEL HYDROGRAPH FOR MW-23



WATER-LEVEL HYDROGRAPH FOR MW-23



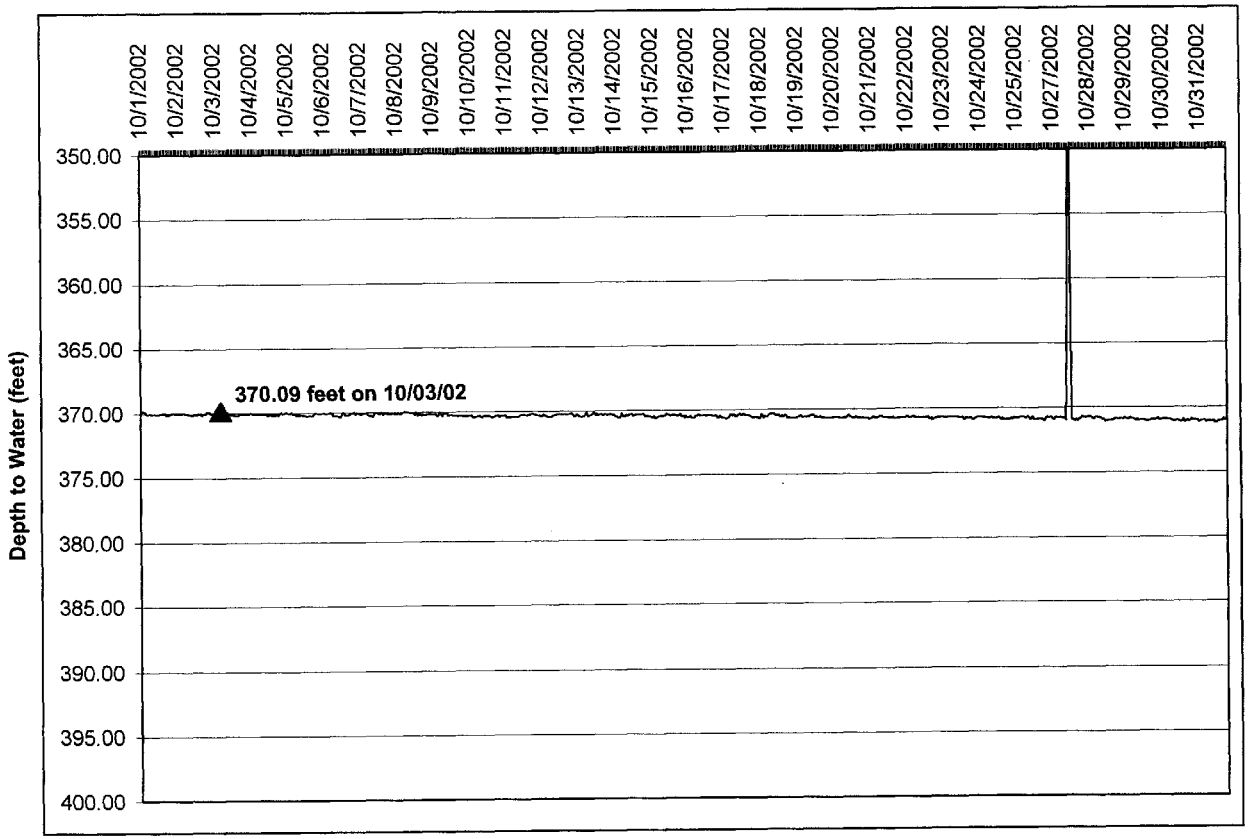
WATER-LEVEL HYDROGRAPH FOR MW-23



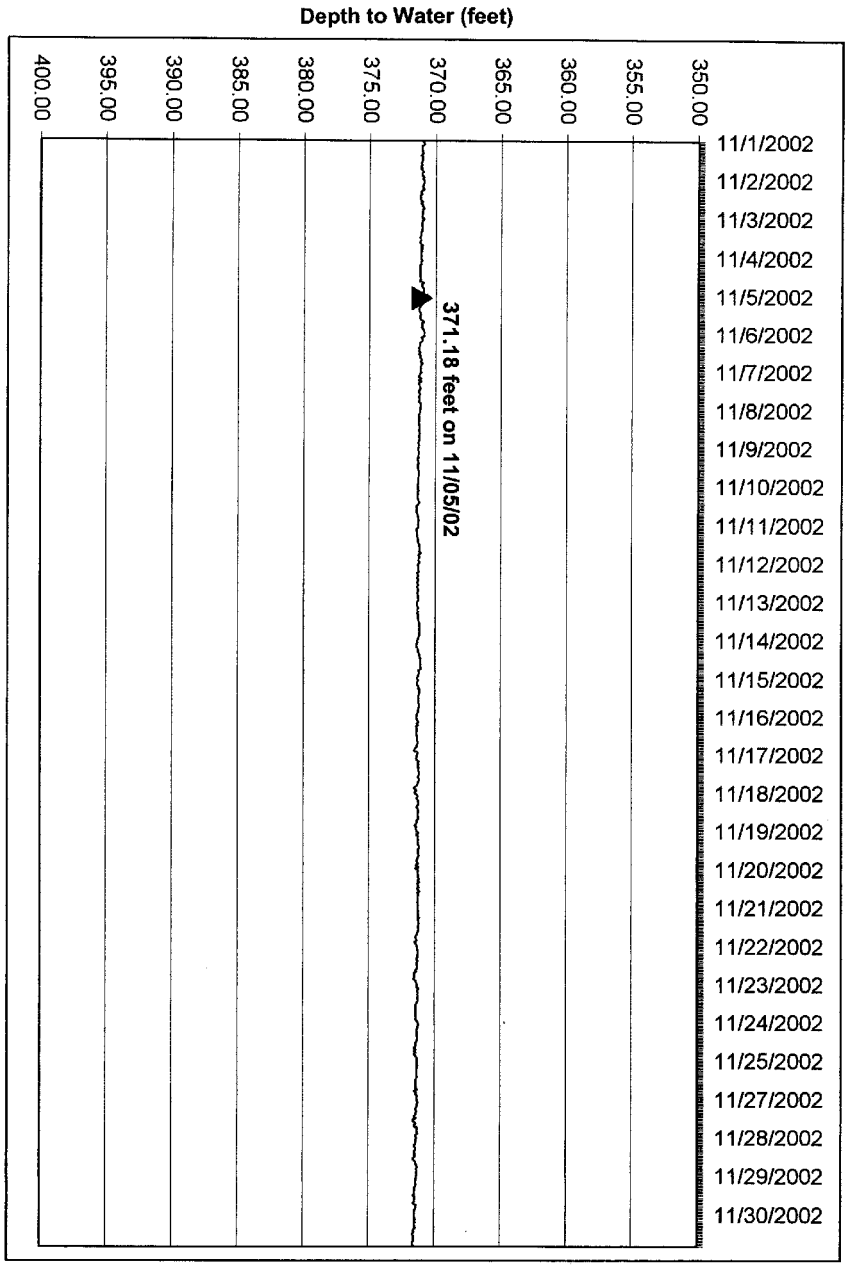
WATER-LEVEL HYDROGRAPH FOR MW-23

Water-Level Hydrographs from Transducer Measurements for Well No. 24

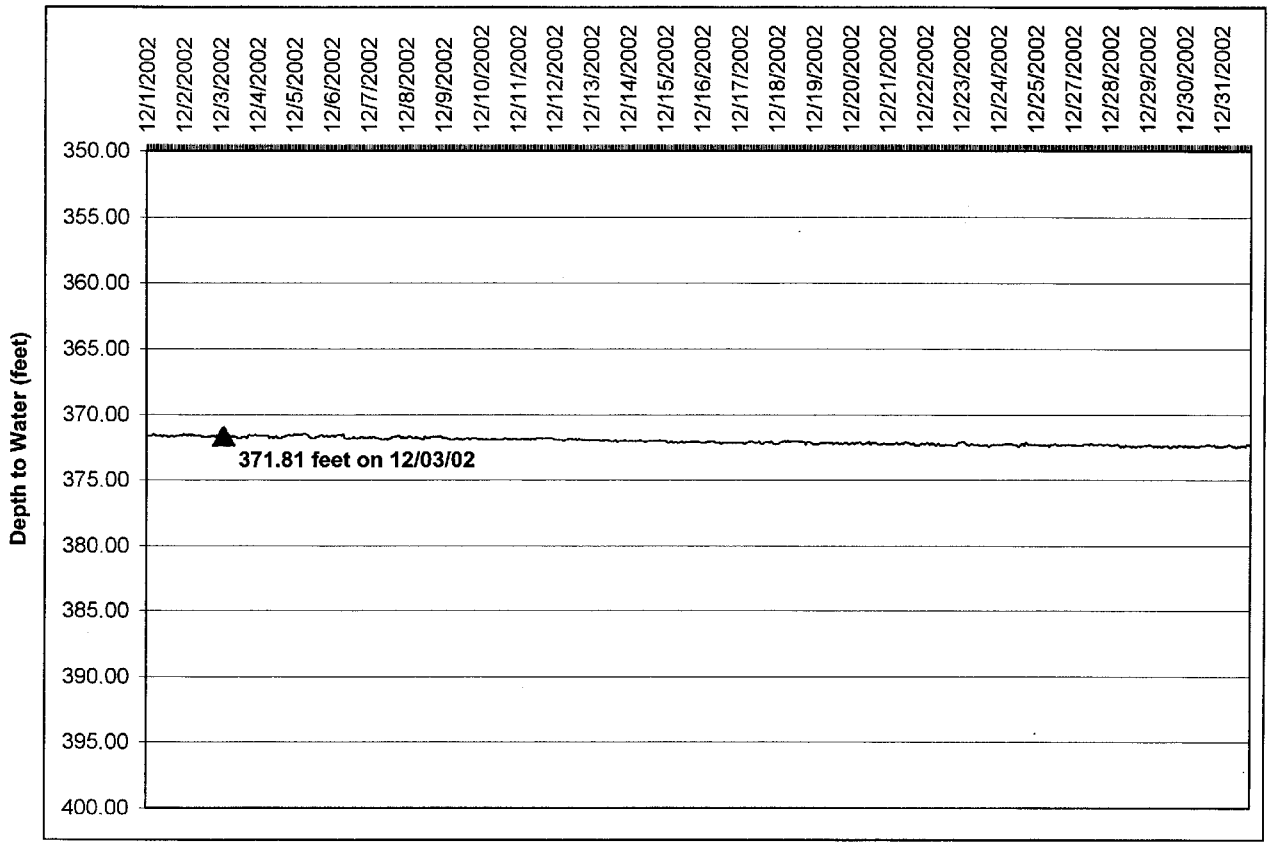
Note: Solid triangle and adjoining depth to water measurement on graphs are from an electric sounder.



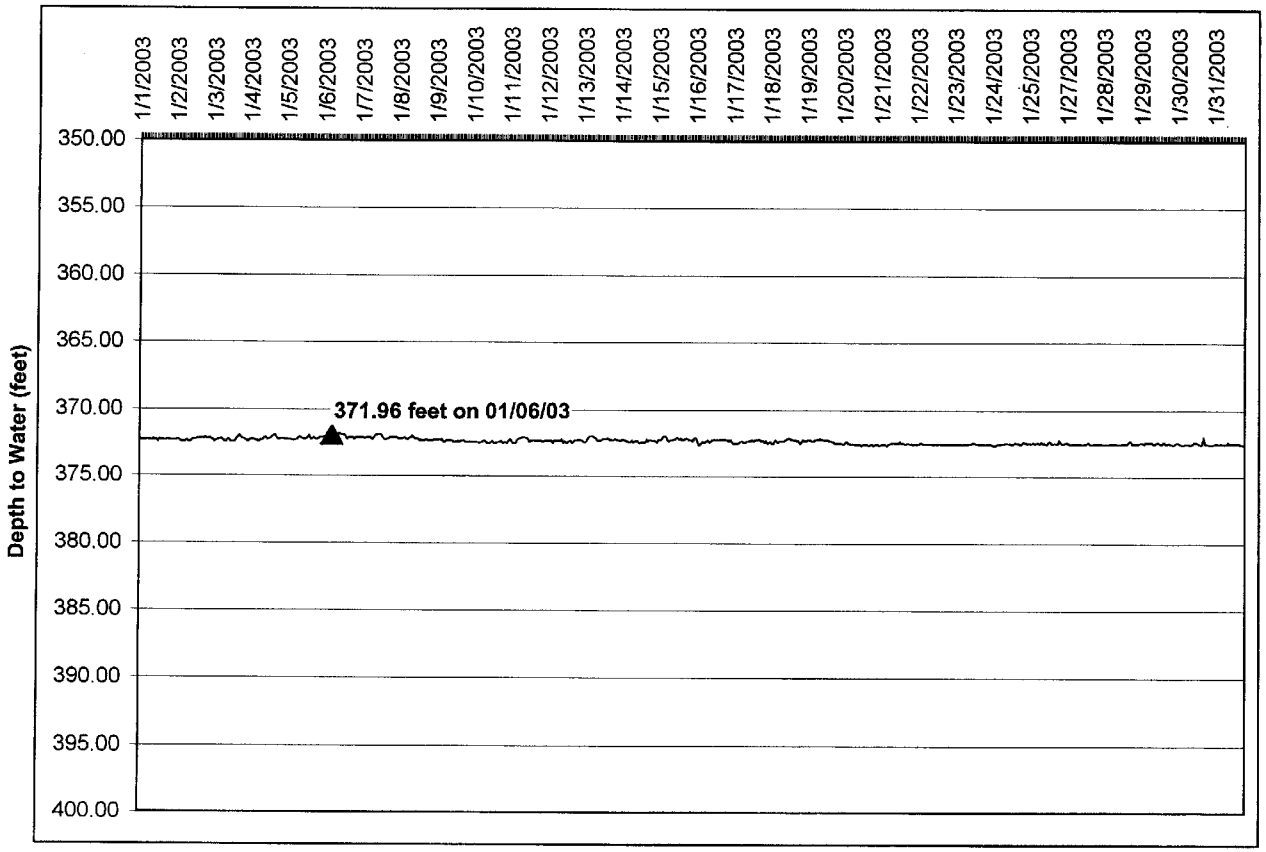
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN OCTOBER 2002



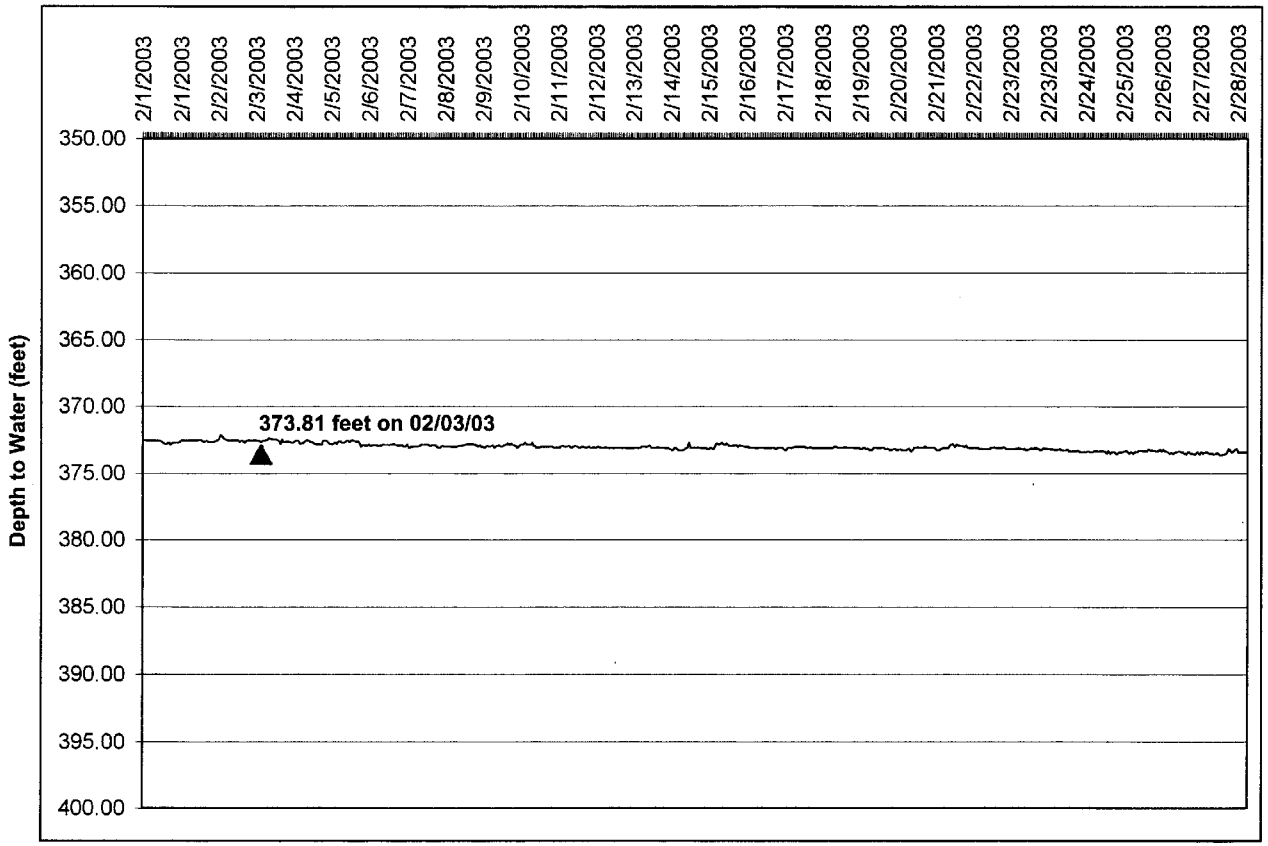
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN NOVEMBER 2002



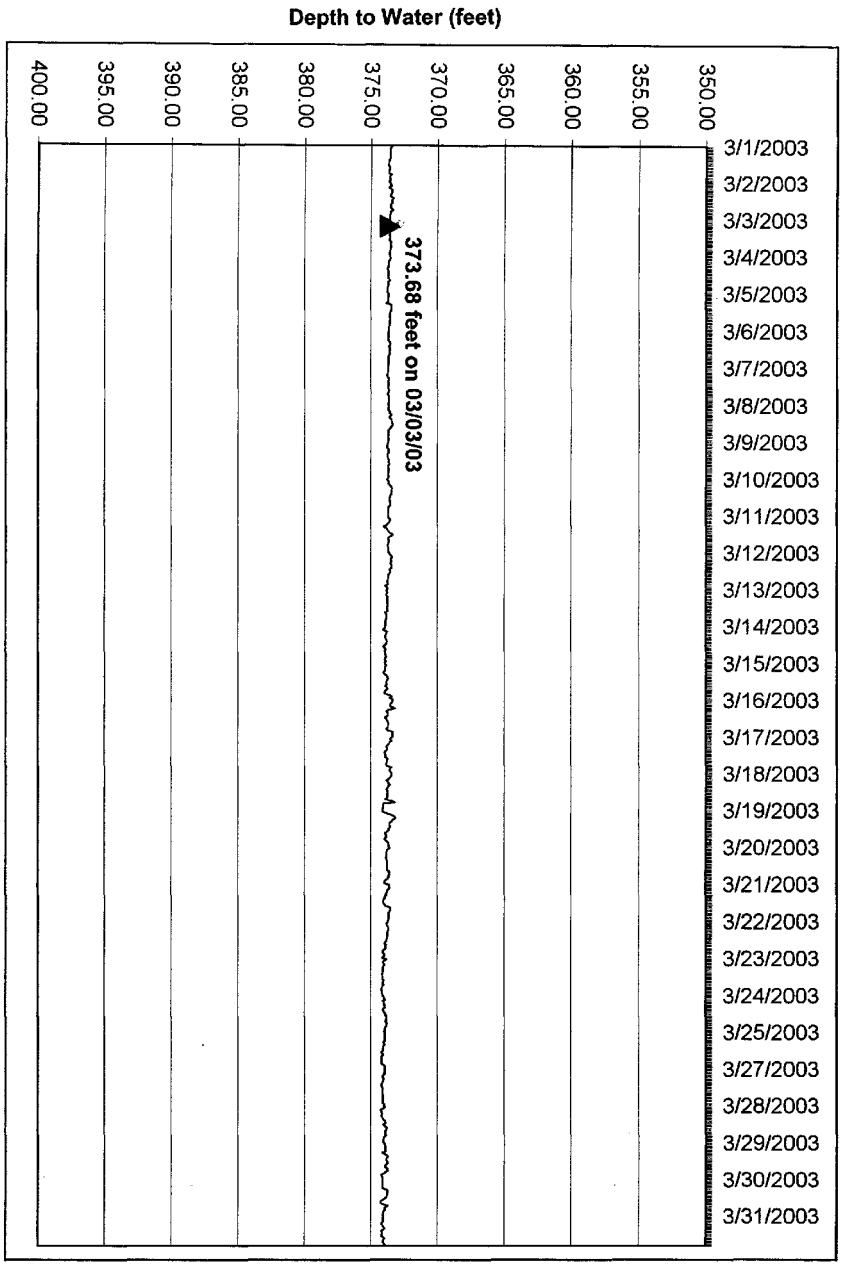
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN DECEMBER 2002



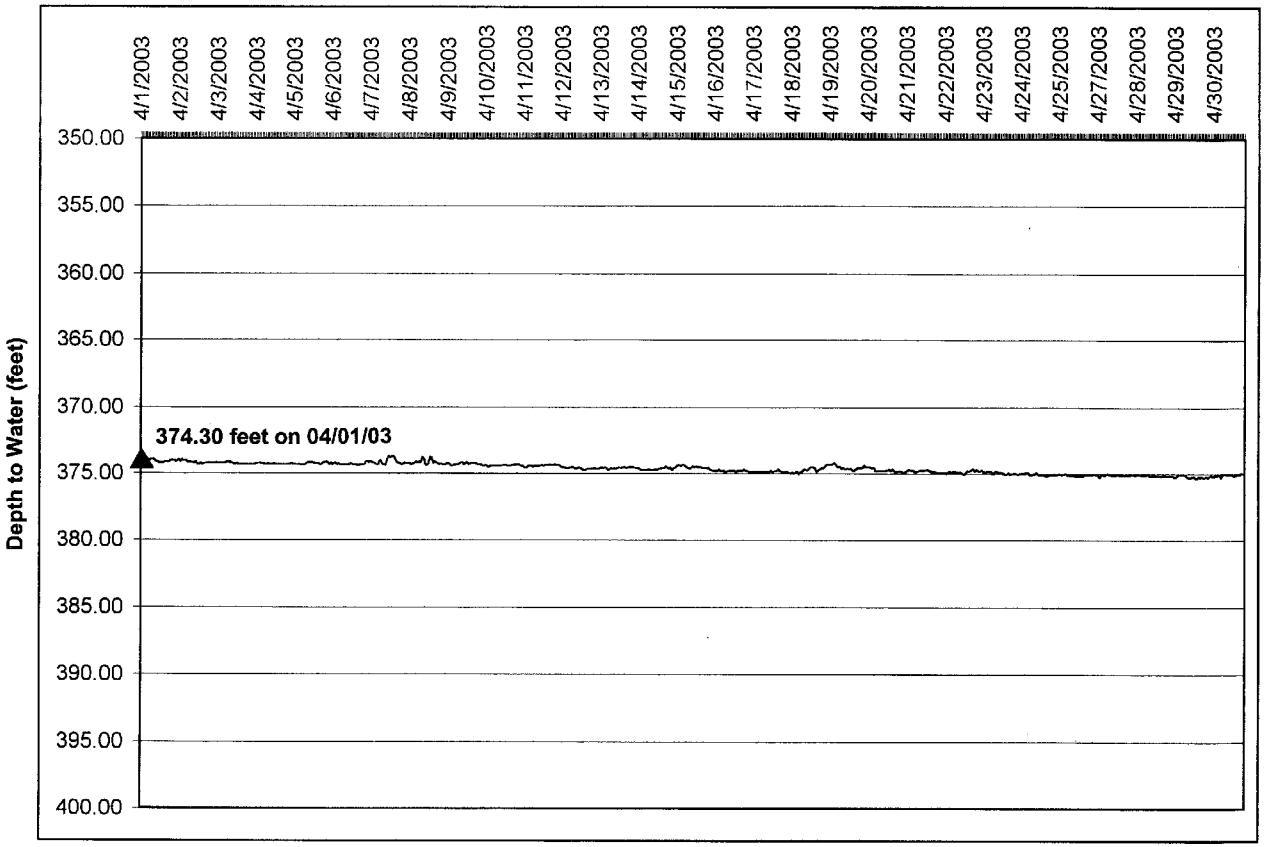
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN JANUARY 2003



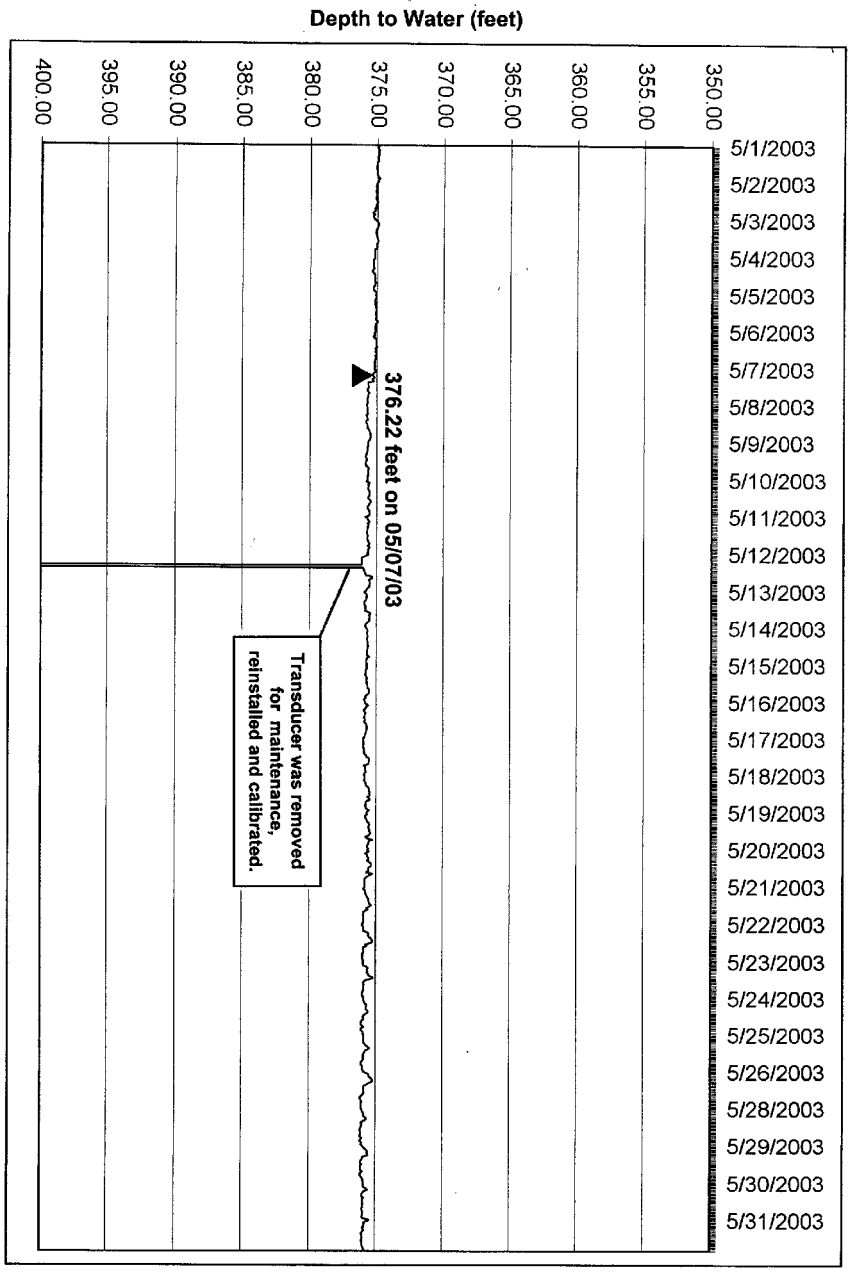
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN FEBRUARY 2003



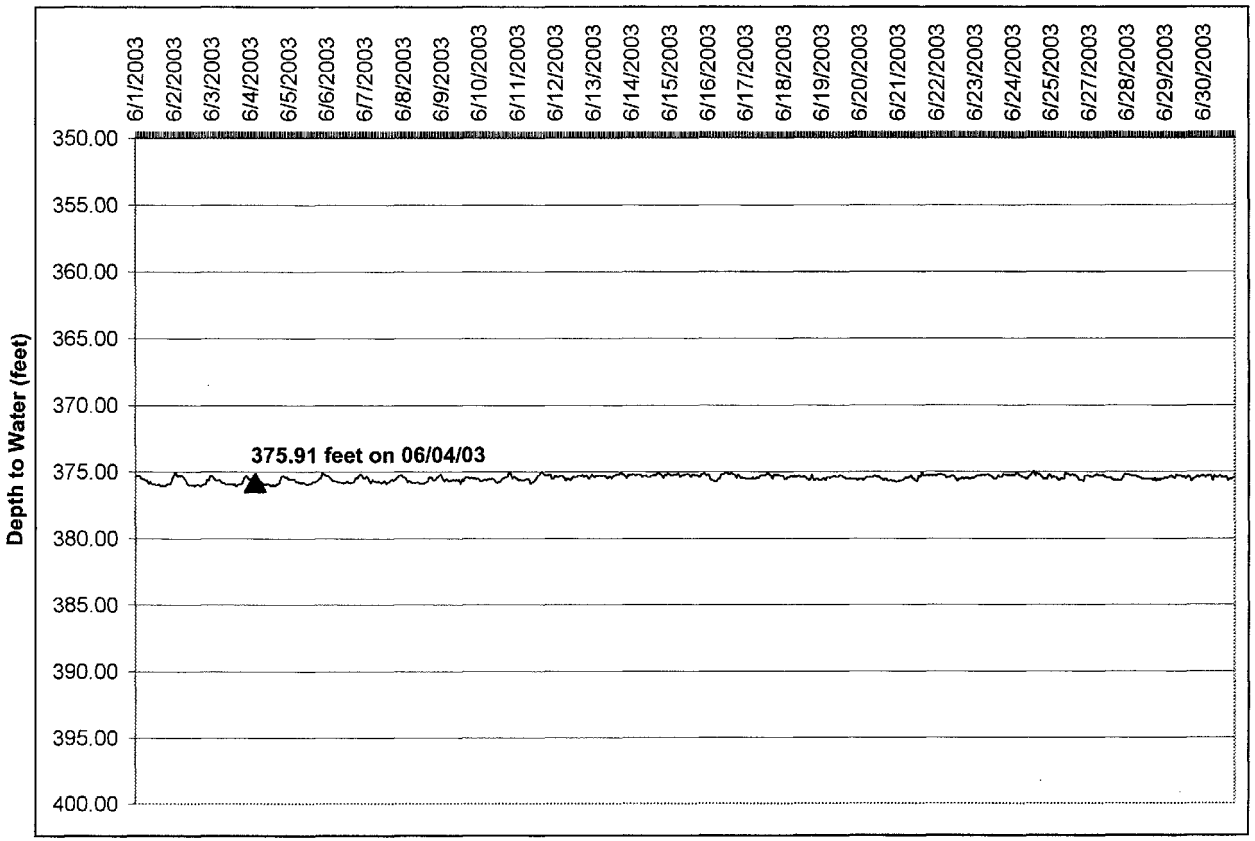
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN MARCH 2003



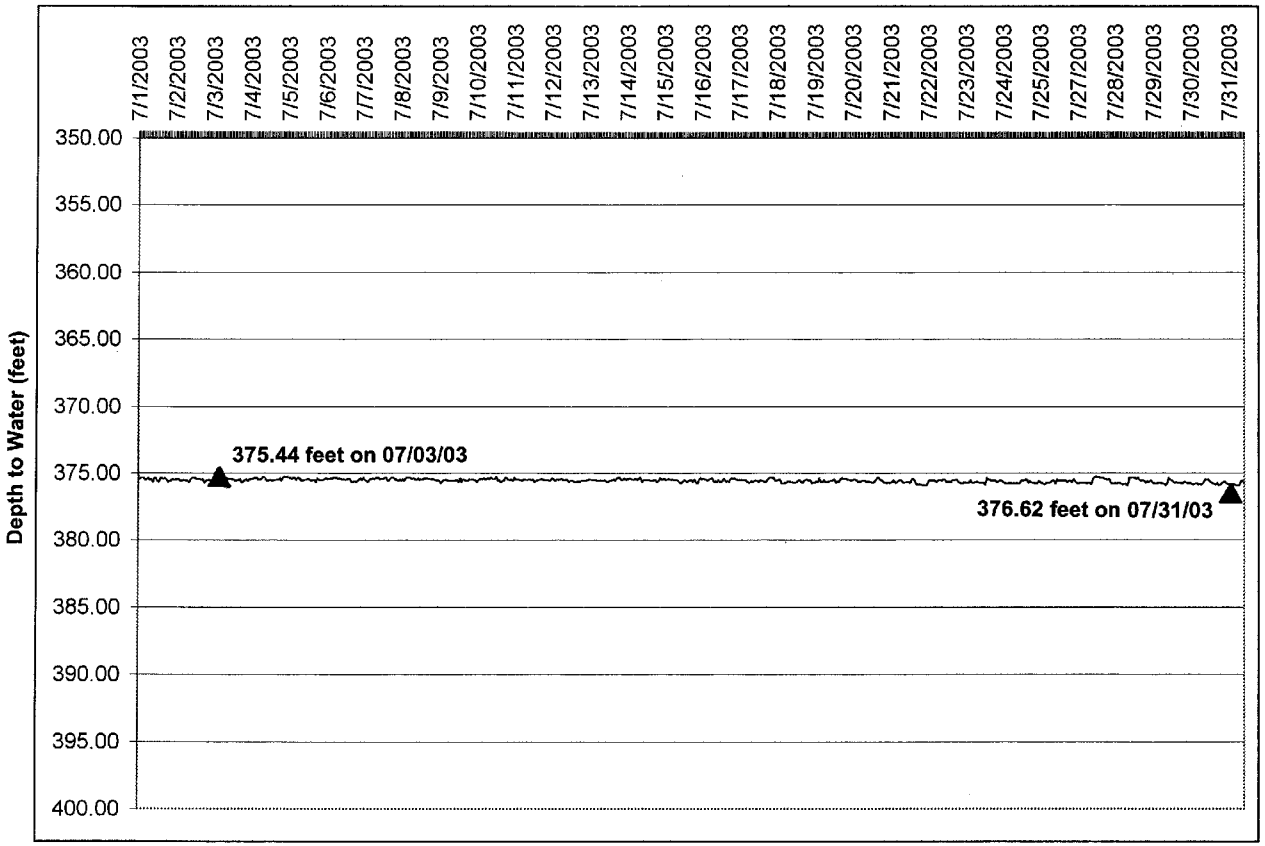
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN APRIL 2003



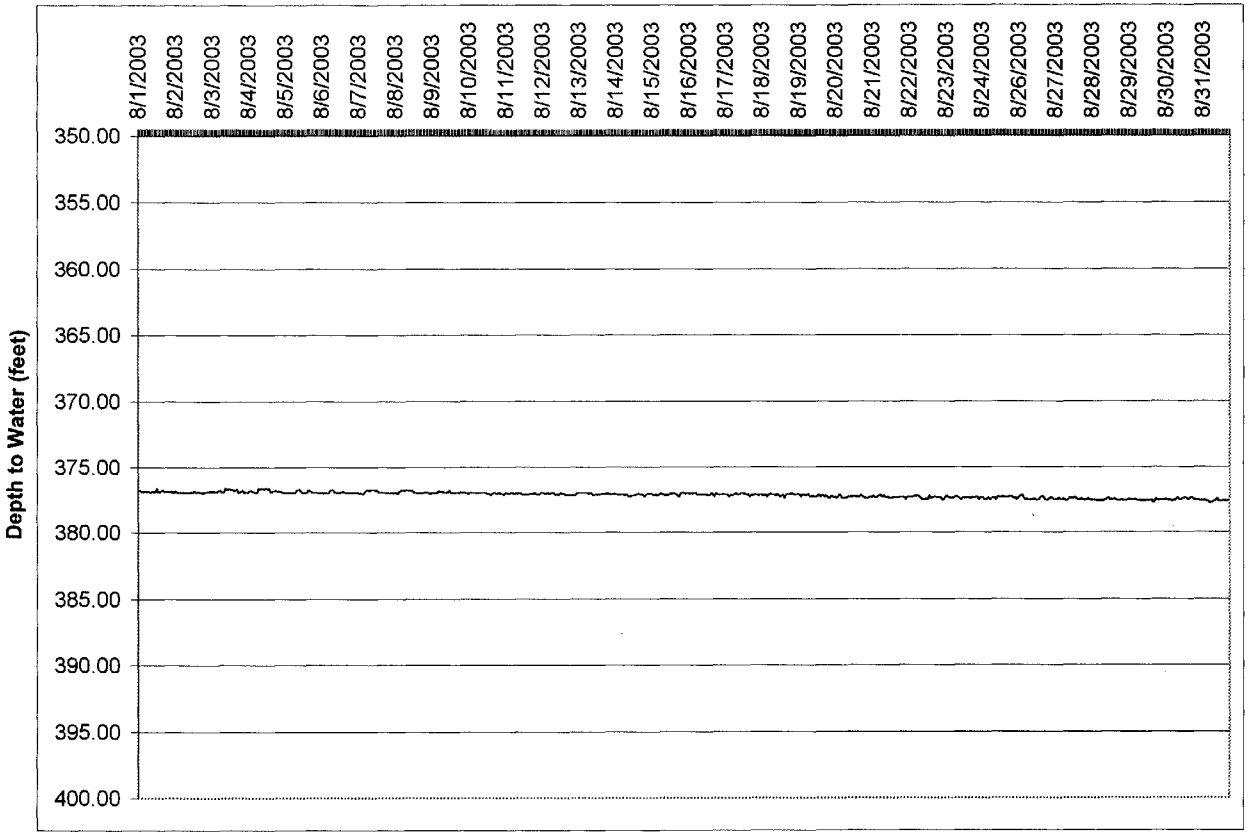
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN MAY 2003



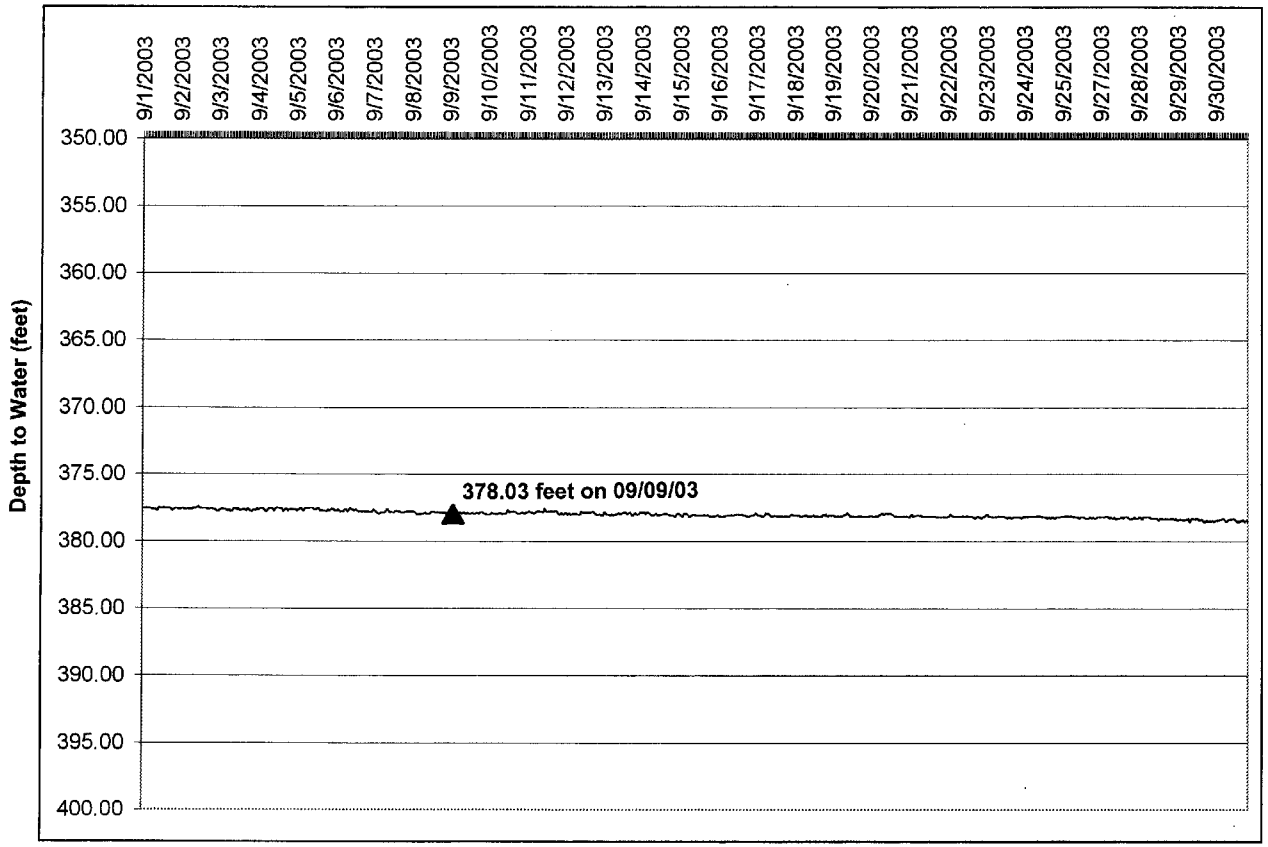
WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN JUNE 2003



WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN JULY 2003



WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN AUGUST 2003



WATER-LEVEL HYDROGRAPH FOR WELL NO. 24 IN SEPTEMBER 2003

APPENDIX E

CHEMICAL ANALYSES OF WATER FROM DISTRICT WELLS

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER QUALITY

Production Well Site	Sample Date	Sample Time	Conductivity umho/cm	TDS mg/L	Temp F	pH
1	06/06/96	8:20	240	168	47	7.4
	09/12/97	10:15	190	96	49	7.2
	07/06/98	14:30	210	120	47	7.4
	07/14/99	9:20	208	165	48	7.6
	08/22/00	7:45	210	156	49	7.2
	07/27/01	8:30	220	140	49	6.5
	09/05/02	7:50	232	116	48	6.6
	09/25/03	9:15	277	182	42	7.1
6	06/06/96	9:05	470	283.	49	7.5
	09/12/97	9:25	397	198	53	7.1
	07/07/98	8:20	300	160	51	8.2
	07/14/99	8:45	305	172	50	7.6
	07/28/00	8:15	310	166	50	7.4
	07/26/01	10:00	380	230	51	7.4
	09/05/02	14:30	350	190	51	7.2
	09/25/03	11:00	427	287	44	7.4
10	06/06/96	9:20	465	315	50	7.3
	09/12/97	9:14	359	179	55	7.2
	06/30/98	13:25	350	240	49	7.6
	07/14/99	8:30	353	231	49	7.5
	07/28/00	8:30	360	228	50	7.5
	07/26/01	10:15	470	300	51	6.6
	09/05/02	8:10	410	225	51	7.0
	09/25/03	Well out of service				
15	06/06/96	9:45	240	152	55	7.4
	09/12/97	9:19	288	144	55	7.2
	06/30/98	13:45	360	210	53	7.5
	07/14/99	9:05	355	190	55	7.6
	08/22/00	8:10	350	187	54	7.3
	07/02/01	10:40	330	220	55	7.4
	09/05/02	8:20	290	185	53	7.2
	09/25/03	10:00	415	279	50	7.2
16	07/11/96	9:00	660	432	70	7.5
	09/11/97	10:11	632	317	73	7.1
	07/06/98	14:35	710	500	70	7.1
	08/20/99	10:30	690	480	70	7.2
	08/22/00	8:25	695	485	74	7.3
	07/02/01	9:30	710	490	70	6.9
	09/09/02	8:00	705	480	70	6.7
	09/25/03	Well out of service				
17	07/11/96	8:45	360	265	65	7.3
	No sample due to motor/pump failure					
	07/06/98	9:15	350	280	60	7.1
	08/20/99	10:10	350	280	61	7.2
	08/22/00	8:40	355	276	63	7.2
	07/02/01	9:10	410	310	60	6.7
	09/03/02	8:30	400	290	61	6.6
	09/25/03	8:55	420	282	62	6.5
18	07/11/96	8:15	540	332	47	7.1
	09/12/97	13:40	500	251	68	7.1
	07/06/98	14:15	490	350	70	6.9
	08/20/99	11:30	510	355	67	7.1
	08/22/00	8:20	505	346	68	7.1
	07/02/01	10:15	530	370	67	6.4
	09/05/02	8:45	535	310	65	6.8
	09/25/03	10:40	637	434	60	6.7
20	07/11/96	9:20	217	164	59	7.1
	09/11/97	9:57	336	168	61	6.9
	No sample due to motor/pump failure					
	08/20/99	11:00	310	210	60	7.1
	08/22/00	9:00	305	190	61	7.1
	07/27/01	8:45	340	250	60	6.8
	09/05/02	9:30	400	195	63	6.6
	09/25/03	9:05	387	259	56	6.7

MAMMOTH COMMUNITY WATER DISTRICT
MONITOR WELL WATER QUALITY

Monitor Well Site	Sample Date	Sample Time	Conductivity umho/cm	TDS mg/L	Temp F	pH
4M	09/09/96	8:05	162	84	47	7.4
	09/24/97	8:03	93	47	45	7.2
	09/04/98	7:45	99	53	45	7.2
	08/26/99	7:40	103	49	44	7.2
	08/22/00	7:45	101	52	45	7.2
	08/28/01	7:50	120	92	45	7.0
	09/20/02	8:00	102	75	45	7.1
	09/30/03	13:05	132		44	6.5
5A	09/09/96	8:30	674	339	60	6.7
	09/24/97	8:35	662	331	58	6.8
	09/04/98	8:20	660	332	58	6.8
	08/26/99	8:10	669	330	58	6.9
	08/22/00	8:15	659	328	59	6.8
	08/28/01	8:20	660	390	60	6.8
	09/20/02	8:15	632	330	58	6.9
	09/30/03	13:55	690	470	50	6.6
5M	09/09/96	8:40	430	217	56	6.4
	No sample due to USGS chart recorder					
	09/04/98	8:30	450	226	56	6.5
	08/26/99	8:15	428	219	55	6.7
	08/22/00	8:20	441	223	55	6.5
	08/28/01	8:25	420	250	57	6.5
	09/20/02	8:20	431	217	56	6.5
	09/30/03	14:05	470	317	49	6.2
7	No sample					
	09/02/97	10:15	101	50	49	7.4
	09/10/98	9:45	110	51	49	7.2
	08/27/99	8:30	104	53	50	7.2
	08/22/00	10:30	108	55	51	7.2
	08/28/01	9:10	105	60	50	7.0
	09/20/02	13:10	110	58	51	7.0
	09/30/03	No access to pump/motor in well				
10M	No water in well to sample					
	09/16/97	14:05	358	180	50	7.3
	09/04/98	8:45	349	175	50	7.2
	08/26/99	8:35	333	162	50	7.1
	08/22/00	8:40	340	160	49	7.2
	08/28/01	9:40	No water in well			
	09/20/02	8:35	No water in well			
	09/30/03		No water in well			

MAMMOTH COMMUNITY WATER DISTRICT
MONITOR WELL WATER QUALITY

Monitor Well Site	Sample Date	Sample Time	Conductivity umho/cm	TDS mg/L	Temp F	pH
11	09/09/96	9:30	96	50	51	7.4
	09/16/97	14:20	106	53	53	7.3
	09/04/98	9:20	104	50	50	7.3
	08/26/99	9:00	101	61	51	7.3
	08/22/00	9:10	105	60	50	7.3
	08/28/01	9:55	100	59	50	7.2
	09/20/02	8:50	98	51	52	7.4
	09/30/03	13:22	119	76	45	7.1
11M	09/09/96	9:40	283	144	52	7.5
	09/16/97	14:30	350	175	51	7.5
	09/04/98	9:25	350	175	50	7.3
	08/26/99	9:10	310	162	51	7.3
	08/22/00	9:20	320	168	52	7.3
	08/28/01	10:10	340	185	51	7.4
	09/20/02	9:05	325	161	52	7.4
	09/30/03	13:30			42	7.1
12M	09/09/96	10:05	267	137	52	7.5
	09/16/97	14:02	364	182	50	7.5
	09/04/98	9:05	359	180	50	7.4
	08/26/99	8:45	370	189	51	7.5
	08/22/00	8:55	368	188	52	7.4
	08/28/01	10:25	350	205	50	7.4
	09/20/02	8:40	No water in well			
	09/30/03		No water in well			
14	09/09/96	No sample due to transducer in well.				
	09/16/97	No sample due to transducer in well.				
	09/04/98	No sample due to transducer in well.				
	08/26/99	No sample due to transducer in well.				
	08/22/00	No sample due to transducer in well.				
	09/04/01	No sample due to transducer in well.				
	09/20/02	No sample due to transducer in well.				
	09/30/03	No sample due to transducer in well.				
19	09/09/96	No sample due to transducer in well.				
	09/16/97	No sample due to transducer in well.				
	09/04/98	No sample due to transducer in well.				
	08/26/99	No sample due to transducer in well.				
	08/22/00	No sample due to transducer in well.				
	09/04/01	No sample due to transducer in well.				
	09/20/02	No sample due to transducer in well.				
	09/30/03	No sample due to transducer in well.				

MAMMOTH COMMUNITY WATER DISTRICT
MONITOR WELL WATER QUALITY

Monitor Well Site	Sample Date	Sample Time	Conductivity umho/cm	TDS mg/L	Temp F	pH
21	09/09/96	No sample due to transducer in well.				
	09/16/97	No sample due to transducer in well.				
	09/04/98	No sample due to transducer in well.				
	08/26/99	No sample due to transducer in well.				
	08/22/00	No sample due to transducer in well.				
	09/04/01	No sample due to transducer in well.				
	09/20/02	No sample due to transducer in well.				
	09/30/03	No sample due to transducer in well.				
22	09/09/96	No sample				
	09/16/97	No sample				
	09/10/98	8:00	115	57	48	7.1
	08/27/99	9:15	111	61	47	7.1
	08/22/00	9:45	114	64	48	7.1
	08/28/01	13:15	115	71	48	7.2
	09/20/02	9:20	121	63	48	7.2
	09/30/03	14:18			44	6.9
23	09/09/96	10:50	93	47	52	7.3
	09/16/97	10:05	95	48	50	7.3
	09/04/98	10:00	98	50	50	7.3
	08/27/99	9:45	91	49	50	7.2
	08/22/00	10:00	96	51	50	7.1
	08/28/01	13:30	84	45	48	7.2
	09/20/02	9:35	90	47	49	7.1
	09/30/03	14:45	151	98	47	7.2
24	09/09/96	No sample due to transducer in well.				
	09/16/97	No sample due to transducer in well.				
	09/04/98	No sample due to transducer in well.				
	08/27/99	No sample due to transducer in well.				
	08/22/00	No sample due to transducer in well.				
	09/04/01	No sample due to transducer in well.				
	09/20/02	No sample due to transducer in well.				
	09/30/03	No sample due to transducer in well.				

APPENDIX F

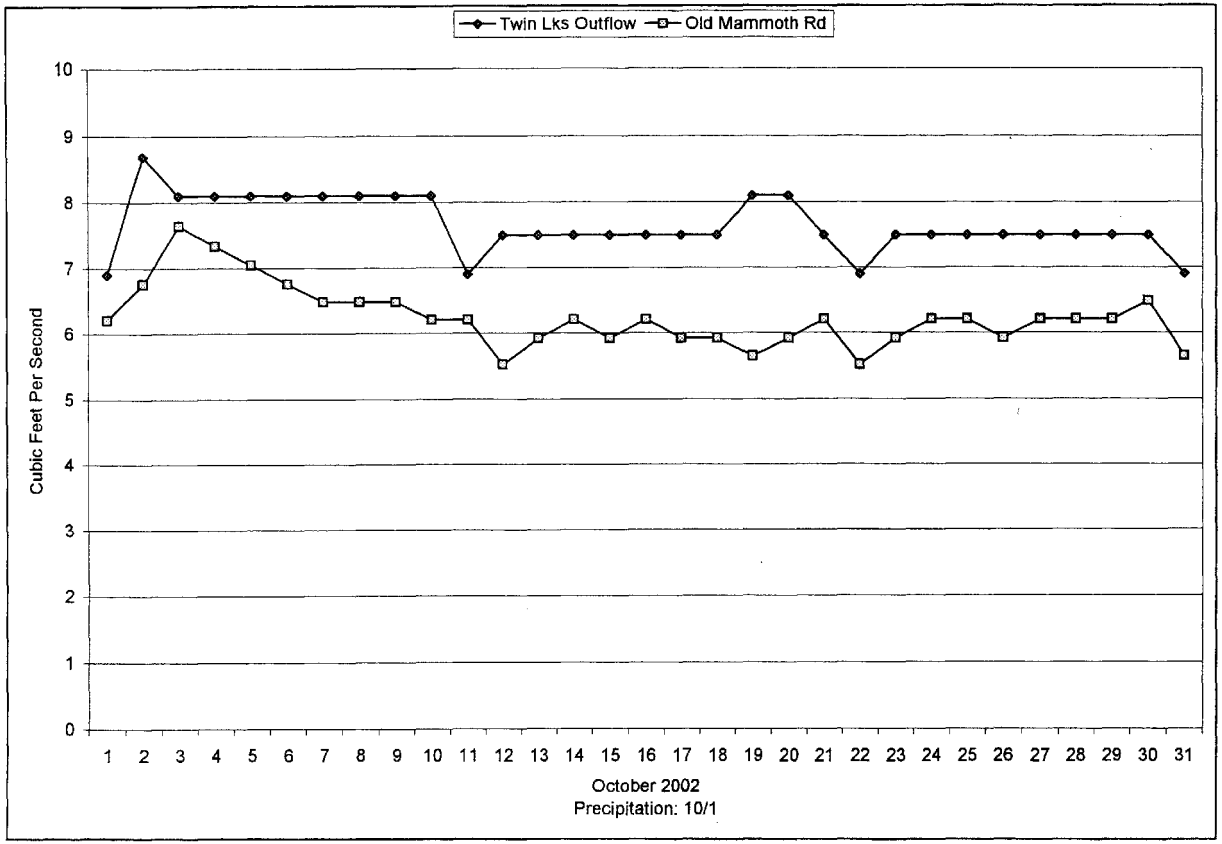
MAMMOTH CREEK STREAMFLOW

TWIN LAKES OUTFLOW

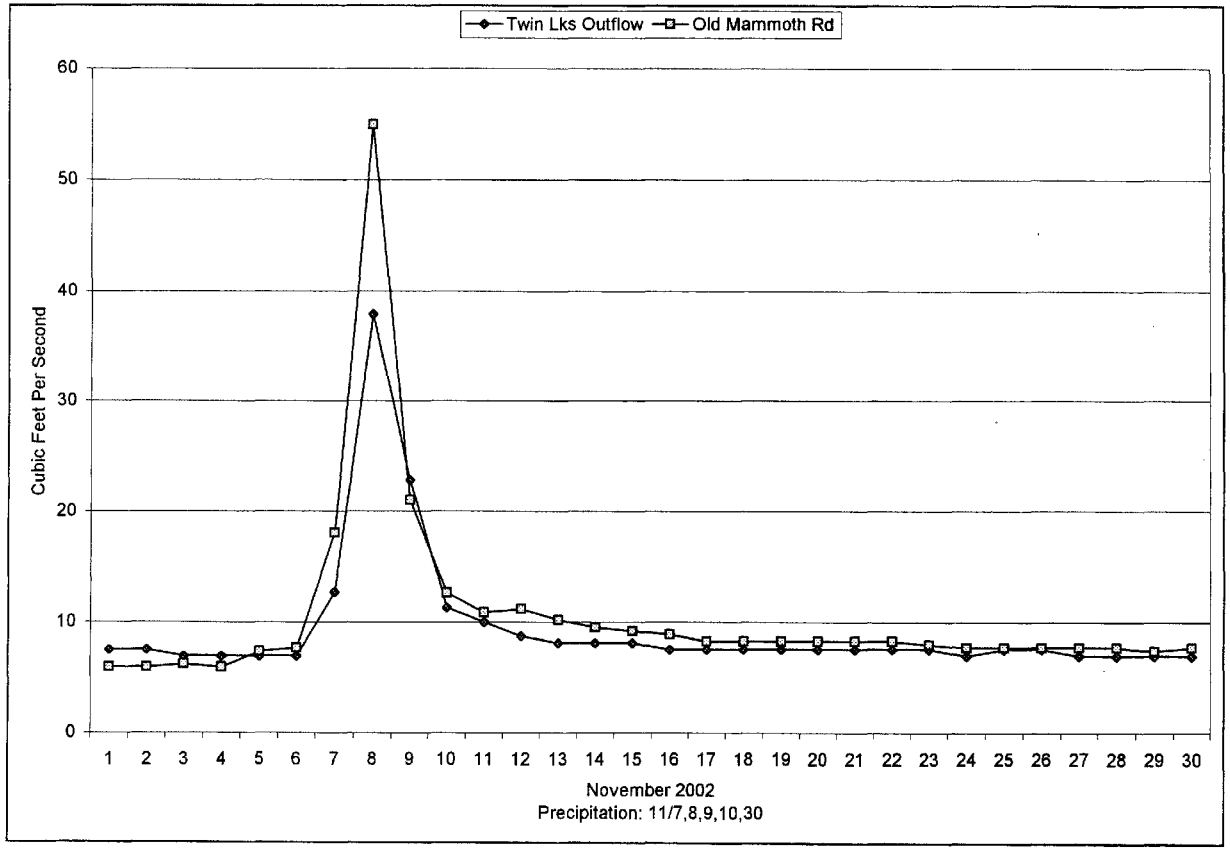
Daily discharge in cubic feet per second					Twin Lakes Outflow							
	2002			2003								
Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	7.5	6.9	8.7	6.3	6.9	7.5	8.1	101.5	27.3	14.1	11.3
2	8.7	7.5	6.9	8.1	6.3	6.9	6.9	8.7	93.2	25.5	12.7	11.3
3	8.1	6.9	6.9	7.5	6.3	6.9	6.3	10.0	91.8	27.3	12.7	11.3
4	8.1	6.9	6.9	7.5	6.3	6.9	6.9	8.1	101.5	28.2	13.4	10.6
5	8.1	6.9	6.9	7.5	6.3	6.3	6.3	8.7	90.5	24.6	13.4	8.7
6	8.1	6.9	6.3	6.9	6.3	6.3	6.3	9.3	85.1	22.9	12.7	8.1
7	8.1	12.7	6.3	6.9	6.3	6.3	6.3	9.3	82.4	25.5	11.3	7.5
8	8.1	37.9	6.3	6.9	6.9	6.3	6.3	9.3	82.4	25.5	10.6	7.5
9	8.1	22.9	6.3	7.5	6.9	5.8	6.9	8.7	89.1	22.9	10.6	6.9
10	8.1	11.3	5.8	7.5	6.9	5.8	6.9	8.7	89.1	19.5	10.0	7.5
11	6.9	10.0	6.3	6.9	7.5	5.8	7.5	9.3	85.1	17.9	10.0	7.5
12	7.5	8.7	6.3	6.3	8.7	5.8	7.5	10.0	67.2	17.1	9.3	7.5
13	7.5	8.1	6.3	6.9	8.1	5.8	9.3	10.6	67.2	17.9	8.7	7.5
14	7.5	8.1	7.5	6.9	7.5	8.7	8.7	12.0	63.5	17.1	8.1	7.5
15	7.5	8.1	9.3	6.9	9.3	6.3	7.5	12.0	64.7	17.1	8.7	7.5
16	7.5	7.5	6.9	6.9	7.5	6.3	8.1	13.4	67.2	17.1	8.7	5.8
17	7.5	7.5	12.0	6.9	7.5	5.8	8.1	13.4	67.2	16.4	8.7	6.9
18	7.5	7.5	6.9	6.9	7.5	5.8	7.5	15.6	63.5	15.6	8.7	6.9
19	8.1	7.5	7.5	6.9	7.5	5.8	7.5	17.9	61.1	17.1	8.1	7.5
20	8.1	7.5	9.3	6.9	7.5	5.8	8.1	18.7	61.1	22.0	8.7	7.5
21	7.5	7.5	7.5	6.9	7.5	5.8	8.7	20.4	57.6	22.0	10.6	7.5
22	6.9	7.5	7.5	6.9	6.9	5.8	8.1	23.7	54.1	17.1	8.7	7.5
23	7.5	7.5	7.5	6.9	7.5	5.8	7.5	32.0	42.0	18.7	8.1	7.5
24	7.5	6.9	7.5	6.9	7.5	5.8	7.5	43.1	30.1	20.4	7.5	7.5
25	7.5	7.5	7.5	6.9	8.1	5.8	7.5	64.7	22.9	26.4	8.7	7.5
26	7.5	7.5	7.5	6.9	6.9	6.3	6.9	90.5	26.4	22.9	10.6	7.5
27	7.5	6.9	7.5	6.9	7.5	5.8	7.5	90.5	32.9	18.7	10.6	7.5
28	7.5	6.9	7.5	6.9	6.9	5.8	8.7	91.8	32.0	19.5	11.3	7.5
29	7.5	6.9	10.0	6.3		5.8	7.5	121.9	32.0	22.0	11.3	6.9
30	7.5	6.9	8.1	6.9		6.3	7.5	113.0	32.0	20.4	11.3	7.5
31	6.9		10.6	6.9		6.3		104.4		17.9	11.3	
Mean	7.7	9.3	7.5	7.1	7.2	6.2	7.5	32.8	64.5	21.0	10.3	7.9
Maximum	8.7	37.9	12.0	8.7	9.3	8.7	9.3	121.9	101.5	28.2	14.1	11.3
Minimum	6.9	6.9	5.8	6.3	6.3	5.8	6.3	8.1	22.9	15.6	7.5	5.8

MAMMOTH CREEK AT OLD MAMMOTH ROAD

Daily discharge in cubic feet per second					Mammoth Creek at Old Mammoth Road							
	2002			2003								
Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	5.9	7.3	7.9	7.1	6.1	10.5	10.2	130.7	32.0	14.1	10.8
2	6.8	5.9	7.3	7.9	6.2	6.2	8.9	11.5	113.6	27.0	11.5	10.8
3	7.6	6.2	7.3	7.6	6.8	5.9	9.8	12.2	108.7	31.0	10.8	11.9
4	7.3	5.9	7.3	7.6	6.5	5.9	9.2	11.9	122.9	31.0	11.5	10.5
5	7.1	7.3	7.3	7.6	6.2	5.9	8.2	11.2	116.1	28.0	11.5	8.6
6	6.8	7.6	7.1	7.3	8.2	5.9	8.2	11.9	105.4	24.2	11.2	7.1
7	6.5	18.0	7.1	7.3	6.1	5.9	8.2	12.2	99.8	26.5	10.2	7.1
8	6.5	55.0	7.1	7.3	6.2	5.9	9.5	12.6	100.6	28.0	9.8	6.5
9	6.5	21.0	7.3	7.6	6.2	5.9	10.2	11.5	107.5	24.6	8.6	6.5
10	6.2	12.6	6.8	8.2	6.1	6.5	10.2	11.5	99.84	20.2	8.6	6.2
11	6.2	10.8	7.3	7.3	6.1	6.8	11.2	11.5	99.05	20.2	9.2	6.5
12	5.5	11.2	7.6	7.1	7.3	7.1	11.2	12.6	83.8	17.2	9.2	6.2
13	5.9	10.2	7.6	6.8	7.3	7.1	13.3	14.1	79.4	16.4	7.9	5.9
14	6.2	9.5	9.8	7.1	6.5	8.6	13.0	17.2	77.2	16.8	7.3	6.2
15	5.9	9.2	10.5	7.1	6.5	8.9	10.5	16.8	76.5	16.8	7.6	5.7
16	6.2	8.9	7.3	7.3	7.3	7.3	10.8	15.6	78.7	16.4	7.9	6.2
17	5.9	8.2	9.8	7.3	6.2	6.8	10.5	18.9	78.7	16.0	7.9	5.9
18	5.9	8.2	11.9	7.6	6.2	6.5	9.8	21.0	73.7	16.0	7.9	5.9
19	5.7	8.2	10.5	7.6	6.2	7.1	10.2	22.3	71.6	16.0	7.6	5.9
20	5.9	8.2	6.2	7.6	6.1	6.5	10.5	23.7	69.5	20.6	8.2	5.7
21	6.2	8.2	9.5	7.3	6.1	7.1	11.5	27.0	63.4	18.5	11.2	5.7
22	5.5	8.2	8.2	7.3	6.2	7.1	10.2	29.0	60.1	16.4	9.2	5.7
23	5.9	7.9	7.6	7.1	6.1	8.2	10.8	47.6	51.2	18.9	7.6	5.7
24	6.2	7.6	8.2	7.1	6.5	7.8	9.8	51.8	36.2	22.4	6.8	5.5
25	6.2	7.6	9.2	7.3	6.5	8.2	9.8	88.3	26.5	28.0	7.3	5.1
26	5.9	7.6	7.6	7.3	6.2	9.5	9.8	108.7	28.0	27.0	10.2	5.5
27	6.2	7.6	7.9	7.6	6.2	8.6	9.8	107.9	36.2	21.5	10.5	5.5
28	6.2	7.6	7.9	7.1	6.2	8.2	11.2	109.5	37.3	20.2	11.2	5.4
29	6.2	7.3	9.2	6.8		8.2	10.2	145.9	36.8	23.3	11.2	5.1
30	6.5	7.6	7.9	7.1		8.6	10.2	148.6	36.2	22.8	11.2	5.4
31	5.7		14.1	7.3		9.8		137.7		16.8	10.8	
Mean	6.2	10.5	8.3	7.4	6.5	7.2	10.2	41.7	76.8	22.0	9.5	6.7
Maximum	7.6	55.0	14.1	8.2	8.2	9.8	13.3	148.6	130.7	32.0	14.1	11.9
Minimum	5.5	5.9	6.2	6.8	6.1	5.9	8.2	10.2	26.5	16.0	6.8	5.1



MAMMOTH CREEK STREAMFLOW COMPARISON



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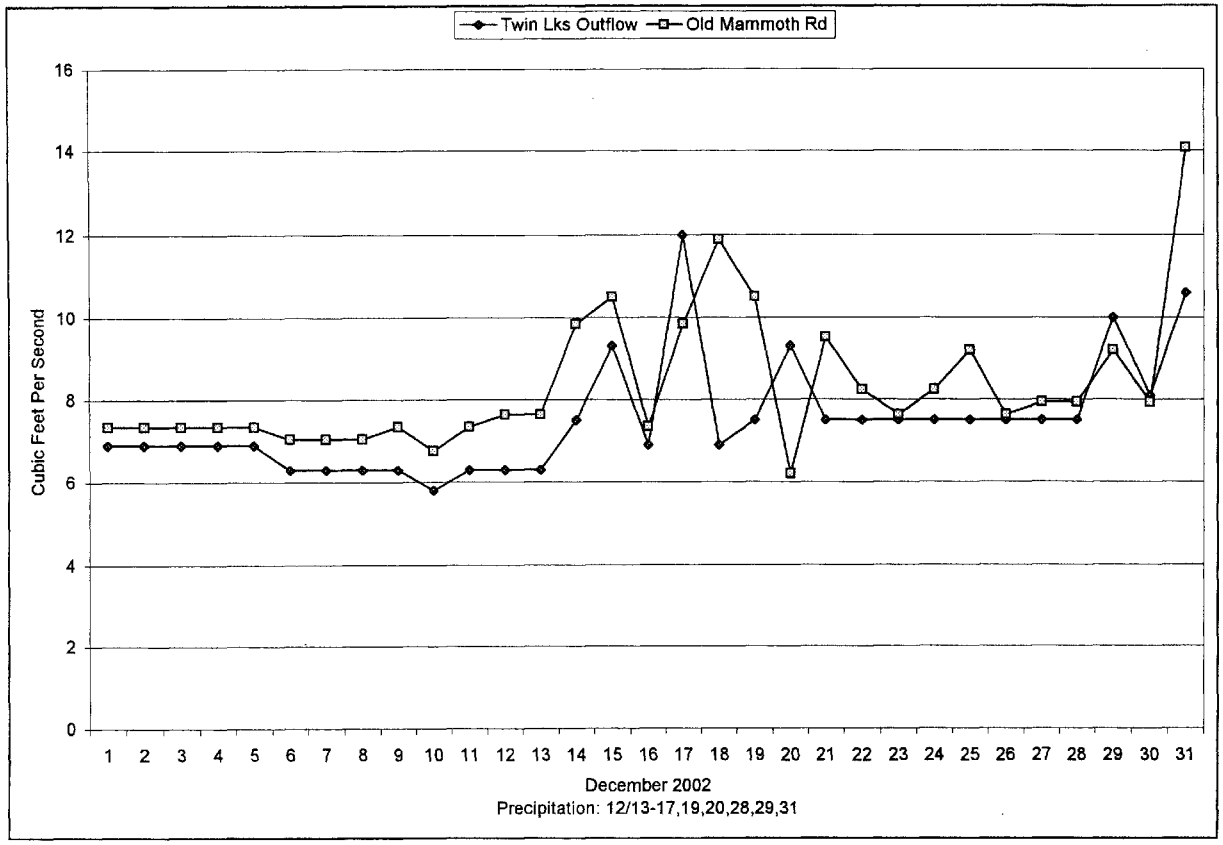

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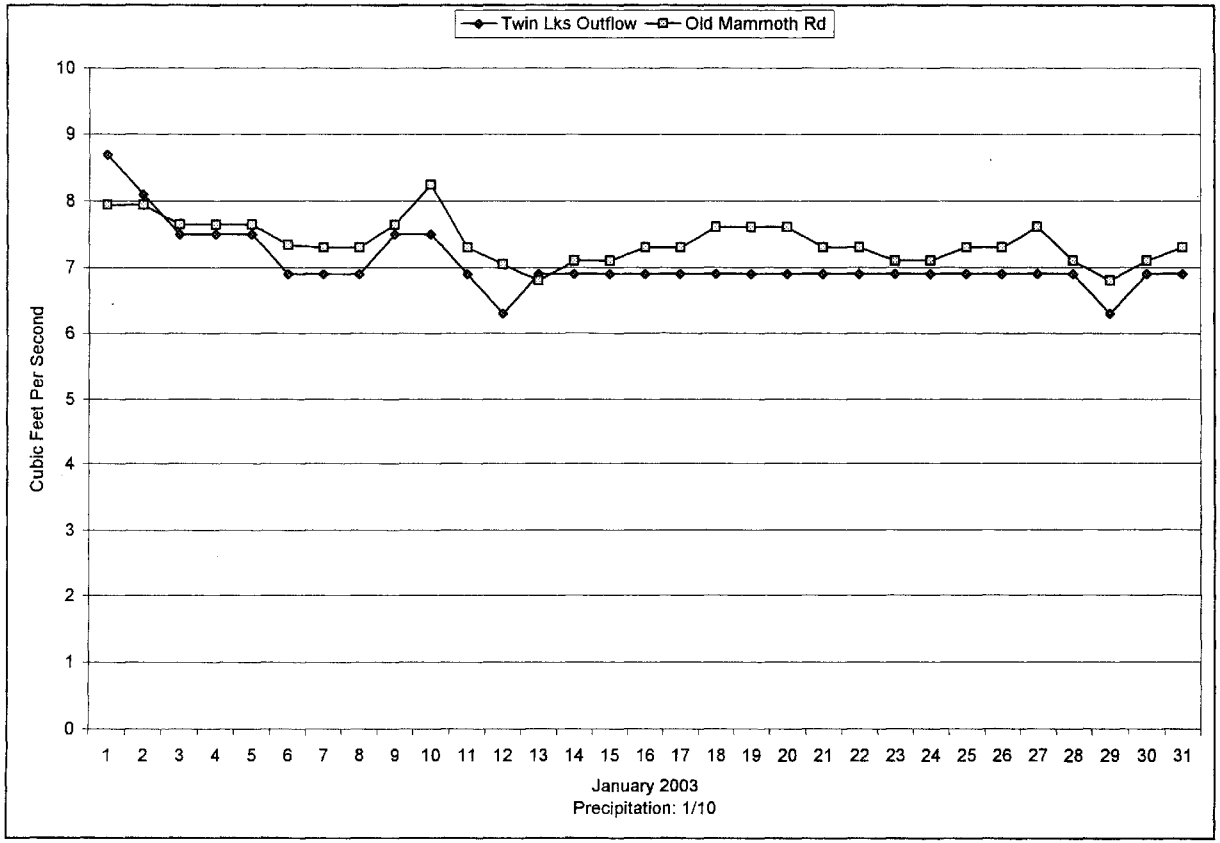

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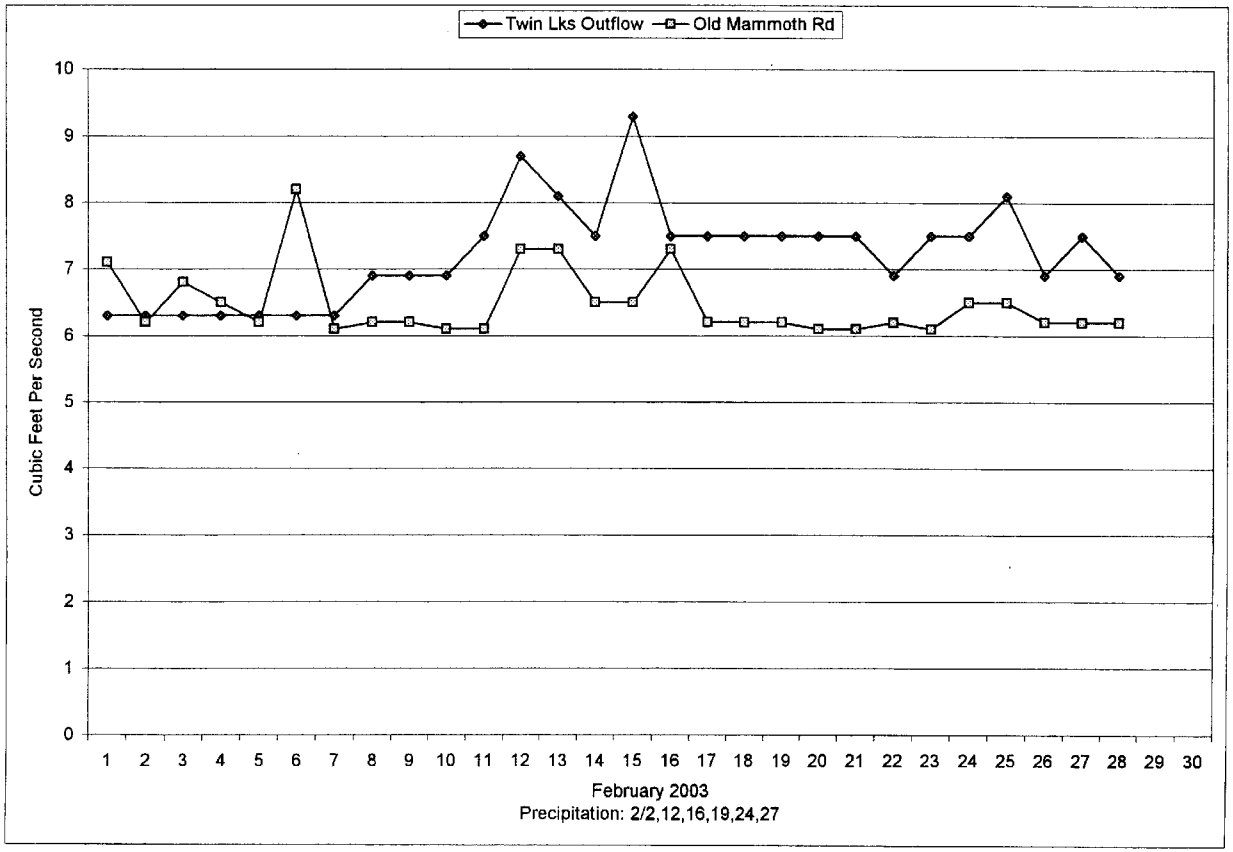

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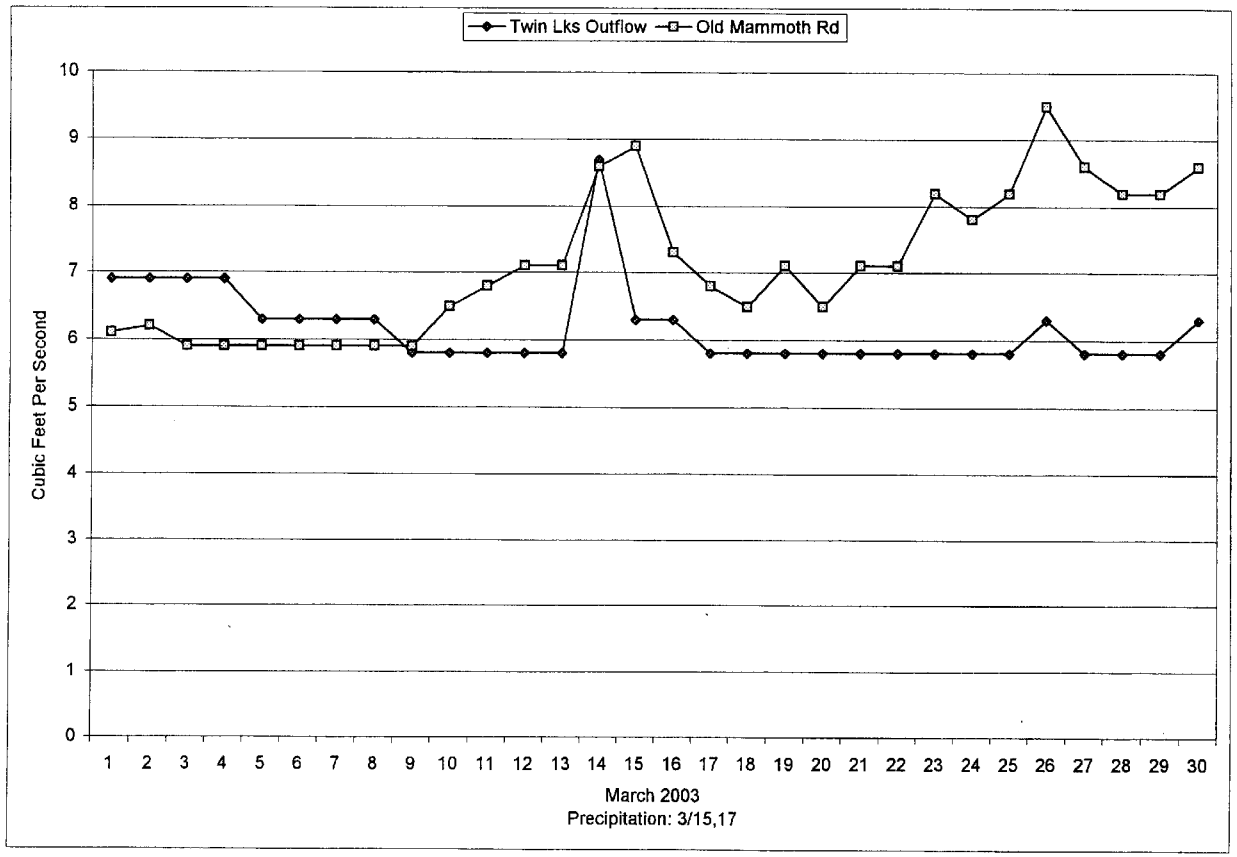

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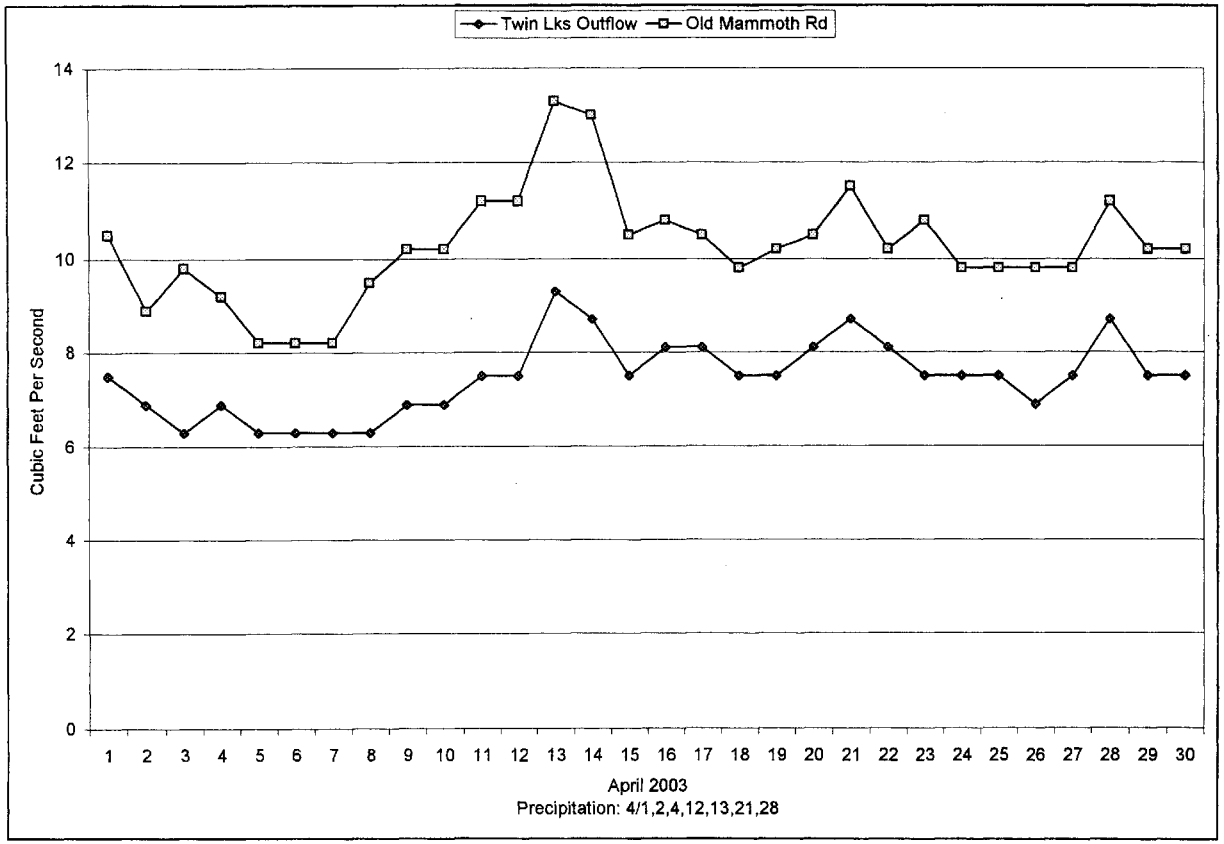

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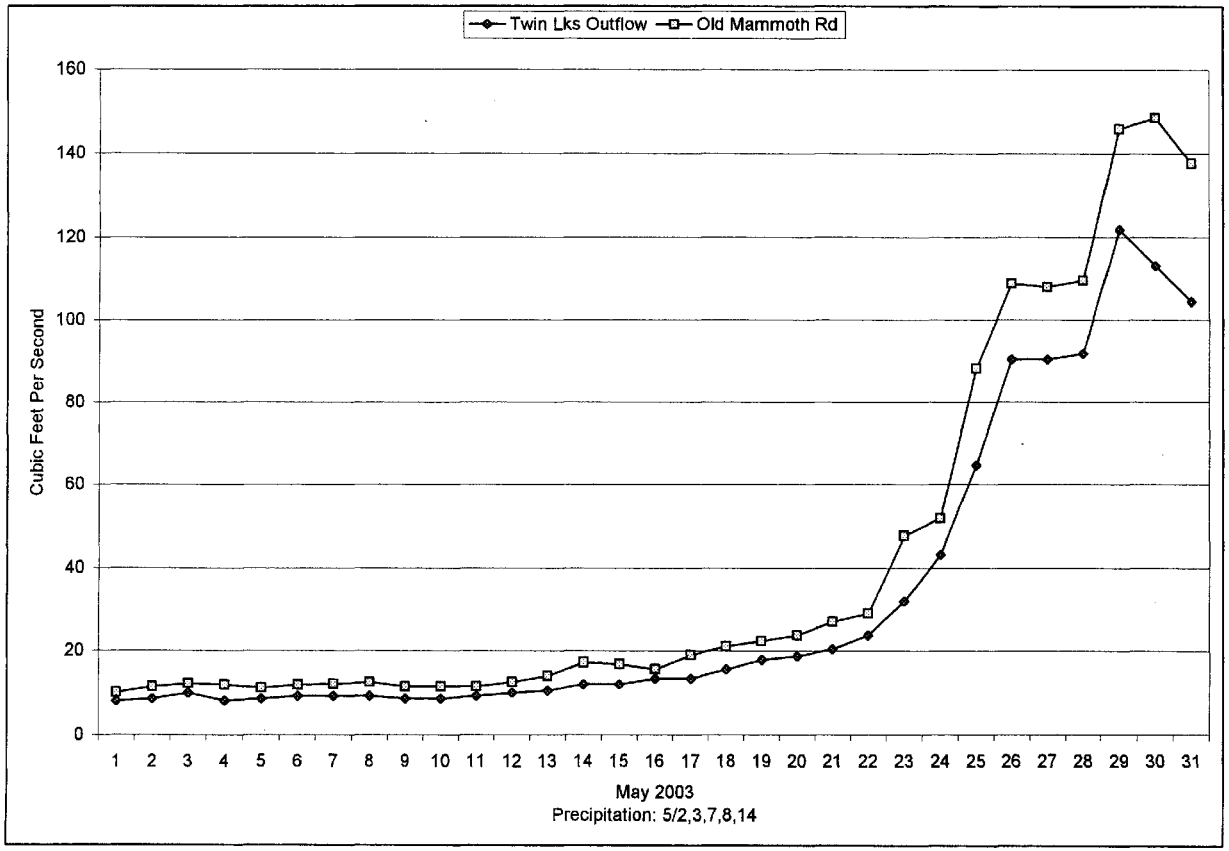

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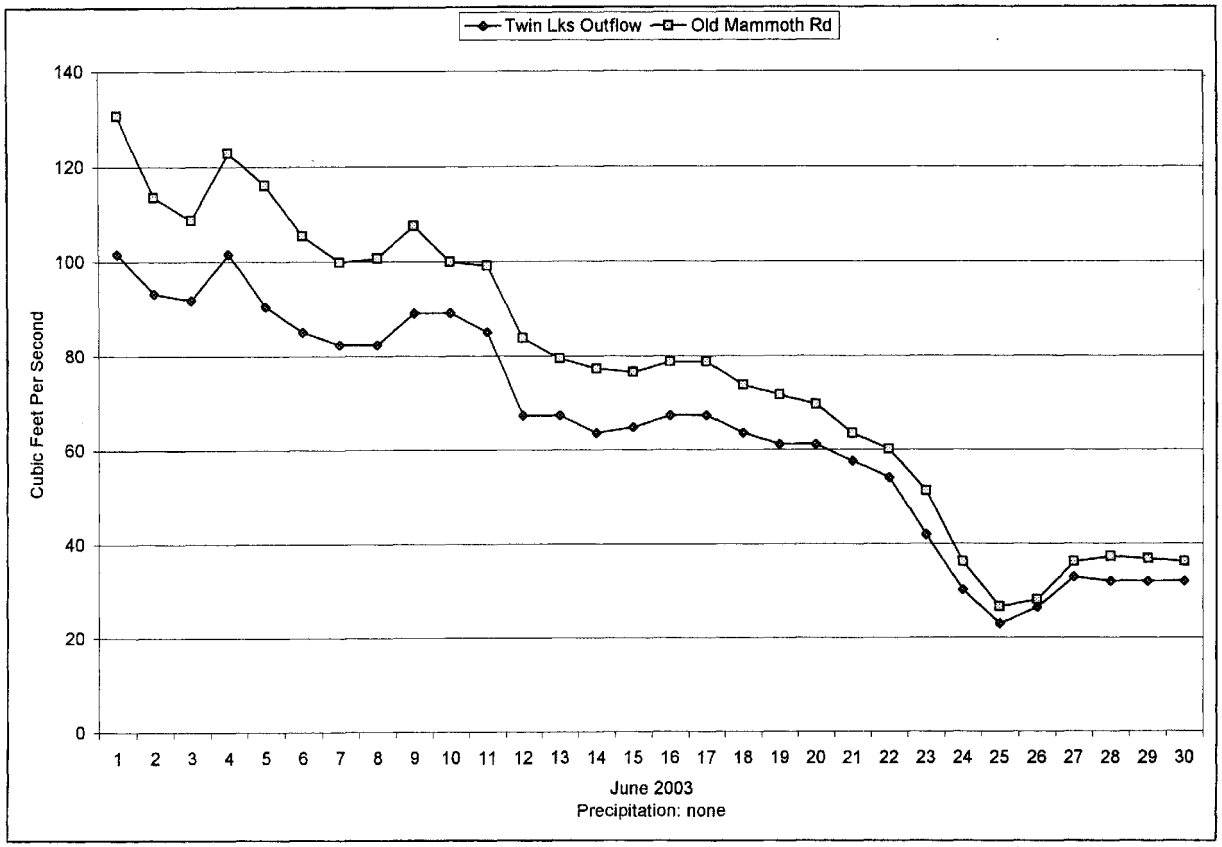

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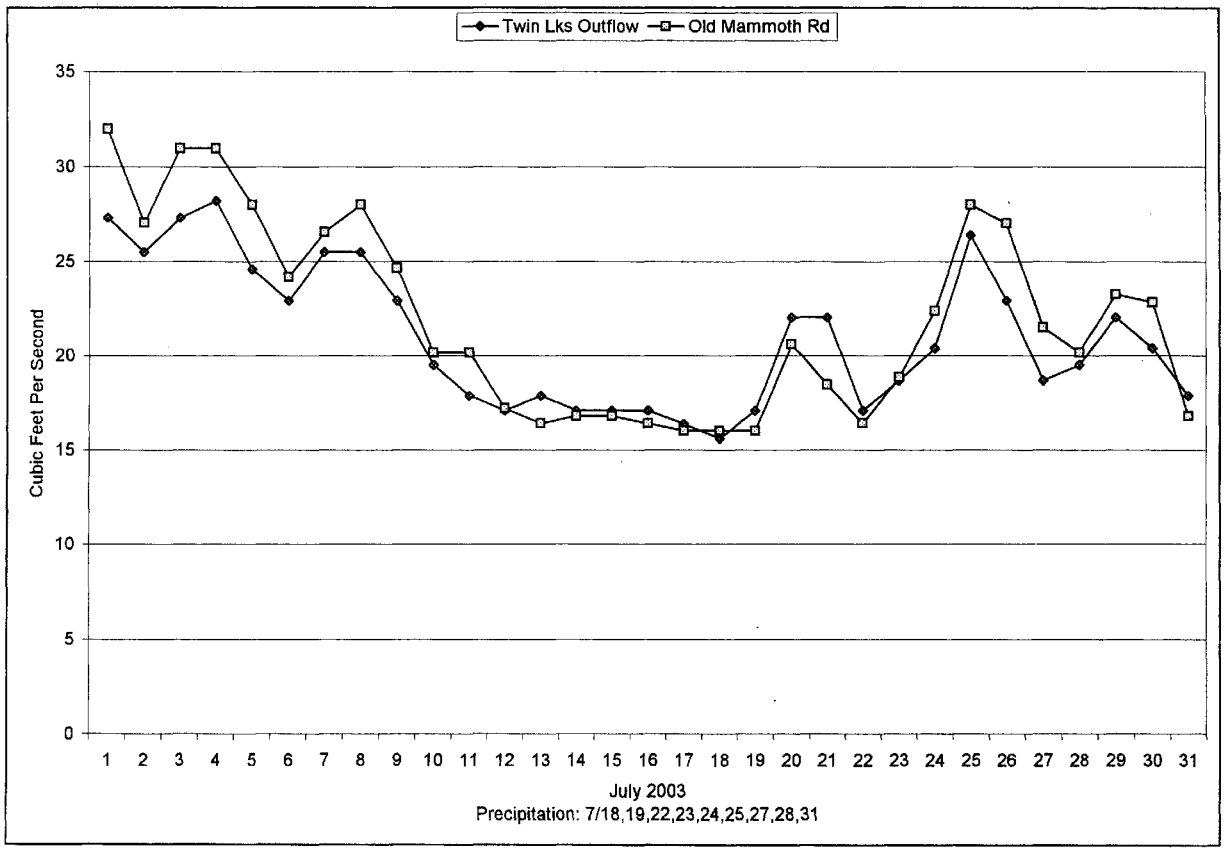

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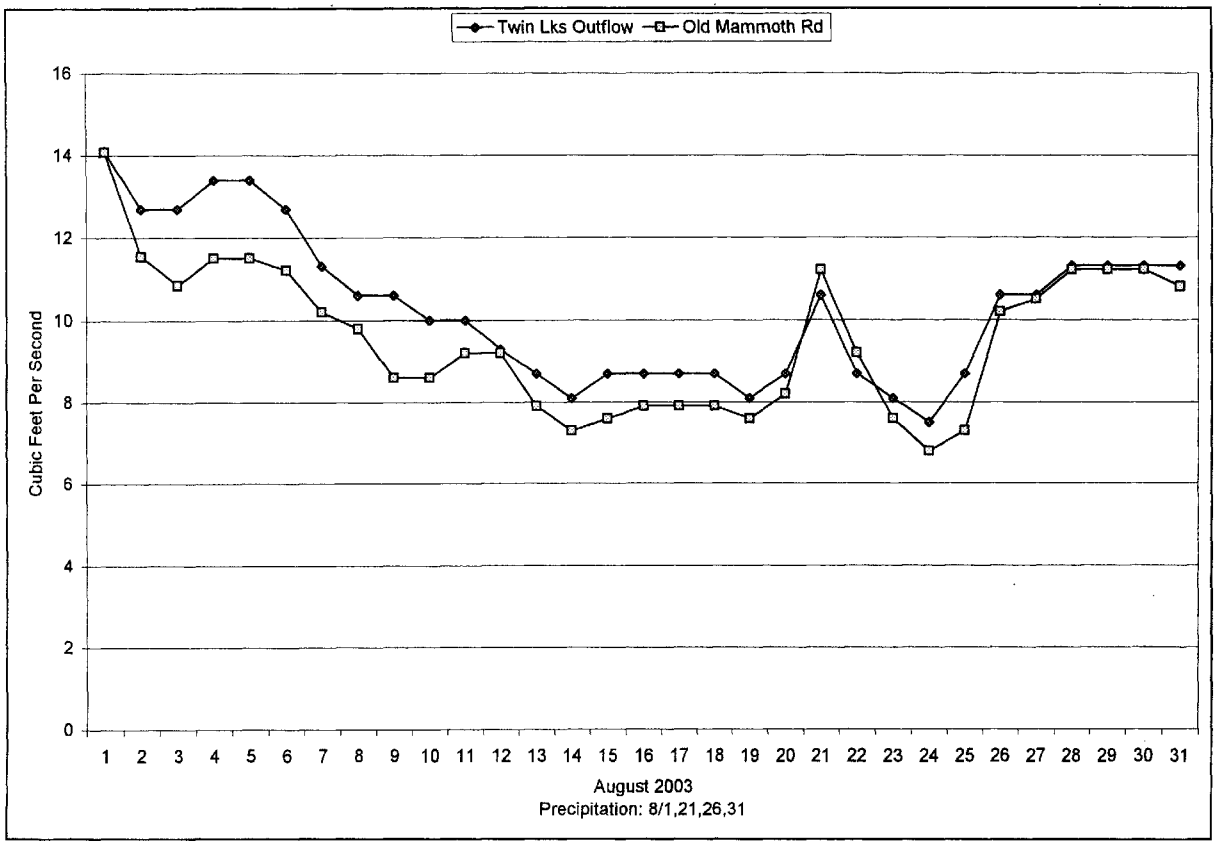

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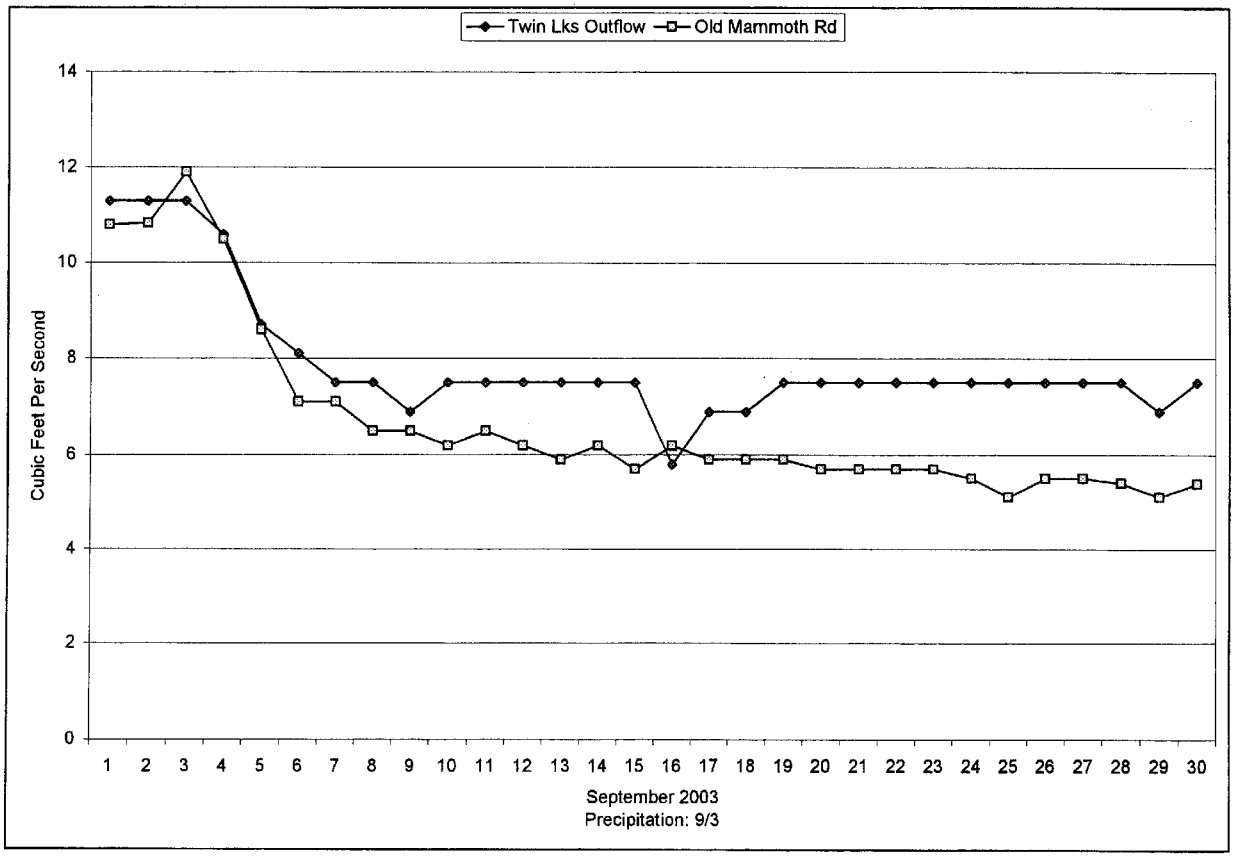

MAMMOTH CREEK STREAMFLOW COMPARISON