ANNUAL REPORT ON RESULTS OF MAMMOTH COMMUNITY WATER DISTRICT GROUNDWATER MONITORING PROGRAM FOR OCTOBER 1999-SEPTEMBER 2000

Prepared for
Mammoth Community Water District
Mammoth Lakes, California

by
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December 13, 2000

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December 13, 2000

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 1999-September 2000. I appreciate the cooperation of District personnel in conducting this monitoring and providing data tabulations.

Sincerely yours,

Kenneth D. Schmidt

KDS/sll

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 eighth 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 1,289 acre-feet of water from seven of the eight supply wells during the 2000 water year. This was 25 percent more than during the previous water year, and close to the amount pumped in the 1991 and 1994 water years. 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 a spring at the University of California Valentine Reserve.

Water levels in most shallow wells tapping the uppermost glacial till strata were relatively constant and shallow during 2000. 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 most of the monitor wells tapping the consolidated rock either stayed about the same or slightly fell during the 2000 water year. A water-level elevation contour map was prepared for September 2000. 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 2000 water year, compared to previously.

The results of the 1999-2000 monitoring indicate that District pumping did not influence Mammoth Creek streamflow or the spring at the Valentine Reserve. 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. 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

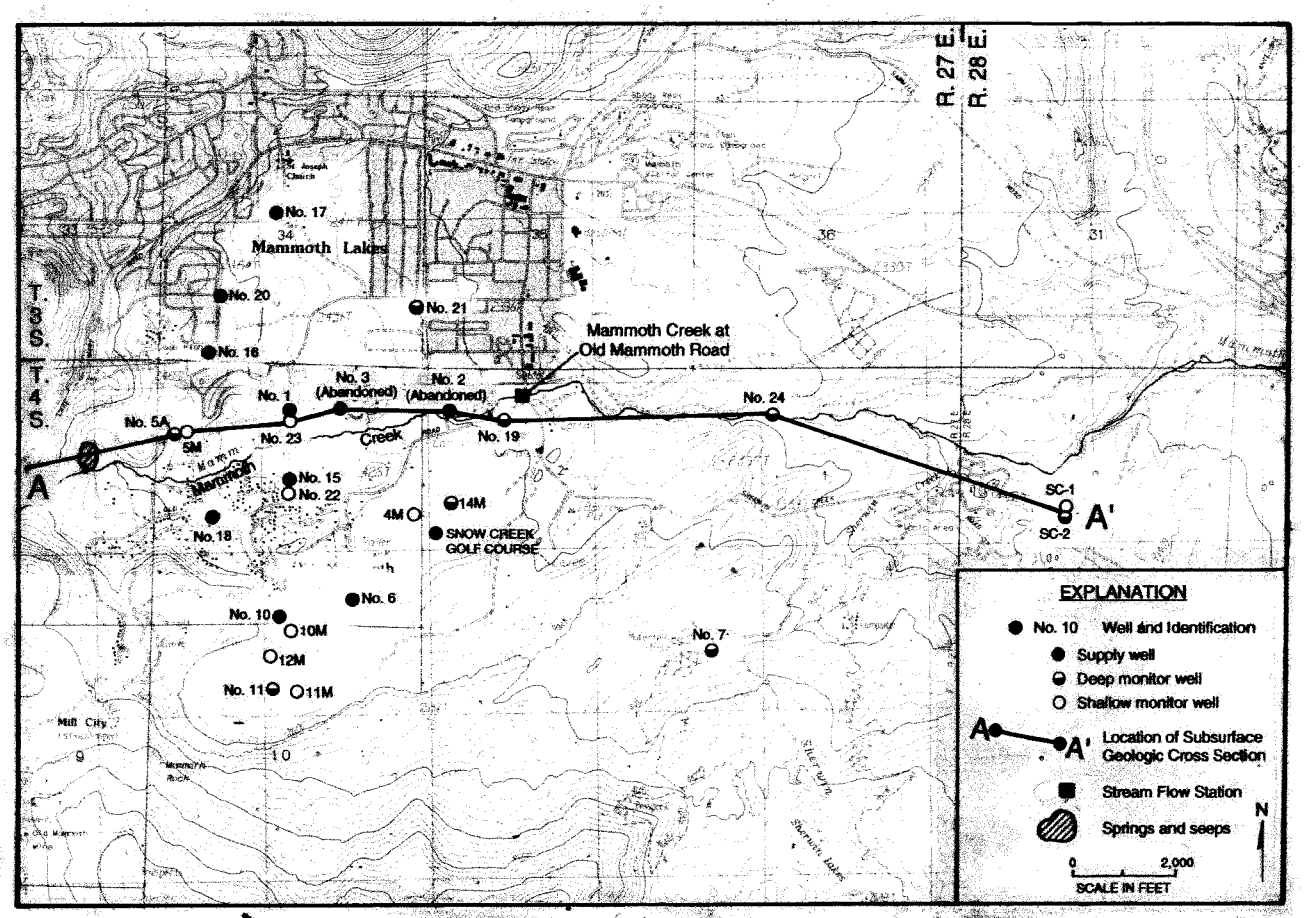

FIGURE 1 - LOCATION OF WELLS AND SUBSURFACE GEOLOGIC CROSS SECTION A-A'

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".

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 1992-95 are termed the "newer" District supply wells in this report. 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. A small amount of water was pumped from Well No. 7 in Summer 2000 for use at the boys camp. Wells No. 2 and 3 were subsequently destroyed, whereas the other wells were converted to monitor wells.

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 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.

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. 19 in July 1997, and the values in parentheses are for after this work was completed.

FIGURE 2

SUBSURFACE GEOLOGIC CROSS SECTION A-A'
(In Pocket)

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 2000, 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 1995-99, annual precipitation ranged from about 30 to 46 inches and averaged about 40 inches. During water year

2000, the annual precipitation was about 32 inches. These trends in precipitation are useful when evaluating water-level changes in wells that are 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 2000 water year. The total pumpage was 1,289 acre-feet, or 25 percent greater than that for the previous water year. Of this, 418 acre-feet were from Well No. 15, 202 acre-feet were from Well No. 17, 198 acre-feet were from Well No. 10, 196 acre-feet were from Well No. 16, and 181 acre-feet were from Well No. 20. The remaining District pumpage (94 acre-feet) was from Wells No. 1 and 18. Well No. 6 was not used during this water year. About 70 acre-feet of water were pumped during the 2000 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 to August, 2000, an estimated total of about 90,000 gallons was 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.

TABLE 3- PUMPAGE FROM DISTRICT WELLS (ACRE-FEET)

Well No.	Oct-99	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Total
1	0.000	0.209	1.123	0.000	0.405	5.123	0.776	0.000	1.610	8.607	1.469	0.420	**19.742**
6	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**
10	0.393	3.926	34.748	0.004	8.834	8.834	4.712	58.307	44.172	34.552	0.000	0.000	**198.482**
15	42.209	4.466	0.393	0.000	1.816	5.055	0.000	6.086	97.571	103.902	102.724	53.552	**417.773**
16	17.693	1.669	0.000	0.000	0.000	0.012	0.000	23.632	21.755	53.350	44.564	33.448	**196.123**
17	8.712	0.049	0.712	0.000	0.491	4.270	5.718	3.779	22.160	28.908	70.773	55.975	**201.546**
18	0.000	0.000	0.000	0.000	0.365	0.034	0.000	2.322	4.472	25.546	27.009	14.589	**74.337**
20	6.822	1.350	0.613	0.000	13.914	5.276	5.276	5.669	29.988	57.399	33.644	21.006	**180.957**
Total	**75.828**	**11.669**	**37.589**	**0.004**	**25.825**	**28.604**	**16.482**	**99.794**	**221.727**	**312.264**	**280.184**	**178.991**	**1288.961**

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 had not been 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 June 2000, depth to water in this well was 170 feet. 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 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. Overall, static levels in Well No. 16 have been relatively stable since 1992.

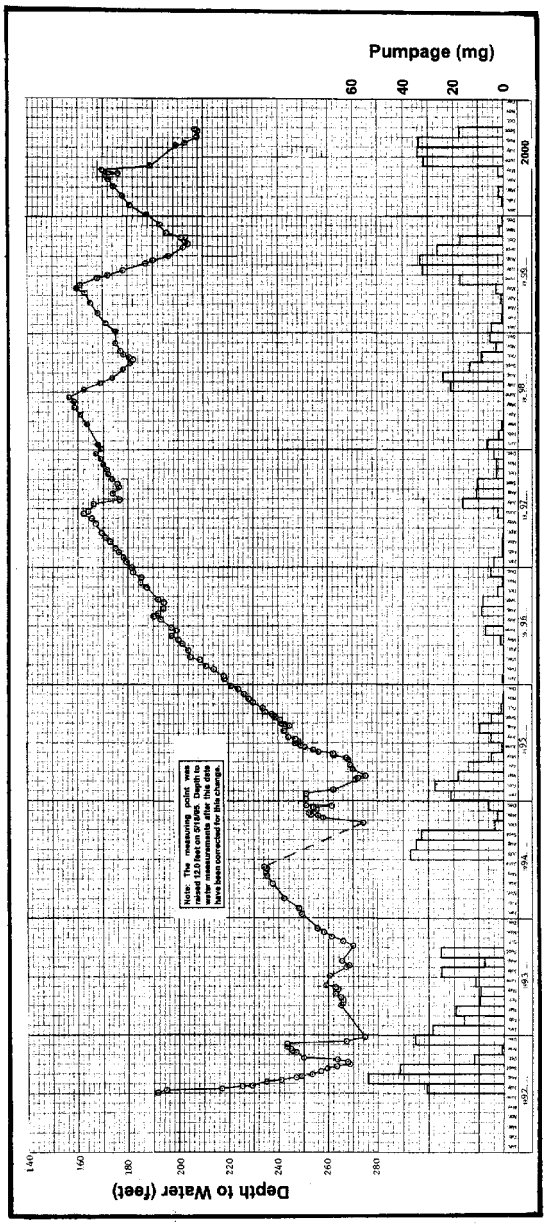

FIGURE 3 - WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 15

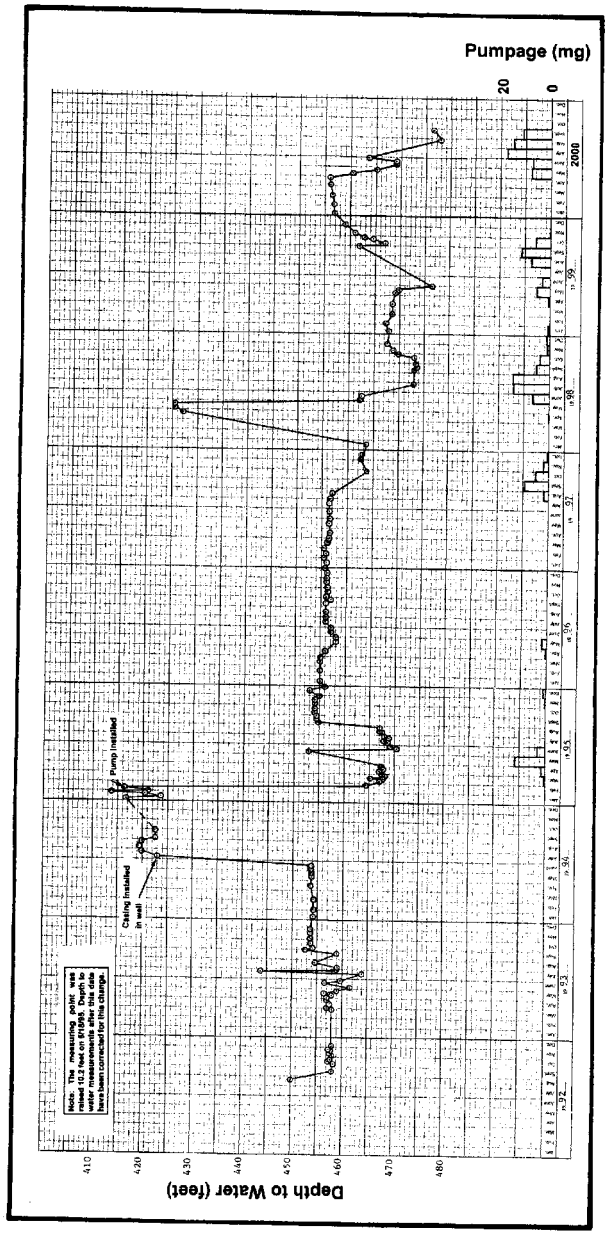

FIGURE 4 - WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 16

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. In 2000, the water level in this well was fairly stable until June, when pumping commenced and continued for the summer months.

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 2000. In early June 1998, the water level in Well No. 18 was 30 feet deep, the shallowest yet 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 fell about forty feet from early July to September, 2000. Depth to water in Well No. 18 was 89 feet in August 2000. Previous summer water-level declines in this well were normally about 10 feet. The greater seasonal decline during July-September, 2000 is attributed to the following:

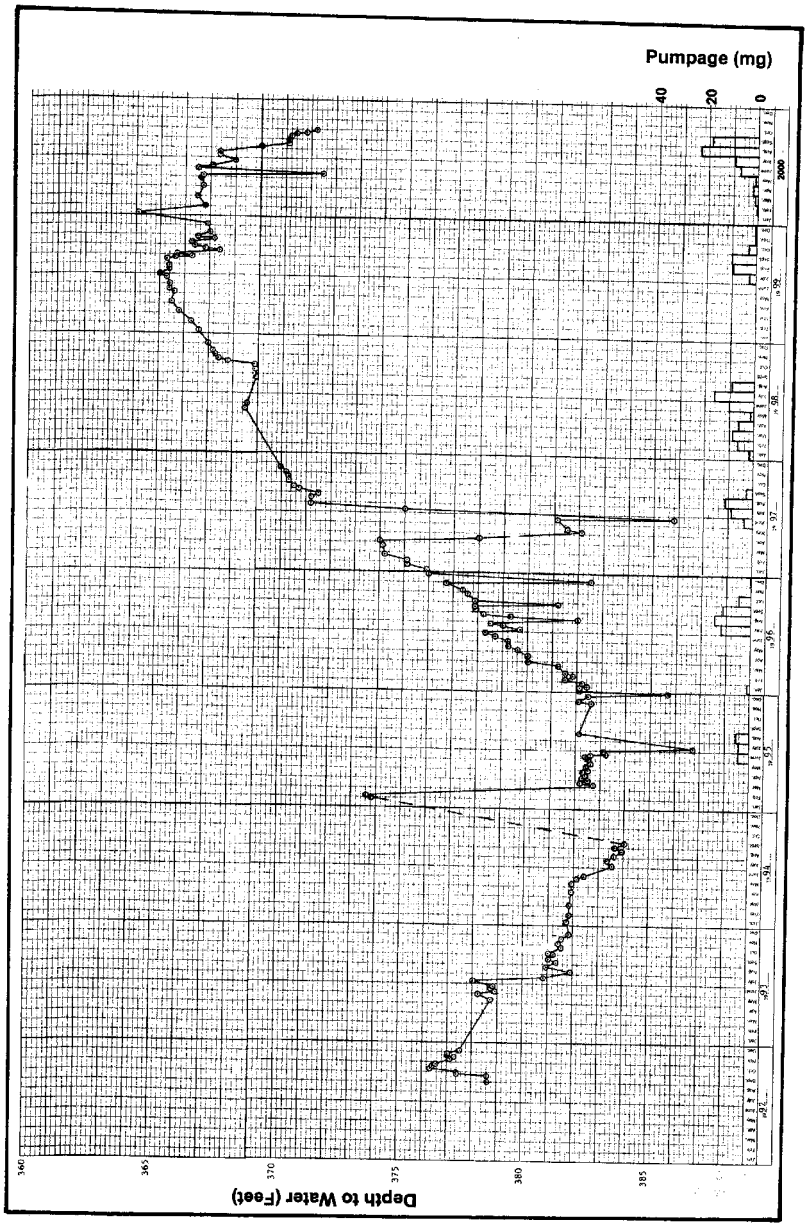

FIGURE 5 - WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 17

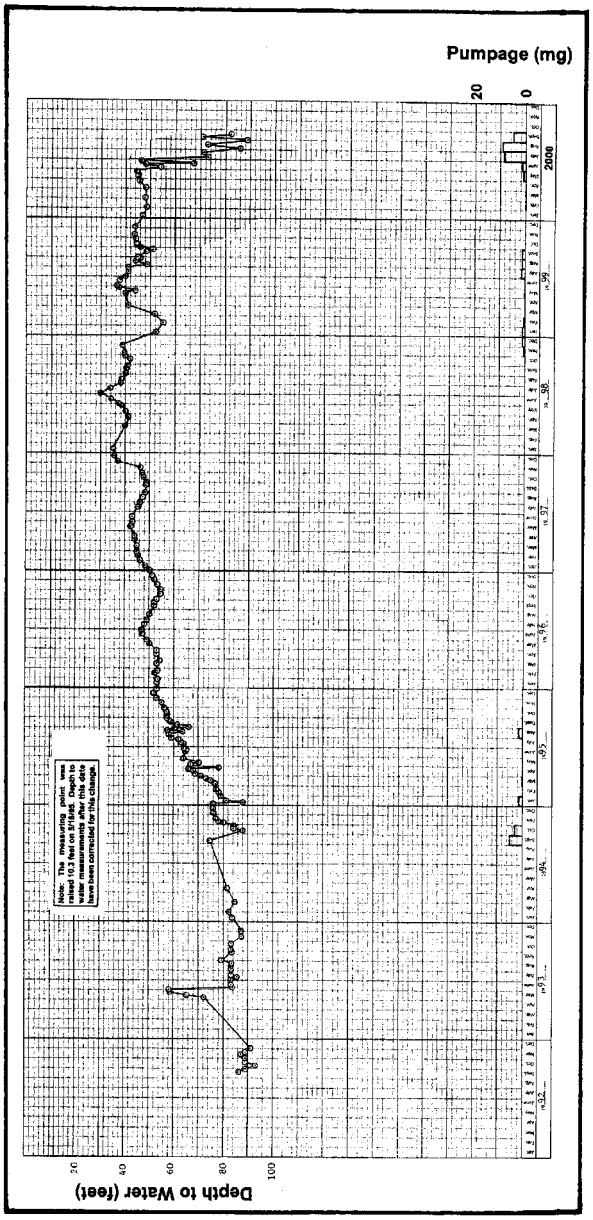

FIGURE 6 - WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 18

1. Pumpage from Well No. 18 during July-September was the greatest to date.

2. Well No. 15 was heavily pumped during July-August, and previous reports have indicated that pumping of this well draws down the water level in Well No. 18.

3. Well No. 10 was pumped significantly in June-July.

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 water-level decline in this well in Summer 1999 was mainly due to pumping of the well itself. The water level in this well may be somewhat affected by pumpage of Well No. 17. Well No. 17 was pumped heavily during August-September. The shallowest levels in Well No. 20 to date were in late 1998 and early 1999.

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 was relatively constant during 1998-2000. 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 166 feet in June 2000. The static water level in Well No. 6 has ranged from less than 30 feet during low pumping periods (after

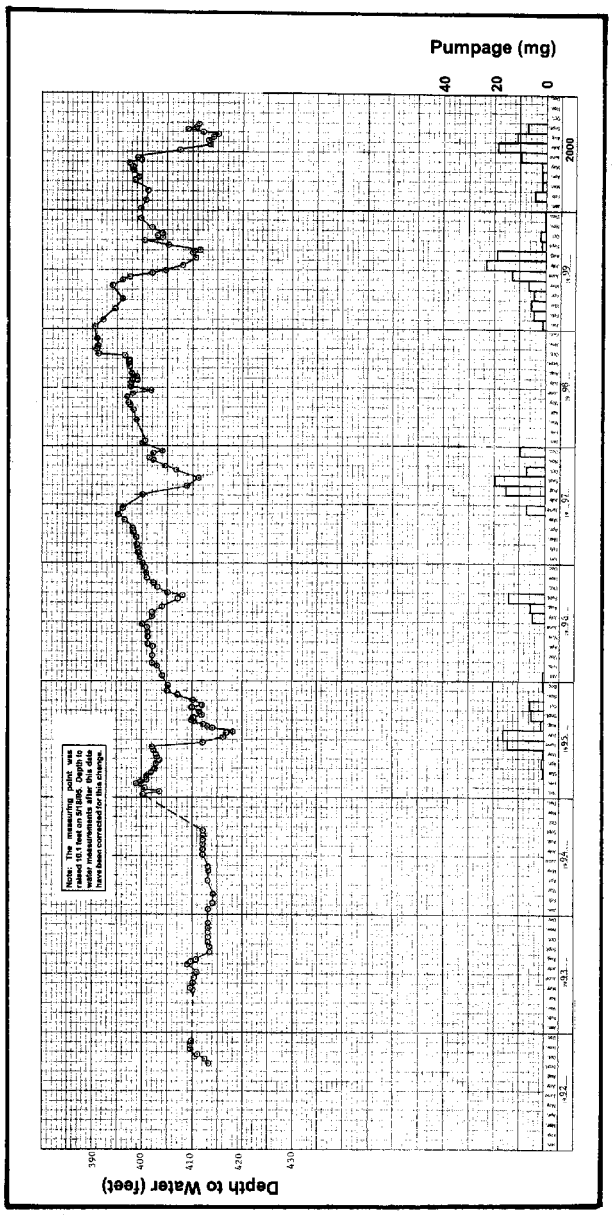

FIGURE 7 - WATER-LEVEL AND PUMPAGE HYDROGRAPH FOR WELL NO. 20

September 1995) to more than 160 feet during heavy pumping periods (August-September, 1994). During May-September, 1996, in part of 1997, and in late 1999-2000, the static level in this well was at or above the land surface. Depth to water was less than 15 feet during the past four water years. The static water level in Well No. 10 has ranged from less than 30 feet during low pumping periods (July 1995) to more than 160 feet during heavy pumping periods (Summer 1993). During the past four water years, depth to water has usually been less than 30 feet, except during pumping in 1998. Depth to water in Well No. 10 was near 12 feet in June 2000, the shallowest measured since 1992.

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 6 feet. From 1995-99, the annual shallowest level was near the land surface, and overall the water level rose. During July-September, 2000, the water level in this well fell about three feet. This is indicated to be due to pumping of Well No. 18, although pumping of

Well No. 15 may also have had an influence. 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 288 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 15 feet during Summer 2000 were due to the pumping of the well itself.

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. 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. Since May 1995, the water level in this well has generally risen. The rise has primarily been associated with recharge and the reduction in pumping of Wells No.

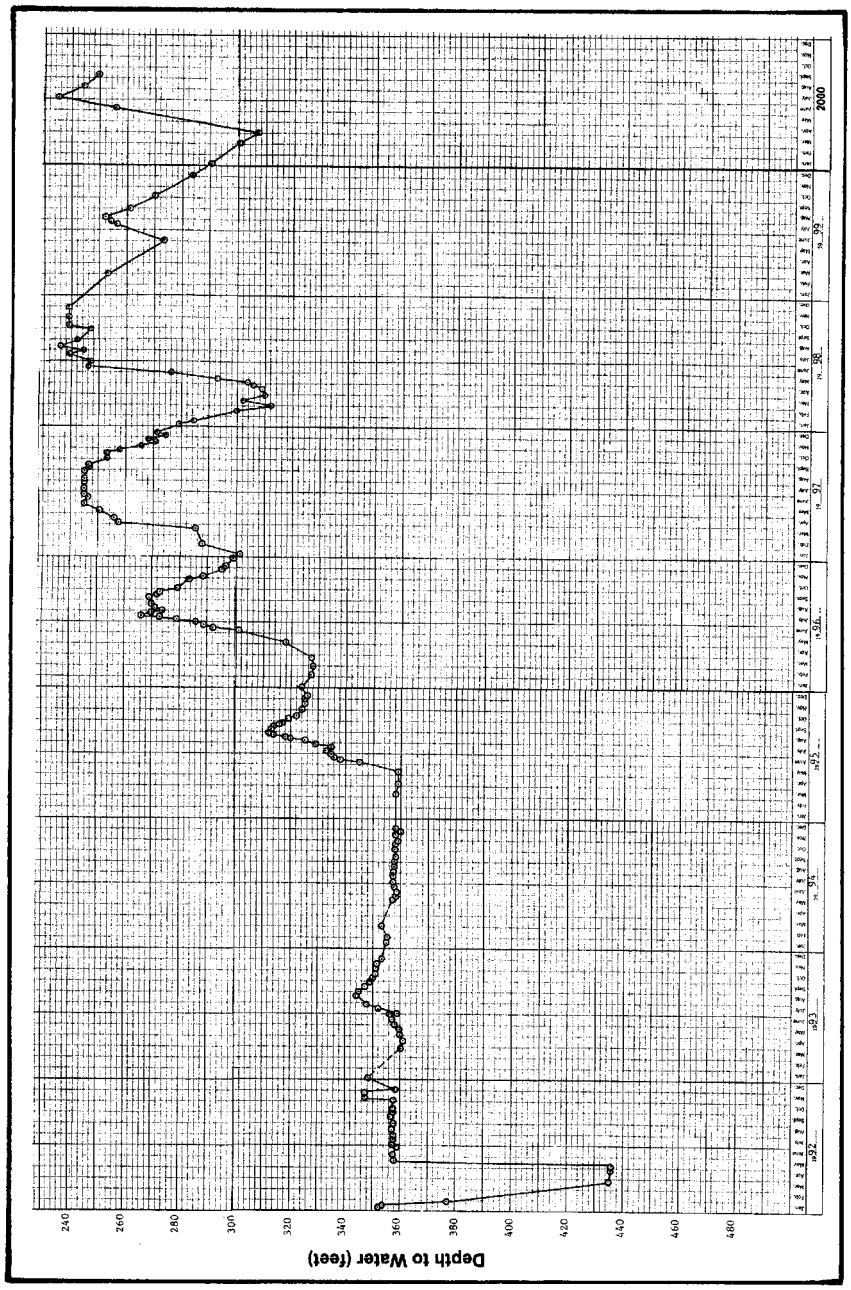

FIGURE 8 - WATER-LEVEL HYDROGRAPH FOR WELL NO. 14M

6 and 10. In July 2000, depth to water was 235 feet, or the shallowest of record. 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, 2000, except for October 1997 and June 1998. After February 2000, the transducer measurements for this well averaged about ten feet shallower than the manual measurements. Manual measurements for this well (Appendix D) indicate no significant drawdown due to pumpage of District wells in 2000.

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 generally rose from 1995-98. During 1999-2000, the water level fell about 30 feet, to below the levels in 1994 and early 1995. This decline is attributed to less recharge during Winter 1999-2000. Because of falling water in this well, the 1999 measurements were made using the transducer instead of the electric sounder. Depth to water was measured once with an electric sounder, and there was a 6-foot difference. The values plotted on Figure 8 for 1999 were thus corrected by deducting six feet. In October 1997, depth to water was 312 feet, or the shallowest yet measured. During the 2000 water year, depth to water in this well was usually about 350 feet. Transducer readings that are considered fairly reliable are available for this well from

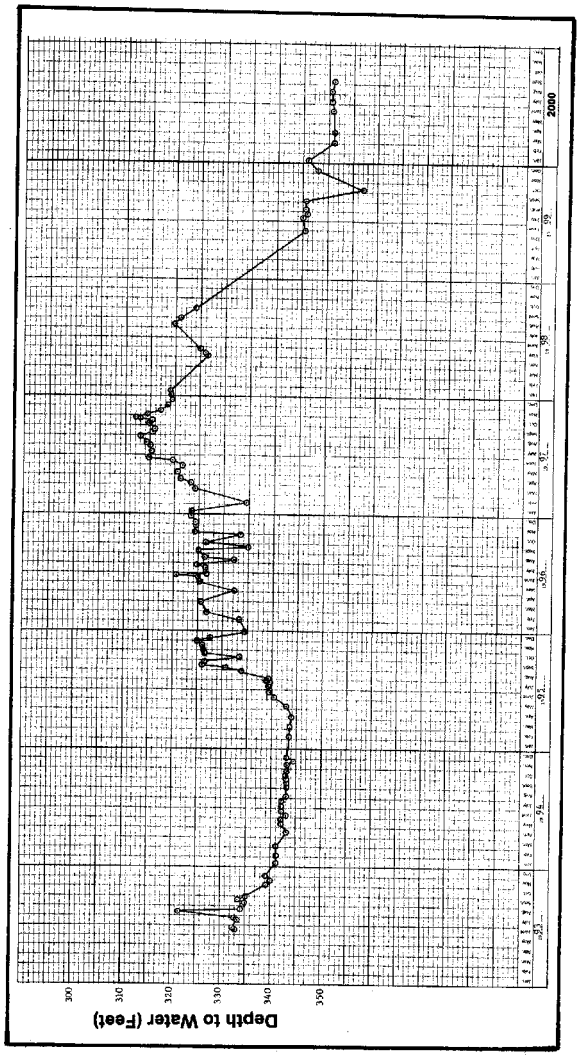

FIGURE 9 - WATER-LEVEL HYDROGRAPH FOR WELL NO. 19

November 1, 1996-September 10, 1997, from November 1, 1997-September 30, 1998, except for June 1998, and from May 4-September 30, 2000 (Appendix D).

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. That decline was atypical, and was probably due to errors in measurement. Most of the rise is attributed to recharge. An annular seal was placed in this well during July 1997. In August 1997, the water level was the shallowest yet measured. 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-September 30, 2000 (Appendix D). The manual water-level measurements in this well have indicated no significant response due to pumping of District wells.

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 392 feet. The water level rose after early 1995, to the shallowest depth yet measured in December 1998. During 1999-2000, the water level fell

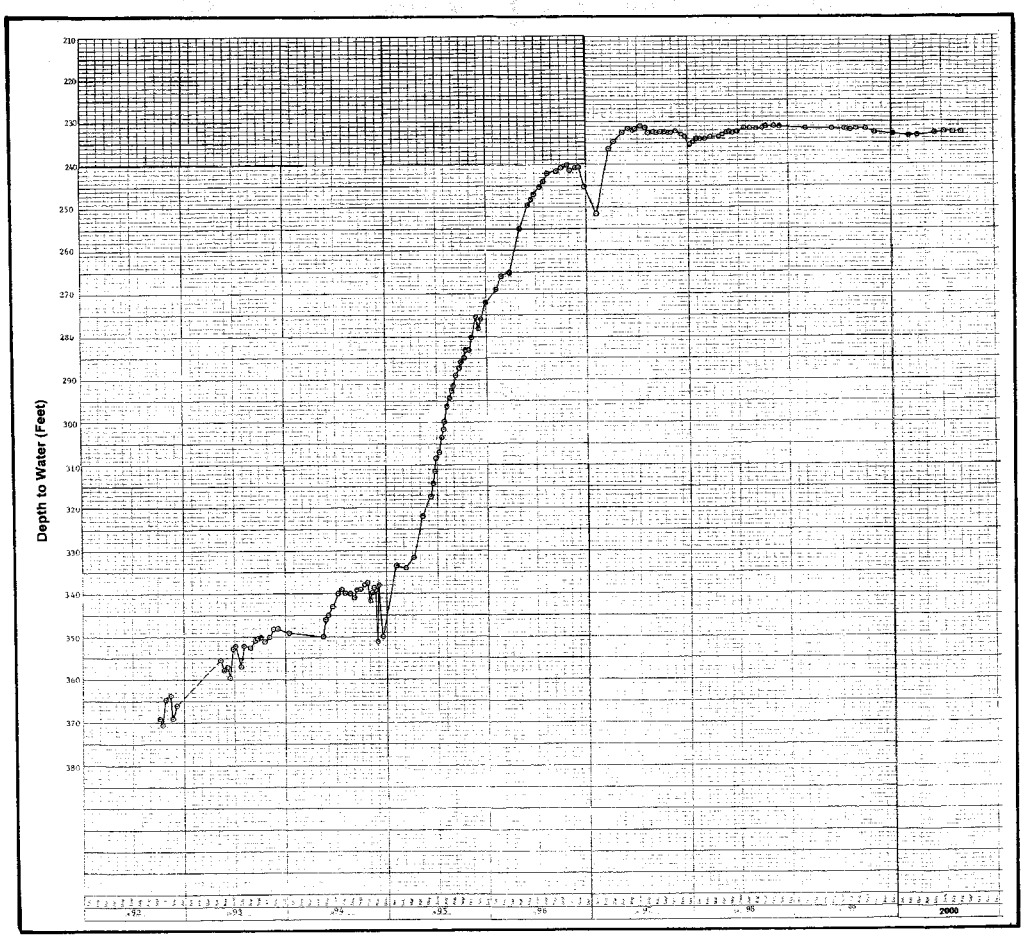

FIGURE 10 - WATER-LEVEL HYDROGRAPH FOR WELL NO. 21

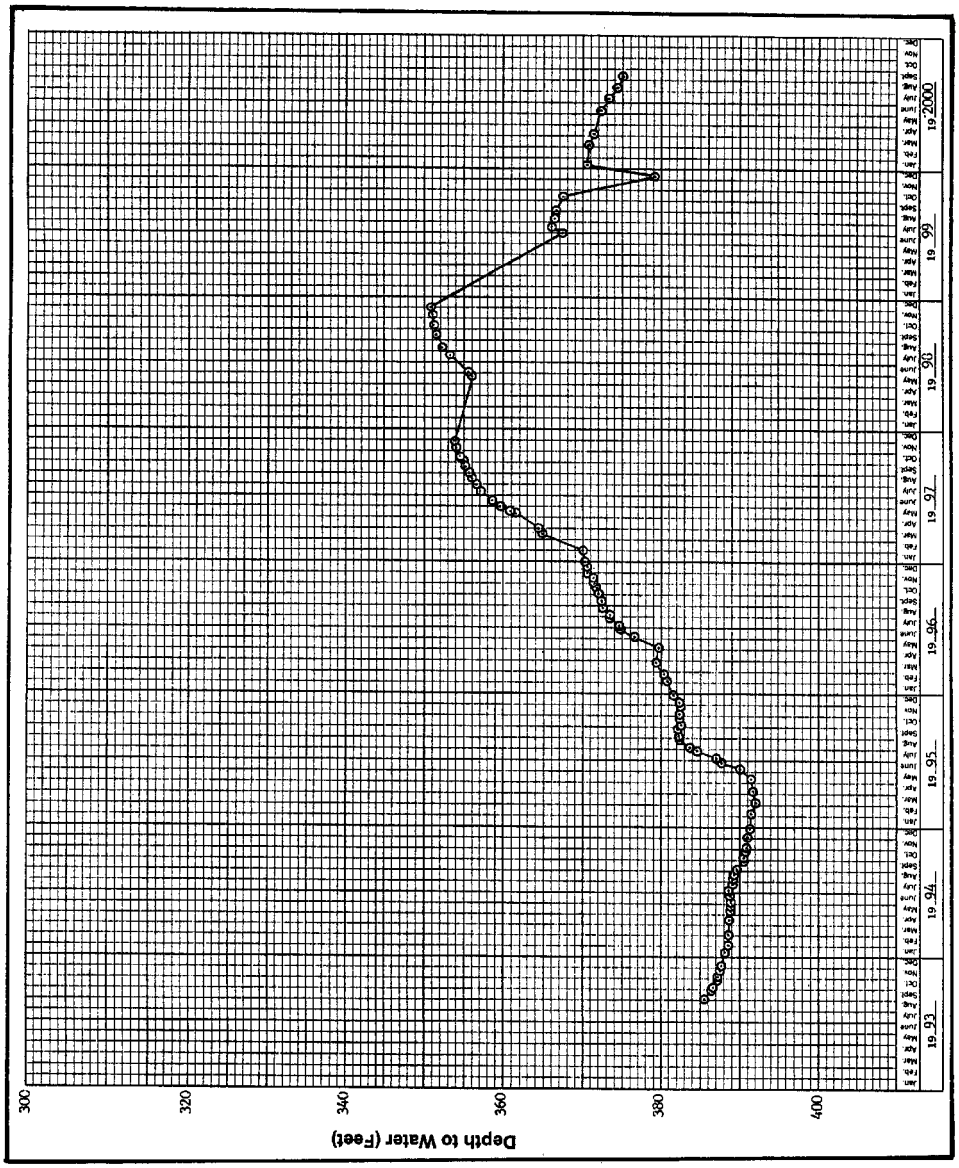

FIGURE 11 - WATER-LEVEL HYDROGRAPH FOR WELL NO. 24

about 25 feet, and this is attributed to less recharge due to the relatively low precipitation during Winter 1998-2000. Transducer measurements are not available for this well between April 3, 1997 and April 30, 1998, due to equipment failure. Transducer measurements for this well in water year 2000 were consistent with manual measurements (Appendix D). The water level in this well obviously 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 2000 water year, whereas the water level in Well No. 24 fell slightly during the 2000 water year. Wells No. 19 and 24 are relatively close to Mammoth Creek. The best explanation for the historical water-level variations in these wells 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 temporarily fell or stayed about the same during periods of below normal precipitation (i.e. the 2000 water year).

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

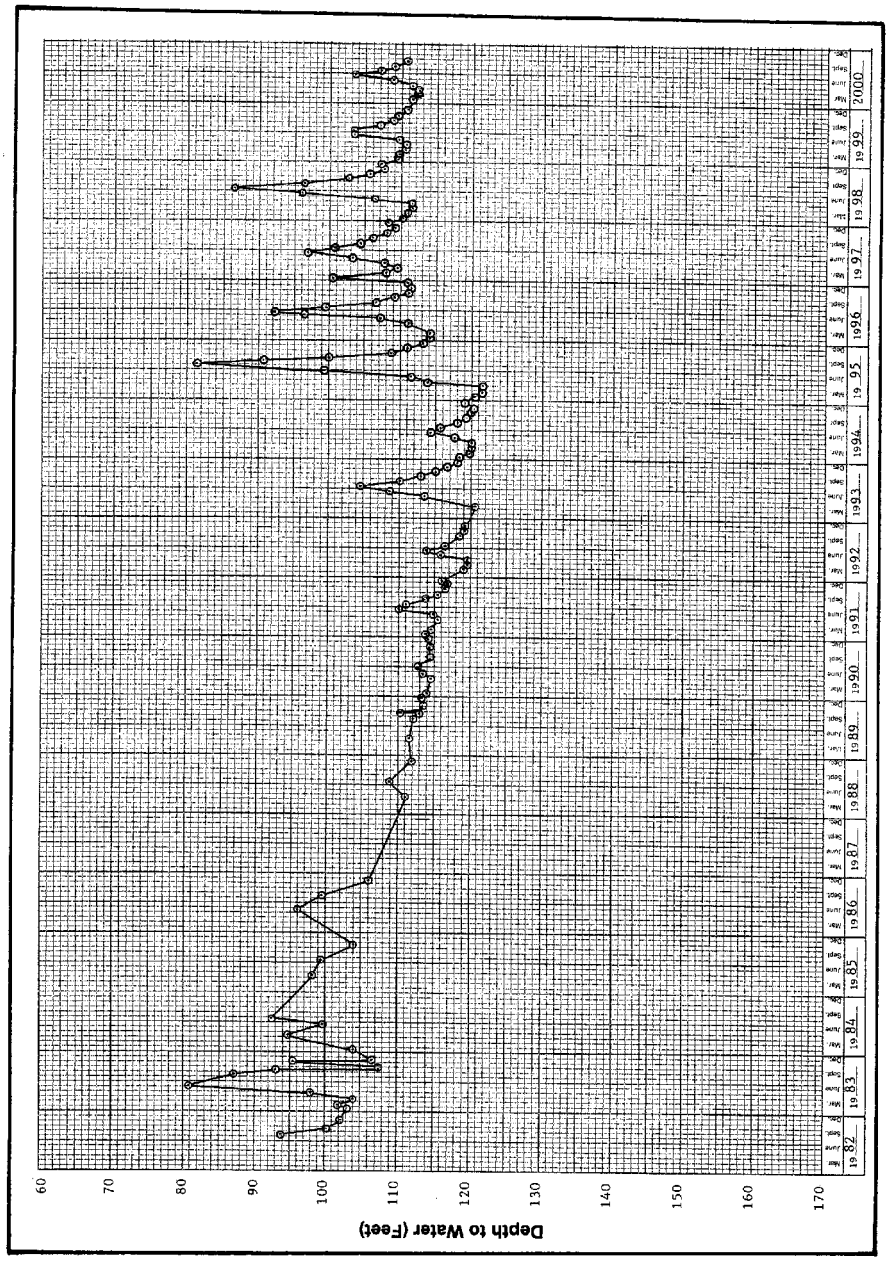

FIGURE 12 - WATER-LEVEL HYDROGRAPH FOR SC-1

to water in SC-1 was near that in August 1983. Overall, the water level in this well was relatively stable during 1996-2000.

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 131 feet deep in July 2000, or about the same as in late 1998. The water level in SC-2 generally recovered during 1995-98, and was relatively stable during 1999-2000. Water-level variations in SC-1 and SC-2 are not indicated to be due to District well pumpage, based on the water-level hydrographs for Wells No. 19, 21, and 24 and other evidence.

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

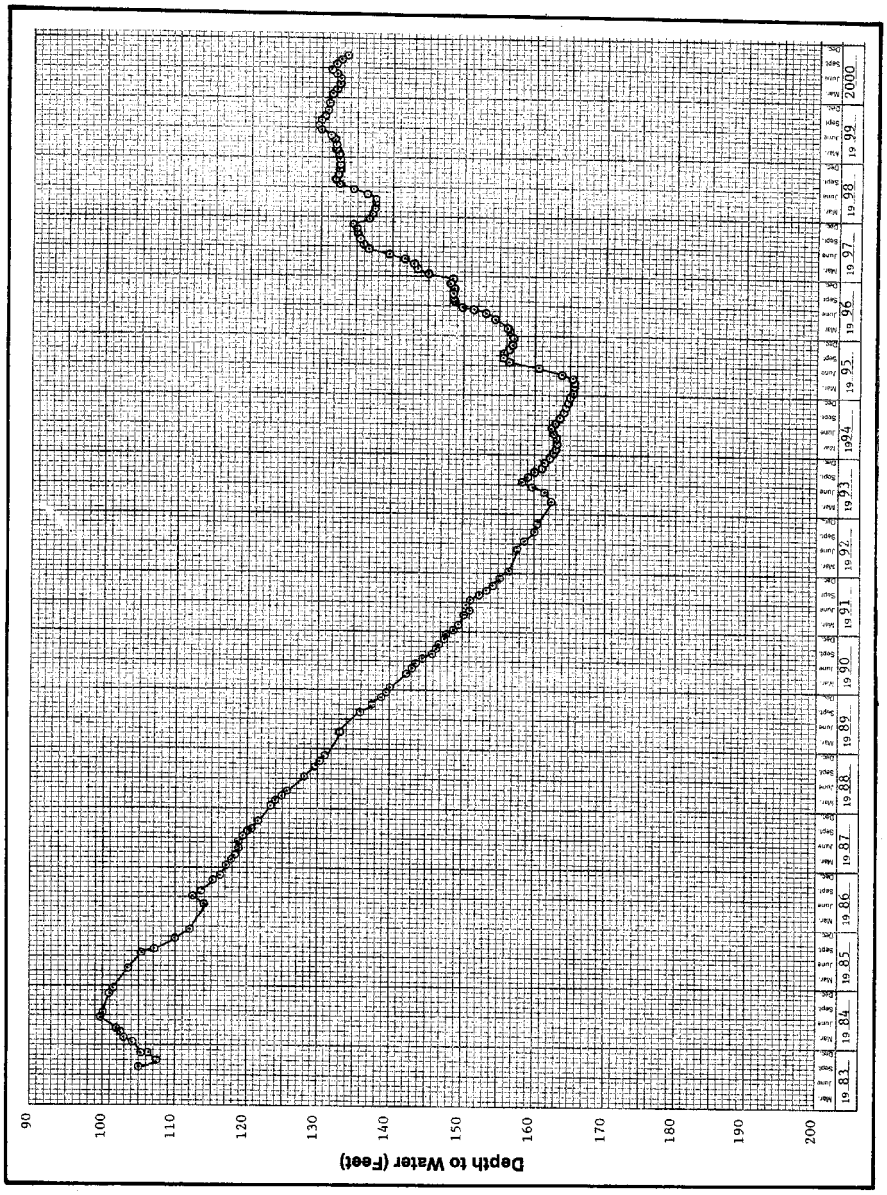

FIGURE 13 - WATER-LEVEL HYDROGRAPH FOR SC-2

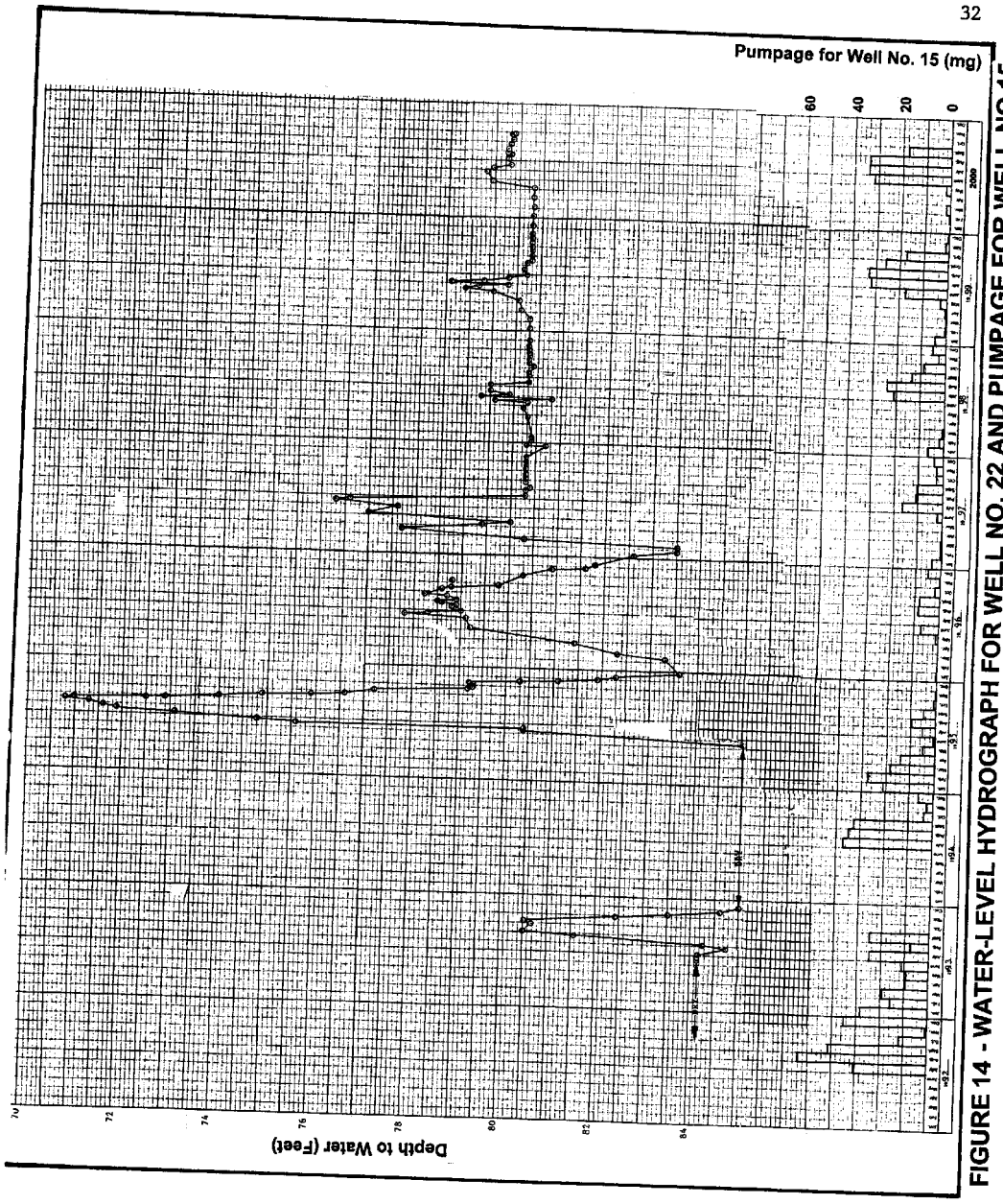

FIGURE 14 - WATER-LEVEL HYDROGRAPH FOR WELL NO. 22 AND PUMPAGE FOR WELL NO.15

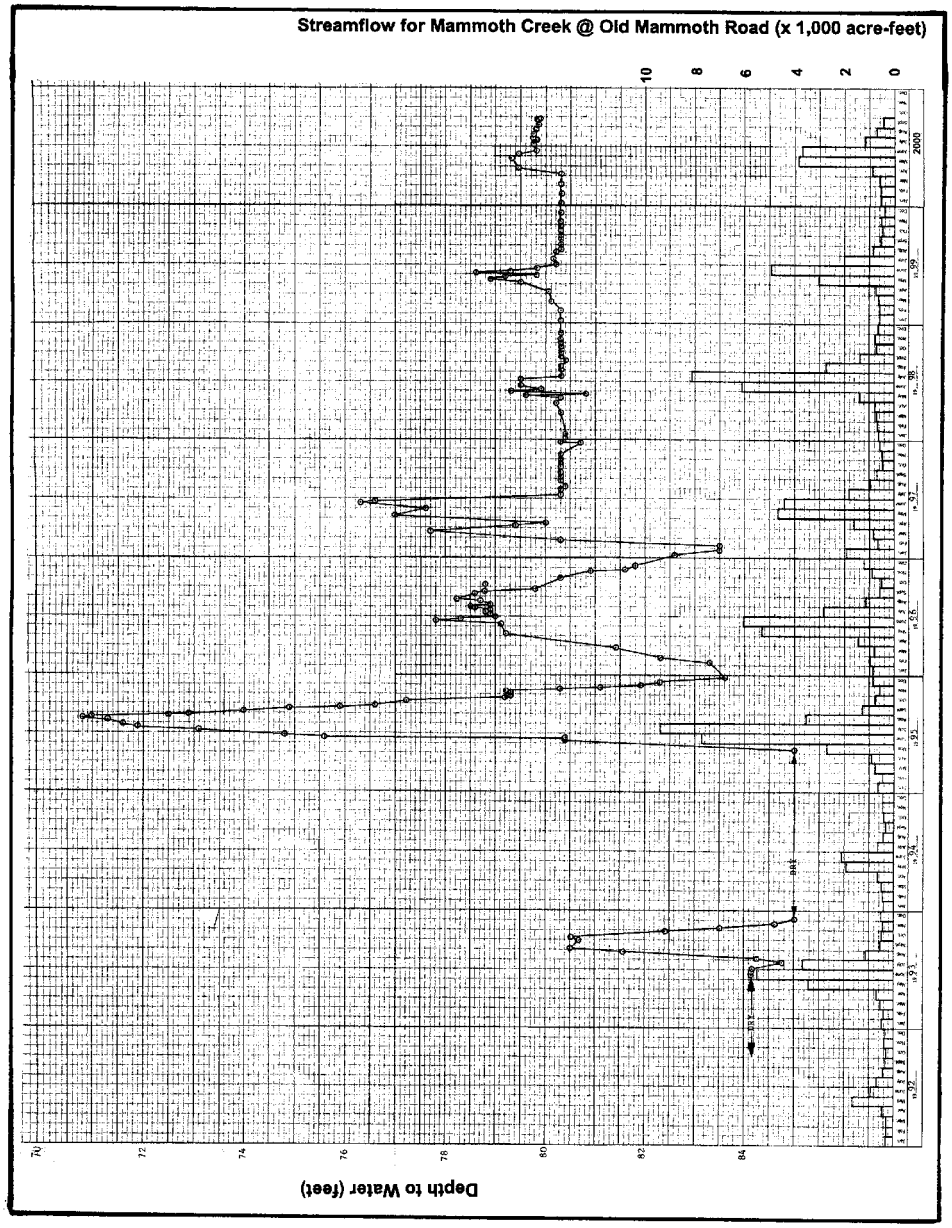

FIGURE 15 - WATER-LEVEL HYDROGRAPH FOR WELL NO. 22 AND MAMMOTH CREEK STREAMFLOW

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 1996-2000, the water-level trends in Well No. 22 also followed the pattern of streamflow in Mammoth Creek. There were two unusual deep water-level measurements for this well in May 2000. These appear to be atypical, based on the preponderance of measurements.

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 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 1997-2000. A detailed hydrograph for Well No. 23 is 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

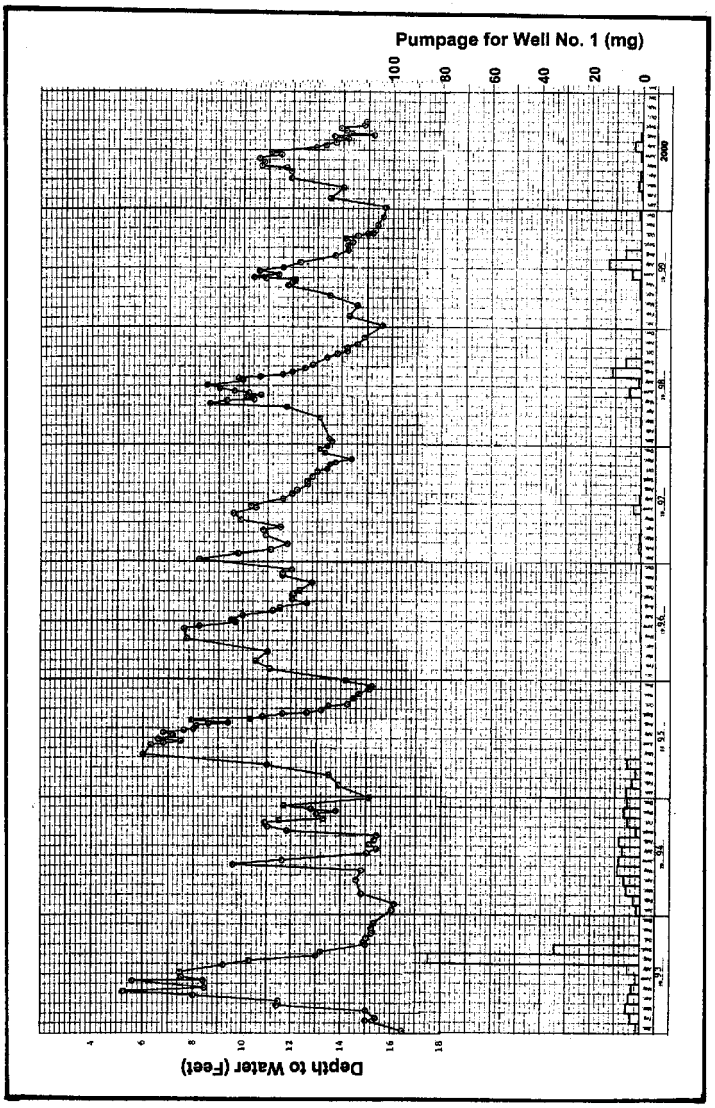

FIGURE 16 - WATER-LEVEL HYDROGRAPH FOR WELL NO. 23 AND PUMPAGE FOR WELL NO. 1

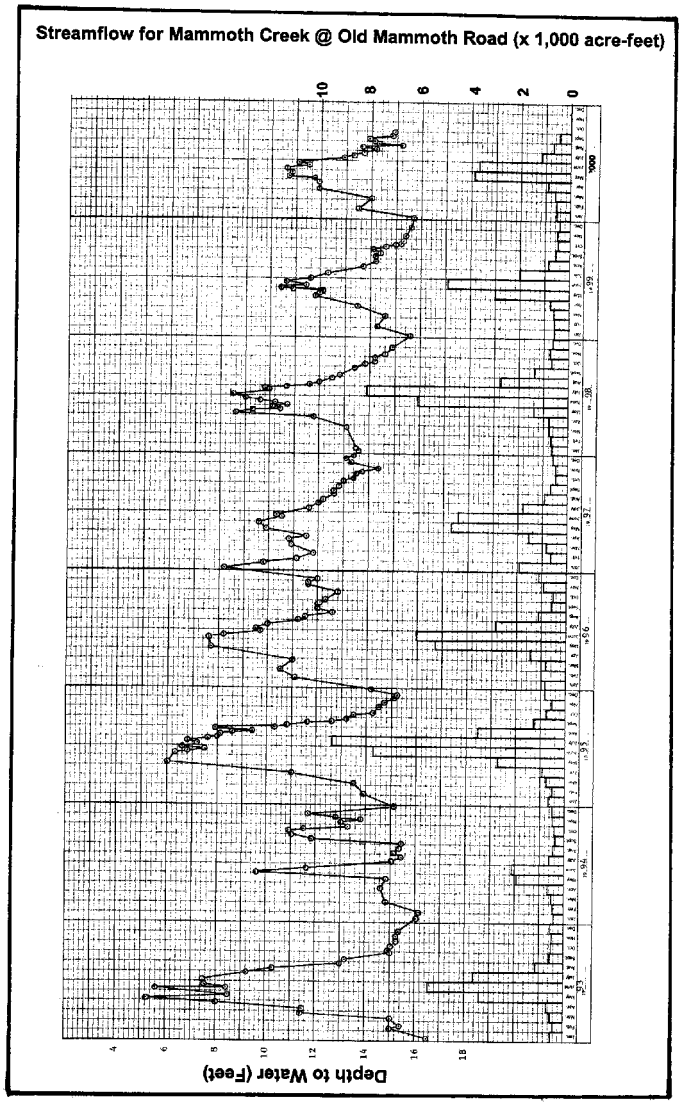

FIGURE 17 - WATER-LEVEL HYDROGRAPH FOR WELL NO. 23 AND MAMMOTH CREEK STREAMFLOW

meadow area east of District Wells No. 6 and 10. The water level in this well rose significantly after early 1995 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.

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. In June 1998, depth to water in this well was about the same as in June 1989.

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. In 1998 and 1999, 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. 11M is located in the southwest part of the meadow area near the Bodle Ditch. Water levels in this well have seasonal fluctuations, corresponding 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 water level in this well remained relatively shallow through 2000.

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 water level in this well remained shallow through 2000. The water levels in all of the shallow monitor wells thus respond significantly to recharge, often associated with flow of nearby surface water.

Water-Level Elevation Contours

Figure 18 shows water-level elevation contours for early September, 2000. 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. 10, 15, and 18. This cone of depression did not extend east of Well No. 19. The overall direction of groundwater flow in early September, 2000 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)

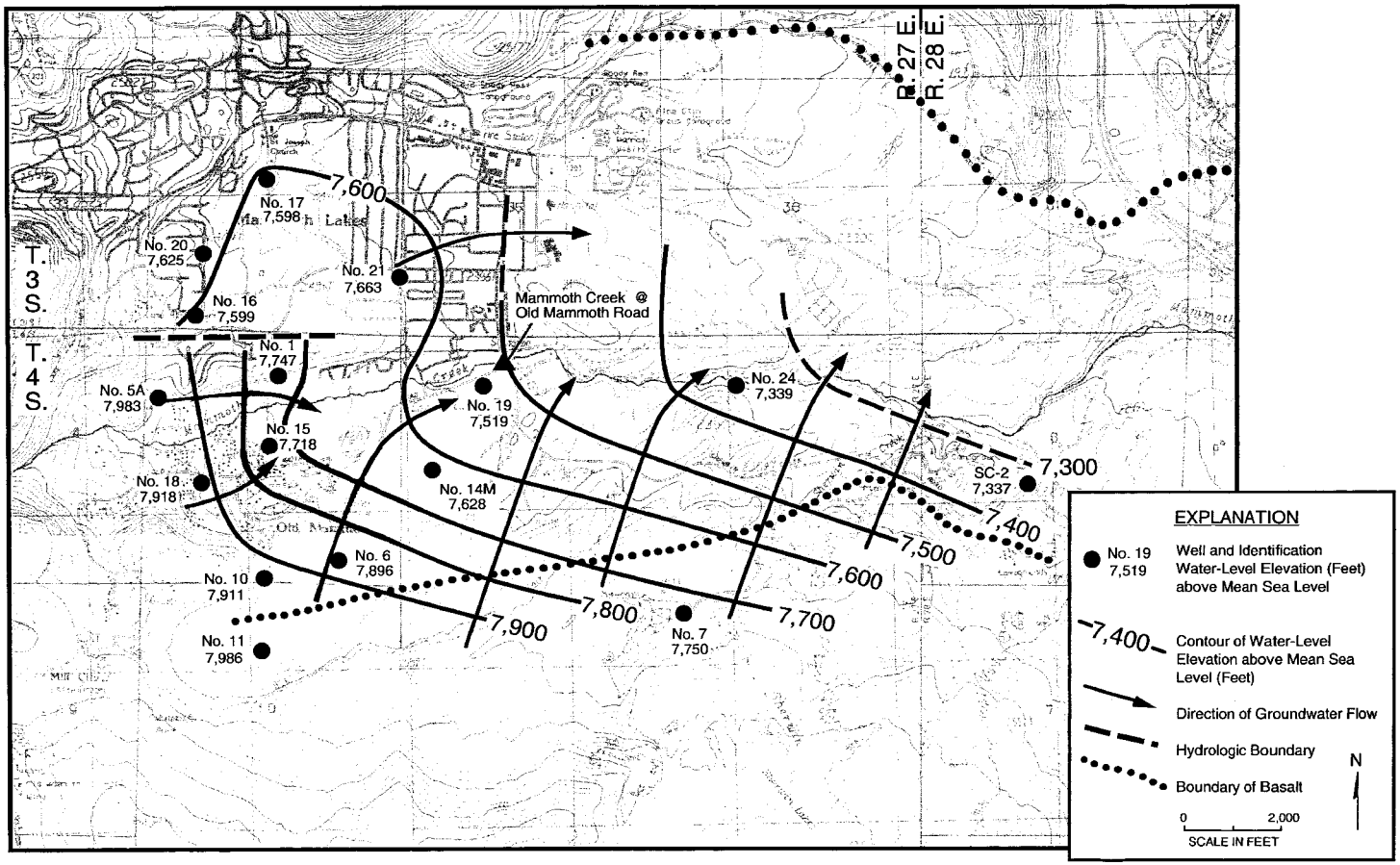

FIGURE 18 - WATER-LEVEL ELEVATIONS IN EARLY SEPTEMBER 2000

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 2000 water year are provided in Appendix E. Water samples were collected from the supply wells in July and August and from the monitor wells that could be sampled in August 2000. 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 2000. 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 Well No. 11. The highest values (greater than 430 micromhos) have been for wells tapping the consolidated rock in the western part of the area. There is no evidence of significant changes in chemical quality or temperature of well water during water year 2000, compared to

previous information in the earlier annual reports.

MAMMOTH CREEK STREAMFLOW

Records of streamflow at the outlet from Twin Lakes and the Old Mammoth Road crossing during the 2000 water year are provided in Appendix F. The mean monthly flow at the Old Mammoth Road crossing ranged from 6.4 cfs in December 1999 to 63 cfs in May 2000. In 2000, the flow at the Old Mammoth Road crossing began to rise significantly in early May, and the highest flows were between May 23 and June 21.

Average daily flows are plotted in Appendix F for both stations for each month during the 2000 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. During most low flow periods the flow was greater at the downstream station by several cfs, or was about the same at the two stations. 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 late July, late August, and early September 2000, the downstream streamflow was about 2 cfs less than the upstream flow. This trend occurred when flows at the Old Mammoth Road Station were less than about 12 cfs. This was during a period of significant pumping from Wells No. 15, 16, and 18. Pumping from these wells averaged about 1,440 gpm,

or 3.2 cfs, during part of this period. However, careful examination of pumping patterns for these wells indicates no relation to the difference in the two stream gauges on Mammoth Creek streamflow at Old Mammoth Road. For example, the difference in streamflow remained relatively constant, even though the District Well pumpage varied substantially during this period. On September 8, 2000 the flume used for streamflow measurement of the outflow from Twin Lakes was removed due to bridge construction, thus no flow records are available for this station during September 8-29, 2000. However, streamflow records at these two stations for October 2000 indicate that by October 10, the downstream flow was no longer less than the upstream flow. The most likely explanation for this unusual difference in flow is that the lower streamgage was out of calibration at flows less than 12 cfs. Historical records indicate that during the summers of drought years, there was little difference in streamflow between the two stations, and this is believed to provide the most reliable information. It is recommended that the District calibrate this gauge at low flows as soon as feasible.

VALENTINE RESERVE SPRINGFLOW

Rates of flow of the main spring at the University of California Eastern Sierra Valentine Reserve are provided in Appendix G. Figure 19 shows the variations in springflow during

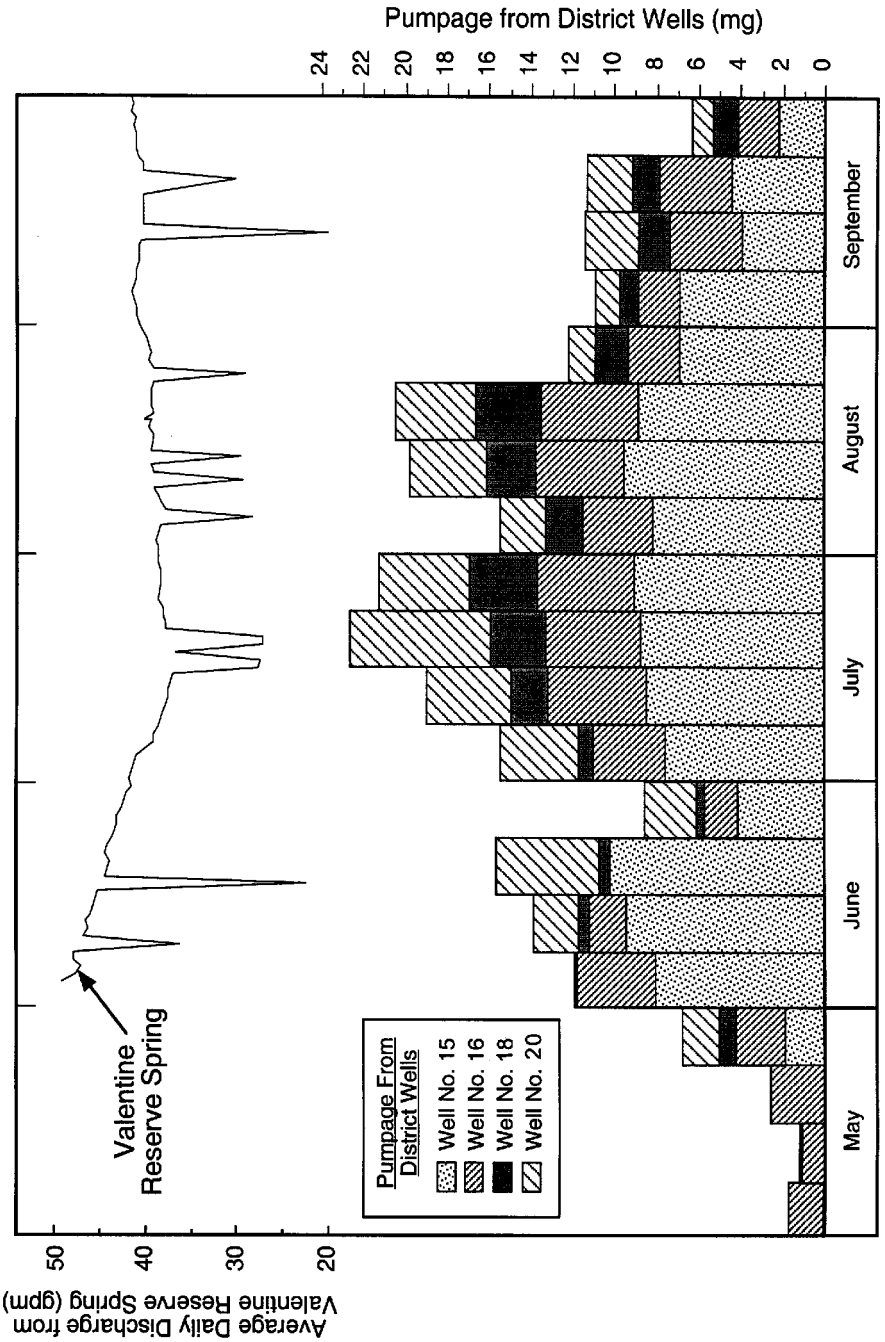

FIGURE 19 - FLOW FROM VALENTINE RESERVE SPRING AND DISTRICT WELL PUMPAGE (2000)

June-September, 2000. Springflow decreased almost linearly between early June and July 15, 2000, from 49 gpm to 37 gpm. Between July 15 and September 30, 2000, the springflow gradually increased from 37 to 41 gpm. The reason for this slight increase is unknown. Pumpage from the closest District Wells (No. 15, 16, 18, and 20) that were pumped during this period is also shown in this figure. Well No. 15 was pumped primarily during June-early September, Well No. 16 was pumped rather uniformly during May-September, and Well No. 18 was pumped primarily after early July. Well No. 20 was pumped primarily from late June-September. Careful examination of Figure 19 indicates that the variation in total pumpage does not correlate with the springflow. Also, pumpage of the individual wells does not correlate with springflow.

Springflow measurements for the eight-year period of record (Figure 20) indicate that the pattern of springflow is related to runoff. For most years, springflow was lowest in July or August, and then increased near the end of the water year. This could have been due to lower air temperatures, which would result in decreased evapotranspiration of water by plants in the area. Another possible factor is increased runoff from higher land on Mammoth Mountain. There was no noticeable impact of District pumping during the 2000 water year on springflow at the Valentine Reserve. This is consistent with monitoring results during the previous years.

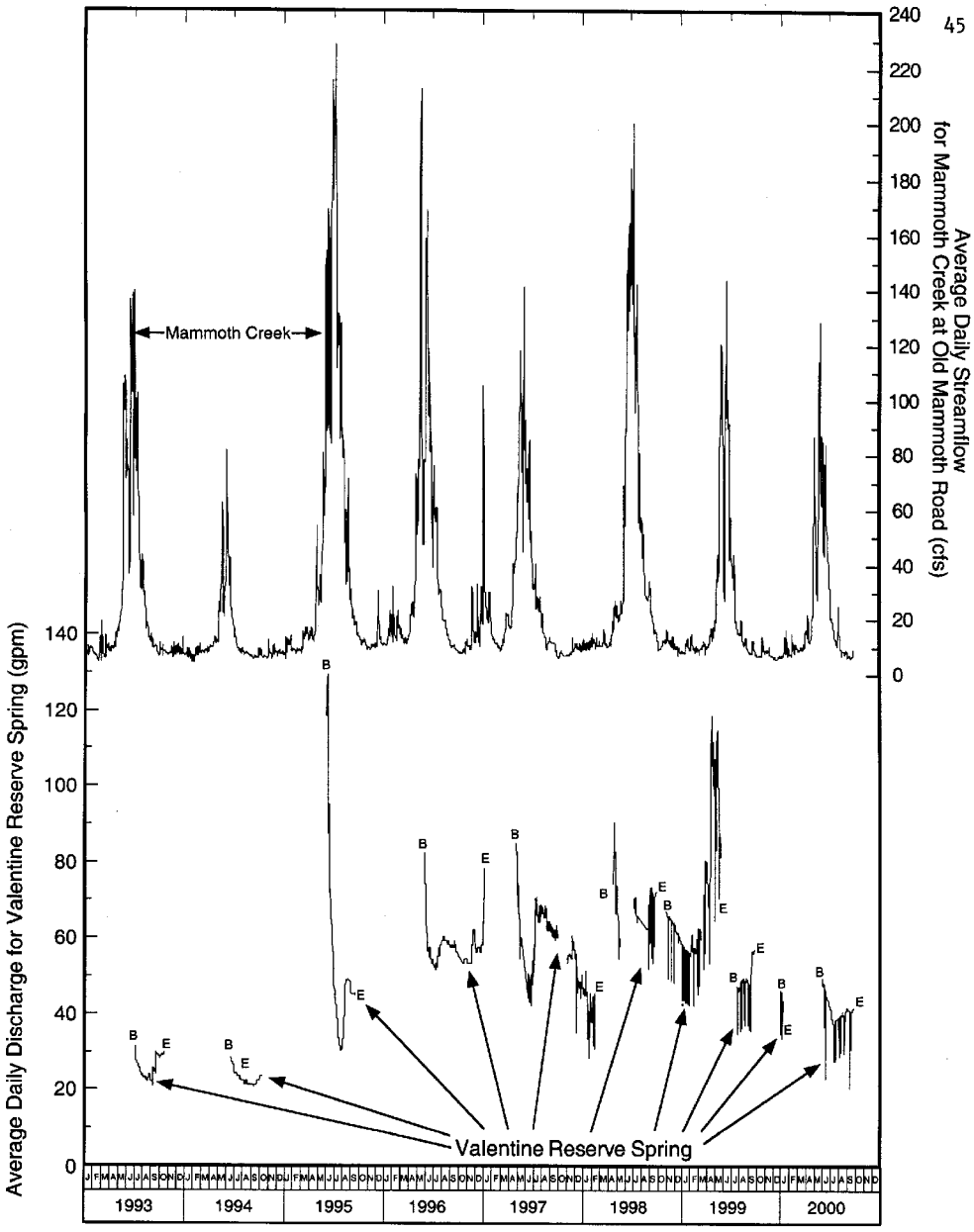

FIGURE 20 - FLOW FOR VALENTINE RESERVE SPRING AND MAMMOTH CREEK STREAMFLOW (1993-2000)

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 relatively constant water levels during the 2000 water year. Water-level hydrographs for some of the monitor wells tapping consolidated rock near the District well field indicated falling water levels after June 2000, 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 relatively constant levels or slight declines during water year 2000. Recharge was indicated to be the primary factor influencing water-level trends, except for some active District supply wells. Significant water-level declines due to pumping have only been observed in or near the pumped wells themselves.

The water-level elevation contour map for September 2000 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, streamflow in Mammoth Creek, or on the flow of the Hot Creek headsprings due to pumping of the District supply wells.

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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.

Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 1993-September 1994, December 14, 1994, 34 p.

Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 1994-September 1995, December 11, 1995, 41 p.

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.

Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 1996-September 1997, December 8, 1997, 45 p.

Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 1997-September 1998, December 9, 1998, 43 p.

Kenneth D. Schmidt and Associates, "Annual Report on Results of Mammoth Community Water District Groundwater Monitoring Program for October 1998-September 1999, December 9, 1999, 45 p.

APPENDIX A

PUMPAGE AND WATER-LEVEL DATA FOR DISTRICT SUPPLY WELLS

MAMMOTH COMMUNITY WATER DISTRICT
ANNUAL PRODUCTION WELL PUMPAGE IN ACRE-FEET
OCTOBER THRU SEPTEMBER

Year	Well 1	Well 6	Well 10	Well 15	Well 16	Well 17	Well 18	Well 20	Total
1989-90	365.500	267.900	422.600						**1056.000**
1990-91	442.900	478.200	340.700						**1261.800**
1991-92	333.600	546.300	794.900						**1674.800**
1992-93	222.300	483.300	994.400	606.100					**2306.100**
1993-94	164.600	256.100	542.600	320.500			14.500		**1298.300**
1994-95	97.000	224.000	312.000	361.000	51.000	44.000	19.000	115.000	**1223.000**
1995-96	0.000	19.000	610.000	78.000	8.000	121.000	0.000	91.000	**927.000**
1996-97	12.900	143.000	476.900	163.300	35.000	97.900	0.300	130.700	**1060.000**
1997-98	70.592	0.000	193.455	233.547	143.127	183.117	0.030	50.110	**873.978**
1998-99	70.534	0.000	126.221	408.098	101.239	67.681	20.328	242.589	**1036.690**
1999-00	19.742	0.000	198.482	417.773	196.123	201.546	74.337	180.957	**1288.961**
Total	**1799.668**	**2417.800**	**5012.258**	**2588.318**	**534.489**	**715.244**	**128.495**	**810.356**	**14007**
Mean	**163.606**	**219.800**	**455.660**	**323.540**	**89.081**	**119.207**	**18.356**	**135.059**	**1273**
Max	**442.900**	**546.300**	**994.400**	**606.100**	**196.123**	**201.546**	**74.337**	**242.589**	**2306**
Min	**0.000**	**0.000**	**126.221**	**78.000**	**8.000**	**44.000**	**0.000**	**50.110**	**874**

summary

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

	1999			2000											
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	0.000	0.015	0.000			
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
4	0.000	0.000	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	0.002			
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.264	0.000	0.010			
7	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.000	0.000	0.241	0.000	0.000			
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.295	0.000	0.001			
13	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.378	0.000	0.124			
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.361	0.393	0.000	0.000			
15	0.000	0.000	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.246	0.000	0.000			
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
17	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
19	0.000	0.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
20	0.000	0.000	0.175	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.000			
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.240	0.000			
23	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
24	0.000	0.000	0.000	0.000	0.000	0.011	0.253	0.000	0.000	0.000	0.000	0.000			
25	0.000	0.000	0.000	0.000	0.000	0.192	0.000	0.000	0.000	0.229	0.205	0.000			
26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.132	0.000	0.000			
27	0.000	0.000	0.000	0.000	0.000	0.409	0.000	0.000	0.000	0.267	0.000	0.000			
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.179	0.000	0.000			
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
30	0.000	0.000	0.004	0.000		0.812	0.000	0.000	0.164	0.000	0.000	0.000			
31	0.000		0.000	0.000		0.245		0.000		0.182	0.000				
TOTAL	0.000	0.068	0.366	0.000	0.132	1.670	0.253	0.000	0.525	2.806	0.479	0.137	0.000	0.000	0.000
MEAN	0.000	0.002	0.012	0.000	0.005	0.054	0.008	0.000	0.018	0.091	0.015	0.005	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.000	0.068	0.175	0.000	0.126	0.812	0.253	0.000	0.361	0.393	0.240	0.124	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	0.000	0.209	1.123	0.000	0.405	5.123	0.776	0.000	1.610	8.607	1.469	0.420	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			19.742	TOTAL AC-FT JAN THRU DEC:			18.411								

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

	1999			2000											
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	0.000	0.000	0.000			
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
4	0.000	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
30	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000			
31	0.000		0.000	0.000		0.000		0.000		0.000	0.000				
TOTAL	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
MEAN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
MAX	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
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	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

TOTAL AC-FT OCT THRU SEP: 0.000 **TOTAL AC-FT JAN THRU DEC:** 0.000

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

	1999			2000												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.576	0.000	0.000	0.000	0.000			
2	0.000	0.000	0.000	0.000	0.000	0.064	0.000	0.000	0.000	0.000	0.000	0.000			
3	0.000	0.000	0.192	0.000	0.000	0.000	0.000	0.576	0.000	0.096	0.000	0.000			
4	0.000	0.000	0.192	0.000	0.000	0.000	0.000	0.512	0.000	0.096	0.000	0.000			
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.768	0.000	3.264	0.000	0.000			
6	0.000	0.000	0.128	0.000	0.000	0.000	0.000	0.640	0.000	0.000	0.000	0.000			
7	0.000	0.000	0.064	0.000	0.000	0.000	0.000	0.640	0.000	1.280	0.000	0.000			
8	0.000	0.000	0.064	0.000	0.000	0.000	0.000	0.256	0.000	1.984	0.000	0.000			
9	0.000	0.000	0.128	0.000	0.000	0.000	0.000	0.000	0.000	1.920	0.000	0.000			
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.256	0.000	0.000			
11	0.000	0.000	0.000	0.000	0.000	1.024	0.000	0.064	0.000	0.000	0.000	0.000			
12	0.000	0.000	0.000	0.000	0.448	1.088	0.000	0.768	0.000	0.000	0.000	0.000			
13	0.000	0.000	0.000	0.000	0.576	0.064	0.192	0.768	0.000	0.000	0.000	0.000			
14	0.000	0.000	0.000	0.000	0.000	0.000	0.640	0.320	0.000	0.000	0.000	0.000			
15	0.000	0.064	0.064	0.000	0.064	0.256	0.576	0.448	0.000	0.000	0.000	0.000			
16	0.000	0.000	0.000	0.000	0.000	0.000	0.064	0.000	0.000	0.000	0.000	0.000			
17	0.000	0.192	0.064	0.000	0.000	0.000	0.064	0.000	0.000	0.000	0.000	0.000			
18	0.000	0.064	0.000	0.000	0.192	0.000	0.000	0.000	0.000	1.088	0.000	0.000			
19	0.000	0.000	0.000	0.000	1.472	0.000	0.000	0.896	0.000	0.512	0.000	0.000			
20	0.000	0.000	0.340	0.000	0.064	0.000	0.000	1.088	0.000	0.000	0.000	0.000			
21	0.000	0.000	0.812	0.000	0.000	0.000	0.000	1.024	0.000	0.000	0.000	0.000			
22	0.000	0.000	0.896	0.000	0.000	0.000	0.000	1.216	0.704	0.000	0.000	0.000			
23	0.000	0.000	0.832	0.000	0.064	0.000	0.000	1.152	1.856	0.000	0.000	0.000			
24	0.000	0.128	0.832	0.000	0.000	0.000	0.000	1.088	1.920	0.000	0.000	0.000			
25	0.000	0.320	0.960	0.000	0.000	0.320	0.000	0.576	1.920	0.000	0.000	0.000			
26	0.000	0.000	0.768	0.000	0.000	0.000	0.000	1.408	1.856	0.000	0.000	0.000			
27	0.000	0.064	1.024	0.000	0.000	0.064	0.000	1.216	1.920	0.000	0.000	0.000			
28	0.064	0.256	0.896	0.000	0.000	0.000	0.000	1.280	1.792	0.768	0.000	0.000			
29	0.000	0.192	0.896	0.000	0.000	0.000	0.000	1.280	1.664	0.000	0.000	0.000			
30	0.000	0.000	0.960	0.000		0.000	0.000	0.448	0.768	0.000	0.000	0.000			
31	0.000		1.216	0.000		0.000		0.000		0.000	0.000				
TOTAL	0.128	1.280	11.328	0.001	2.880	2.880	1.536	19.008	14.400	11.264	0.000	0.000	0.000	0.000	0.000
MEAN	0.004	0.043	0.365	0.000	0.099	0.093	0.051	0.613	0.480	0.363	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.064	0.320	1.216	0.000	1.472	1.088	0.640	1.408	1.920	3.264	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	0.393	3.926	34.748	0.004	8.834	8.834	4.712	58.307	44.172	34.552	0.000	0.000	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			198.482	TOTAL AC-FT JAN THRU DEC:			159.415								

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

	1999			2000											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.752	0.000	0.000	0.000	0.000	0.000	0.000	0.096	0.992	1.520	1.072	1.072			
2	1.456	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.168	1.536	1.136	1.344			
3	1.312	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.216	0.928	1.040	1.312			
4	0.896	0.032	0.000	0.000	0.000	0.000	0.000	0.000	1.136	0.928	1.024	1.376			
5	0.688	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.328	0.960	1.408	0.320			
6	0.512	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.136	1.088	1.408	0.896			
7	0.688	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.120	0.592	1.104	0.608			
8	0.512	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.496	0.704	1.120	0.704			
9	0.656	0.000	0.000	0.000	0.144	0.000	0.000	0.000	1.264	0.800	1.104	0.736			
10	0.784	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.216	1.072	1.072	0.800			
11	0.464	0.000	0.000	0.000	0.000	0.112	0.000	0.000	1.232	1.120	1.088	0.192			
12	0.176	0.000	0.000	0.000	0.000	0.080	0.000	0.000	1.200	1.088	1.440	0.064			
13	0.528	0.000	0.000	0.000	0.000	0.032	0.000	0.000	1.328	1.152	1.408	0.000			
14	0.480	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.232	1.120	1.072	0.576			
15	0.560	0.000	0.016	0.000	0.000	0.000	0.000	0.000	1.408	1.424	1.232	0.832			
16	0.576	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.296	1.408	1.200	0.768			
17	0.528	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.424	1.072	1.200	0.736			
18	0.384	0.000	0.000	0.000	0.000	0.800	0.000	0.000	1.280	0.688	1.056	0.992			
19	0.432	0.000	0.000	0.000	0.128	0.432	0.000	0.000	1.408	1.072	1.040	0.000			
20	0.208	0.000	0.000	0.000	0.304	0.000	0.000	0.000	1.456	1.184	1.024	0.448			
21	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.568	1.152	1.120	0.672			
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.056	1.104	1.120	0.416			
23	0.656	0.000	0.000	0.000	0.016	0.000	0.000	0.000	0.720	1.136	1.120	0.352			
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800	1.104	1.008	0.416			
25	0.000	0.256	0.000	0.000	0.000	0.192	0.000	0.000	0.640	1.136	1.008	0.512			
26	0.000	0.624	0.000	0.000	0.000	0.000	0.000	0.000	0.544	1.136	0.980	0.000			
27	0.000	0.544	0.000	0.000	0.000	0.000	0.000	0.000	0.640	1.104	1.004	0.000			
28	0.112	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.448	0.560	1.056	0.000			
29	0.000	0.000	0.016	0.000	0.000	0.000	0.000	0.000	0.112	1.408	0.992	0.640			
30	0.000	0.000	0.000	0.000		0.000	0.000	0.736	0.944	1.456	0.832	0.674			
31	0.352		0.096	0.000		0.000		1.152		1.120	0.000				
TOTAL	13.760	1.456	0.128	0.000	0.592	1.648	0.000	1.984	31.808	33.872	33.488	17.458	0.000	0.000	0.000
MEAN	0.444	0.049	0.004	0.000	0.020	0.053	0.000	0.064	1.060	1.093	1.080	0.582	#DIV/0!	#DIV/0!	#DIV/0!
MAX	1.456	0.624	0.096	0.000	0.304	0.800	0.000	1.152	1.568	1.536	1.440	1.376	0.000	0.000	0.000
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.112	0.560	0.000	0.000	0.000	0.000	0.000
AC-FT	42.209	4.466	0.393	0.000	1.816	5.055	0.000	6.086	97.571	103.902	102.724	53.552	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			417.773	TOTAL AC-FT JAN THRU DEC:			370.706								

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

	1999			2000												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.364	0.000	0.000	0.000	0.000	0.000	0.000	0.444	0.480	0.640	0.608	0.000			
2	0.204	0.224	0.000	0.000	0.000	0.000	0.000	0.272	0.512	0.432	0.552	0.000			
3	0.268	0.000	0.000	0.000	0.000	0.000	0.000	0.328	0.568	0.564	0.272	0.280			
4	0.216	0.000	0.000	0.000	0.000	0.000	0.000	0.540	0.548	0.564	0.032	0.416			
5	0.344	0.000	0.000	0.000	0.000	0.000	0.000	0.112	0.552	0.376	0.600	0.400			
6	0.000	0.320	0.000	0.000	0.000	0.000	0.000	0.000	0.624	0.264	0.600	0.504			
7	0.228	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.448	0.600	0.608	0.392			
8	0.672	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.208	0.632	0.608	0.472			
9	0.348	0.000	0.000	0.000	0.000	0.000	0.000	0.064	0.216	0.592	0.608	0.472			
10	0.404	0.000	0.000	0.000	0.000	0.000	0.000	0.224	0.528	0.576	0.280	0.464			
11	0.436	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.616	0.584	0.456	0.456			
12	0.408	0.000	0.000	0.000	0.000	0.000	0.000	0.304	0.184	0.584	0.560	0.392			
13	0.420	0.000	0.000	0.000	0.000	0.000	0.000	0.428	0.000	0.584	0.552	0.312			
14	0.244	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.000	0.536	0.600	0.440			
15	0.236	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.632	0.600	0.472			
16	0.248	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.584	0.600	0.576			
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.472	0.528	0.496			
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.296	0.000	0.592	0.600	0.536			
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.456	0.000	0.592	0.592	0.448			
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.496	0.000	0.456	0.608	0.416			
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.656	0.000	0.592	0.600	0.352			
22	0.216	0.000	0.000	0.000	0.000	0.000	0.000	0.456	0.000	0.624	0.600	0.392			
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224	0.000	0.584	0.464	0.272			
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.300	0.000	0.616	0.592	0.320			
25	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.264	0.000	0.496	0.472	0.296			
26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.584	0.000	0.576	0.496	0.232			
27	0.212	0.000	0.000	0.000	0.000	0.000	0.000	0.624	0.432	0.624	0.584	0.280			
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.076	0.352	0.600	0.256	0.184			
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.192	0.608	0.000	0.208			
30	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.632	0.600	0.000	0.424			
31	0.000		0.000	0.000		0.000		0.432		0.616	0.000				
TOTAL	5.768	0.544	0.000	0.000	0.000	0.004	0.000	7.704	7.092	17.392	14.528	10.904	0.000	0.000	0.000
MEAN	0.186	0.018	0.000	0.000	0.000	0.000	0.000	0.249	0.236	0.561	0.469	0.363	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.672	0.320	0.000	0.000	0.000	0.004	0.000	0.656	0.632	0.640	0.608	0.576	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	0.264	0.000	0.000	0.000	0.000	0.000
AC-FT	17.693	1.669	0.000	0.000	0.000	0.012	0.000	23.632	21.755	53.350	44.564	33.448	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			196.123	TOTAL AC-FT JAN THRU DEC:			176.761								

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

	1999			2000											
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	0.200	0.176	0.000	0.768	0.328			
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.152	0.000	0.872	0.000			
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.280	0.000	0.760	0.000			
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.280	0.000	0.656	0.344			
5	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.000	0.752	0.184			
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.712	0.928			
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.088	0.000	0.832	0.488			
8	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.080	0.000	0.800	0.568			
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.248	0.000	0.816	0.944			
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.176	0.000	0.824	0.408			
11	0.208	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.152	0.000	0.744	0.912			
12	0.528	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048	0.000	1.088	0.944			
13	0.144	0.000	0.088	0.000	0.000	0.000	0.000	0.000	0.256	0.000	0.984	0.560			
14	0.024	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.344	0.000	0.848	0.936			
15	0.608	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.368	0.000	0.784	0.960			
16	0.392	0.000	0.136	0.000	0.000	0.280	0.000	0.008	0.480	0.000	0.776	0.976			
17	0.416	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.496	0.000	0.760	0.896			
18	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.480	0.000	0.888	0.800			
19	0.408	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.512	0.000	1.088	0.912			
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.520	0.656	1.120	0.256			
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.488	0.896	0.736	0.784			
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.792	0.864	0.688	0.928			
23	0.000	0.000	0.000	0.000	0.056	0.000	0.000	0.000	0.648	0.904	0.872	0.976			
24	0.000	0.000	0.000	0.000	0.000	0.000	0.072	0.000	0.000	0.600	0.824	0.560			
25	0.000	0.000	0.000	0.000	0.000	0.336	0.000	0.000	0.000	0.832	0.792	0.256			
26	0.000	0.000	0.000	0.000	0.000	0.600	0.096	0.072	0.000	0.856	0.816	0.912			
27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.320	0.000	0.304	0.776	0.944			
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.864	0.528	0.032			
29	0.000	0.000	0.000	0.000	0.000	0.000	0.912	0.024	0.000	0.904	0.168	0.208			
30	0.000	0.000	0.000	0.000		0.000	0.776	0.280	0.000	0.848	0.000	0.304			
31	0.000		0.000	0.000		0.176		0.328		0.896	0.000				
TOTAL	2.840	0.016	0.232	0.000	0.160	1.392	1.864	1.232	7.224	9.424	23.072	18.248	0.000	0.000	0.000
MEAN	0.092	0.001	0.007	0.000	0.006	0.045	0.062	0.040	0.241	0.304	0.744	0.608	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.608	0.016	0.136	0.000	0.104	0.600	0.912	0.328	0.792	0.904	1.120	0.976	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	8.712	0.049	0.712	0.000	0.491	4.270	5.718	3.779	22.160	28.908	70.773	55.975	0.000	0.000	0.000
TOTAL AC-FT OCT THRU SEP:			201.546	TOTAL AC-FT JAN THRU DEC:			192.074								

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

	1999			2000											
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	0.000	0.624	0.000			
2	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.555	0.000			
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.181	0.000			
4	0.000	0.000	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	0.572	0.000	0.006			
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.165	0.000	0.601			
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.441	0.172			
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.628	0.438			
9	0.000	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.152	0.064			
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.485	0.000	0.000			
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.645	0.000	0.436			
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.492	0.049	0.501	0.131			
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.003	0.000			
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.472	0.000			
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600	0.580	0.470			
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.815	0.601	0.003			
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.602	0.464	0.000			
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.130	0.295	0.403			
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.455	0.438	0.638			
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.599	0.000	0.170			
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.447	0.000			
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.495	0.000	0.617	0.000			
23	0.000	0.000	0.000	0.000	0.019	0.000	0.000	0.000	0.001	0.000	0.220	0.000			
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.591	0.421	0.000			
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.577	0.603	0.438			
26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.630	0.000	0.624			
27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.478	0.000	0.000			
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.406	0.162			
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.434	0.156	0.000			
30	0.000	0.000	0.000	0.000		0.000	0.000	0.582	0.429	0.000	0.000	0.000			
31	0.000		0.000	0.000		0.000		0.175		0.461	0.000				
TOTAL	0.000	0.000	0.000	0.000	0.119	0.011	0.000	0.757	1.458	8.328	8.805	4.756	0.000	0.000	0.000
MEAN	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.024	0.049	0.269	0.284	0.159	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.000	0.000	0.000	0.000	0.100	0.011	0.000	0.582	0.495	0.815	0.628	0.638	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	0.000	0.000	0.000	0.000	0.365	0.034	0.000	2.322	4.472	25.546	27.009	14.589	0.000	0.000	0.000

TOTAL AC-FT OCT THRU SEP:	74.337	TOTAL AC-FT JAN THRU DEC:	74.337

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

	1999			2000											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.000	0.200	0.000	0.000	0.232	0.000	0.000	0.000	0.000	0.648	0.352	0.256			
2	0.000	0.192	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.624	0.480	0.000			
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.536	0.328	0.000			
4	0.000	0.000	0.000	0.000	0.256	0.000	0.000	0.000	0.000	0.536	0.136	0.208			
5	0.000	0.000	0.000	0.000	0.376	0.000	0.000	0.000	0.000	0.616	0.160	0.032			
6	0.000	0.000	0.000	0.000	0.016	0.000	0.000	0.000	0.096	0.696	0.280	0.608			
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.064	0.408	0.112			
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.440	0.304			
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128	0.000	0.376	0.208			
10	0.000	0.000	0.000	0.000	0.000	0.144	0.000	0.064	0.024	0.512	0.448	0.096			
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048	0.592	0.224	0.256			
12	0.000	0.000	0.000	0.000	0.184	0.000	0.000	0.000	0.208	0.656	0.784	0.592			
13	0.000	0.000	0.000	0.000	0.232	0.320	0.000	0.000	0.568	0.640	0.456	0.432			
14	0.232	0.000	0.056	0.000	0.304	0.120	0.000	0.000	0.752	0.656	0.528	0.336			
15	0.008	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.504	0.968	0.416	0.240			
16	0.000	0.000	0.000	0.000	0.000	0.000	0.352	0.000	0.672	1.192	0.440	0.240			
17	0.000	0.000	0.000	0.000	0.000	0.000	0.288	0.000	0.512	0.912	0.376	0.240			
18	0.464	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.744	0.416	0.176			
19	0.088	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.472	0.816	0.752	0.496			
20	0.344	0.000	0.000	0.000	0.840	0.624	0.000	0.000	0.768	0.816	0.832	0.080			
21	0.000	0.000	0.000	0.000	0.768	0.000	0.080	0.000	0.752	0.744	0.336	0.512			
22	0.000	0.000	0.000	0.000	0.048	0.000	0.504	0.000	0.480	0.752	0.304	0.240			
23	0.000	0.000	0.000	0.000	0.016	0.200	0.496	0.000	0.488	0.720	0.400	0.208			
24	0.488	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.784	0.088	0.304	0.144			
25	0.240	0.000	0.000	0.000	0.232	0.024	0.000	0.000	0.000	0.760	0.272	0.048			
26	0.000	0.000	0.000	0.000	0.896	0.288	0.000	0.000	0.000	0.736	0.384	0.256			
27	0.000	0.000	0.000	0.000	0.136	0.000	0.000	0.000	0.000	0.160	0.320	0.240			
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.320	0.560	0.736	0.016	0.000			
29	0.000	0.000	0.144	0.000	0.000	0.000	0.000	0.344	0.512	0.608	0.000	0.080			
30	0.000	0.000	0.000	0.000		0.000	0.000	0.800	0.616	0.440	0.000	0.208			
31	0.360		0.000	0.000		0.000		0.320		0.744	0.000				
TOTAL	2.224	0.440	0.200	0.000	4.536	1.720	1.720	1.848	9.776	18.712	10.968	6.848	0.000	0.000	0.000
MEAN	0.072	0.015	0.006	0.000	0.156	0.055	0.057	0.060	0.326	0.604	0.354	0.228	#DIV/0!	#DIV/0!	#DIV/0!
MAX	0.488	0.200	0.144	0.000	0.896	0.624	0.504	0.800	0.800	1.192	0.832	0.608	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	6.822	1.350	0.613	0.000	13.914	5.276	5.276	5.669	29.988	57.399	33.644	21.006	0.000	0.000	0.000

TOTAL AC-FT OCT THRU SEP: 180.957 **TOTAL AC-FT JAN THRU DEC:** 172.172

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 1999 - SEPTEMBER 2000

WELL NO. 1					WELL NO. 6			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/04/99	-182.02	08/22/00	-214.86		10/04/99	0.00		
10/12/99	-182.73				10/12/99	0.00		
10/20/99	-183.04				10/20/99	0.00		
10/25/99	-182.97				10/25/99	0.00		
11/11/99	-181.76				11/11/99	0.00		
12/03/99	-179.71				12/03/99	0.00		
01/03/00	-178.22				01/03/00	0.00		
02/01/00	-176.12				02/01/00	0.00		
03/01/00	-173.87				03/01/00	0.00		
04/03/00	-173.69				04/03/00	0.00		
04/27/00	-170.21				04/27/00	0.00		
05/04/00	-167.51				05/04/00	0.00		
05/11/00	-168.09				05/11/00	0.00		
05/24/00	-166.77				05/24/00	0.00		
06/02/00	-166.29				06/02/00	0.00		
06/07/00	-166.32				06/07/00	0.00		
06/13/00	-166.86				06/13/00	0.00		
06/21/00	-168.11				06/21/00	0.00		
07/10/00	-172.94				07/10/00	0.00		
07/17/00	-173.44				07/17/00	0.00		
07/24/00	-173.57				07/24/00	0.00		
08/02/00	-175.53				08/02/00	0.00		
08/08/00	-175.79				08/08/00	0.00		
08/14/00	-176.67				08/14/00	0.00		
08/30/00	-179.71				08/30/00	0.00		
09/06/00	-180.94				09/06/00	0.00		
09/12/00	-181.02				09/12/00	0.00		
09/19/00	-181.75				09/19/00	0.00		
09/26/00	-181.95				09/26/00	0.00		
Mean	-175.43		-214.86			0.00		#DIV/0!
Max	-183.04		-214.86			0.00		0.00
Min	-166.29		-214.86			0.00		0.00
Historical								
Mean	-197.70		-252.41			-45.85		-147.24
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 1999 - SEPTEMBER 2000

WELL NO. 10					WELL NO. 15			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/04/99	-22.65	12/06/99	-127.21		10/4/99	-216.32	06/02/00	-201.42
10/12/99	-23.35				10/12/99	-215.24	06/07/00	-205.11
10/25/99	-28.07				10/20/99	-214.84	06/13/00	-208.76
11/11/99	-29.82				10/25/99	-212.91	06/21/00	-213.98
12/03/99	-31.23				11/11/99	-207.09	07/10/00	-217.76
01/03/99	-21.79				12/3/99	-204.56	07/17/00	-221.11
02/01/00	-20.52				1/3/00	-198.89	07/24/00	-223.12
03/01/00	-19.15				2/1/00	-192.47	08/08/00	-228.44
04/03/00	-17.62				3/1/00	-190.04	08/22/00	-233.61
04/27/00	-12.54				4/3/00	-186.44		
05/04/00	-18.41				4/27/00	-184.51		
05/11/00	-13.32				5/4/00	-183.24		
05/24/00	-20.08				5/11/00	-188.22		
06/02/00	-15.54				5/24/00	-181.52		
06/07/00	-13.67				6/2/00	-201.42		
06/13/00	-12.79				8/2/00	-210.72		
06/21/00	-12.19				8/14/00	-215.31		
07/10/00	-20.08				8/30/00	-219.71		
07/17/00	-16.31				9/6/00	-219.93		
07/24/00	-16.18				9/12/00	-219.59		
08/02/00	-16.23				9/19/00	-220.25		
08/08/00	-15.92				9/26/00	-218.75		
08/14/00	-16.07							
08/22/00	-16.27							
08/30/00	-19.52							
09/06/00	-16.95							
09/12/00	-17.12							
09/19/00	-17.15							
09/26/00	-17.38							
Mean	-18.52		-127.21			-204.64		-217.03
Max	-31.23		-127.21			-220.25		-233.61
Min	-12.19		-127.21			-181.52		-201.42
Historical								
Mean	-58.66		-121.77			-218.44		-254.64
Max	-164.00		-200.00			-275.07		-297.00
Min	-8.13		-40.92			-168.15		-183.42

prodwell

MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 1999 - SEPTEMBER 2000

WELL NO. 16					WELL NO. 17			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/04/99	-471.96	10/12/99	-474.46		10/4/99	-366.27	10/12/99	-369.52
10/20/99	-469.42	06/02/00	-474.28		10/20/99	-367.19	12/14/99	-372.79
10/25/99	-467.96	06/07/00	-477.52		10/25/99	-366.5	6/7/00	-370.44
11/11/99	-466.02	07/10/00	-479.47		11/11/99	-366.97	6/13/00	-370.54
12/03/99	-464.07	07/17/00	-481.87		12/3/99	-366.89	7/24/00	-372.42
01/03/00	-462.13	07/24/00	-483.49		1/3/00	-364.06	8/8/00	-373.41
02/01/00	-461.74	08/02/00	-484.86		2/1/00	-366.78	8/22/00	-374.22
03/01/00	-461.51	08/08/00	-483.87		3/1/00	-366.46		
04/03/00	-461.09	08/14/00	-484.38		4/3/00	-366.65		
04/27/00	-461.03	08/22/00	-486.21		4/27/00	-366.58		
05/04/00		09/06/00	-481.18		5/4/00	-366.68		
05/11/00	-465.52	09/12/00	-482.95		5/11/00	-371.45		
05/24/00	-469.86	09/19/00	-484.51		5/24/00	-366.49		
06/02/00	-474.28				6/2/00	-367.07		
06/13/00	-474.34				6/21/00	-367.97		
06/21/00	-468.49				7/10/00	-367.44		
08/30/00	-482.91				7/17/00	-367.39		
09/26/00	-481.59				8/2/00	-369.04		
					8/14/00	-370.11		
					8/30/00	-370.12		
					9/6/00	-370.15		
					9/12/00	-370.38		
					9/17/00	-370.77		
					9/26/00	-371.17		
Mean	-468.47		-481.47			-367.94		-371.91
Max	-482.91		-486.21			-371.45		-374.22
Min	-482.91		-486.21			-371.45		-374.22
Historical								
Mean	-465.92		-482.61			-374.45		-374.27
Max	-483.94		-491.50			-386.71		-386.00
Min	-413.65		-471.47			-364.06		-369.52

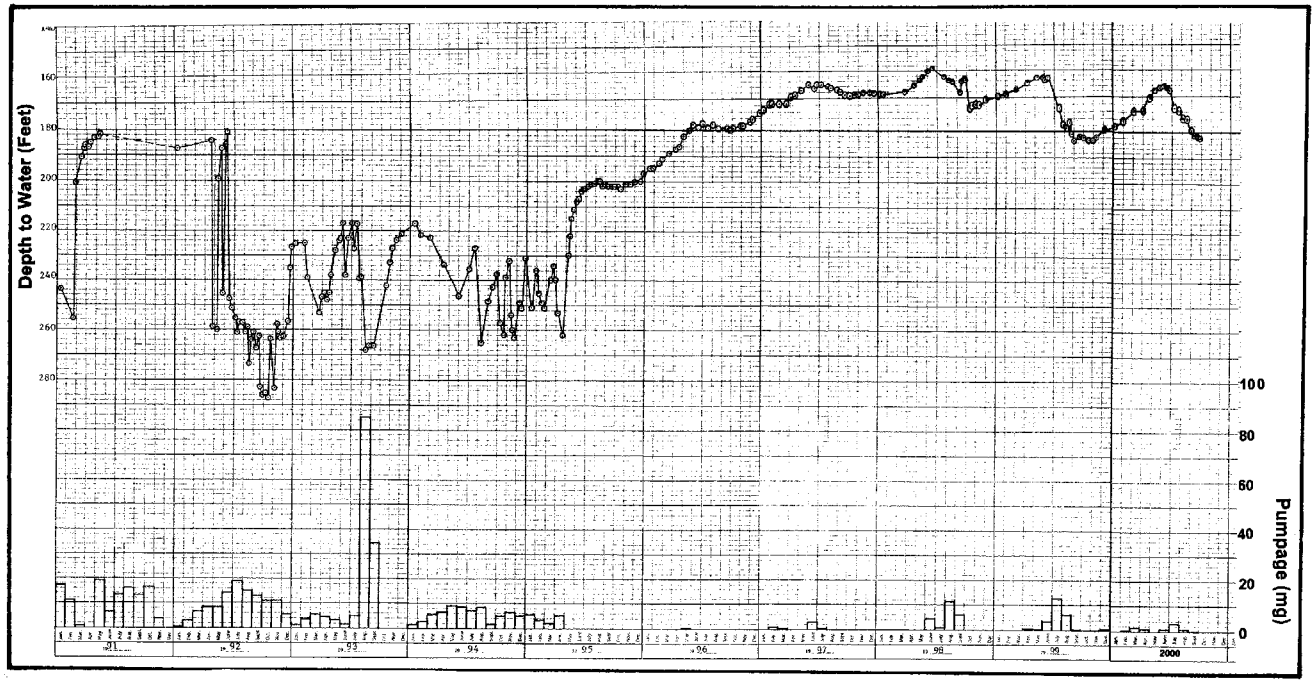
MAMMOTH COMMUNITY WATER DISTRICT
PRODUCTION WELL WATER LEVEL DATA
OCTOBER 1999 - SEPTEMBER 2000

WELL NO. 18					WELL NO. 20			
Date	Static	Date	Pumping		Date	Static	Date	Pumping
10/4/99	-54.33	07/17/00	-139.59		10/4/99	-409.09	10/25/99	-457.41
10/12/99	-54.53	08/08/00	-146.54		10/12/99	-407.94	12/14/99	-452.53
10/25/99	-53.98	08/22/00	-156.16		10/20/99	-408.81	6/13/00	-444.35
11/11/99	-53.77	09/19/00	-136.52		11/11/99	-407.09	6/21/00	-470.26
12/3/99	-54.27	09/26/00	-136.82		12/3/99	-404.78	7/17/00	-481.04
1/3/00	-56.81				1/3/00	-404.78	8/8/00	-481.26
2/1/00	-58.51				2/1/00	-405.66		
3/1/00	-58.08				3/1/00	-405.94		
4/3/00	-57.97				4/3/00	-403.63		
4/27/00	-55.67				4/27/00	-404.51		
5/4/00	-54.84				5/4/00	-403.34		
5/11/00	-54.84				5/11/00	-403.06		
5/24/00	-54.64				5/24/00	-402.51		
6/2/00	-64.37				6/2/00	-405.06		
6/7/00	-57.95				6/7/00	-404.22		
6/13/00	-77.82				7/10/00	-412.49		
6/21/00	-56.37				7/24/00	-418.73		
7/10/00	-83.44				8/2/00	-418.32		
7/24/00	-81.58				8/14/00	-419.11		
8/2/00	-96.08				8/22/00	-420.06		
8/14/00	-82.81				8/30/00	-417.11		
8/30/00	-99.19				9/6/00	-413.93		
9/6/00	-81.26				9/12/00	-415.51		
9/12/00	-90.23				9/19/00	-416.28		
					9/26/00	-416.22		
Mean	-66.39		-143.13			-409.93		-464.48
Max	-99.19		-156.16			-420.06		-481.26
Min	-53.77		-136.52			-402.51		-444.35
Historical								
Mean	-60.65		-120.27			-411.60		-454.25
Max	-87.90		-156.16			-436.52		-489.01
Min	-40.00		-81.91			-398.91		-428.53
*								

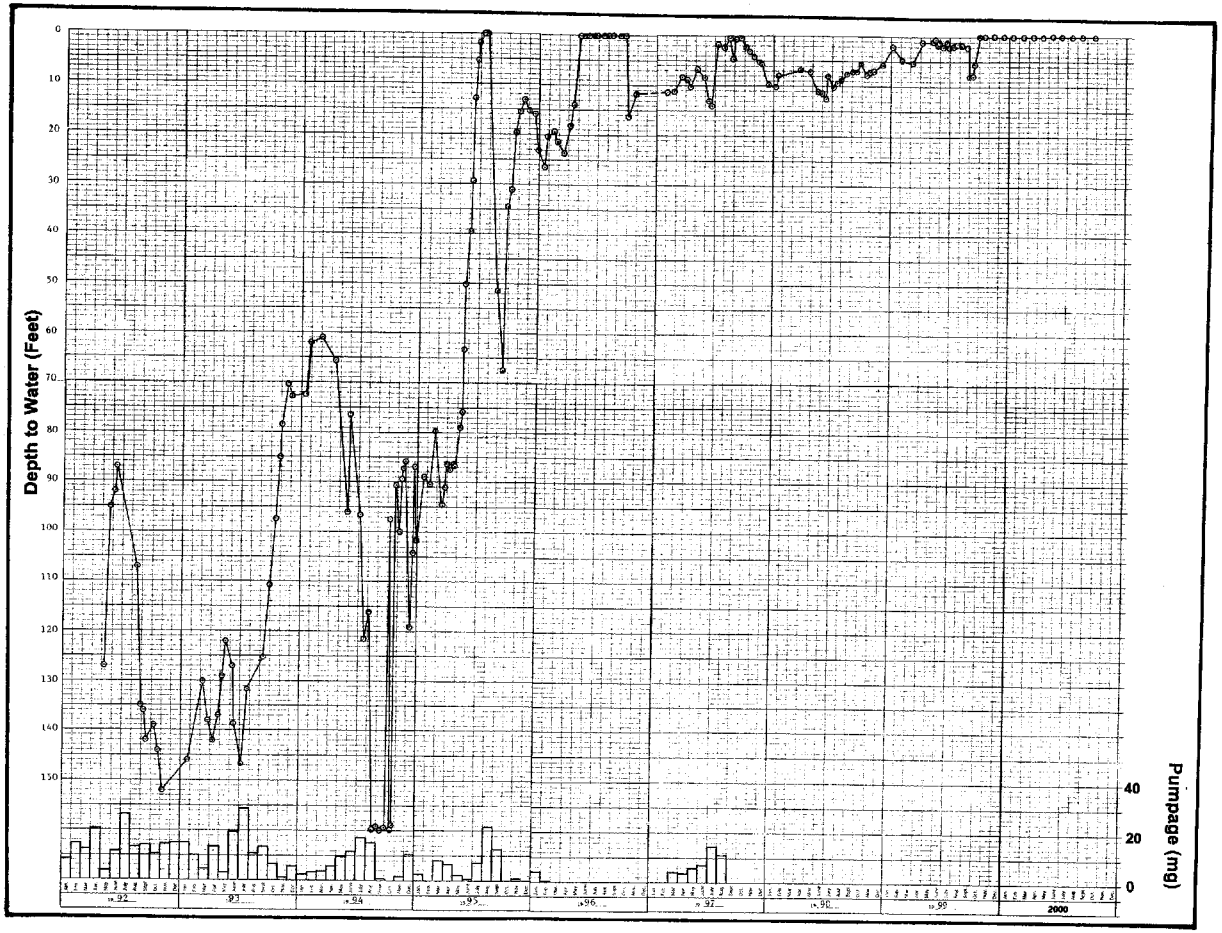
prodwell

APPENDIX B

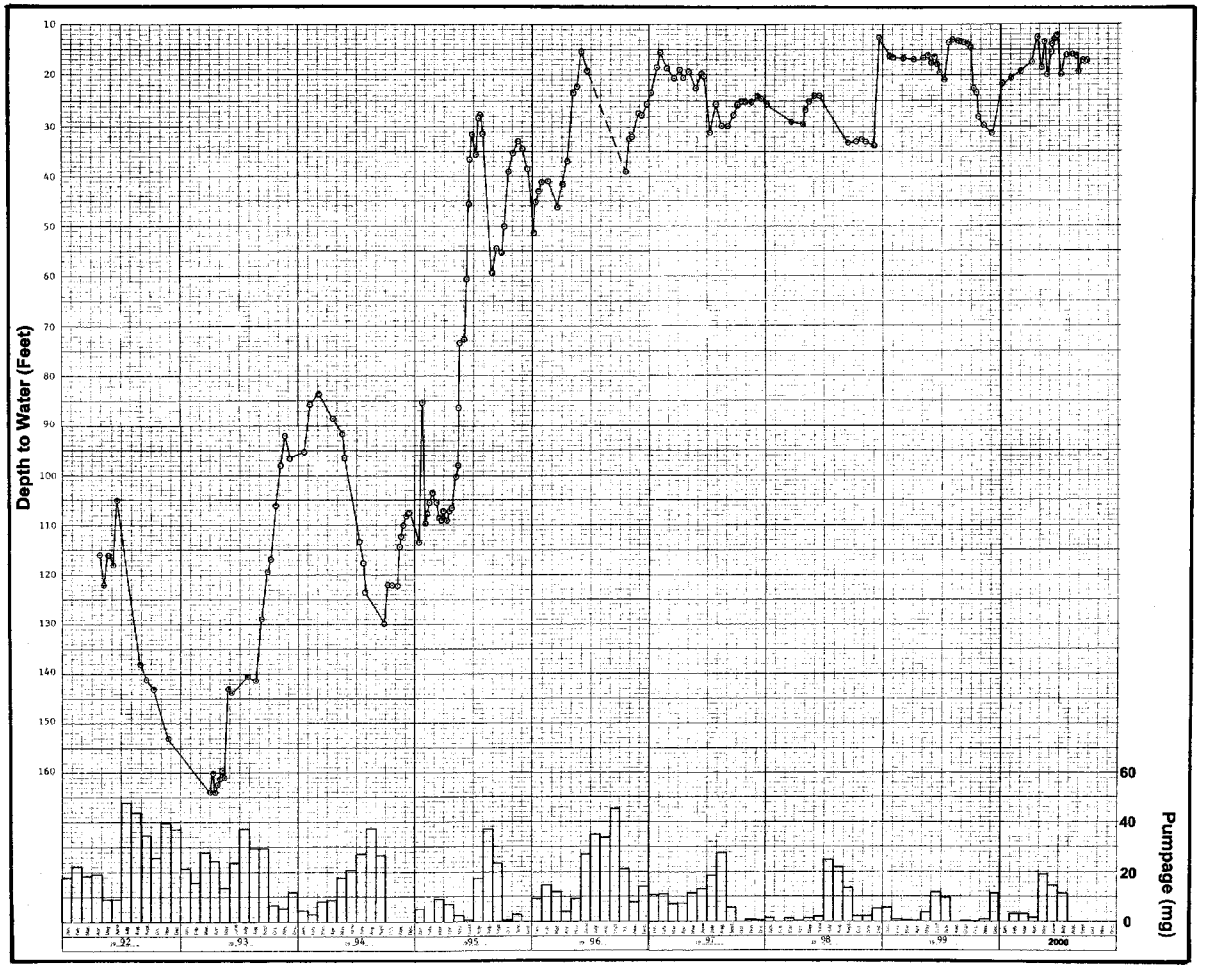
PUMPAGE AND WATER-LEVEL HYDROGRAPHS FOR EARLIER SUPPLY WELLS



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

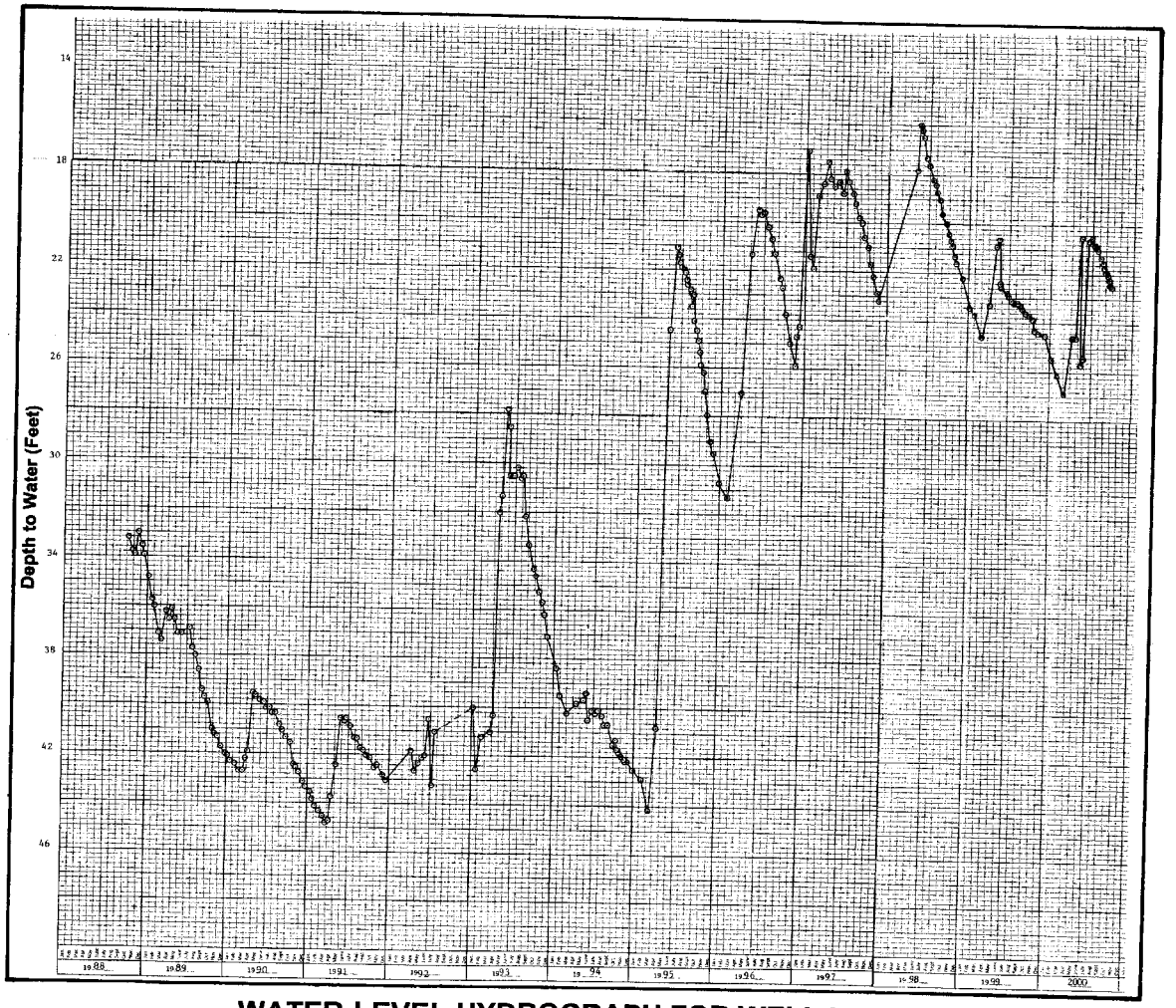
MAMMOTH COMMUNITY WATER DISTRICT
MONITOR WELL LEVEL DATA
OCTOBER 1999 THRU SEPTEMBER 2000

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
10/4/99	-23.78	-2.41	-8.17	-247.98	-17.46	0	-20.98	-16.69	-270.06	-357.25	-231.69	-80.29	-14.62	-367.62
10/12/99	-23.86	-2.38	-8.17	-248.22	-17.56	0	-21.25	-16.98				-80.29	-14.98	
10/20/99	-24.29	-2.37	-7.77	-248.26	-17.64	0	-21.44	-17.24				-80.29	-15.23	
10/25/99	-24.32	-2.22	-7.82	-248.27	-17.68	0	-21.58	-17.68				-80.3	-15.33	
11/11/99	-24.37	-2.27	-7.81	-248.48	-17.89	0	-22.03	-17.97				-80.31	-15.35	
12/3/99	-24.51	-2.29	-7.87	-248.69	-18.44	0	-22.57	-18.66	-283.56	-348.05	-232.43	-80.31	-15.58	-379.24
1/3/00	-25.51	-2.37	-7.98	-249.37	-29.72	0	-23.36	-21.08	-290.37	-346.06	-232.68	-80.28	-15.72	-370.43
2/1/00	-26.14	-2.42	-7.62	-250.06	-24.16	0	-24.46	-22.16				-80.29	-13.52	
3/1/00	-26.89	-2.56	-7.62	-250.81	-22.25	0	-25.92	-23.42	-300.44	-351.31	-233.13	-80.28	-13.96	-370.69
4/3/00	-24.57	-2.52	-6.56	-252.19	-20.56	0	-24.31	-22.39	-307.06	-351.16	-233.19	-80.31	-11.92	-371.44
4/27/00	-25.98	-2.41	-5.25	-253.21	-16.12	0	-20.18	-16.11				-79.45	-11.87	
5/4/00	-20.51	-2.13	-5.34	-258.86	-18.39	0	-19.21	-15.21					-11.71	
5/11/00	-25.67	-7.16	-5.54	-259.16	-17.05	0	-12.52	-13.28					-10.74	
5/24/00	-25.41	-1.86	-6.46	-259.38	-24.73	0	-10.22	-8.31				-79.32	-10.82	
6/2/00	-20.57	-1.89	-7.02	-254.34	-19.11	0	-11.56	-8.48				-79.91	-10.61	
6/7/00	-20.52	-2.01	-7.29	-254.23	-17.17	0	-10.88	-8.27	-255.75	-350.73	-232.69	-79.94	-10.53	-372.37
6/13/00	-20.63	-1.98	-7.42	-254.36	-16.07	0	-12.08	-8.09				-80.31	-11.45	
6/21/00	-20.51	-2.15	-7.52	-253.21	-15.46	0	-12.13	-7.74				-80.27	-11.06	
7/10/00	-20.83	-2.27	-7.96	-252.66	-26.18	0	-13.21	-11.26	-234.88	-350.51	-232.44	-80.26	-12.89	-373.31
7/17/00	-20.94	-2.42	-8.16	-269.62	-19.62	0	-14.06	-11.36				-80.32	-13.27	
7/24/00	-21.03	-2.81	-8.34	-253.09	-19.34	0	-15.74	-12.28				-80.24	-13.65	
8/2/00	-21.29	-3.07	-8.64	-252.21	-19.24	0	-17.74	-13.51				-80.26	-14.24	
8/8/00	-21.33	-3.21	-8.47	-252.22	-18.98	0	-17.41	-13.76	-243.94	-350.65	-232.38	-80.32	-13.59	-374.25
8/14/00	-21.52	-3.62	-8.49	-252.82	-19.04	0	-18.02	-14.16				-80.31	-15.21	
8/22/00	-21.71	-3.72	-8.73	-265.13	-19.29	0	-18.89	-15.02				-80.29	-14.26	
8/30/00	-21.87	-3.95	-8.86	-251.92	-19.92	0	-19.53	-15.83				-80.23	-14.13	
9/6/00	-22.09	-4.23	-8.56	-251.09	-19.86	0	-19.92	-16.61	-249.5	-350.94	-232.51	-80.35	-13.92	-374.94
9/12/00	-22.23	-4.45	-8.75	-251.02	-20.01	0	-20.28	-17.11				-80.35	-14.75	
9/16/00	-22.39	-4.38	-8.77	-250.75	-20.17	0	-20.71	-17.61				-80.31	-14.91	
9/26/00	-22.53	-4.75	-7.82	-250.94	-20.23	0	-21.26	-18.15				-80.42	-14.88	
Mean	-22.93	-2.94	-7.69	-253.09	-19.64	0.00	-18.45	-15.21	-270.62	-350.74	-232.57	-80.21	-13.49	-372.70
Maximum	-26.89	-7.16	-8.86	-269.62	-29.72	0.00	-25.92	-23.42	-307.06	-357.25	-233.19	-80.42	-15.72	-379.24
Minimum	-20.51	-1.86	-5.25	-247.98	-15.46	0.00	-10.22	-7.74	-234.88	-346.06	-231.69	-79.32	-10.53	-367.62
NOTE: Pump running in well 7 during 7/17 and 8/22 measurements.														

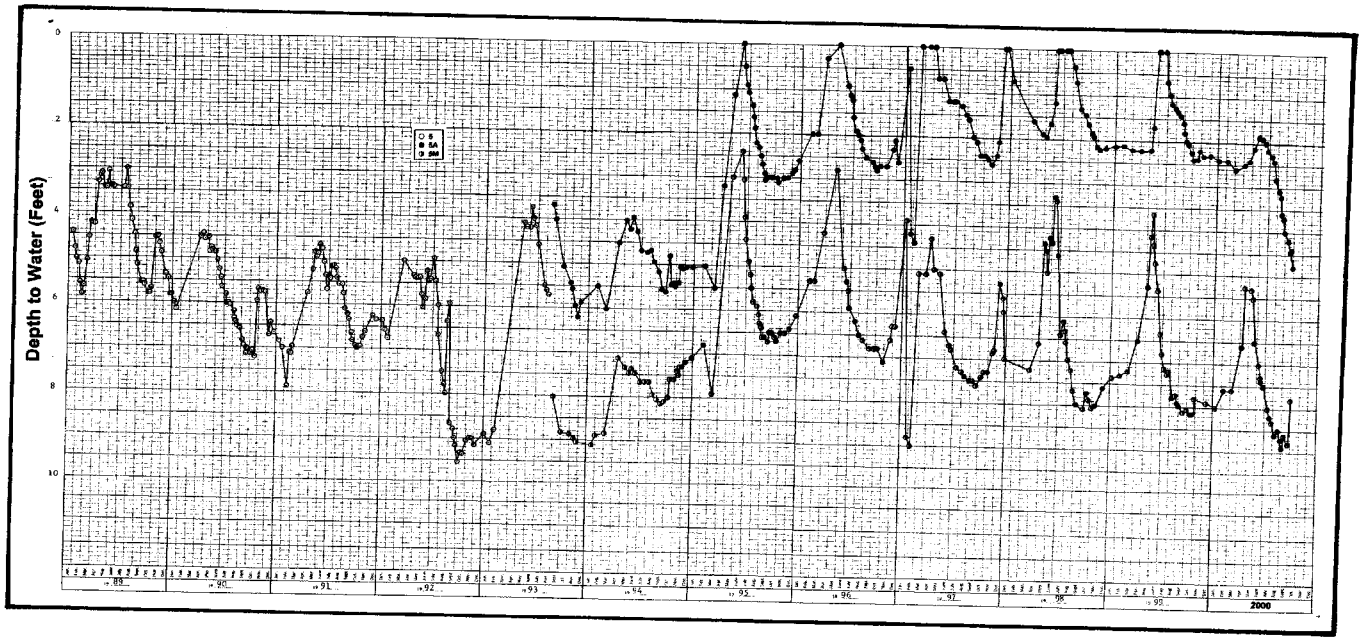
monwell12/4/00

APPENDIX D

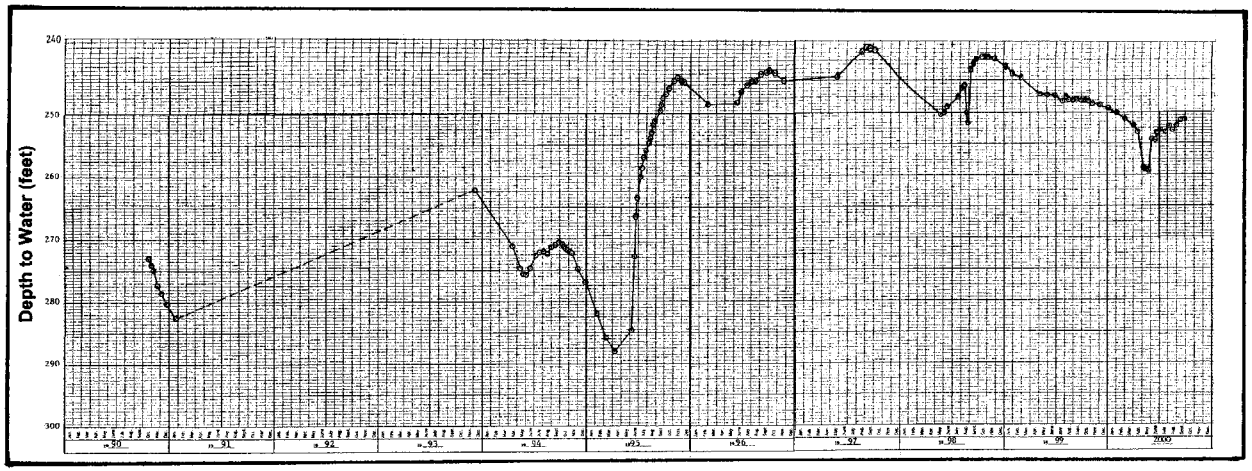
SUPPLEMENTARY WATER-LEVEL HYDROGRAPHS FOR MONITOR WELLS



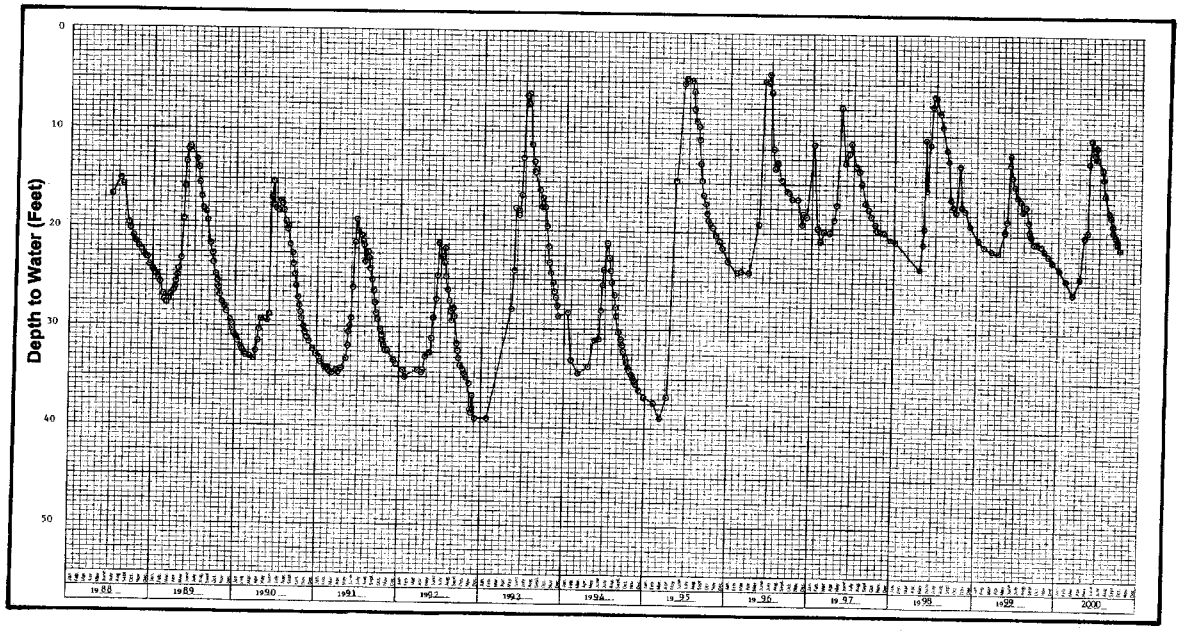
WATER-LEVEL HYDROGRAPH FOR WELL NO. 4M



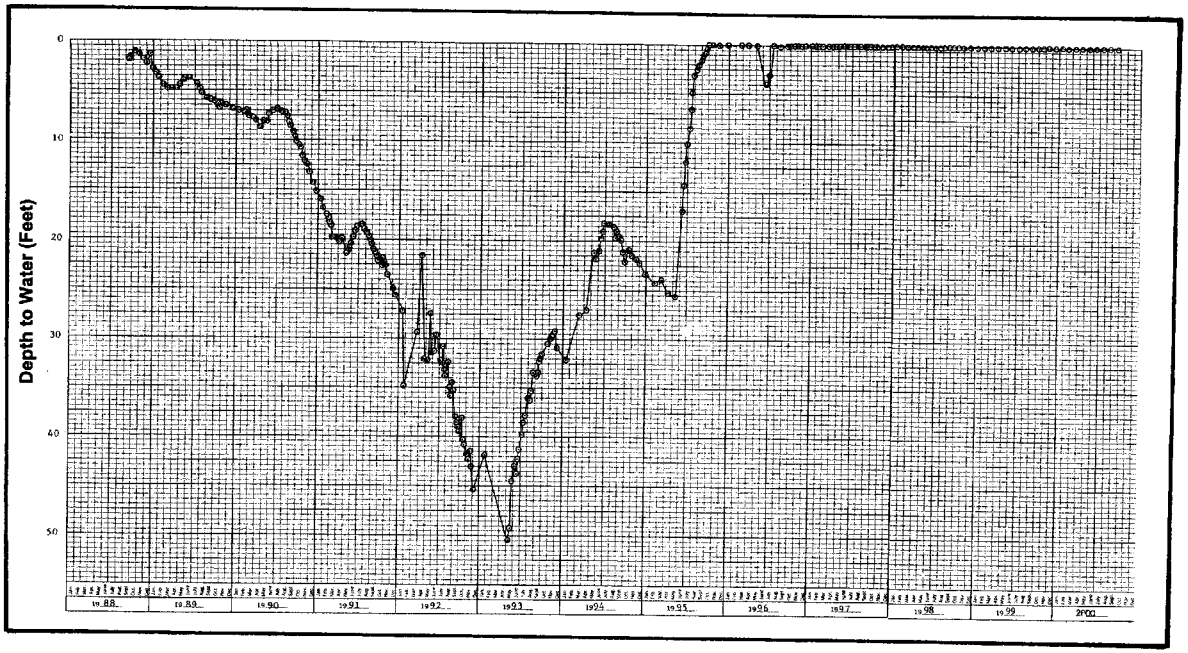
WATER-LEVEL HYDROGRAPH FOR WELL NO. 5, No. 5A, AND NO. 5M



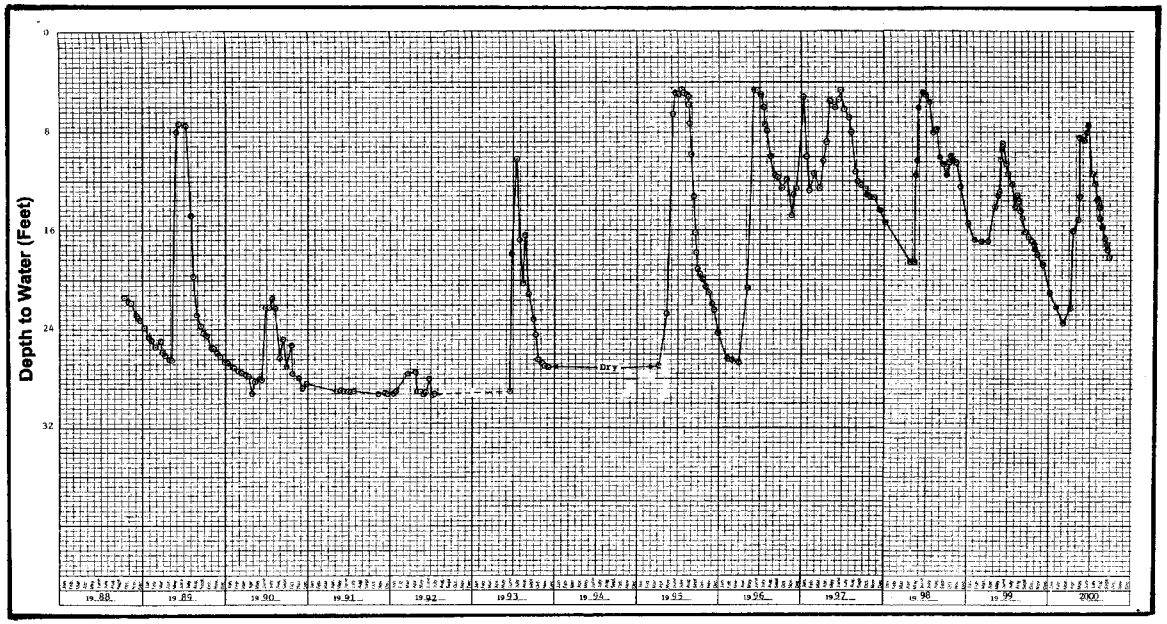
WATER-LEVEL HYDROGRAPH FOR WELL NO. 7



WATER-LEVEL HYDROGRAPH FOR WELL NO. 11M



WATER-LEVEL HYDROGRAPH FOR WELL NO. 11



WATER-LEVEL HYDROGRAPH FOR WELL NO. 12M

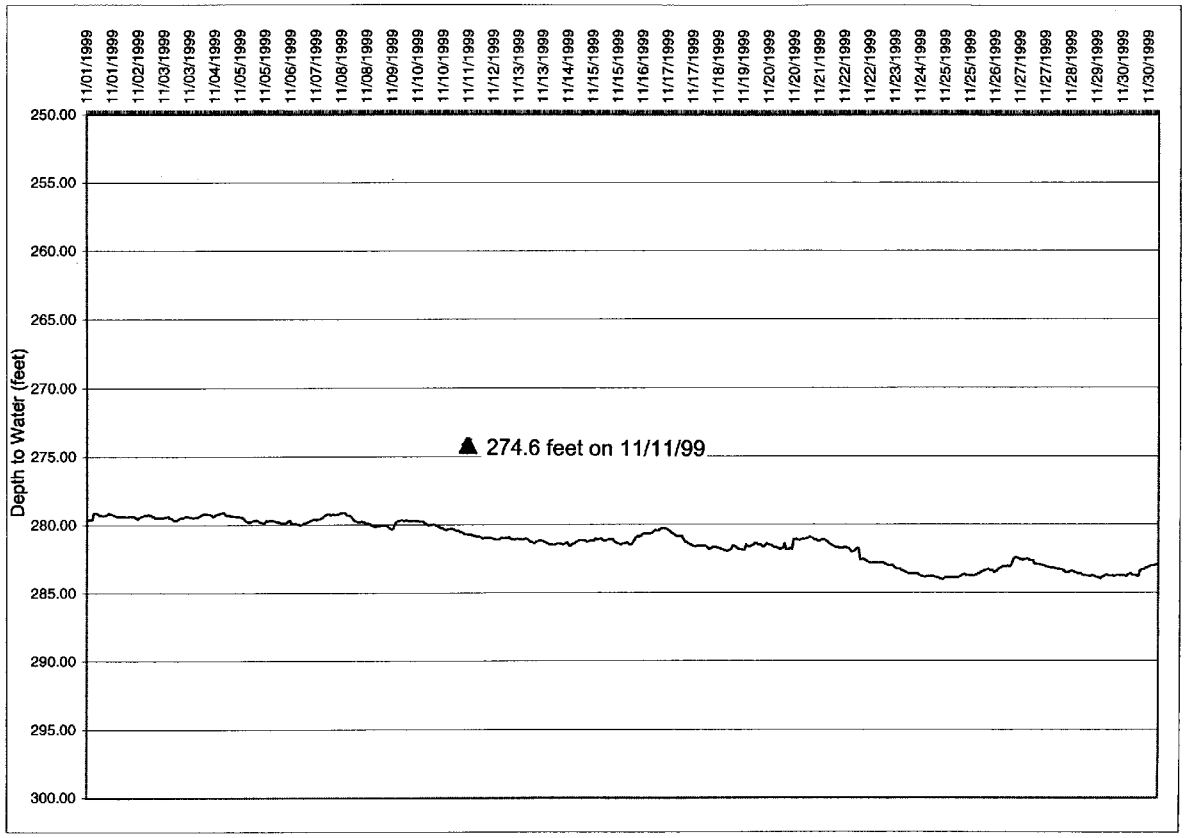
Water-Level Hydrographs from Transducer Measurements for Well No. 14

Note: Solid triangle and adjoining depth to water on graph are for measurement with an electric sounder.

Water-Level Hydrographs from Transducer Measurements for Well No. 14

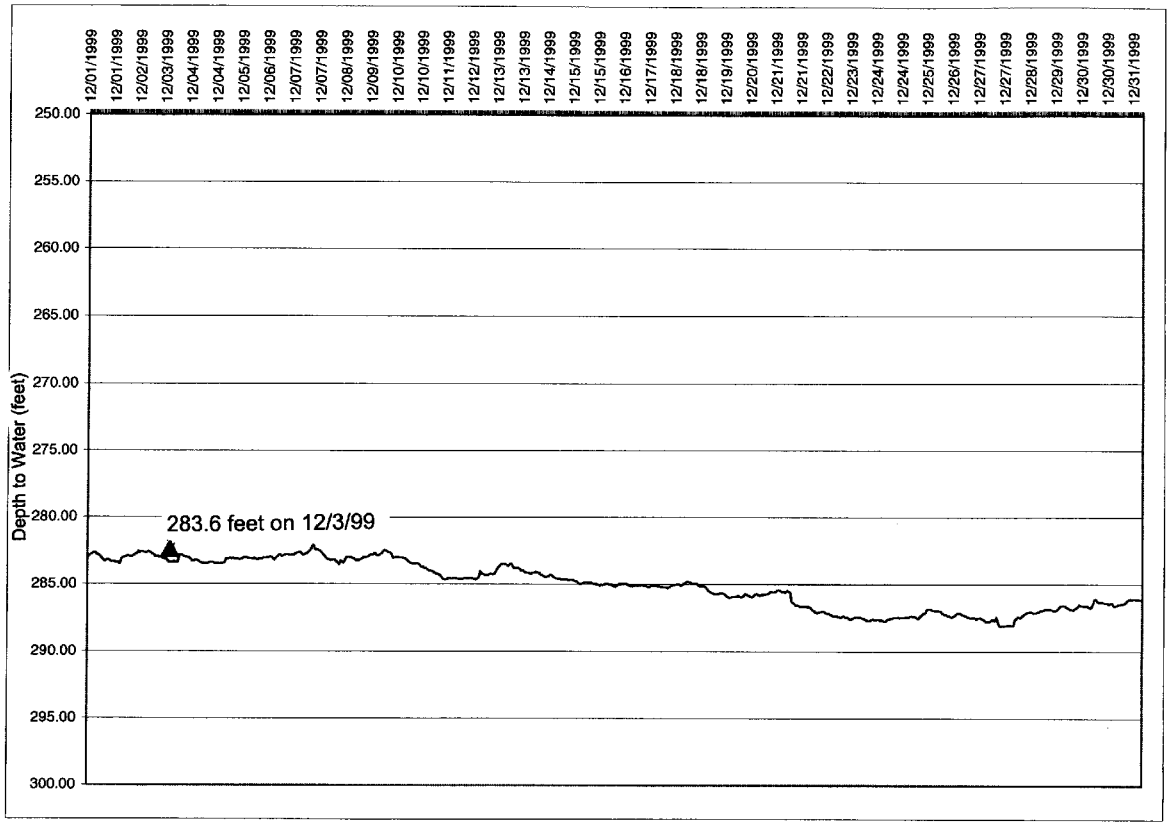
Note: Solid triangle and adjoining depth to water on graph are for measurement with an electric sounder.

Well#14



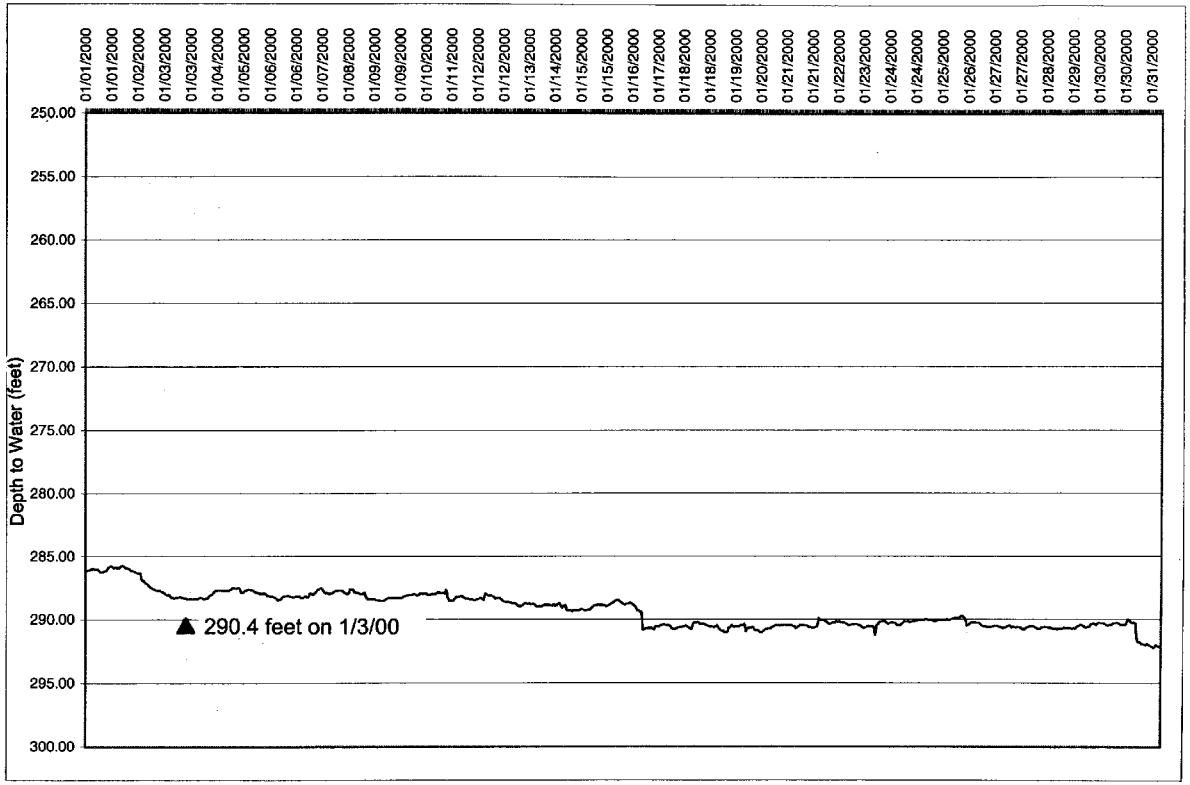
Nov 99 Chart

Well#14



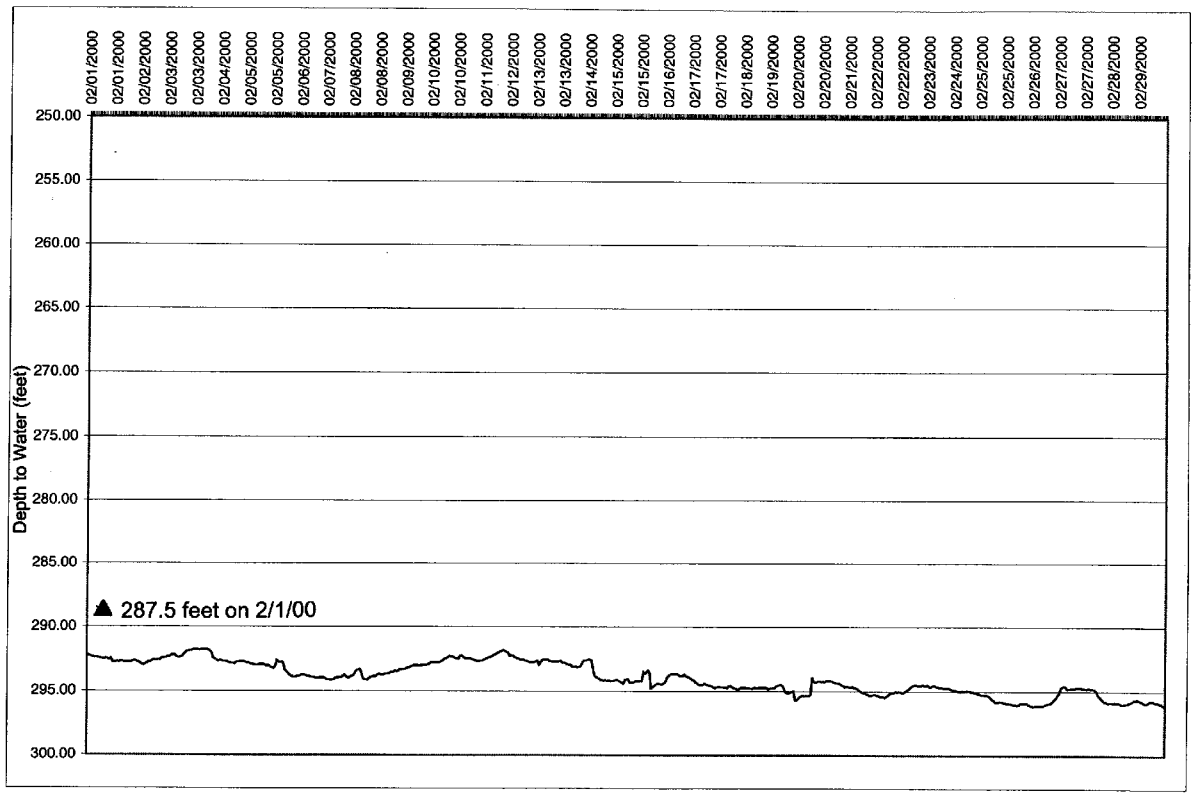
Dec 99 Chart

Well#14



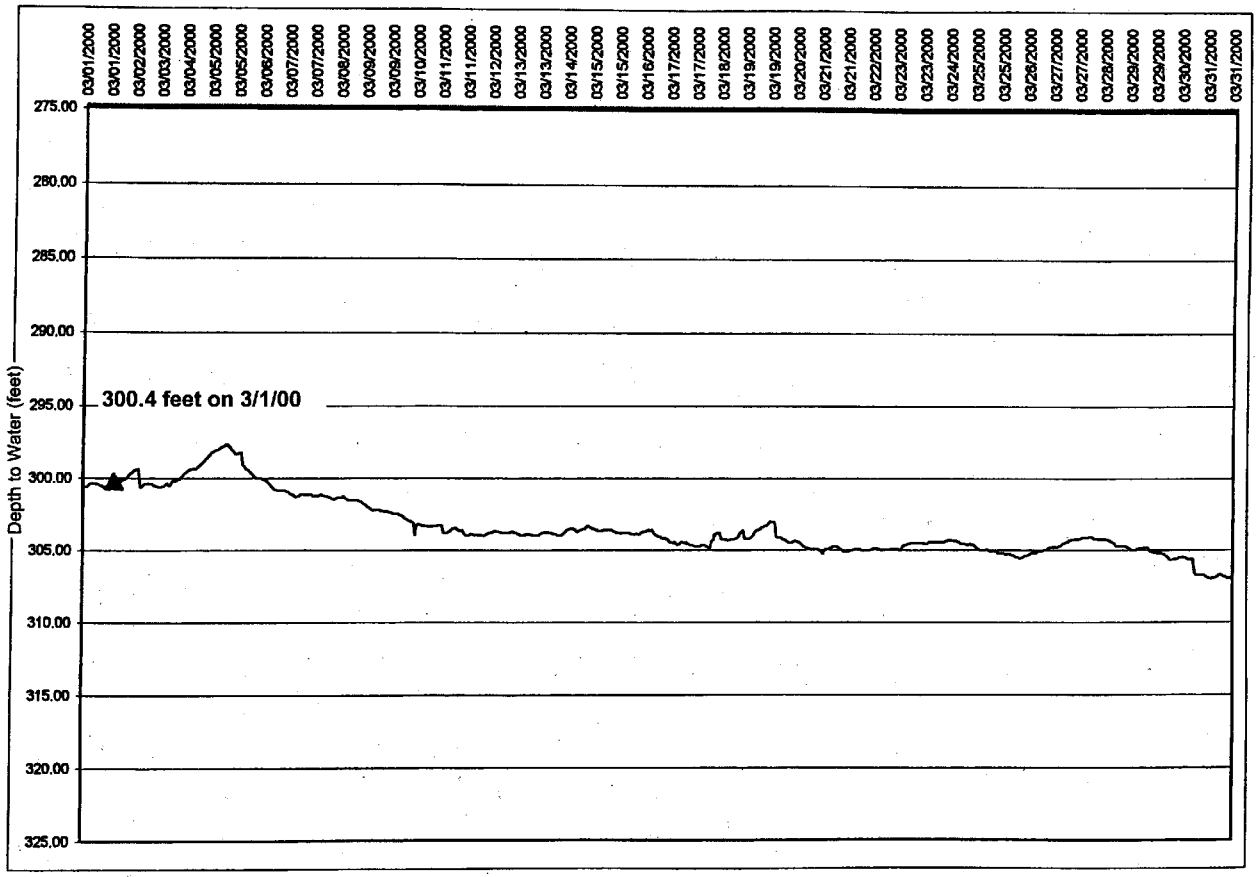
Jan 00 Chart

Well#14



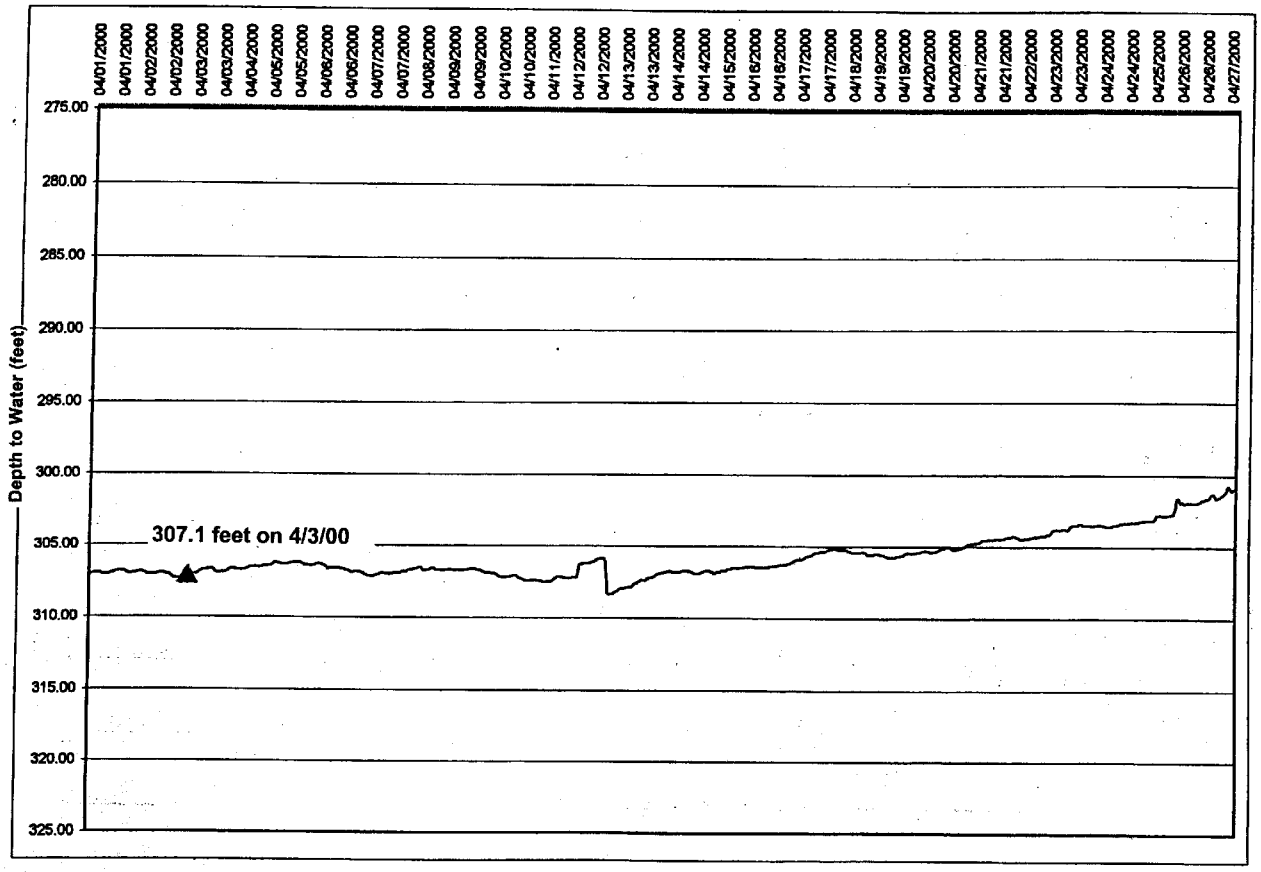
Feb 00 Chart

Well 14



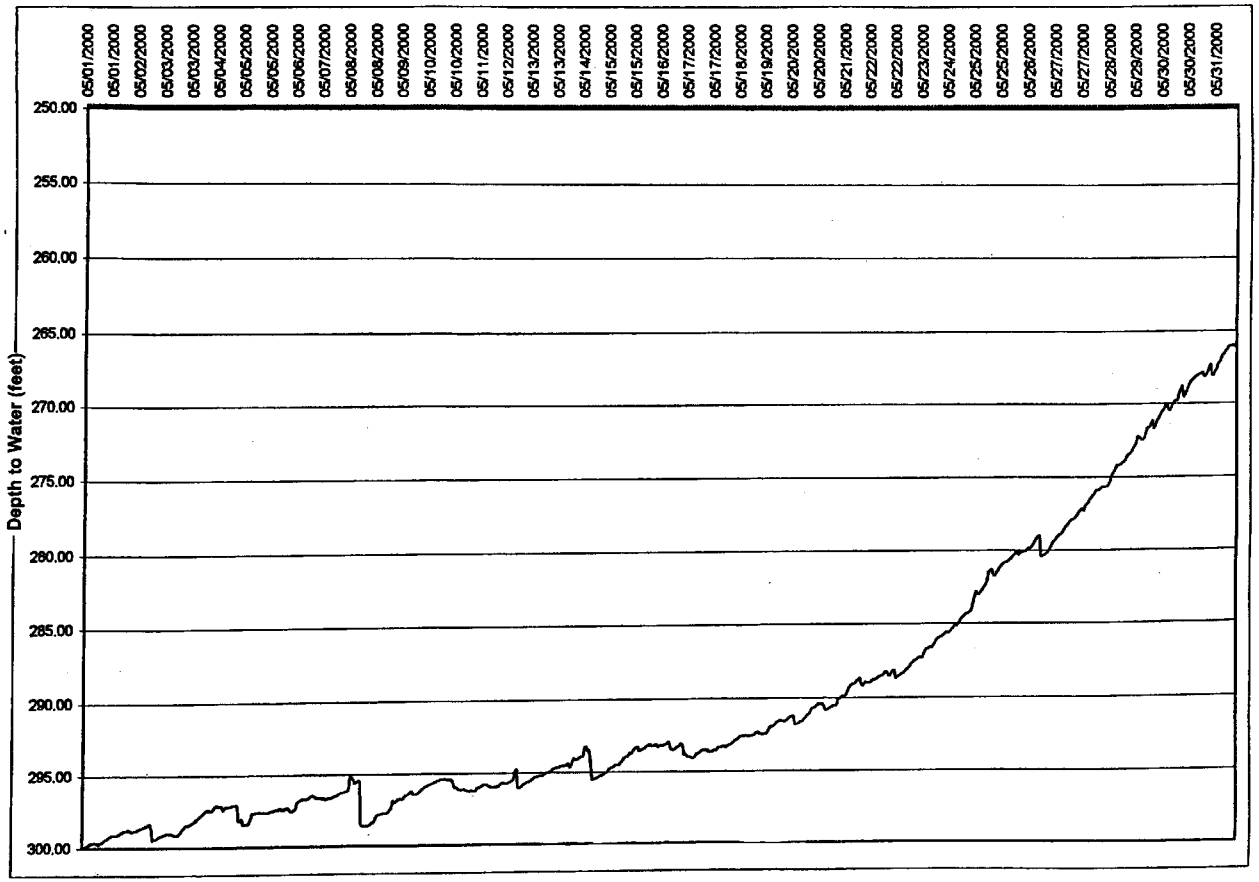
March 00 Chart

Well 14



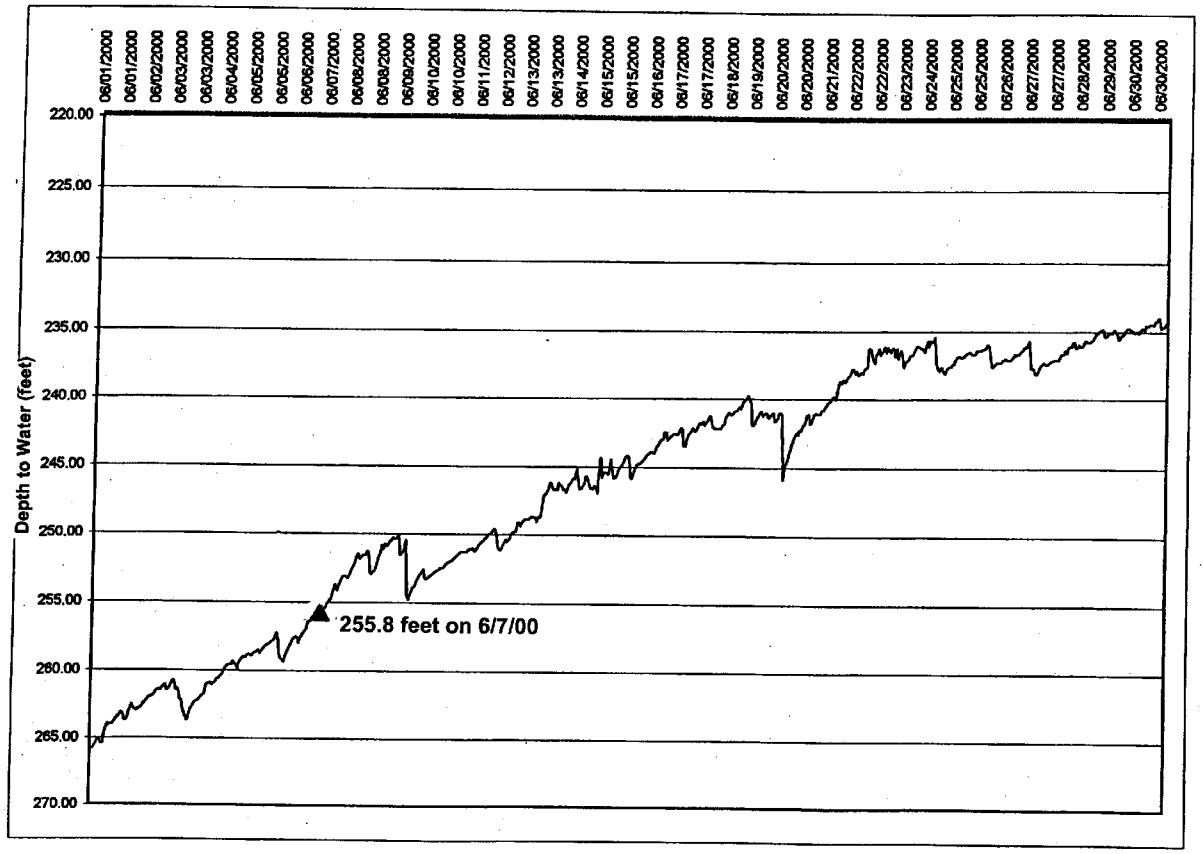
April 00 Chart

Well 14



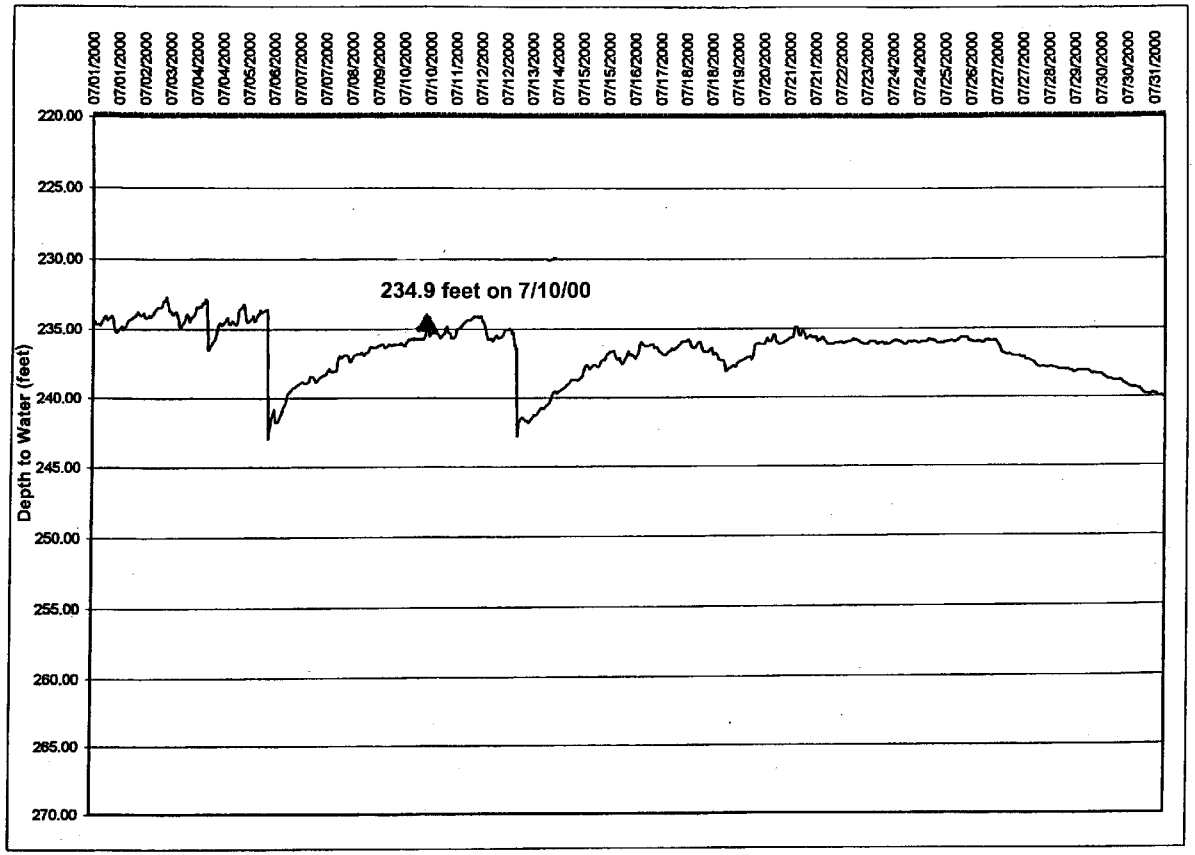
May 00 Chart

Well#14



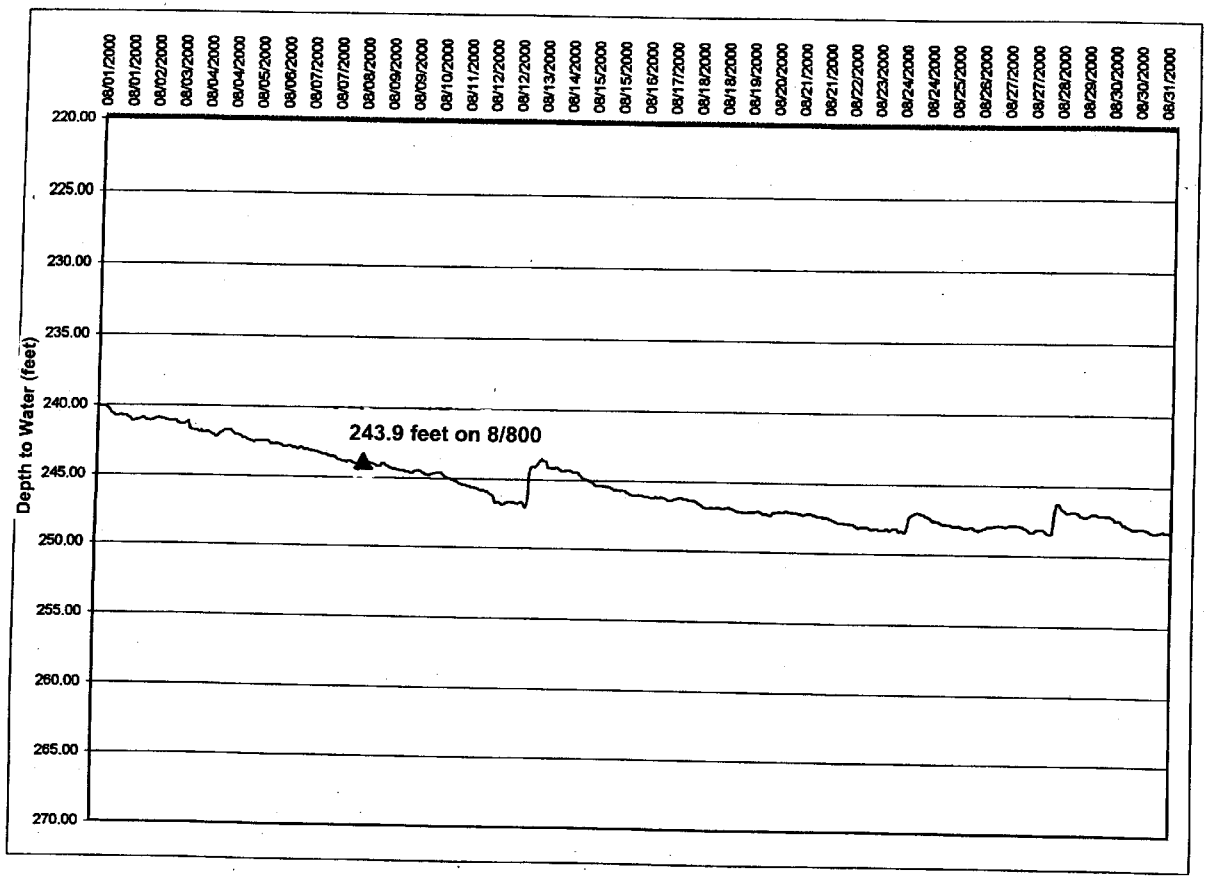
Jun 00 Chart

Well#14



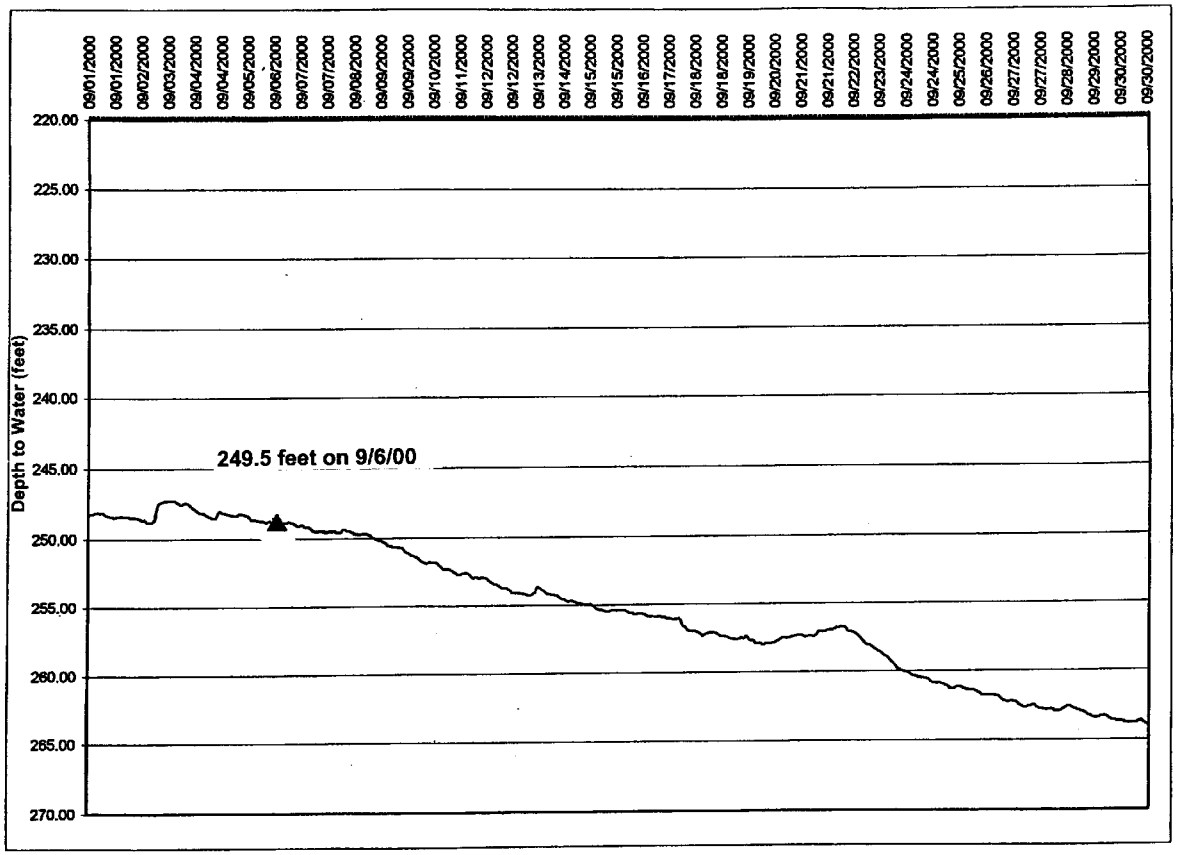
Jul 00 Chart

Well#14



Aug 00 Chart

Well#14

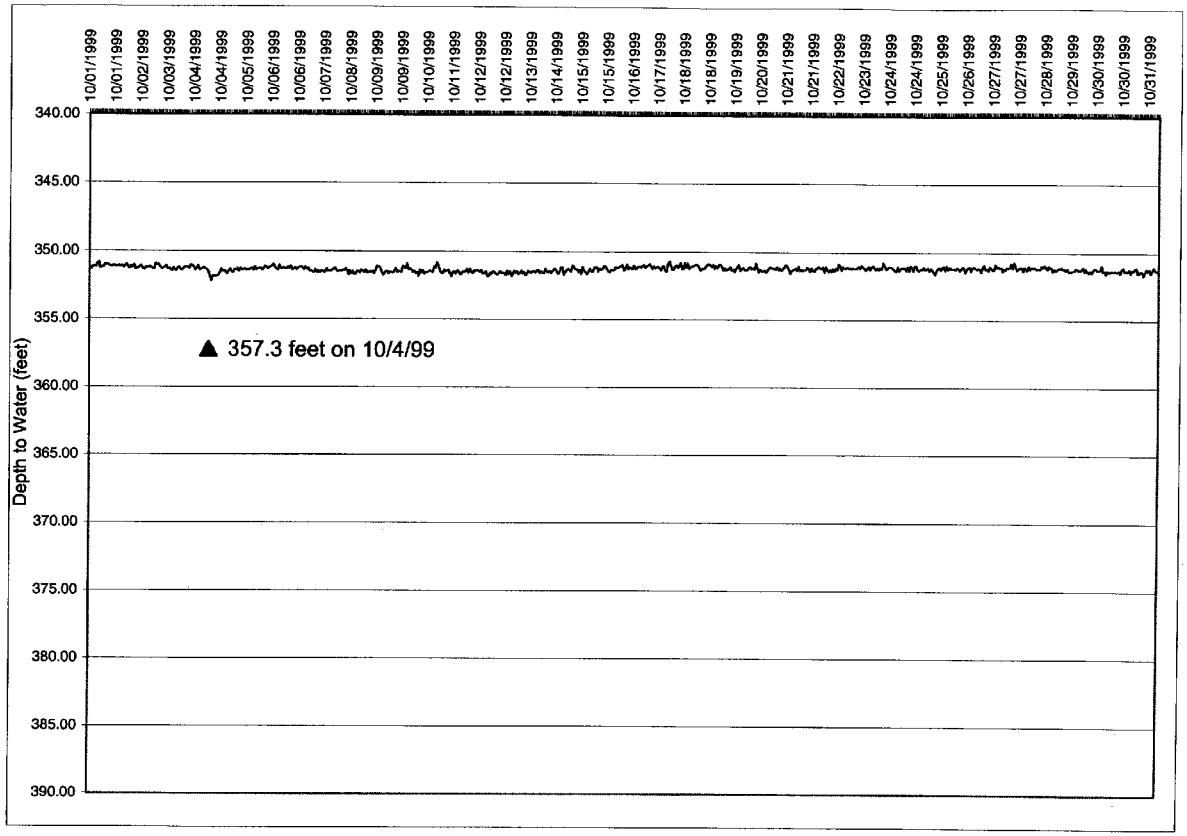


Sep 00 Chart

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

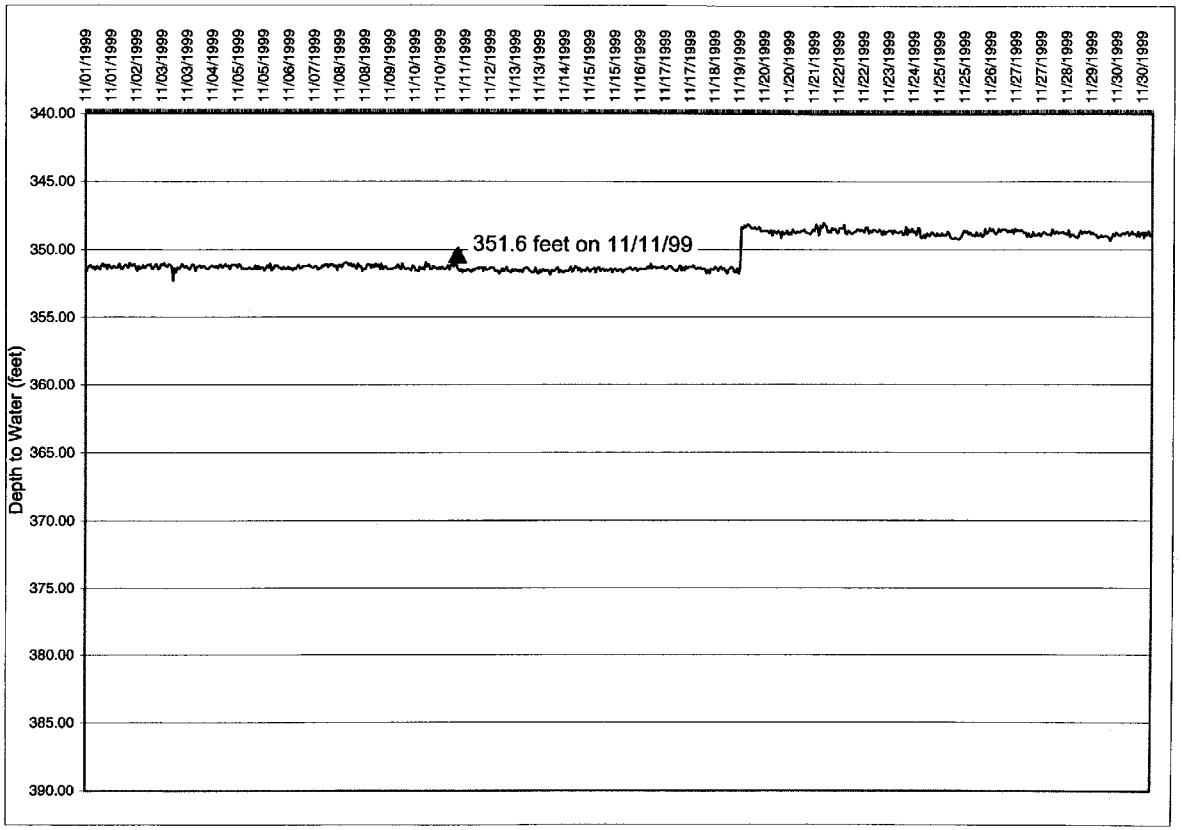
Note: Solid triangle and adjoining depth to water on graph are for measurement with an electric sounder.

Well#19



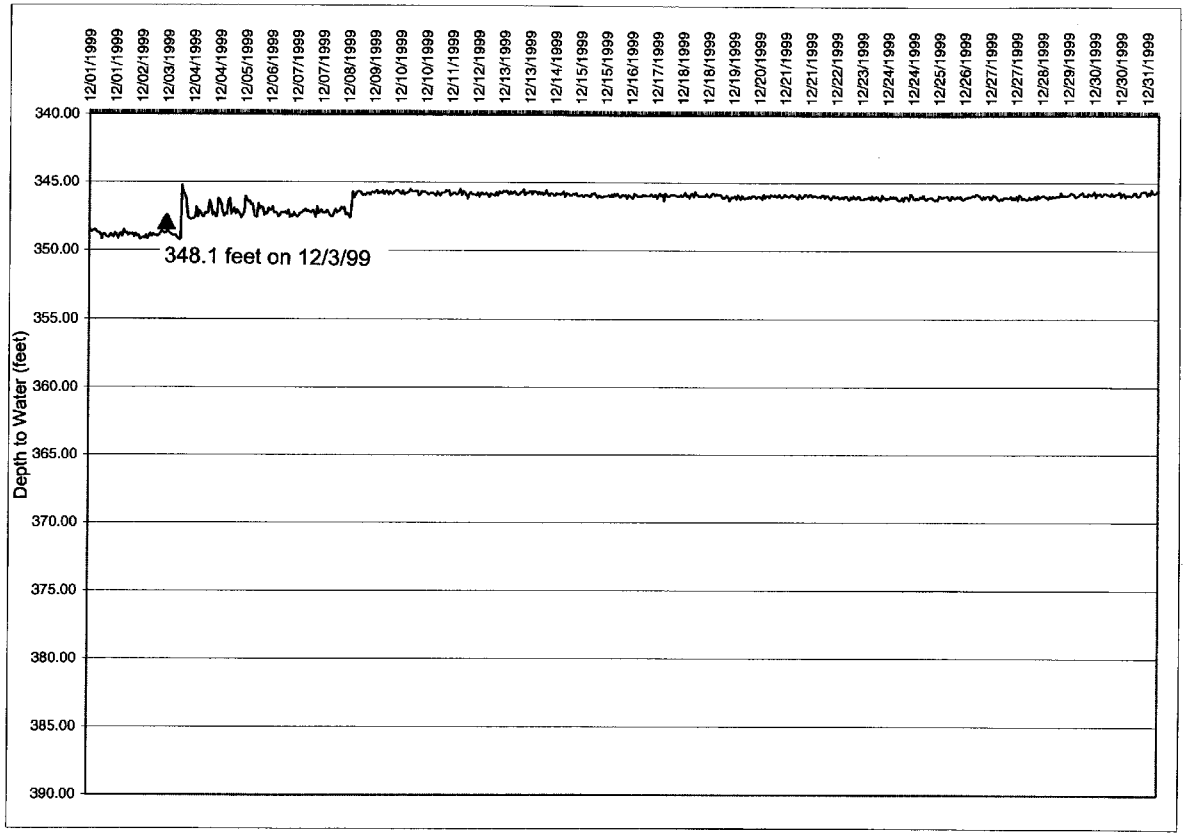
Oct 99 Chart

Well#19



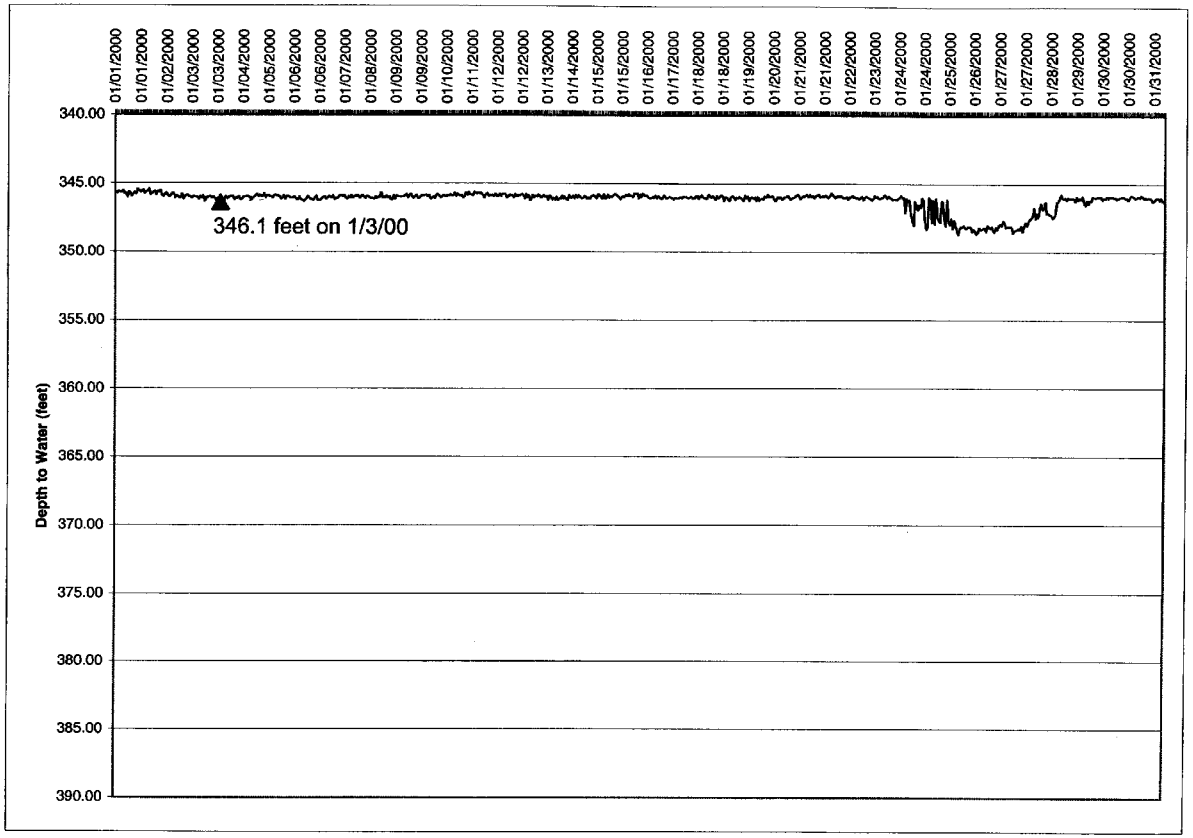
Nov 99 Chart

Well#19



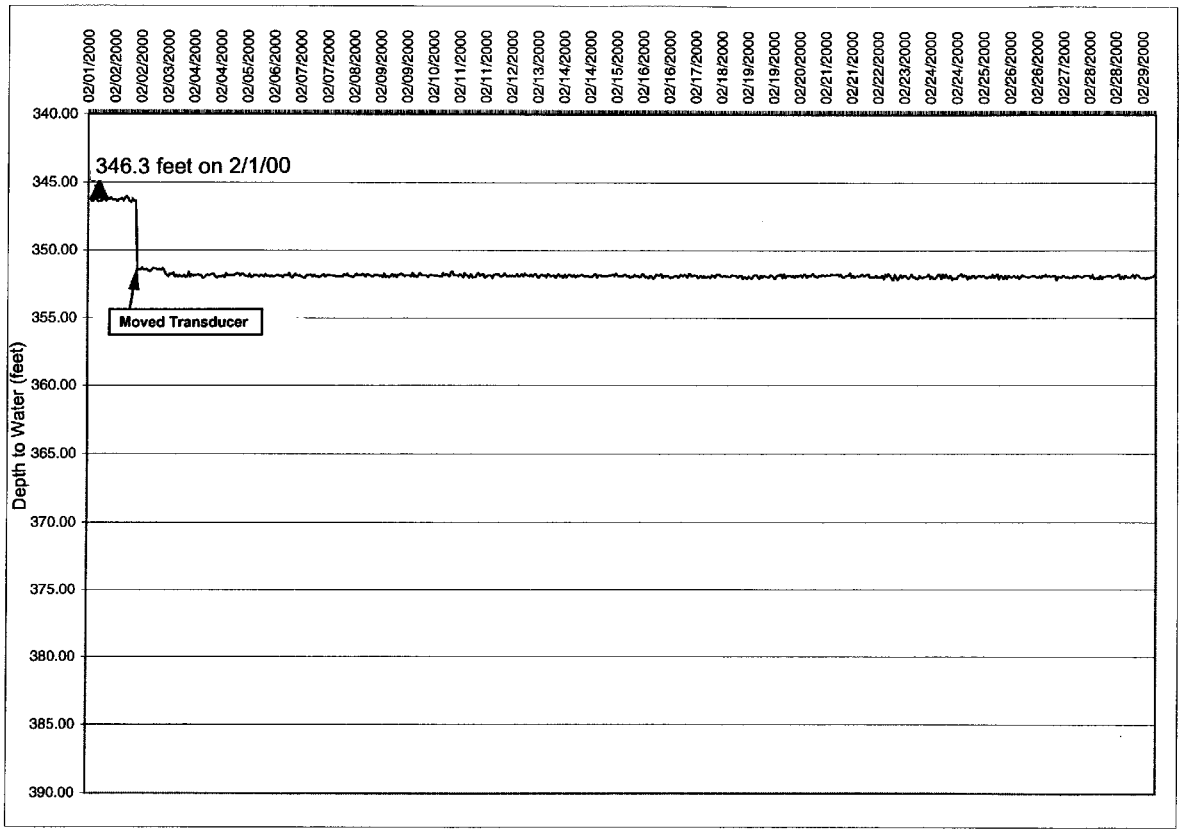
Dec 99 Chart

Well#19



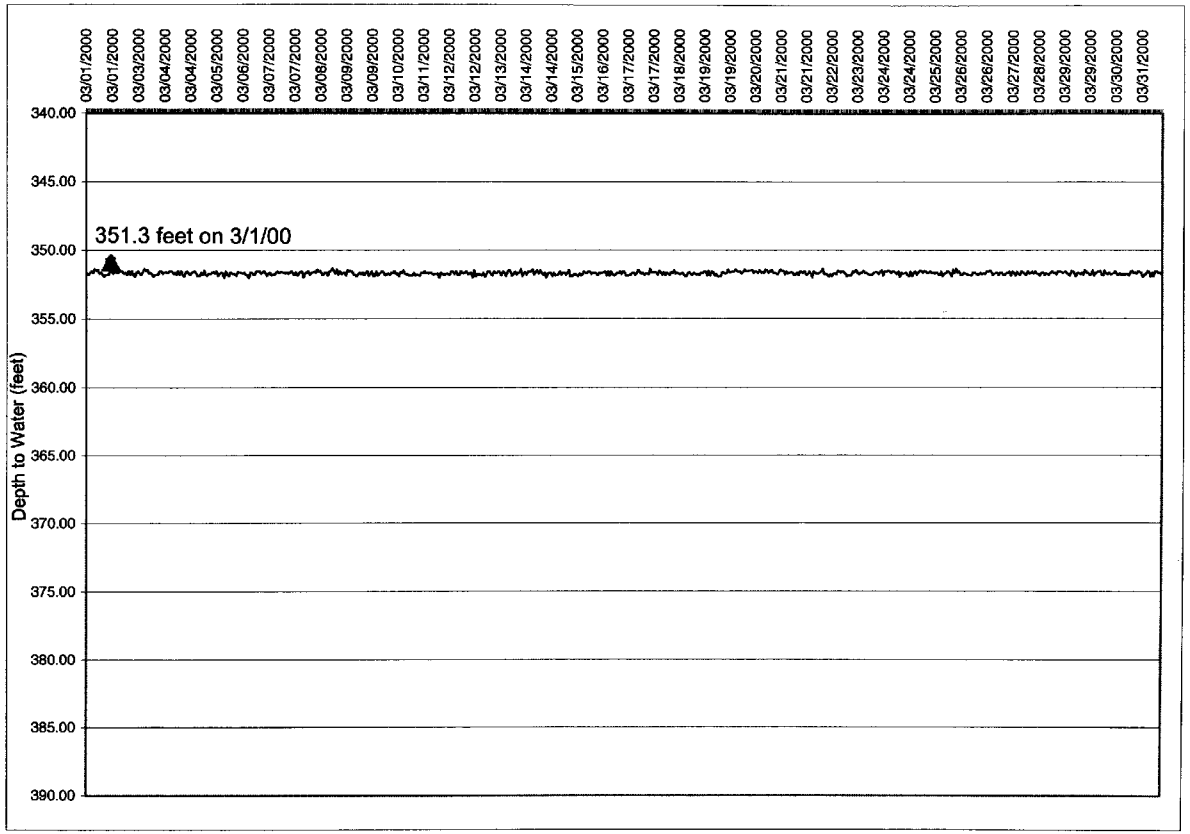
Jan 00 Chart

Well#19



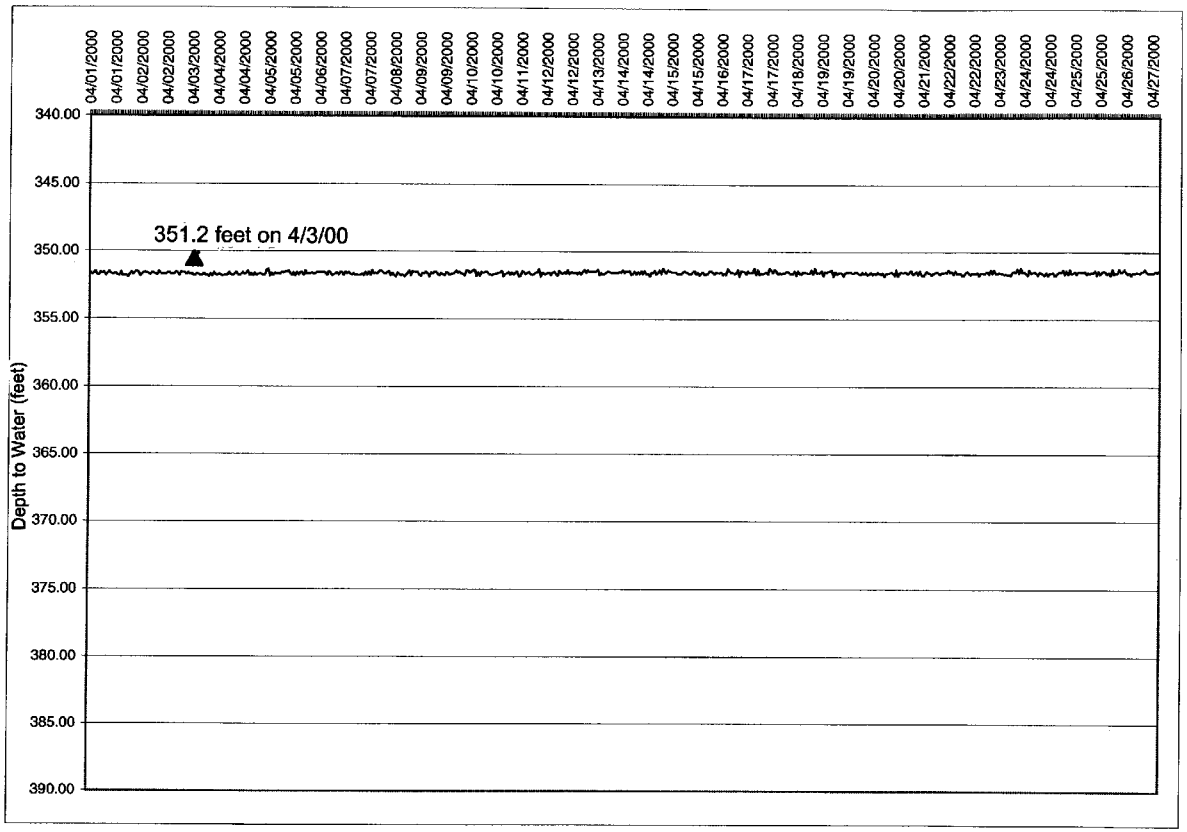
Feb 00 Chart

Well#19



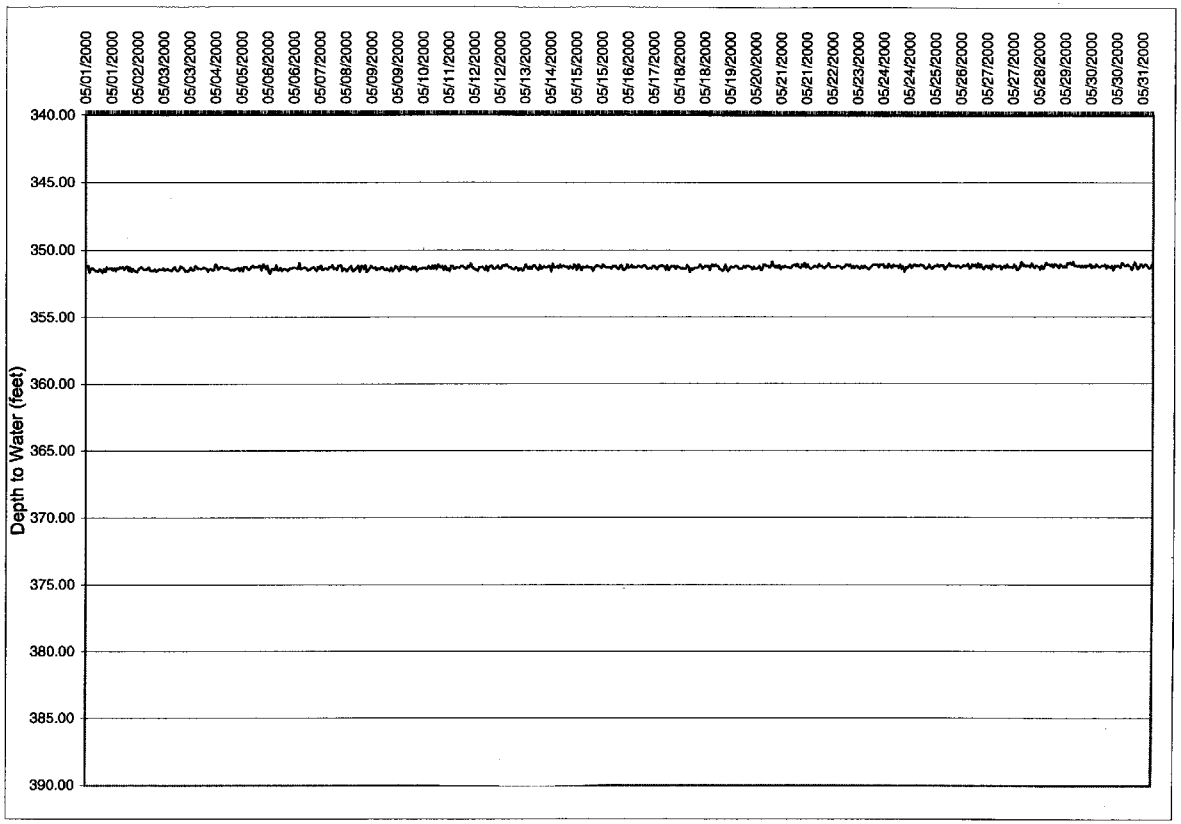
Mar 00 Chart

Well#19



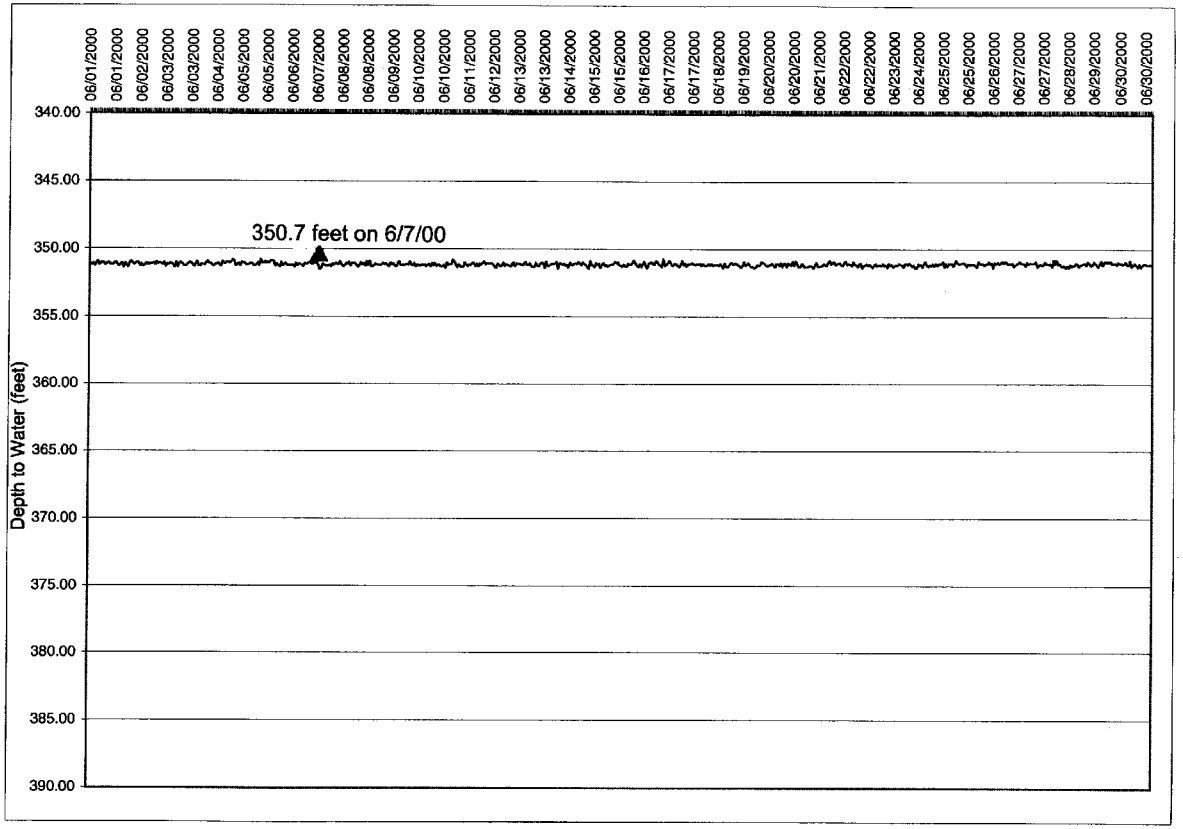
Apr 00 Chart

Well#19



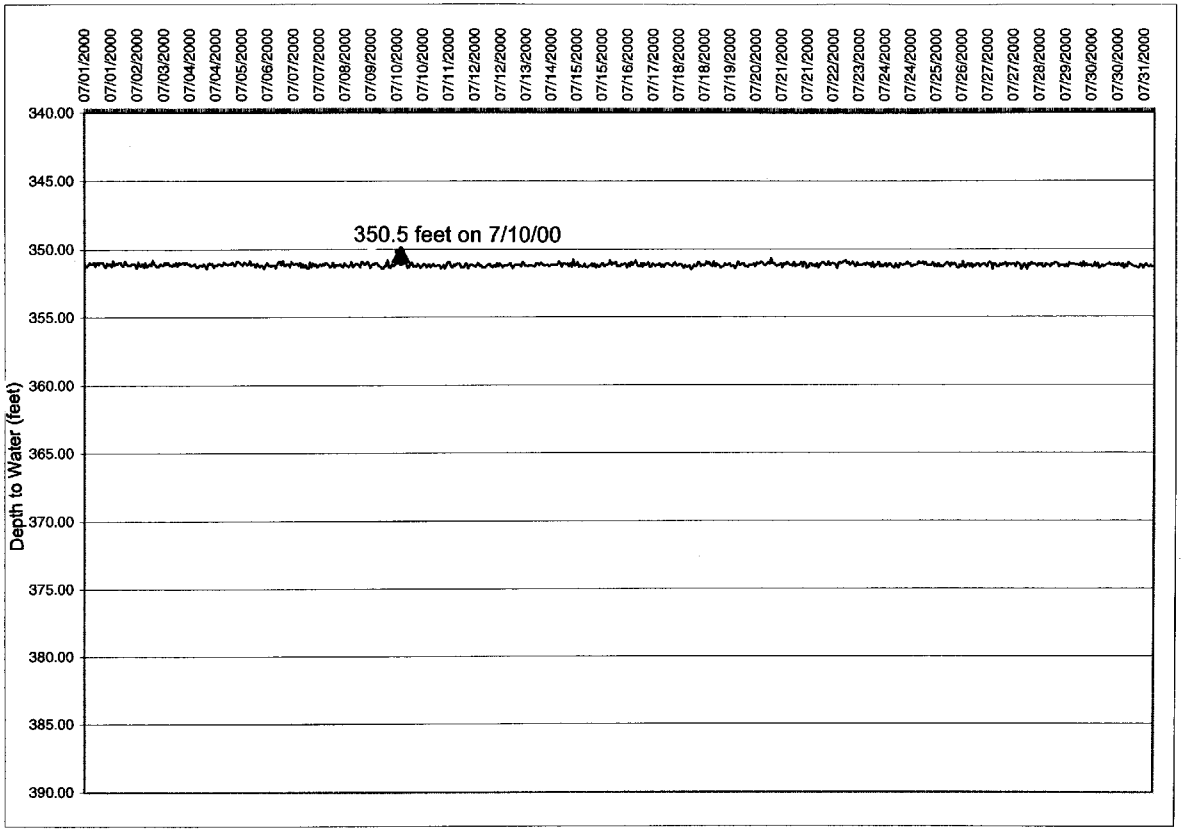
May 00 Chart

Well#19



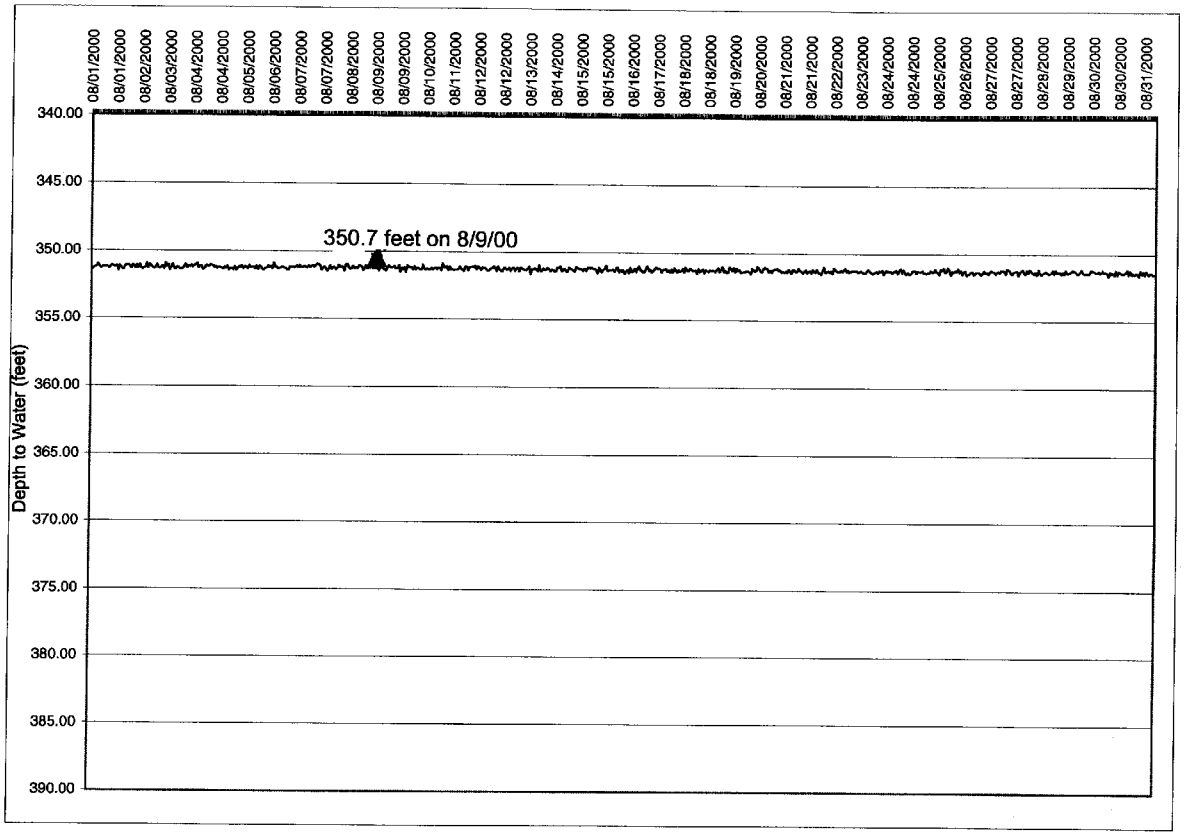
Jun 00 Chart

Well#19



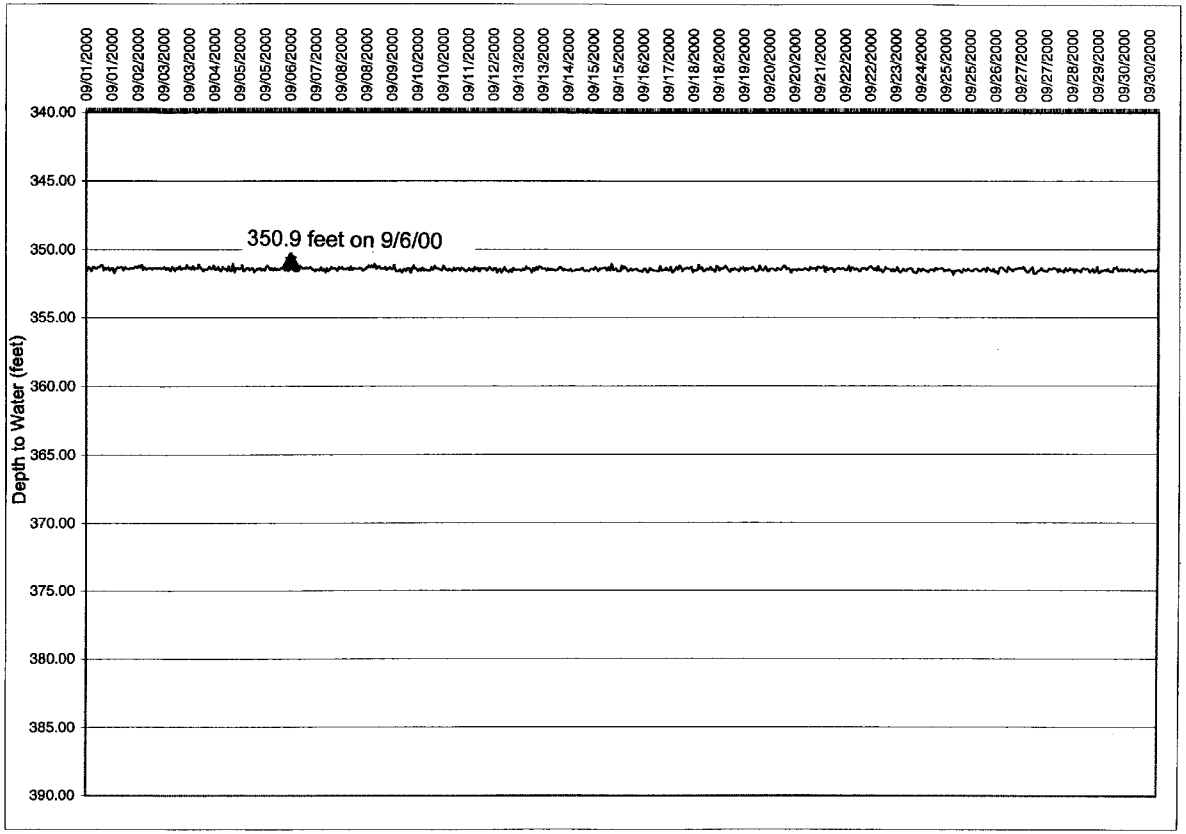
Jul 00 Chart

Well#19



Aug 00 Chart

Well#19

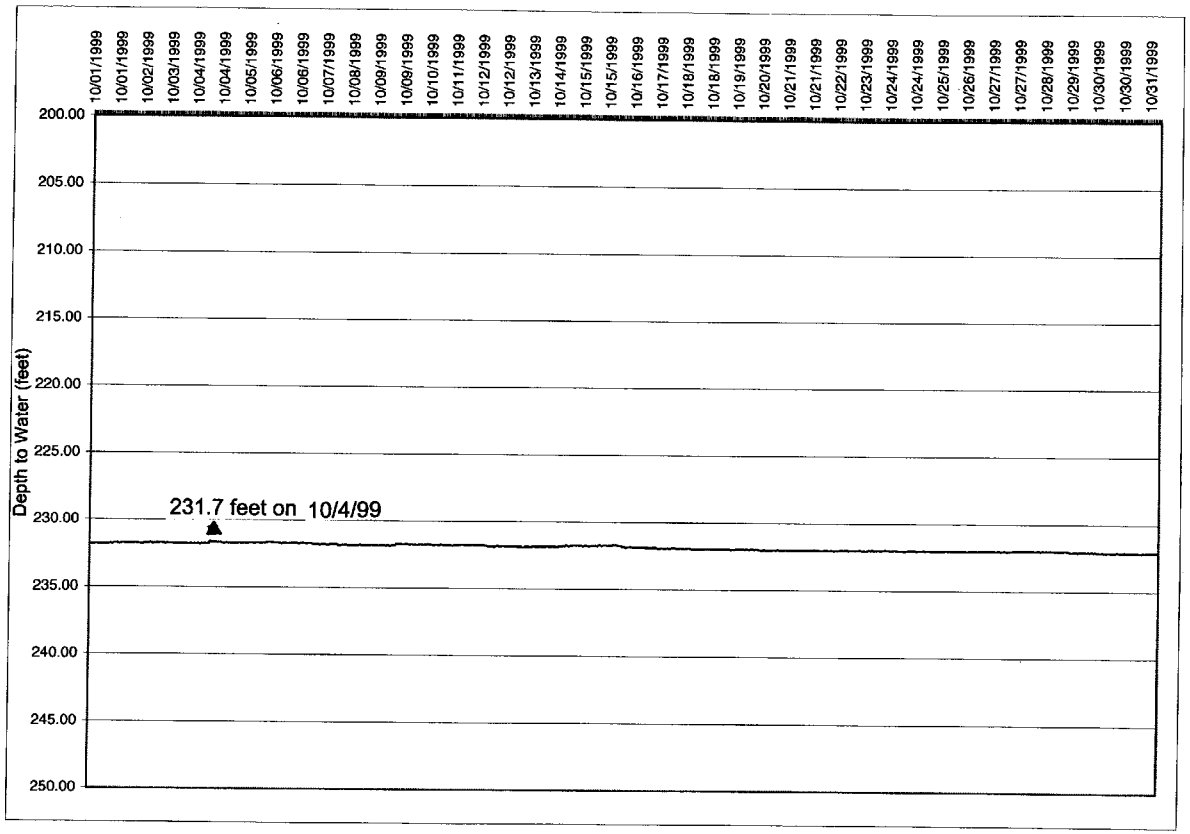


Sep 00 Chart

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

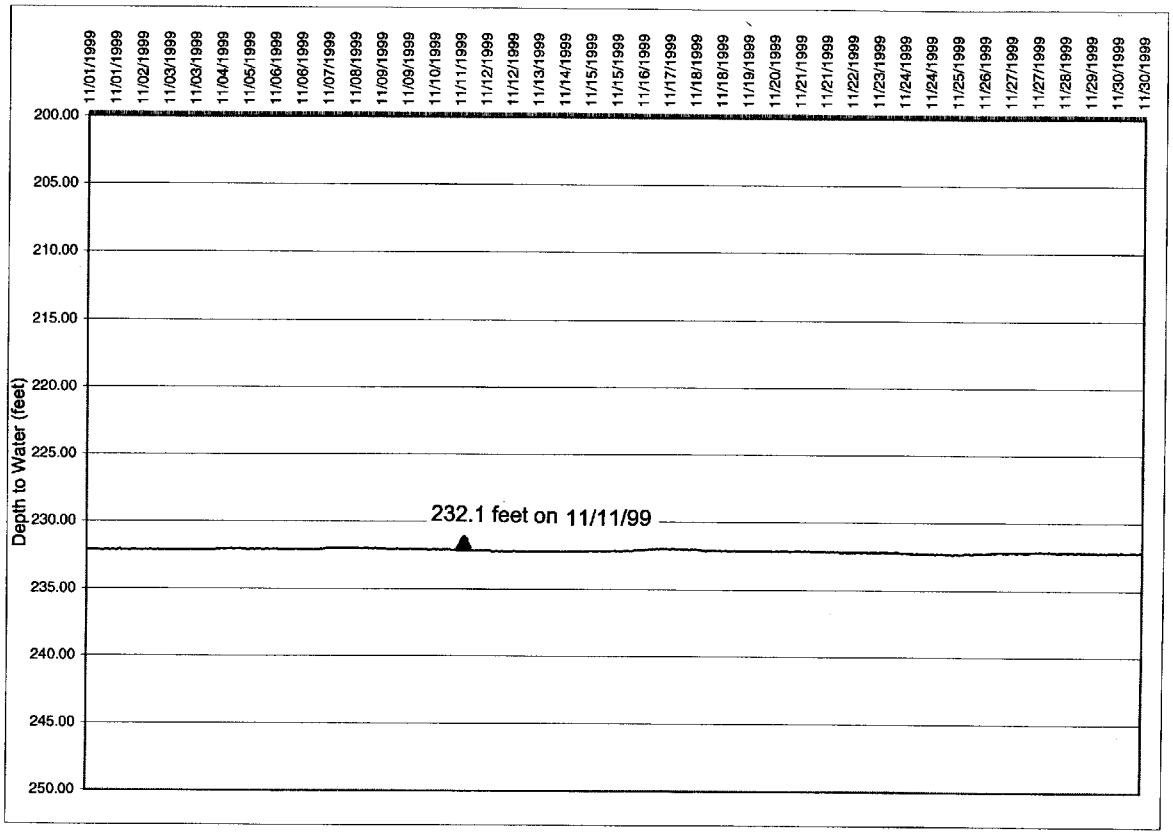
Note: Solid triangle and adjoining depth to water on graph are for measurement with an electric sounder.

Well#21



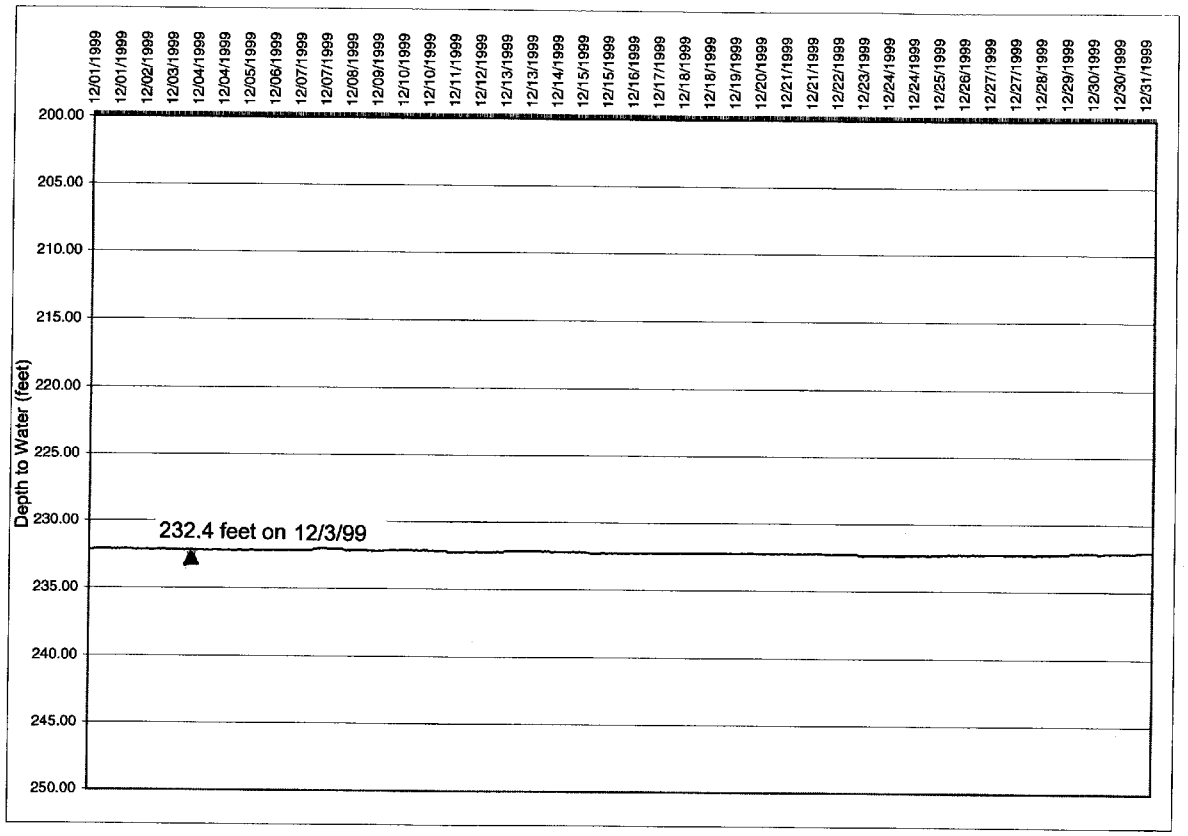
Oct 99 Chart

Well#21



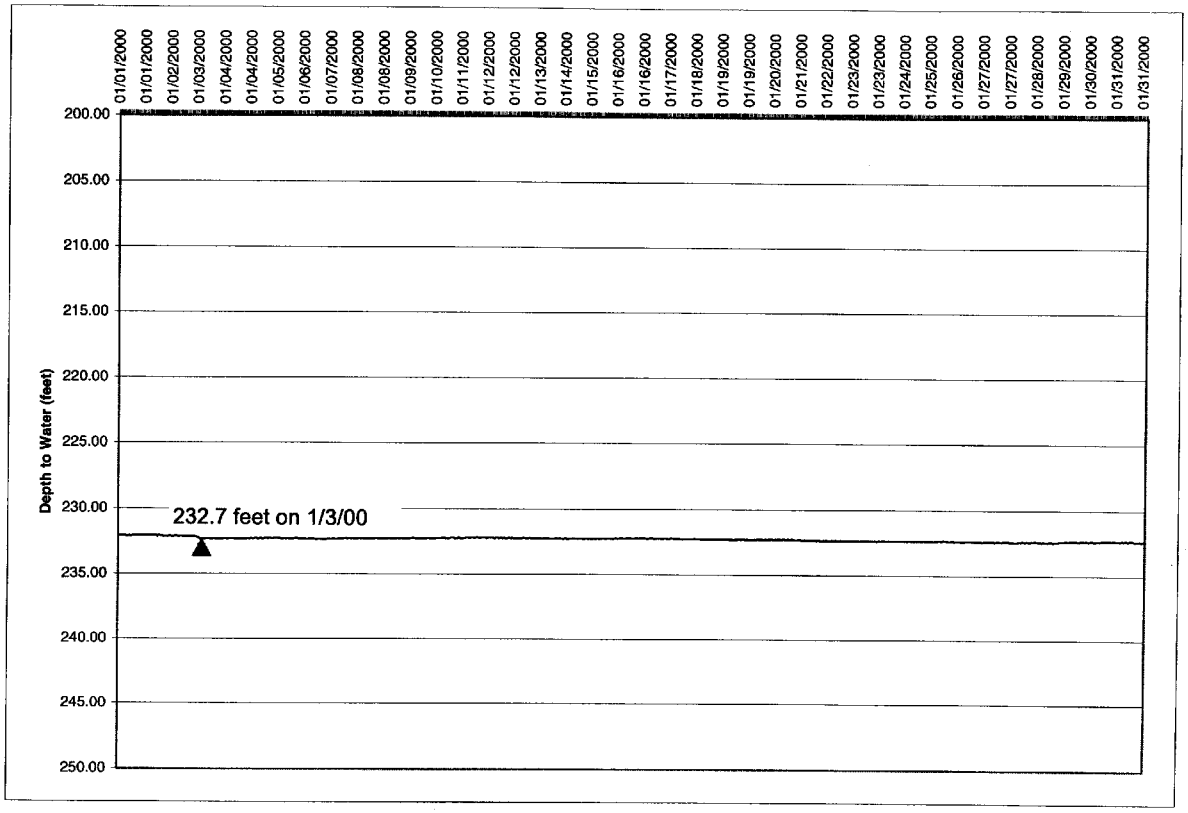
Nov 99 Chart

Well#21



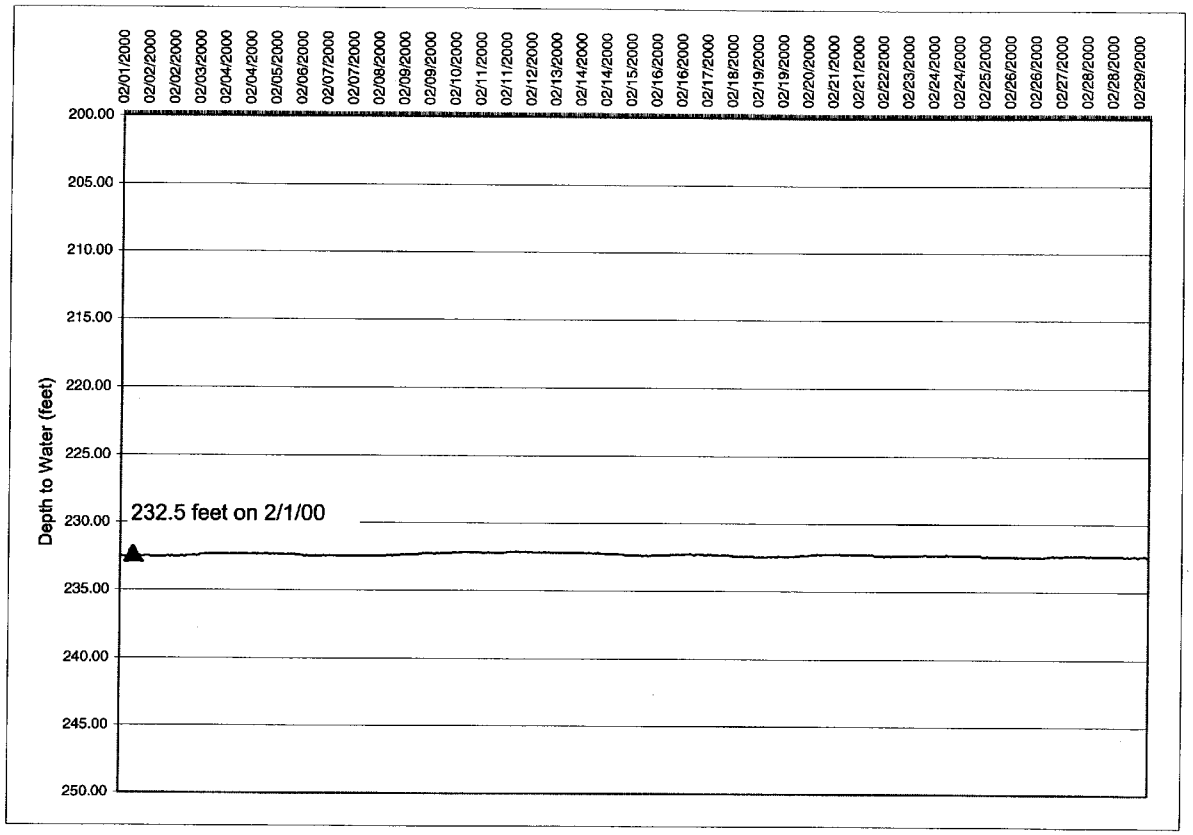
Dec 99 Chart

Well#21



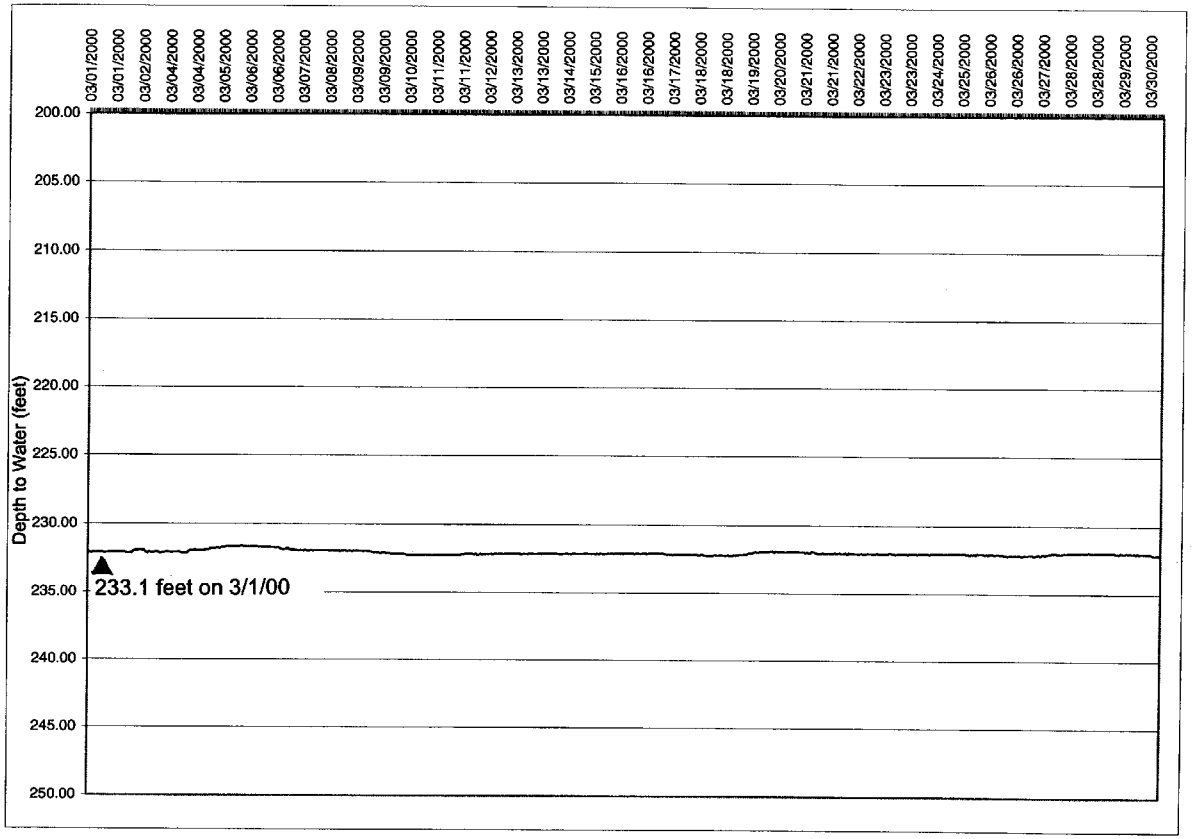
Jan 00 Chart

Well#21



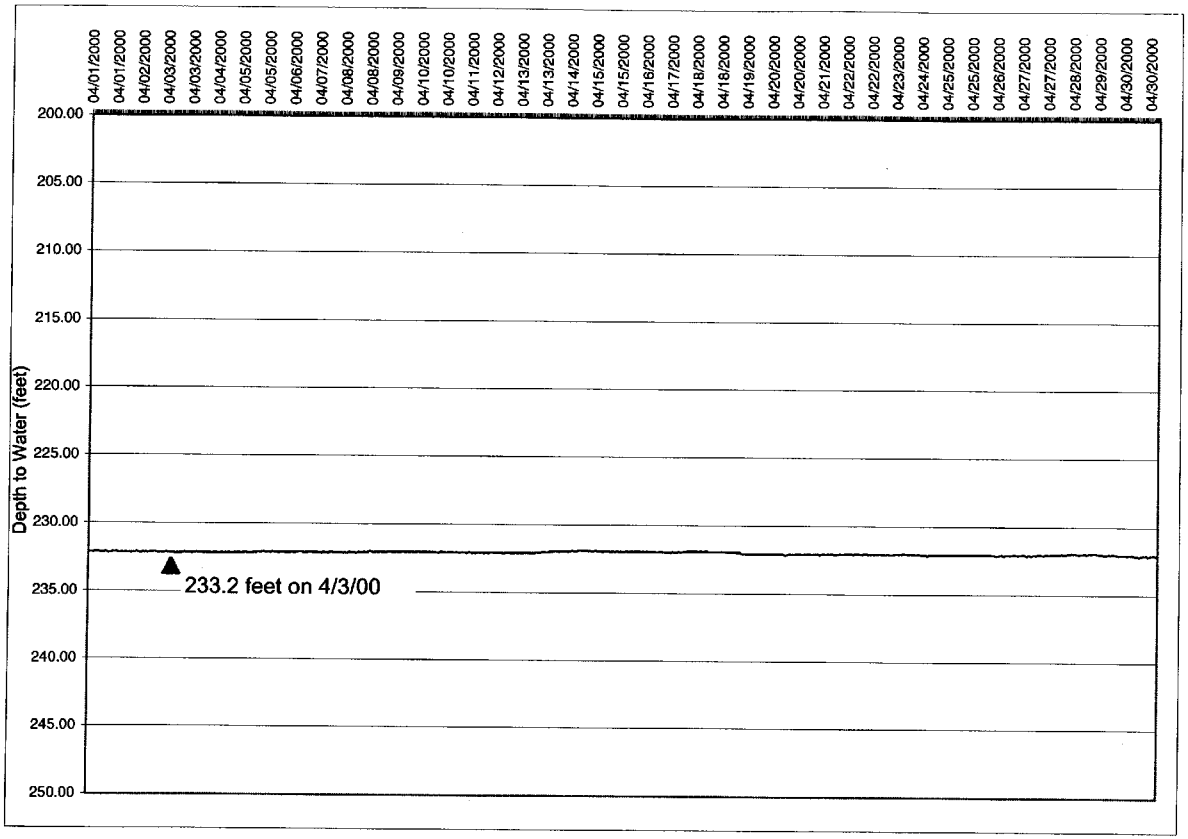
Feb 00 Chart

Well#21



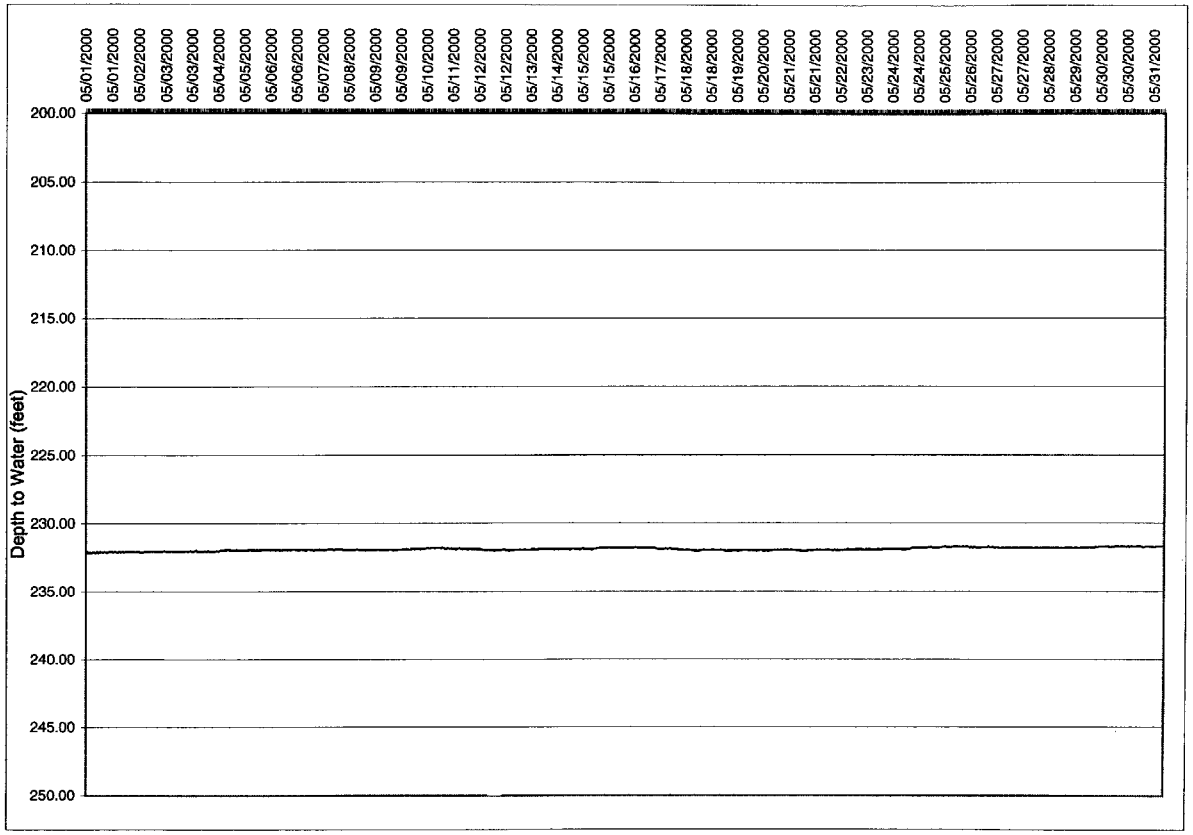
Mar 00 Chart

Well#21



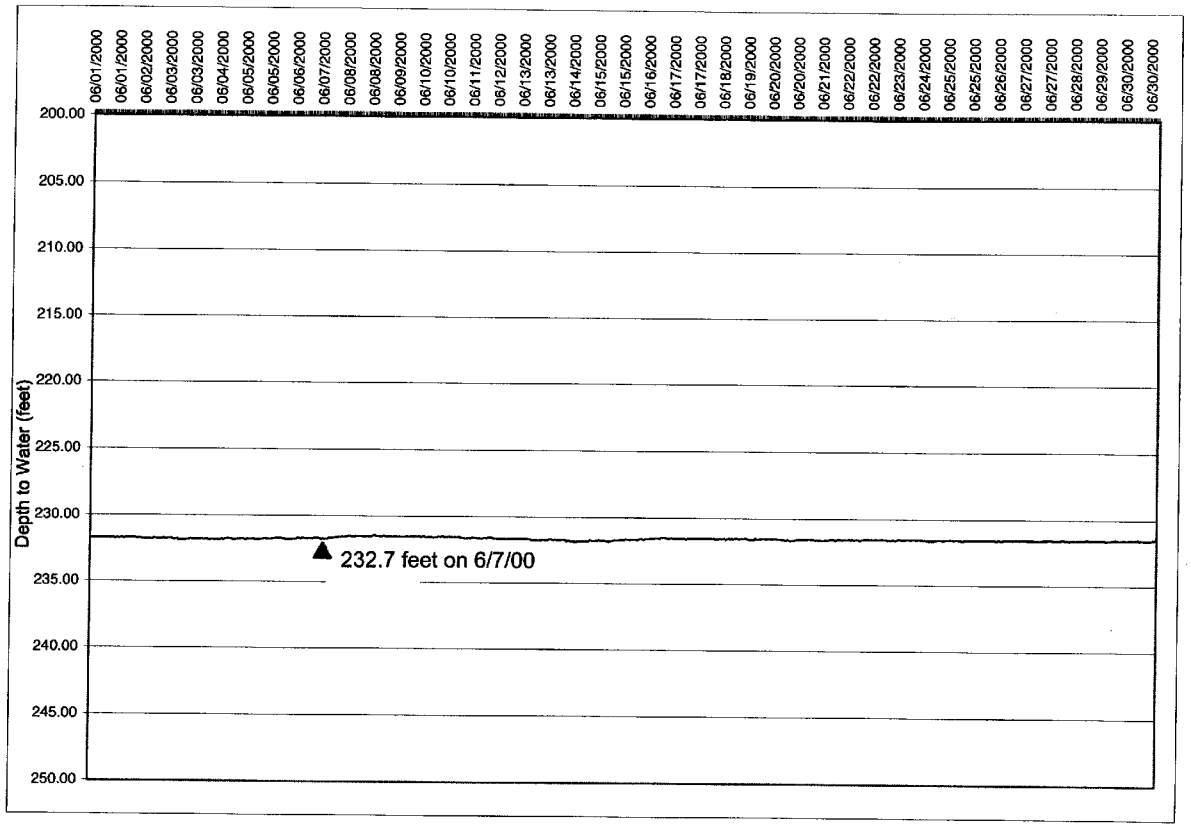
Apr 00 Chart

Well#21



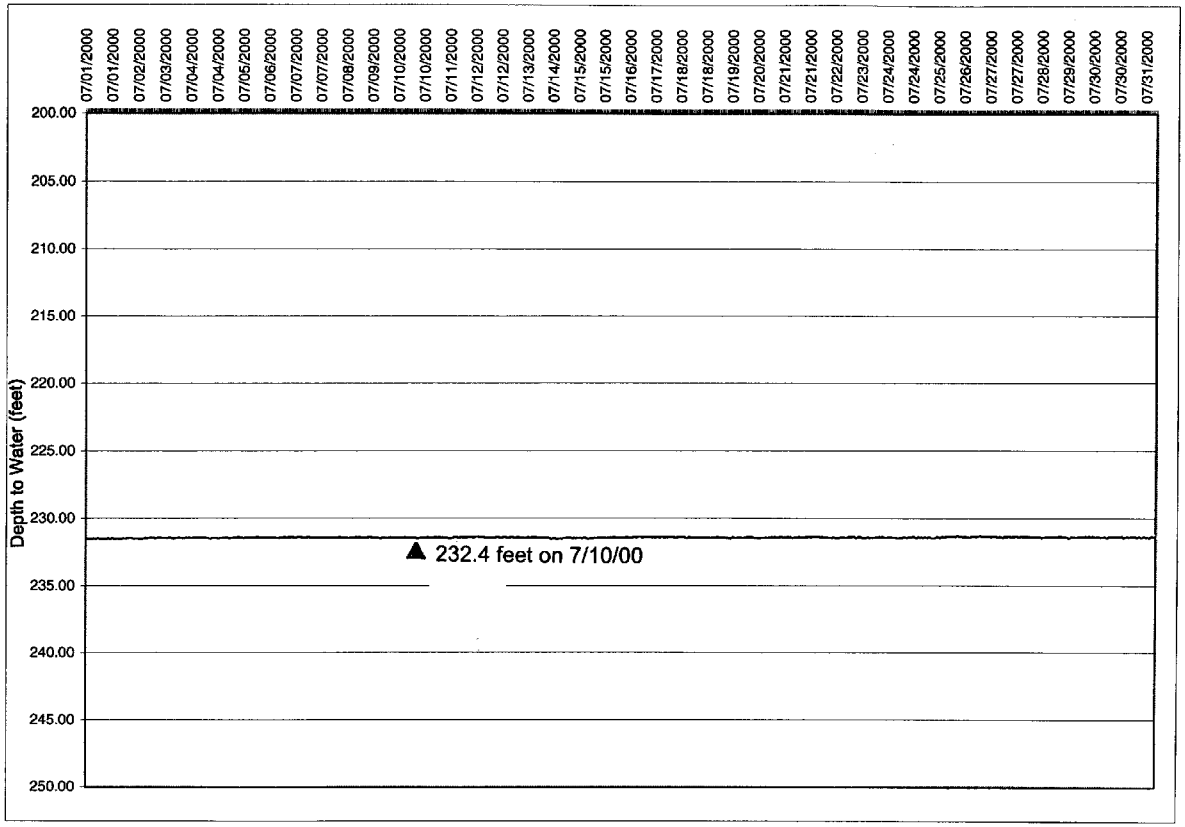
May 00 Chart

Well#21



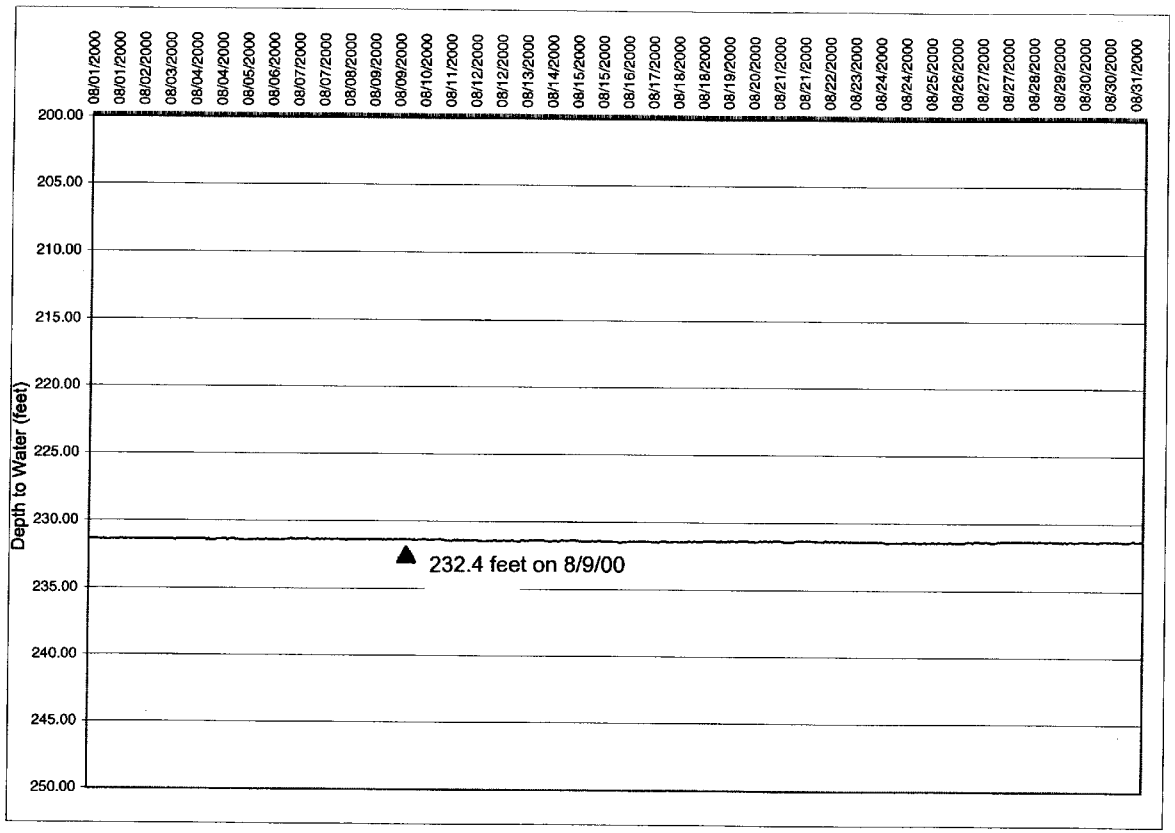
Jun 00 Chart

Well#21



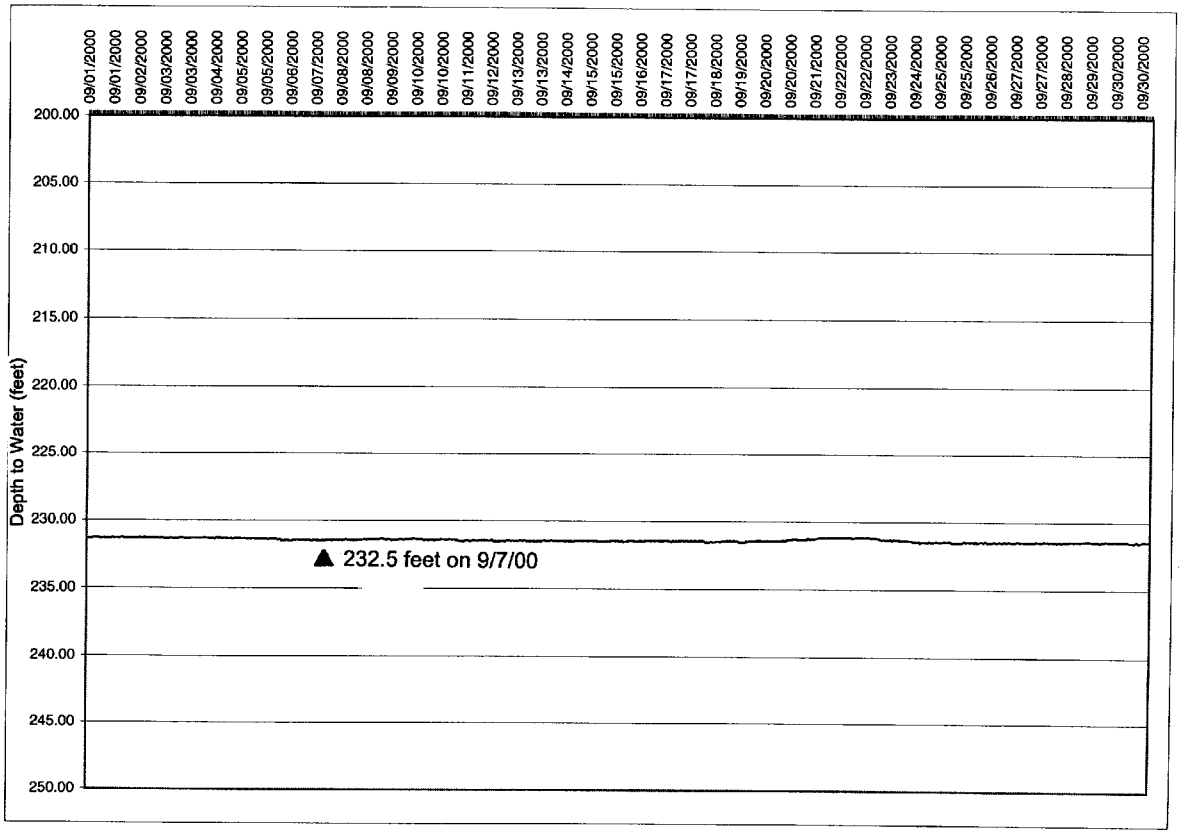
Jul 00 Chart

Well#21



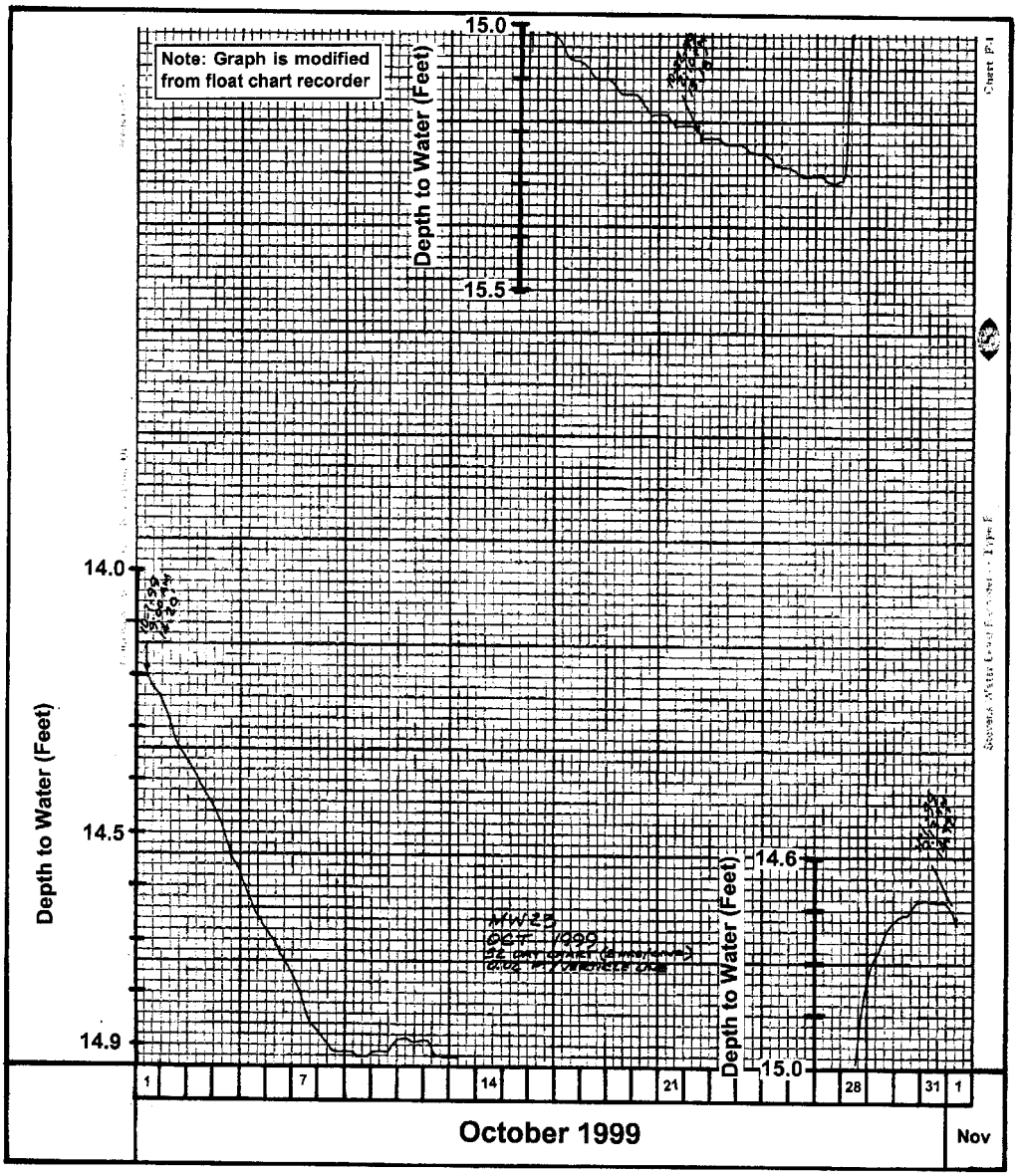
Aug 00 Chart

Well#21

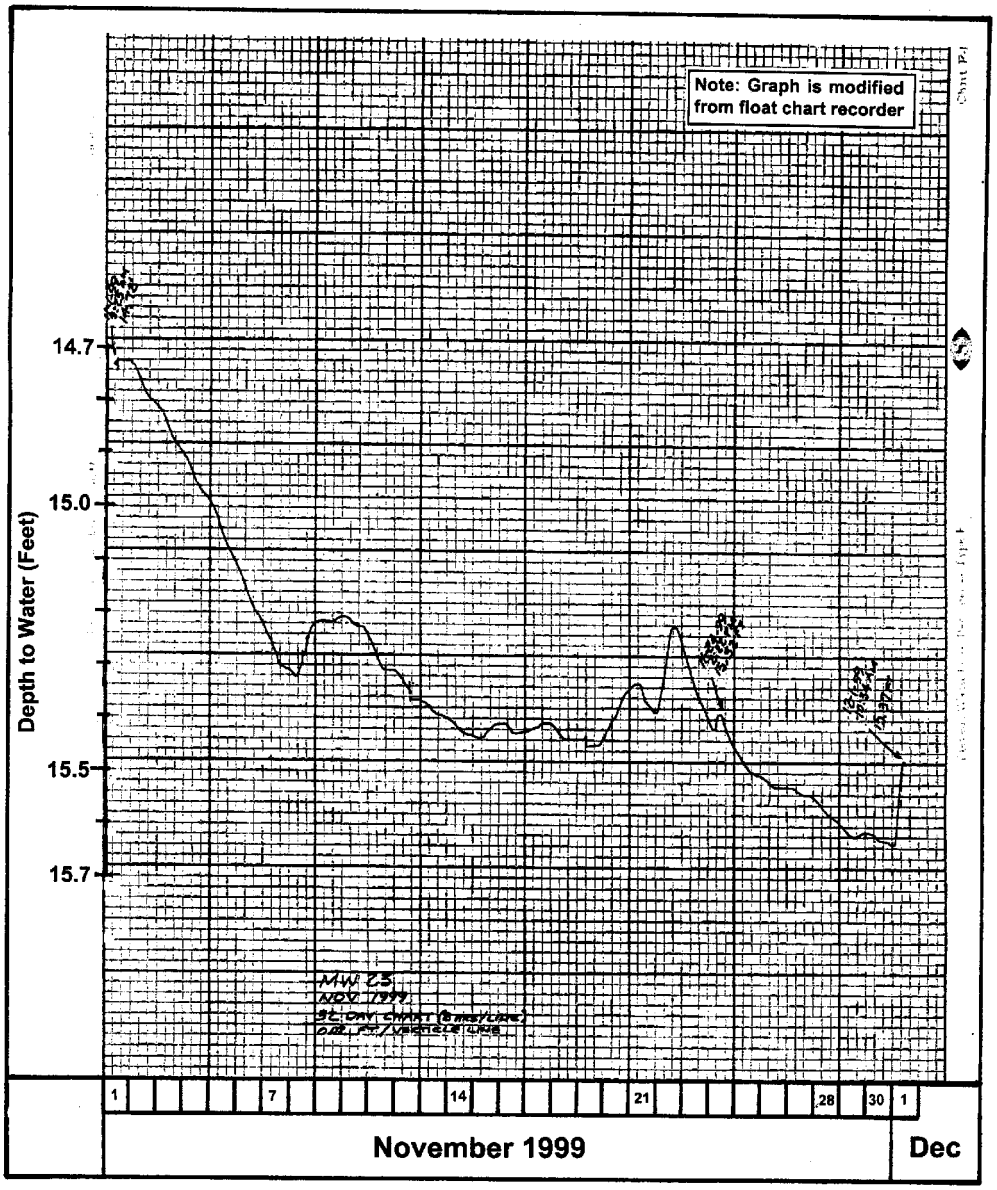


Sep 00 Chart

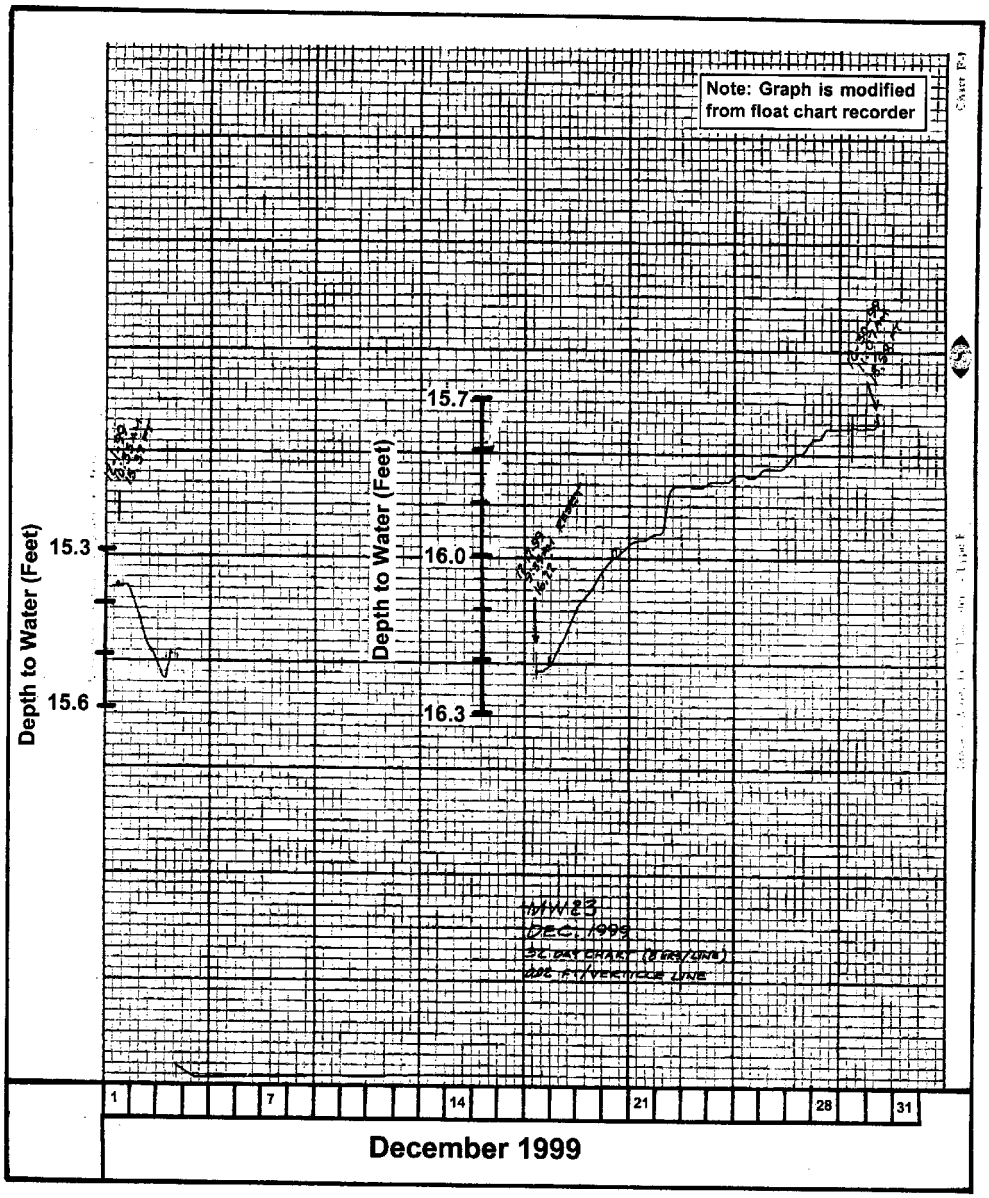
Water-Level Hydrographs from a
Float Chart Recorder for Well No. 23



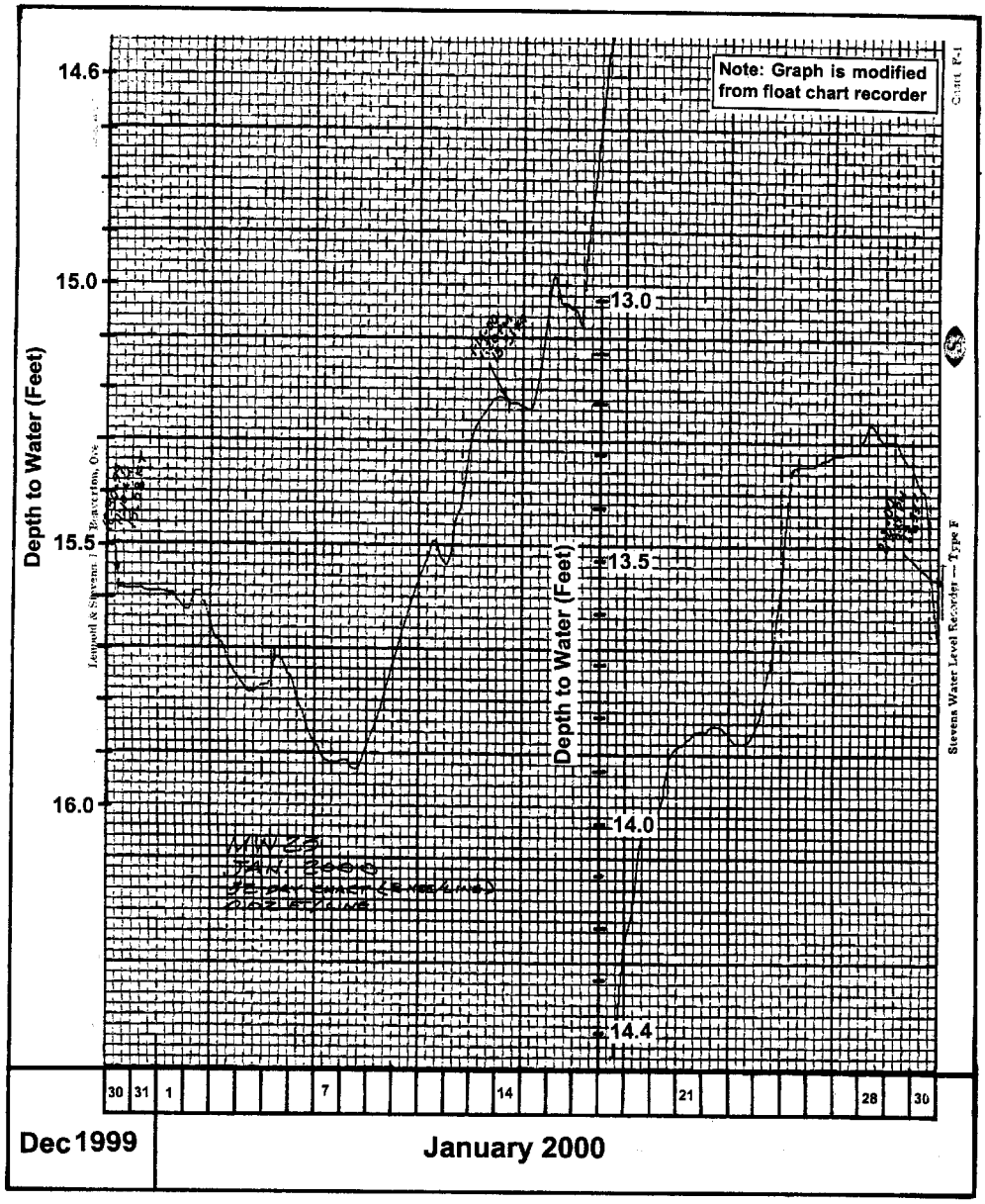
WATER-LEVEL HYDROGRAPH FOR MW-23



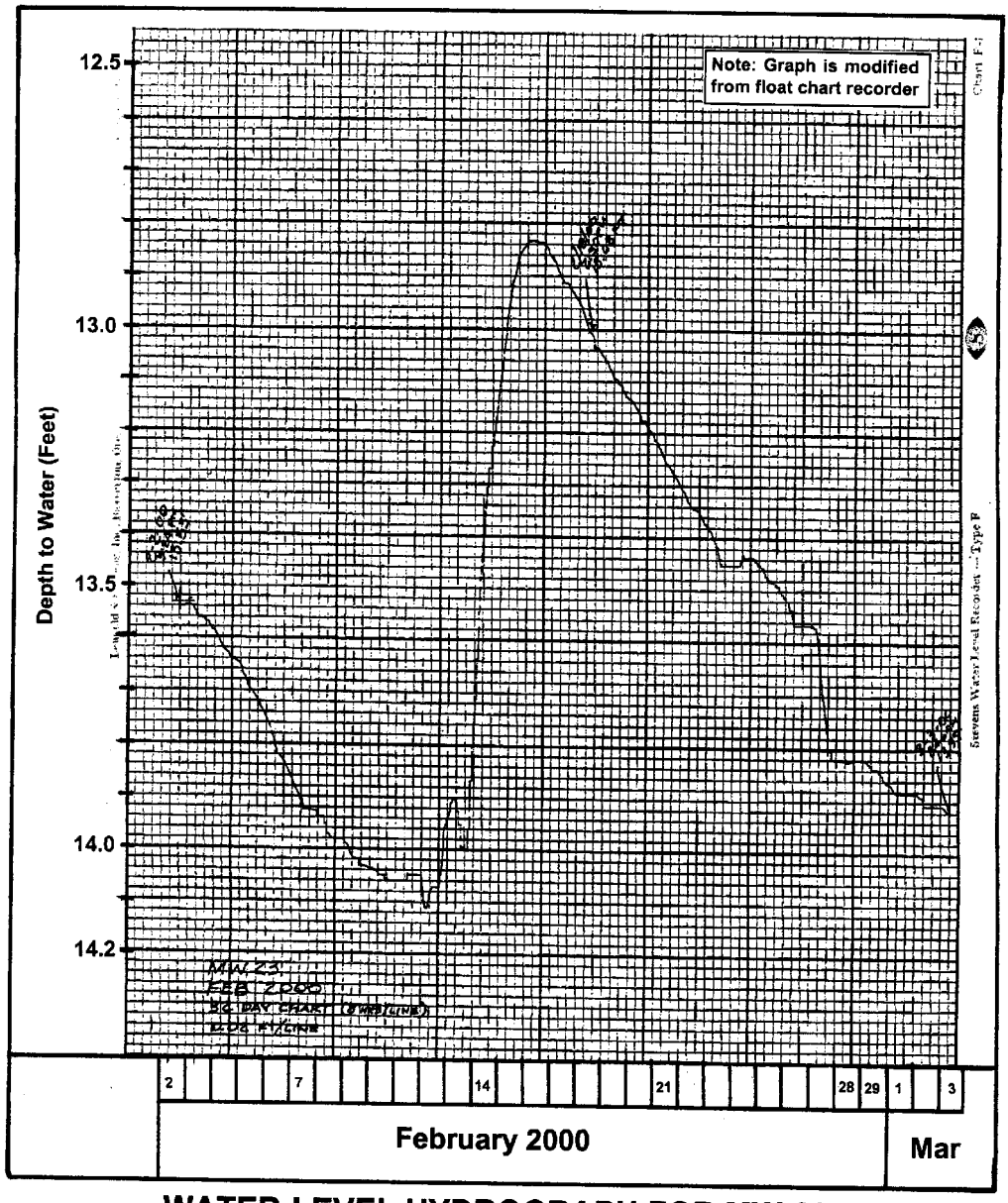
WATER-LEVEL HYDROGRAPH FOR MW-23



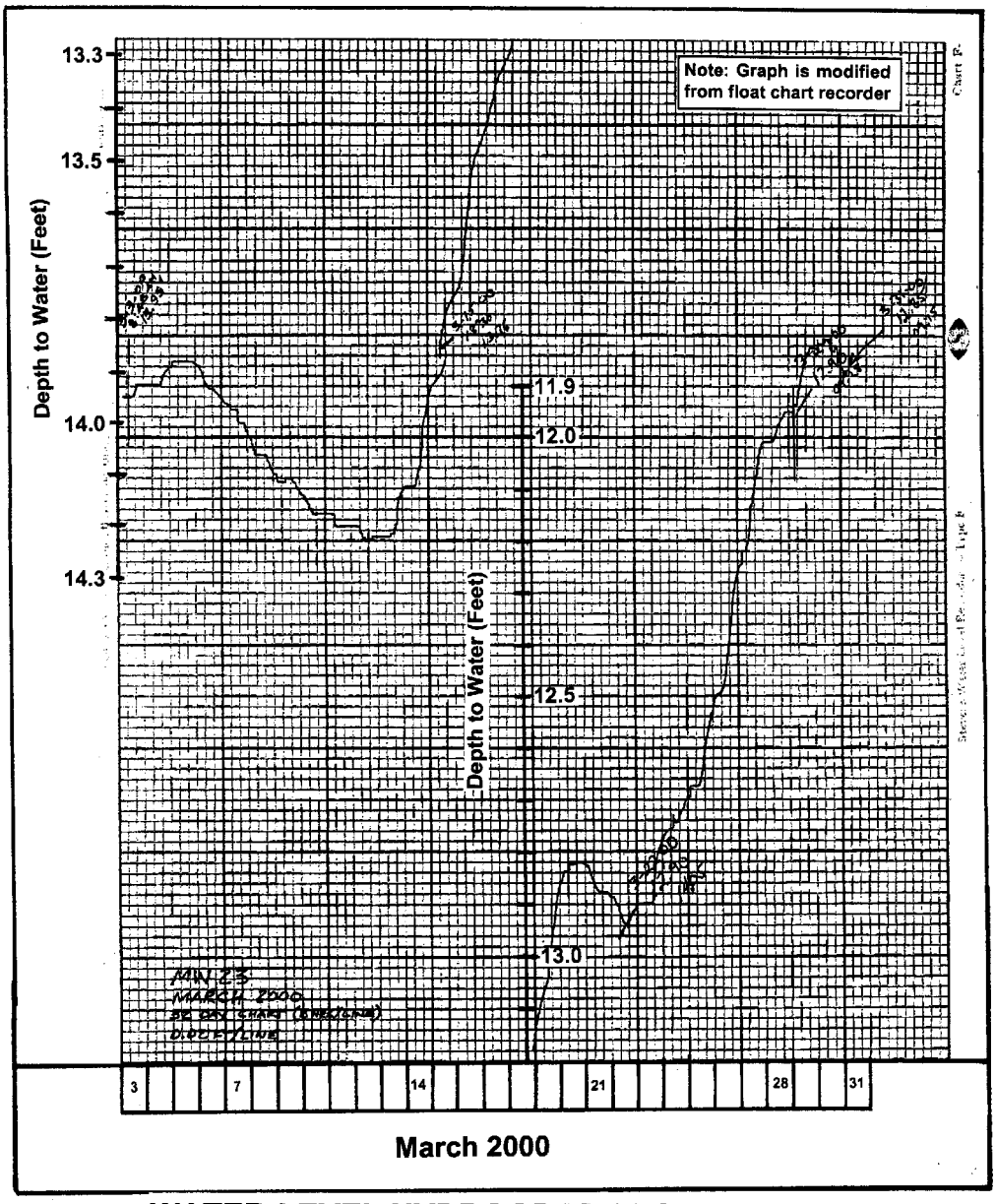
WATER-LEVEL HYDROGRAPH FOR MW-23



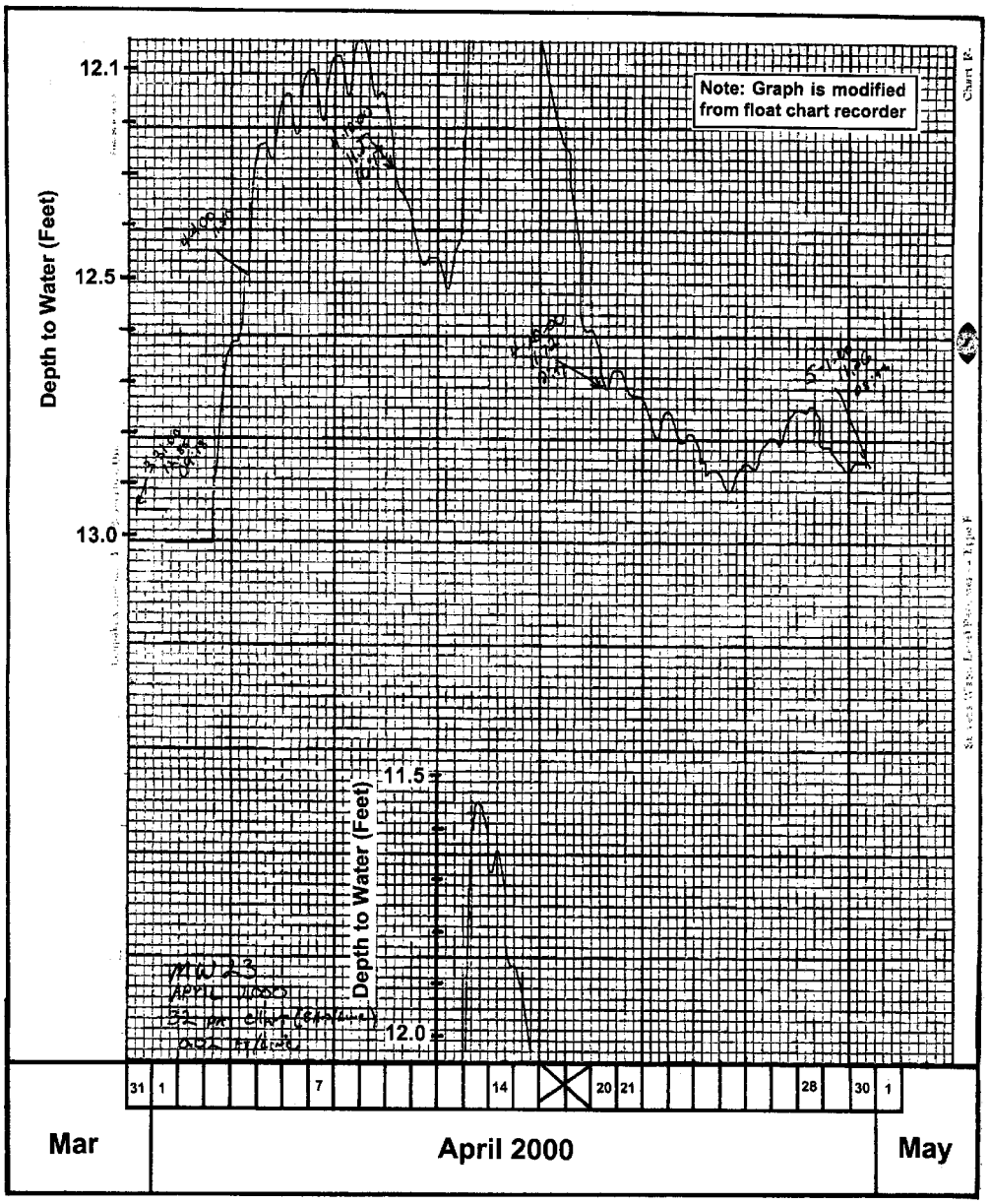
WATER-LEVEL HYDROGRAPH FOR MW-23



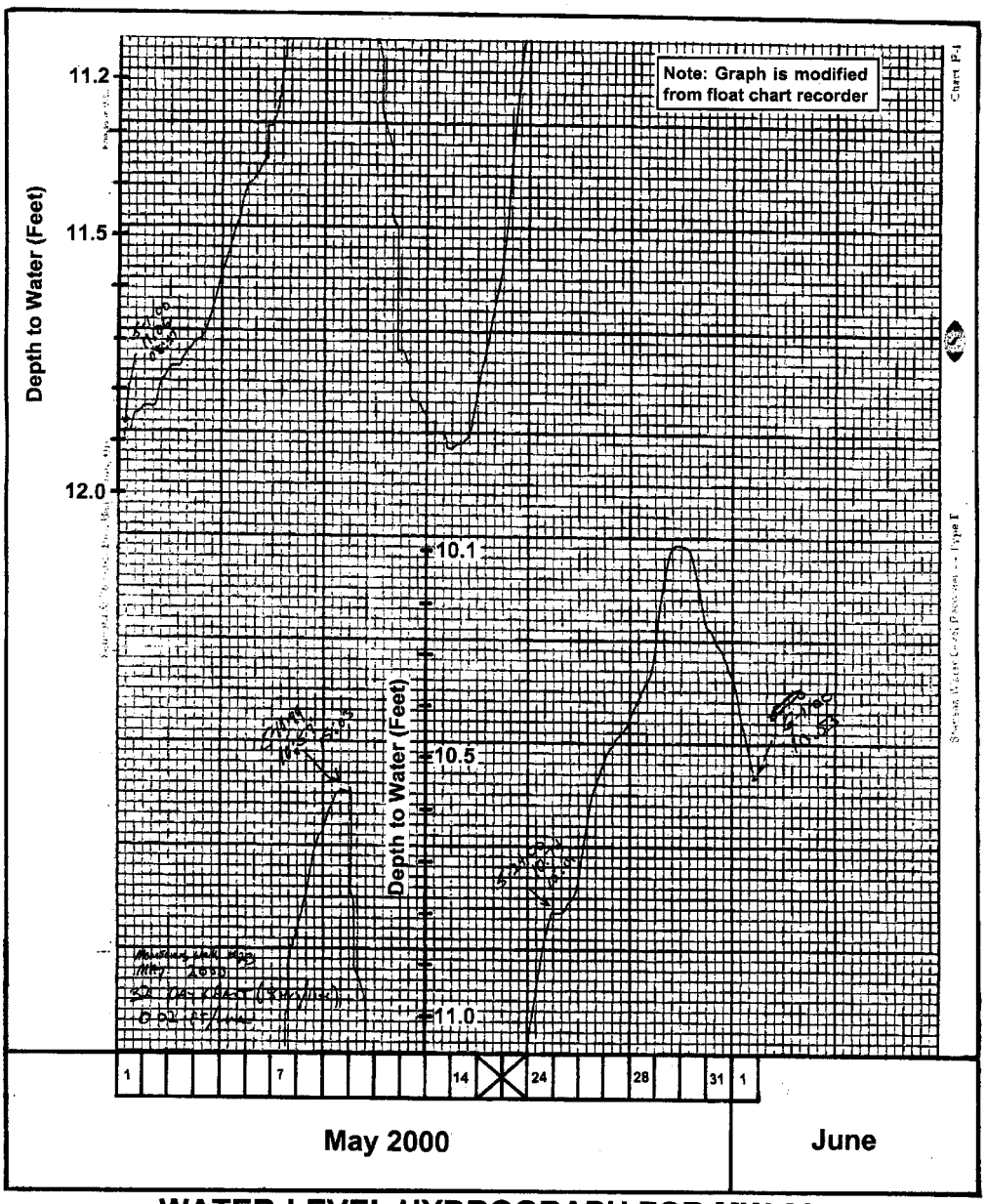
WATER-LEVEL HYDROGRAPH FOR MW-23



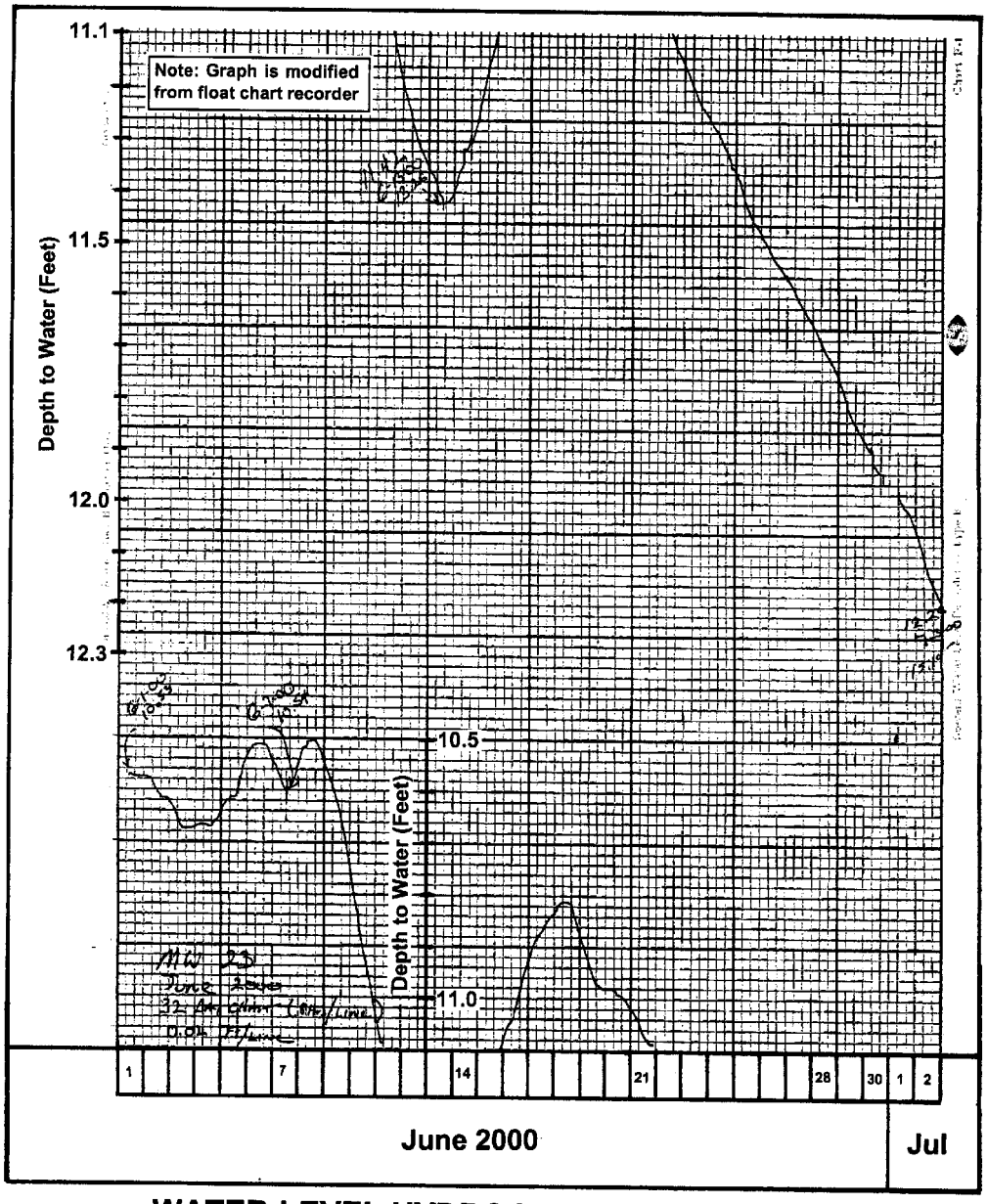
WATER-LEVEL HYDROGRAPH FOR MW-23



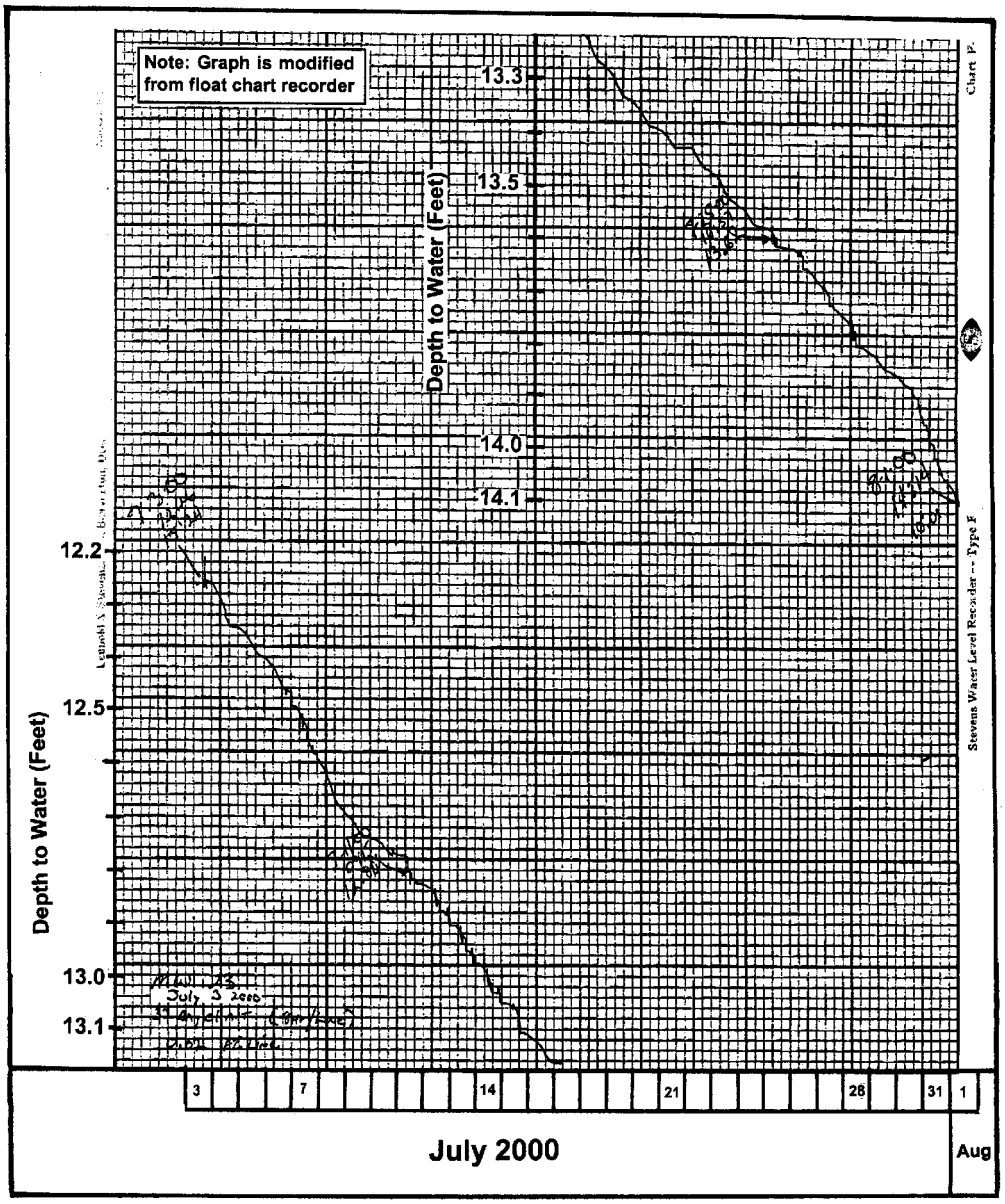
WATER-LEVEL HYDROGRAPH FOR MW-23



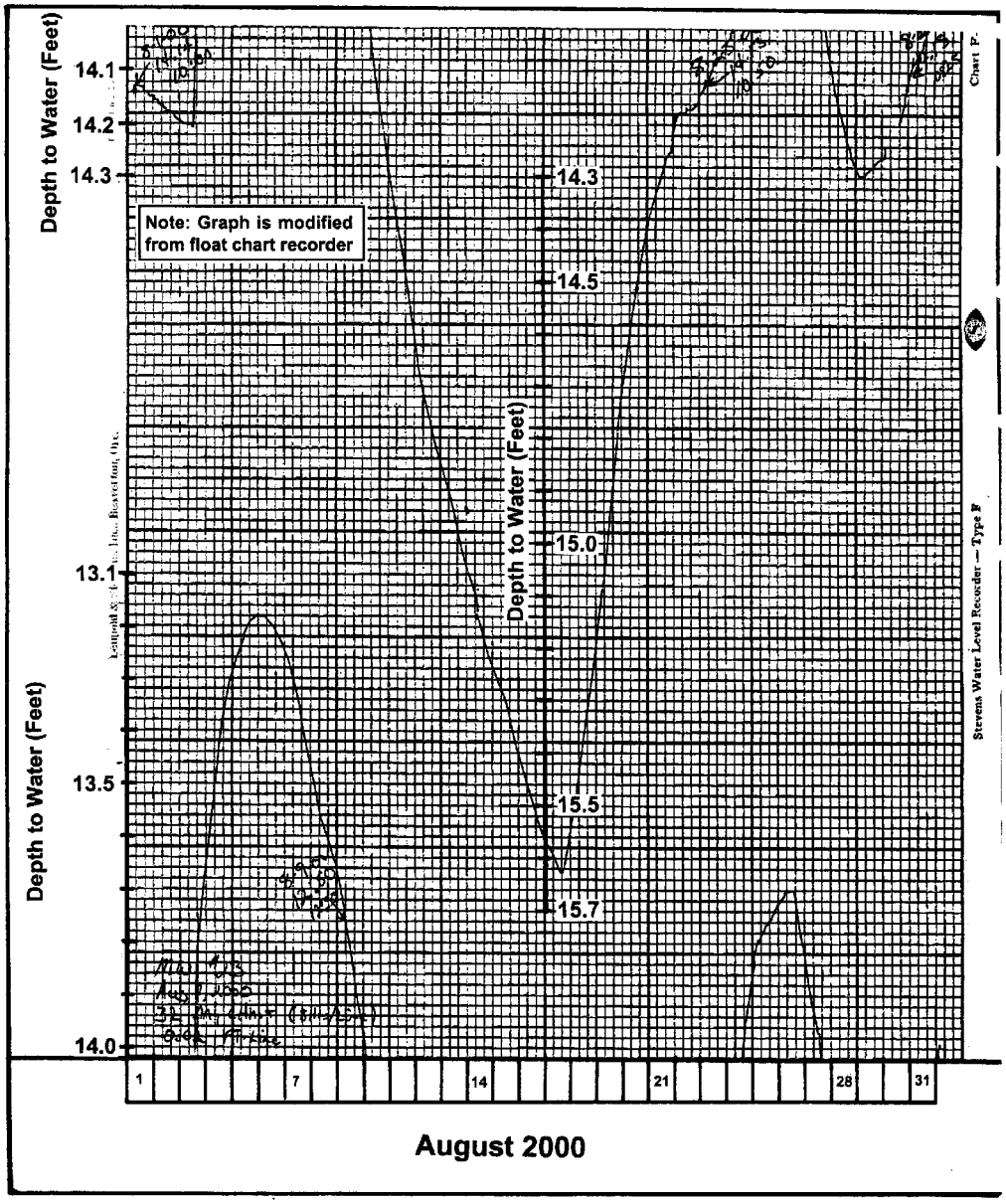
WATER-LEVEL HYDROGRAPH FOR MW-23



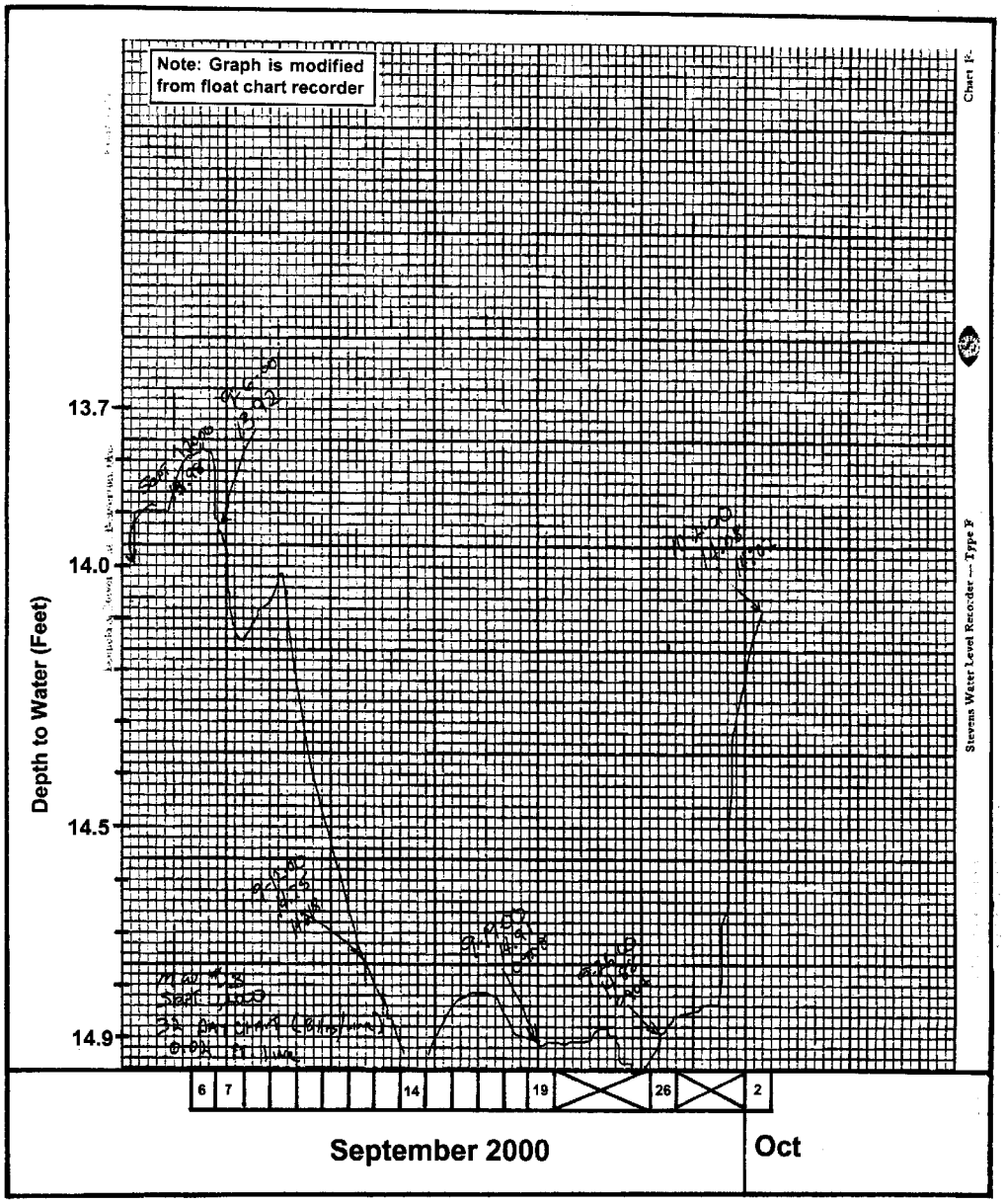
WATER-LEVEL HYDROGRAPH FOR MW-23



WATER-LEVEL HYDROGRAPH FOR MW-23



WATER-LEVEL HYDROGRAPH FOR MW-23

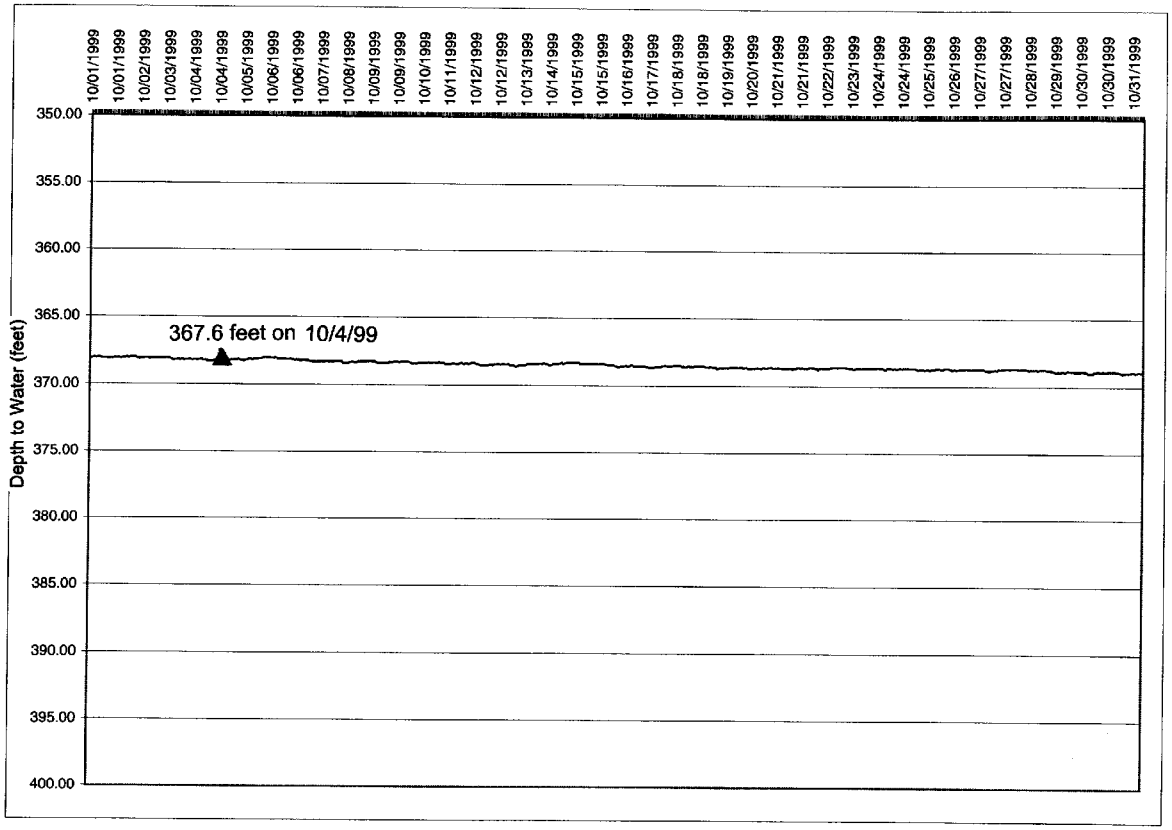


WATER-LEVEL HYDROGRAPH FOR MW-23

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

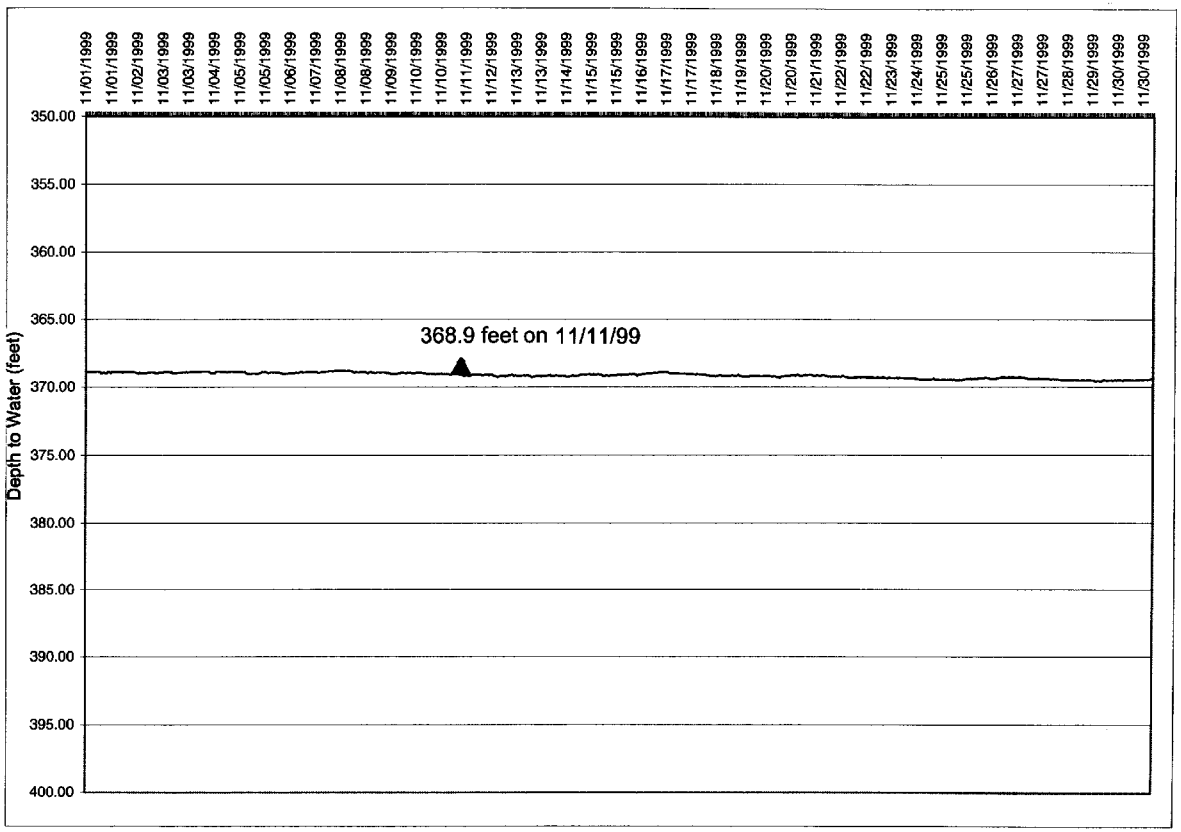
Note: Solid triangle and adjoining depth to water on graph are for measurement with an electric sounder.

Well#24



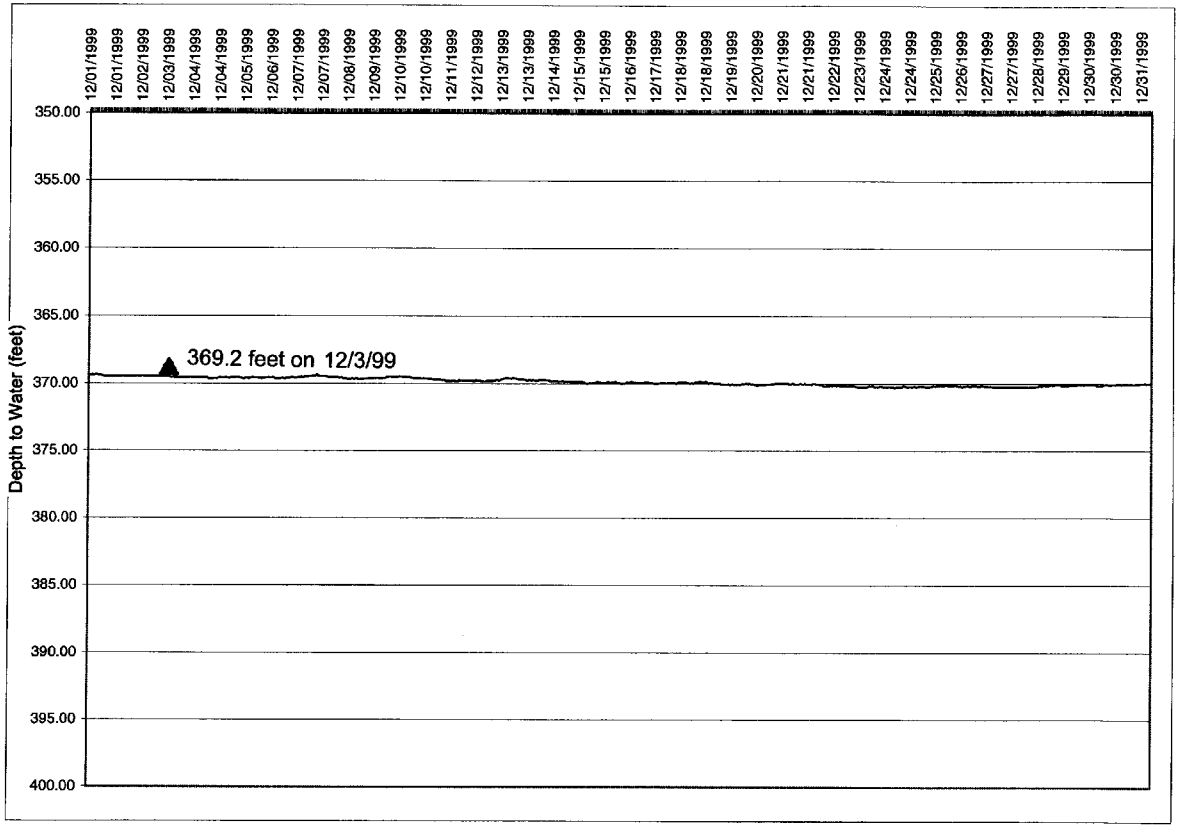
Oct 99 Chart

Well#24



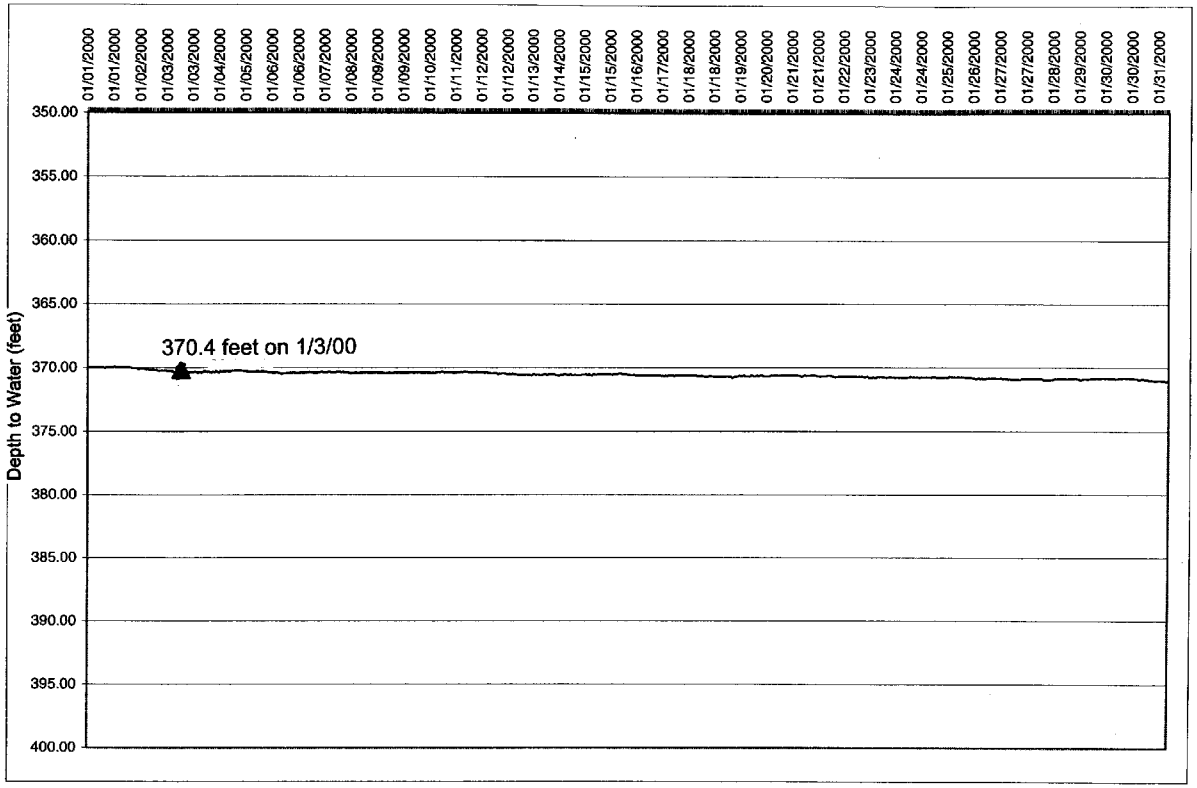
Nov 99 Chart

Well#24



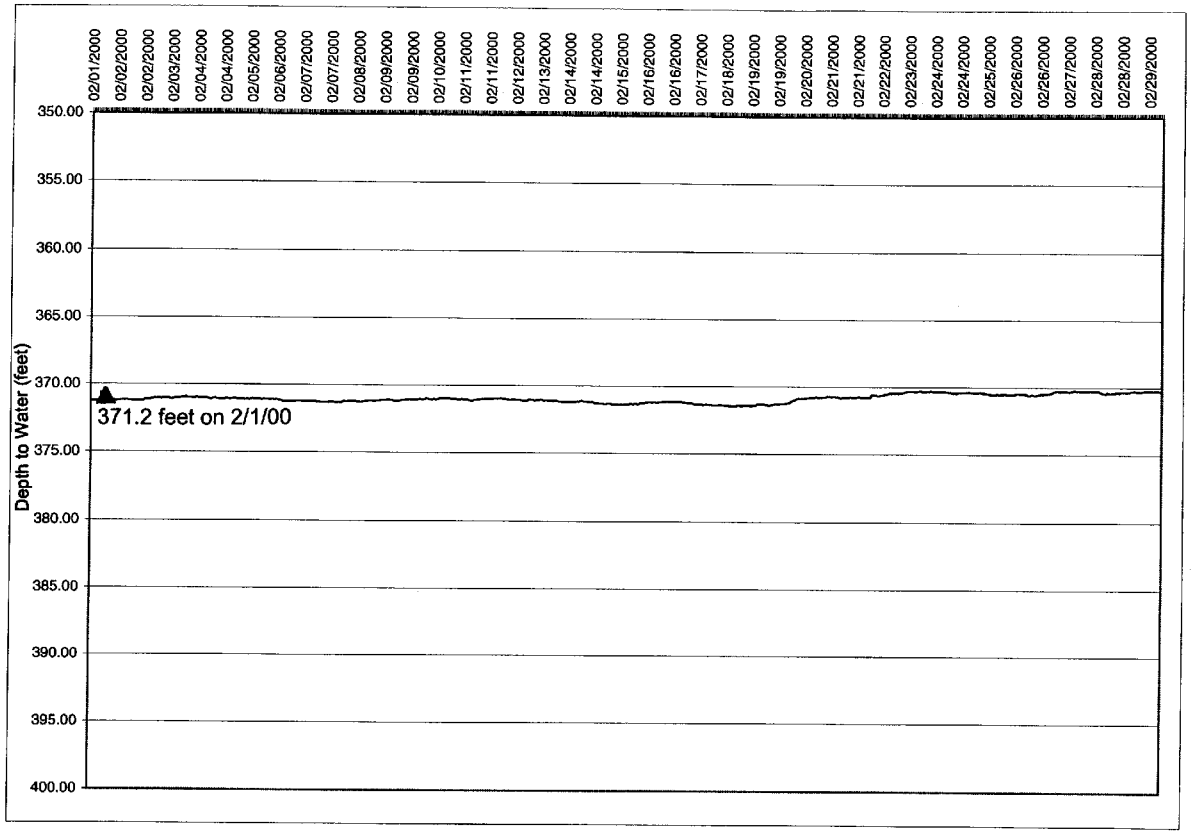
Dec 99 Chart

Well#24



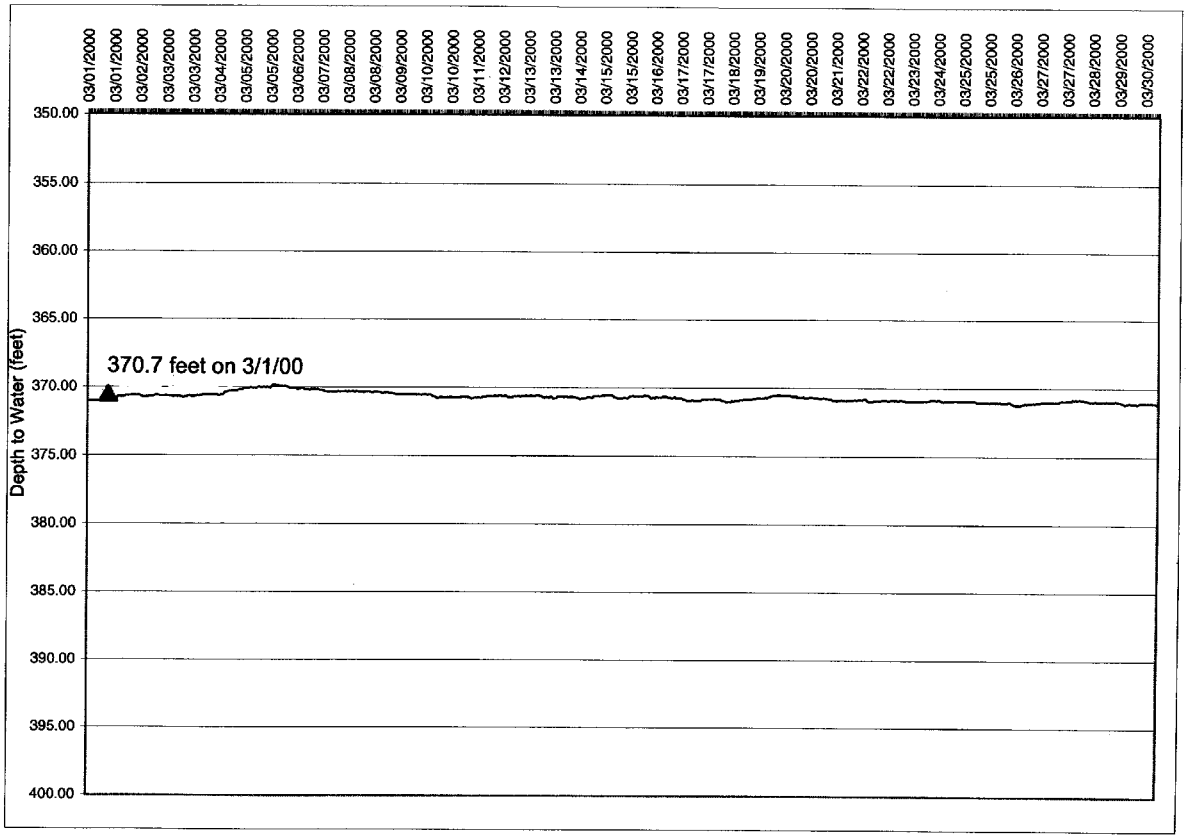
Jan 00 Chart

Well#24



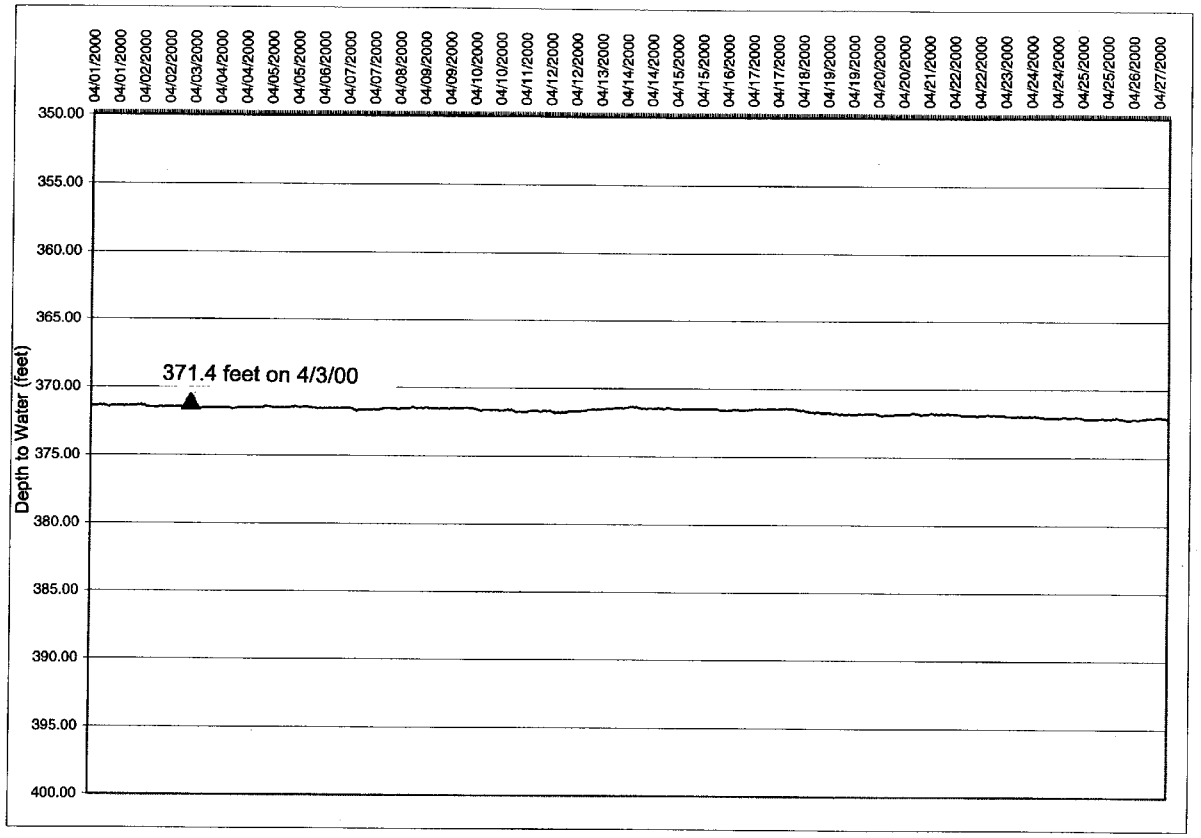
Feb 00 Chart

Well#24



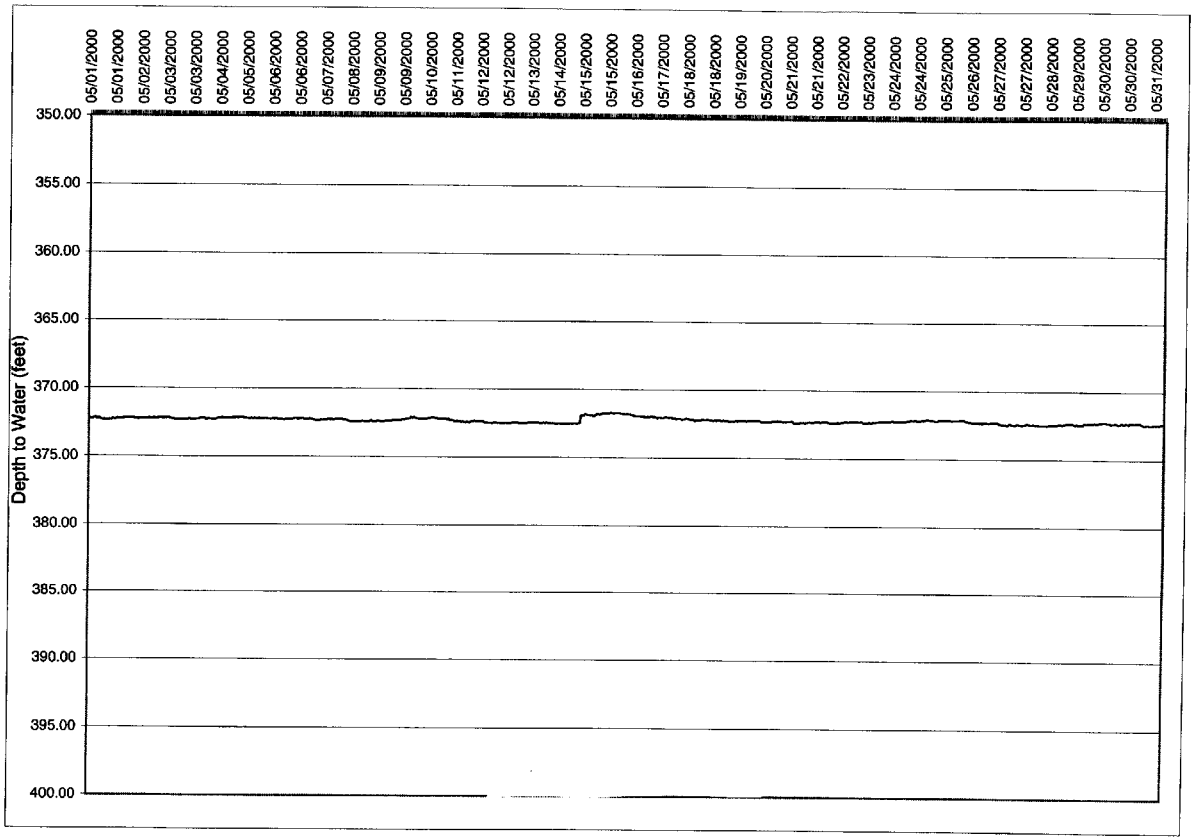
Mar 00 Chart

Well#24



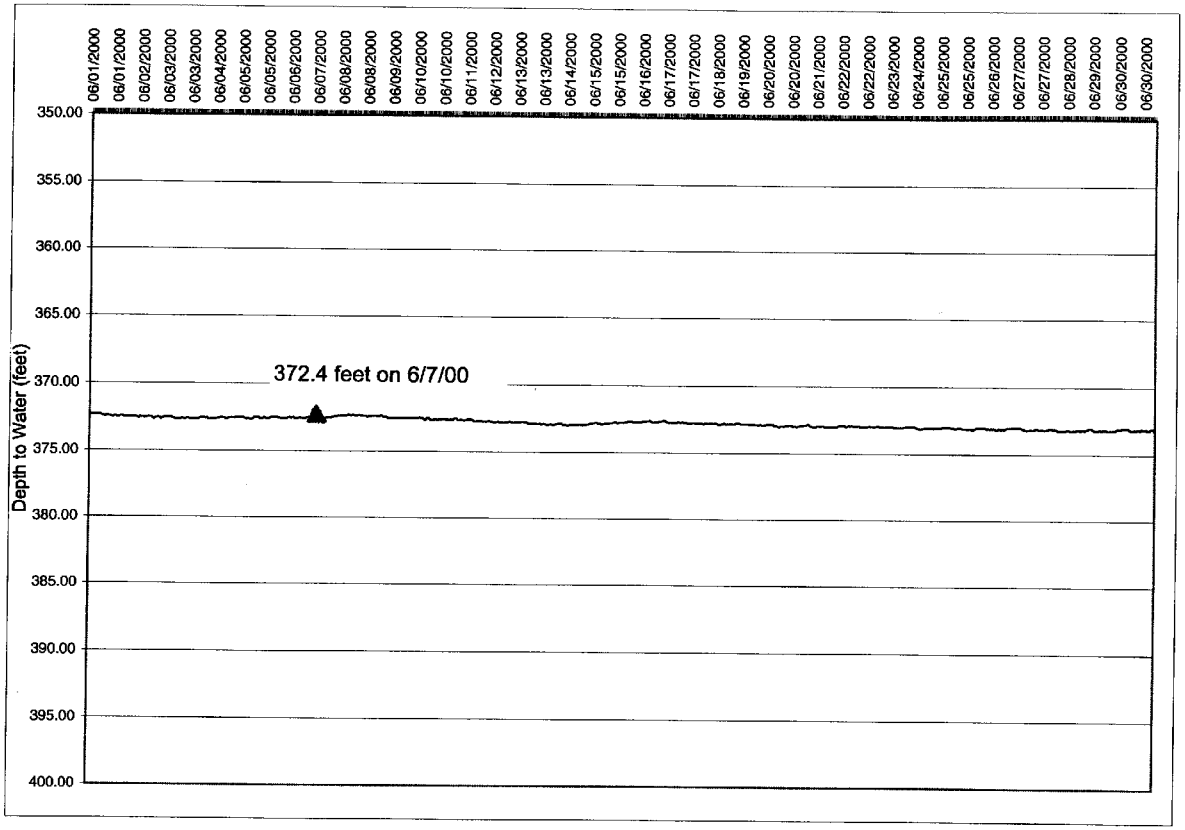
Apr 00 Chart

Well#24



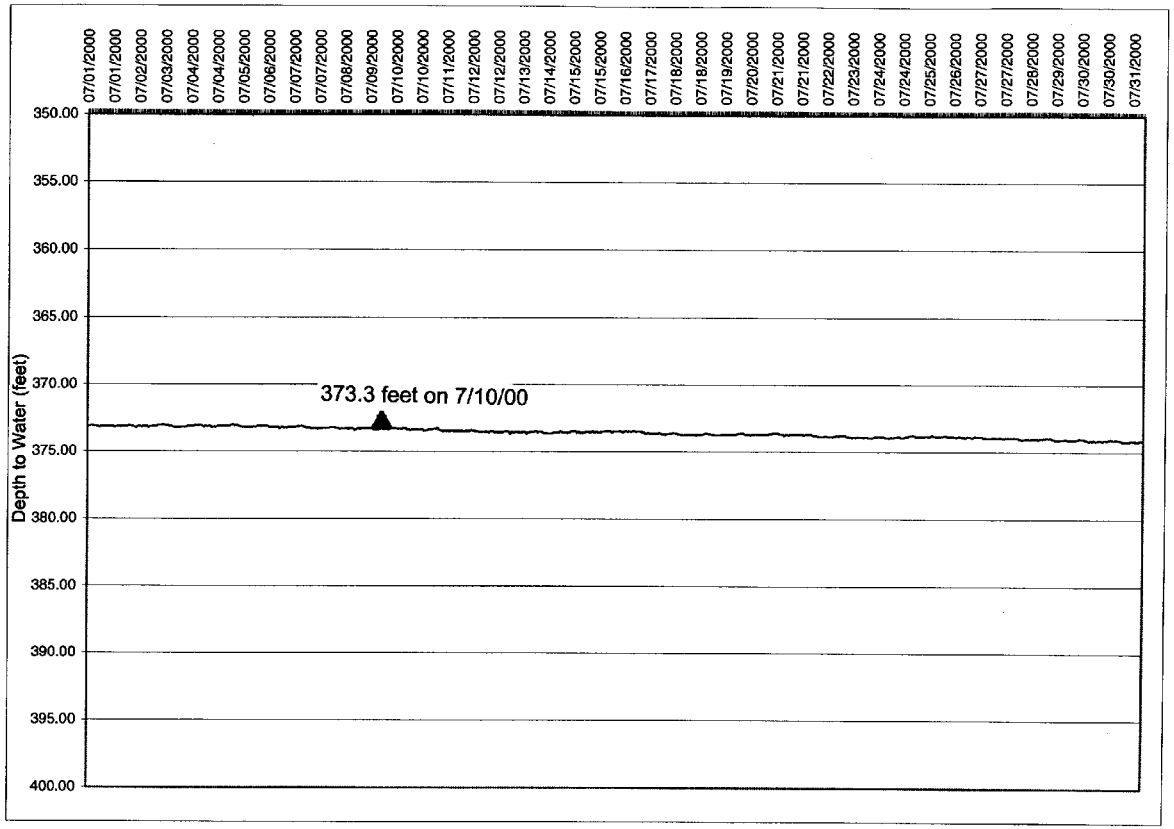
May 00 Chart

Well#24



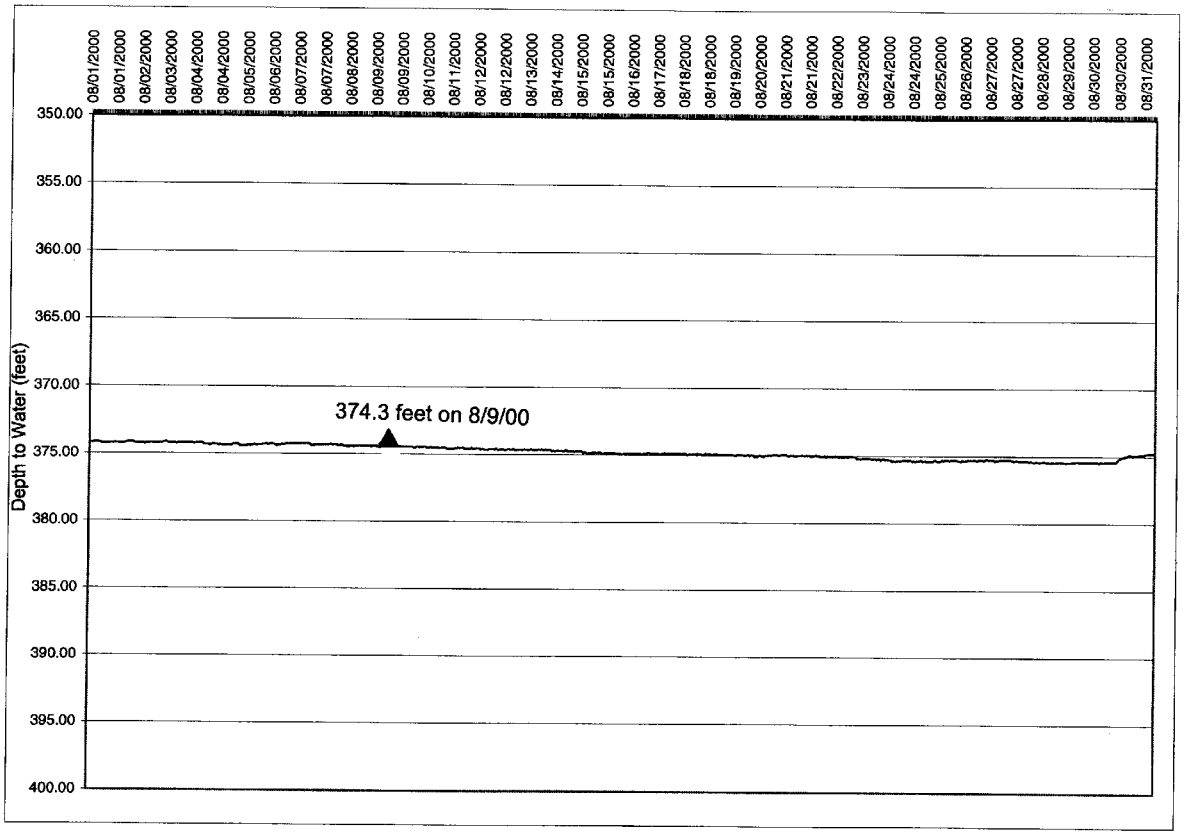
Jun 00 Chart

Well#24



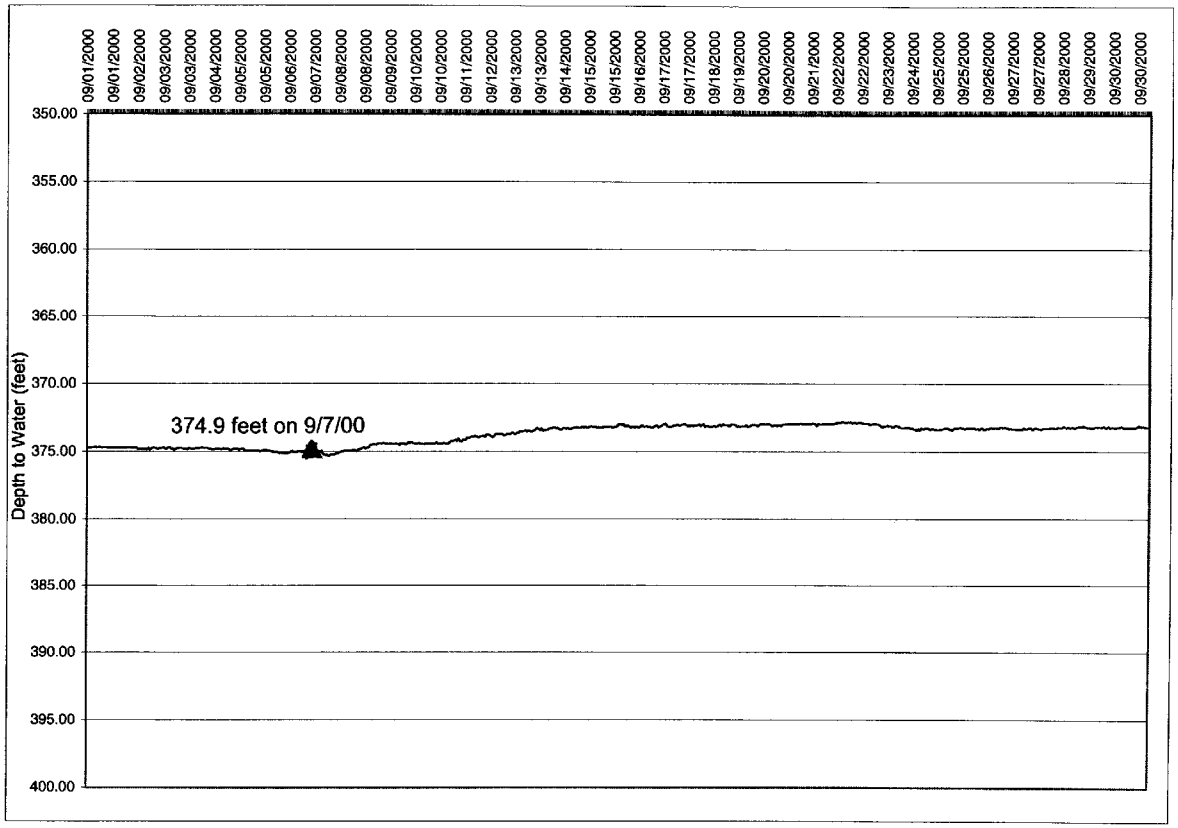
Jul 00 Chart

Well#24



Aug 00 Chart

Well#24



Sep 00 Chart

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
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
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
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
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
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
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
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

quality10/19/00

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
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
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
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
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
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
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
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

quality10/19/00

MAMMOTH COMMUNITY WATER DISTRICT
MONITOR WELL WATER QUALITY

Monitor Well Site	Sample Date	Sample Time	Conductivity umho/cm	TDS mg/L	Temp F	pH
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.				
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.				
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.				
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
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
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.				

APPENDIX F

MAMMOTH CREEK STREAMFLOW

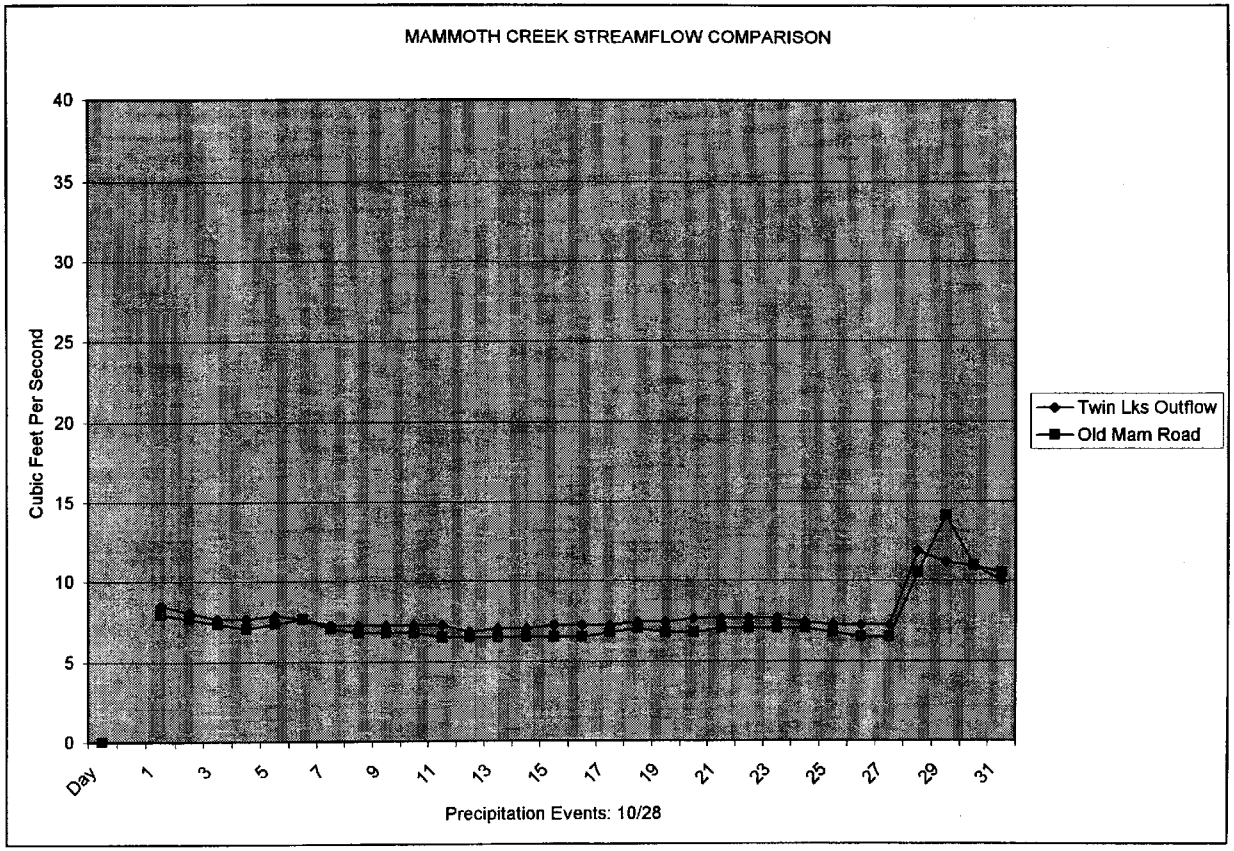
MAMMOTH CREEK FLOW AT OLD MAMMOTH ROAD

Daily discharge in cubic feet per second												
	1999			2000								
Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	9.5	6.8	6.5	10.5	10.5	9.8	22.4	76.5	33.0	11.2	8.6
2	7.6	8.9	7.3	6.5	9.2	10.2	11.2	25.1	61.4	32.0	10.5	9.2
3	7.3	8.9	6.8	6.8	8.3	9.8	13.0	28.5	74.3	31.5	10.9	8.9
4	7.1	8.6	6.8	6.5	7.9	9.8	14.9	33.0	70.8	28.0	22.4	8.6
5	7.3	8.3	6.8	6.2	7.1	9.8	16.4	53.7	75.8	27.0	25.6	8.3
6	7.6	7.9	6.5	6.8	7.1	9.5	15.6	58.1	87.5	26.1	21.5	7.6
7	7.1	7.6	6.5	7.3	7.1	8.6	15.2	57.5	80.8	23.3	18.9	6.2
8	6.8	8.9	5.9	6.2	7.1	8.6	15.2	71.6	85.2	20.6	15.2	6.2
9	6.8	8.9	6.2	6.5	7.1	8.6	15.6	86.7	80.8	20.2	14.1	6.8
10	6.8	9.5	5.9	6.2	7.6	8.6	14.5	83.7	64.7	20.6	12.6	6.8
11	6.5	8.9	6.2	6.5	7.6	9.2	13.3	68.1	46.4	21.0	11.2	7.1
12	6.5	8.6	6.5	6.5	6.8	8.9	13.7	47.6	43.5	20.6	9.8	7.1
13	6.5	8.3	6.8	7.9	7.3	8.9	20.2	40.6	45.2	19.7	9.5	7.1
14	6.5	7.9	5.9	6.8	14.1	8.9	22.4	32.0	57.5	18.9	9.5	7.1
15	6.5	8.6	6.2	7.9	14.9	9.2	18.0	30.0	75.1	18.0	8.9	7.1
16	6.5	8.3	5.9	7.3	15.2	9.2	14.5	30.5	77.2	17.6	8.6	6.8
17	6.8	9.5	5.9	9.8	12.6	10.5	13.3	29.5	60.7	17.6	8.6	6.5
18	7.1	8.9	5.9	11.9	11.2	9.5	13.3	27.5	84.5	17.2	8.6	6.5
19	6.8	8.9	5.9	14.1	10.5	9.8	13.0	27.5	78.7	16.0	8.9	6.2
20	6.8	8.9	5.9	9.5	9.8	10.2	11.9	27.5	67.4	15.6	8.6	6.2
21	7.1	10.5	5.9	8.6	10.5	8.6	11.9	42.9	63.4	14.9	8.6	6.5
22	7.1	9.2	5.7	7.9	9.8	8.6	11.9	58.8	55.6	14.1	8.6	6.2
23	7.1	9.8	6.5	7.6	7.9	8.9	12.3	97.4	51.2	13.3	8.6	6.5
24	7.1	7.3	6.5	10.5	11.2	9.2	12.3	105.4	50.6	13.0	8.9	6.5
25	6.8	7.3	6.5	15.6	10.5	9.5	12.6	86.7	45.2	13.0	8.9	6.5
26	6.5	7.3	6.5	16.4	9.8	10.2	14.5	114.4	43.5	12.3	8.3	6.8
27	6.5	7.3	6.8	14.1	9.2	11.2	16.0	107.0	43.5	11.5	7.6	6.8
28	10.5	7.1	6.2	9.8	10.5	11.5	18.5	113.6	40.1	11.5	7.3	6.8
29	14.1	7.1	6.5	9.8	11.5	10.5	19.3	128.9	34.6	11.2	7.1	6.8
30	10.9	7.1	7.3	7.6		11.2	20.2	113.6	32.0	10.9	8.3	9.2
31	10.5		6.8	6.5		10.2		89.7		10.9	8.6	
Mean	7.5	8.4	6.4	8.7	9.7	9.6	14.8	62.6	61.8	18.7	11.1	7.1
Maximum	14.1	10.5	7.3	16.4	15.2	11.5	22.4	128.9	87.5	33.0	25.6	9.2
Minimum	6.5	7.1	5.7	6.2	6.8	8.6	9.8	22.4	32.0	10.9	7.1	6.2

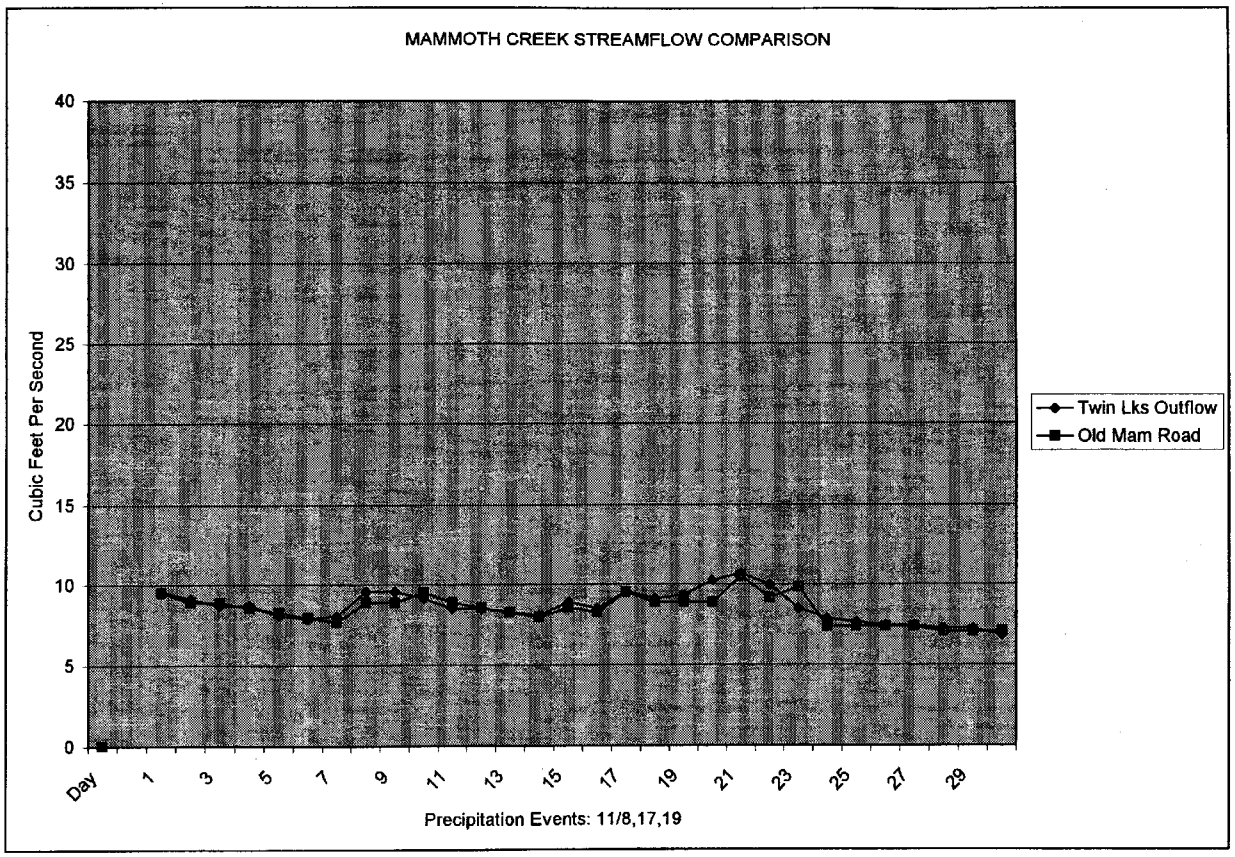
Flow2000

TWIN LAKES OUTFLOW

Daily discharge in cubic feet per second												
	1999			2000								
Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	9.6	7.2	7.2	9.4	8.7	6.6	18.4	> 32.42	31.5	12.3	10.2
2	8.1	9.1	7.9	7.2	8.5	8.1	7.0	20.8	> 32.42	30.6	12.3	10.5
3	7.6	8.7	6.8	6.8	8.1	8.1	7.9	24.2	> 32.42	28.5	12.3	10.0
4	7.6	8.7	6.8	7.2	7.2	8.1	8.5	28.5	> 32.42	25.9	26.5	9.8
5	7.9	8.1	6.8	6.8	6.8	7.9	8.5	> 32.42	> 32.42	25.3	24.2	9.6
6	7.6	7.9	6.4	6.8	6.6	7.9	8.9	> 32.42	> 32.42	23.9	20.8	9.1
7	7.2	8.1	7.2	7.0	6.4	7.9	8.5	> 32.42	>32.42	20.5	17.6	6.0
8	7.2	9.6	6.4	7.0	6.4	7.9	8.9	> 32.42	>32.42	19.7	16.2	
9	7.2	9.6	6.8	6.8	6.4	7.9	8.7	> 32.42	>32.42	20.3	14.3	
10	7.2	9.1	6.4	6.8	6.6	7.9	8.7	> 32.42	>32.42	20.8	12.6	
11	7.2	8.5	7.0	8.1	8.3	7.9	8.7	> 32.42	>32.42	20.5	11.6	
12	6.8	8.5	7.2	8.3	7.9	7.2	8.9	> 32.42	>32.42	20.3	11.2	
13	7.0	8.3	6.4	7.6	7.9	7.0	11.9	28.8	>32.42	19.5	10.7	
14	7.0	8.1	6.4	7.2	11.6	7.0	11.9	27.0	>32.42	18.6	10.5	
15	7.2	8.9	6.4	7.6	13.5	6.8	9.8	25.3	>32.42	18.1	10.2	
16	7.2	8.5	6.4	10.2	11.4	6.8	8.9	25.6	>32.42	17.8	9.8	
17	7.2	9.6	6.4	10.4	10.7	7.0	9.4	24.2	>32.42	17.6	9.8	
18	7.4	9.1	6.4	11.6	9.8	6.8	9.1	24.2	>32.42	17.1	10.9	
19	7.4	9.4	6.2	10.0	8.9	7.0	8.3	24.2	>32.42	16.8	10.7	
20	7.6	10.2	6.2	8.7	8.5	6.8	8.3	25.3	>32.42	16.0	10.2	
21	7.6	10.7	6.2	8.3	8.3	6.6	8.5	> 32.42	>32.42	15.5	10.2	
22	7.6	10.0	6.4	7.9	8.3	6.6	8.5	> 32.42	>32.42	14.8	10.0	
23	7.6	8.5	6.8	7.9	8.9	6.6	8.5	> 32.42	>32.42	14.0	10.7	
24	7.4	7.9	7.0	11.6	9.8	6.6	8.5	> 32.42	>32.42	13.8	10.9	
25	7.2	7.6	7.0	15.8	8.9	6.6	9.4	> 32.42	>32.42	13.5	10.9	
26	7.2	7.4	7.0	15.0	8.1	6.6	10.2	> 32.42	>32.42	13.0	9.8	
27	7.2	7.4	7.0	12.3	8.1	6.8	11.6	> 32.42	>32.42	12.8	9.1	
28	11.9	7.2	7.0	10.2	9.6	6.6	13.8	> 32.42	>32.42	12.6	8.7	
29	11.2	7.2	7.2	8.9	8.9	6.6	15.3	> 32.42	29.7	12.3	9.1	
30	10.9	6.8	7.2	8.1		6.6	16.8	> 32.42	30.6	12.1	9.8	10.7
31	10.0		7.2	9.4		6.6		> 32.42		12.1	10.2	
Mean	7.9	8.6	6.8	8.9	8.6	7.2	9.6			18.6	12.4	9.5
Maximum	11.9	10.7	7.9	15.8	13.5	8.7	16.8	>32.42	>32.4	31.5	26.5	10.7
Minimum	6.8	6.8	6.2	6.8	6.4	6.6	6.6	18.4	29.7	12.1	8.7	6.0
September: Bridge reconstruction prevents flow measurement.												



October 1999



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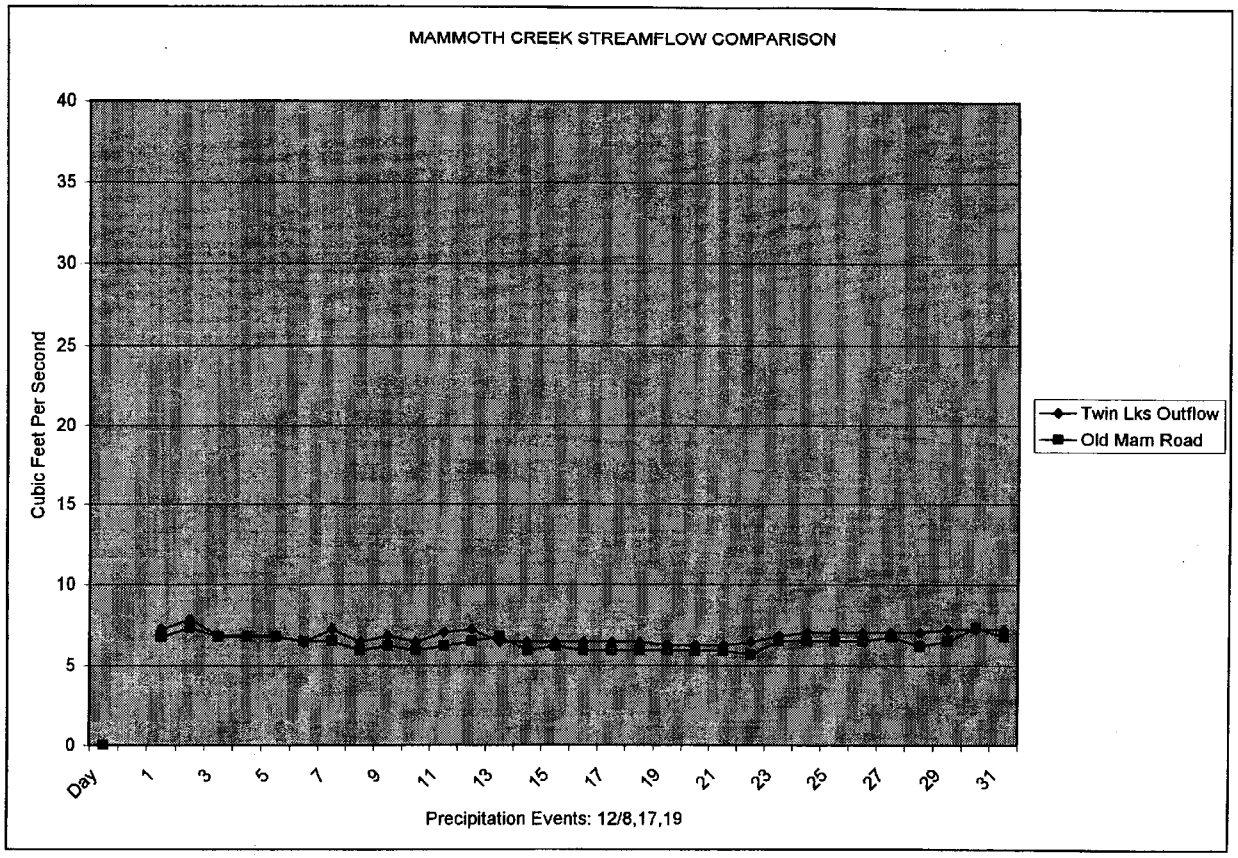

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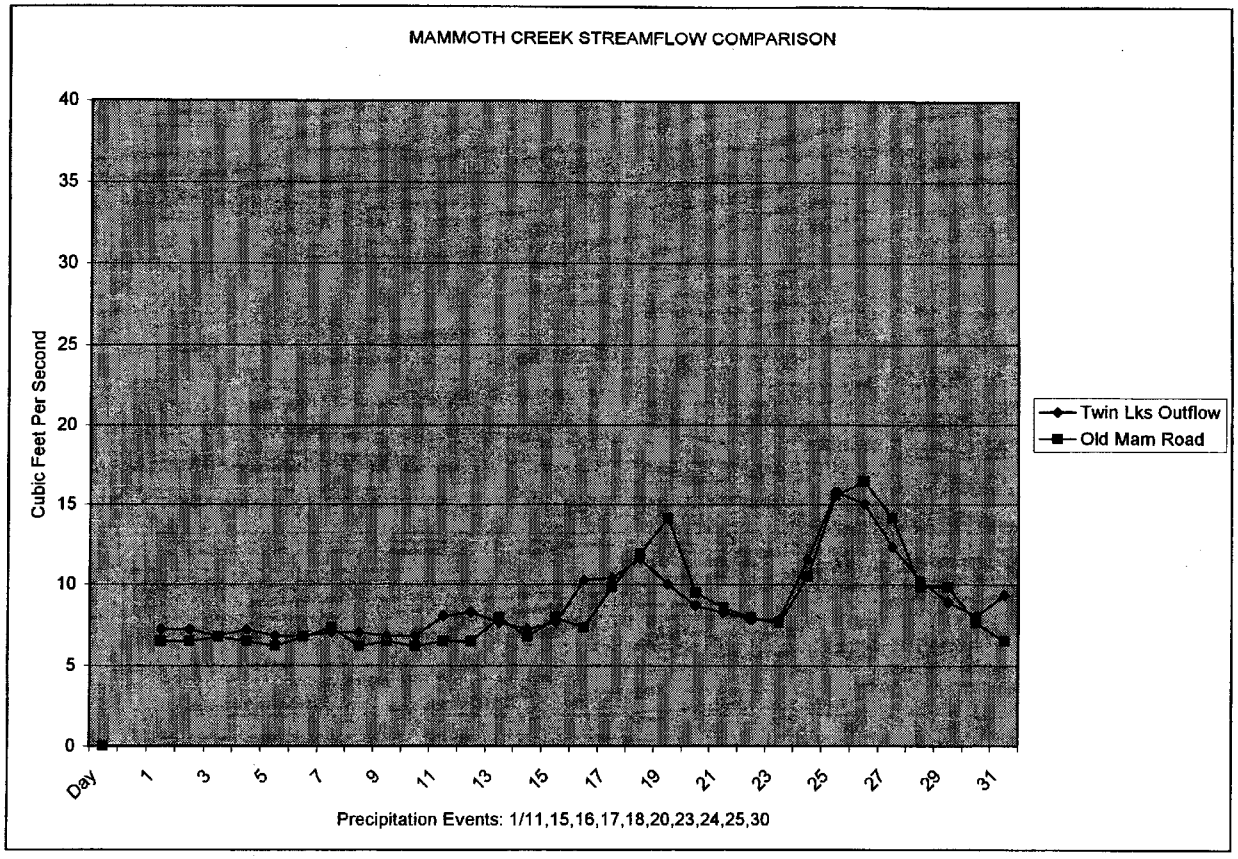

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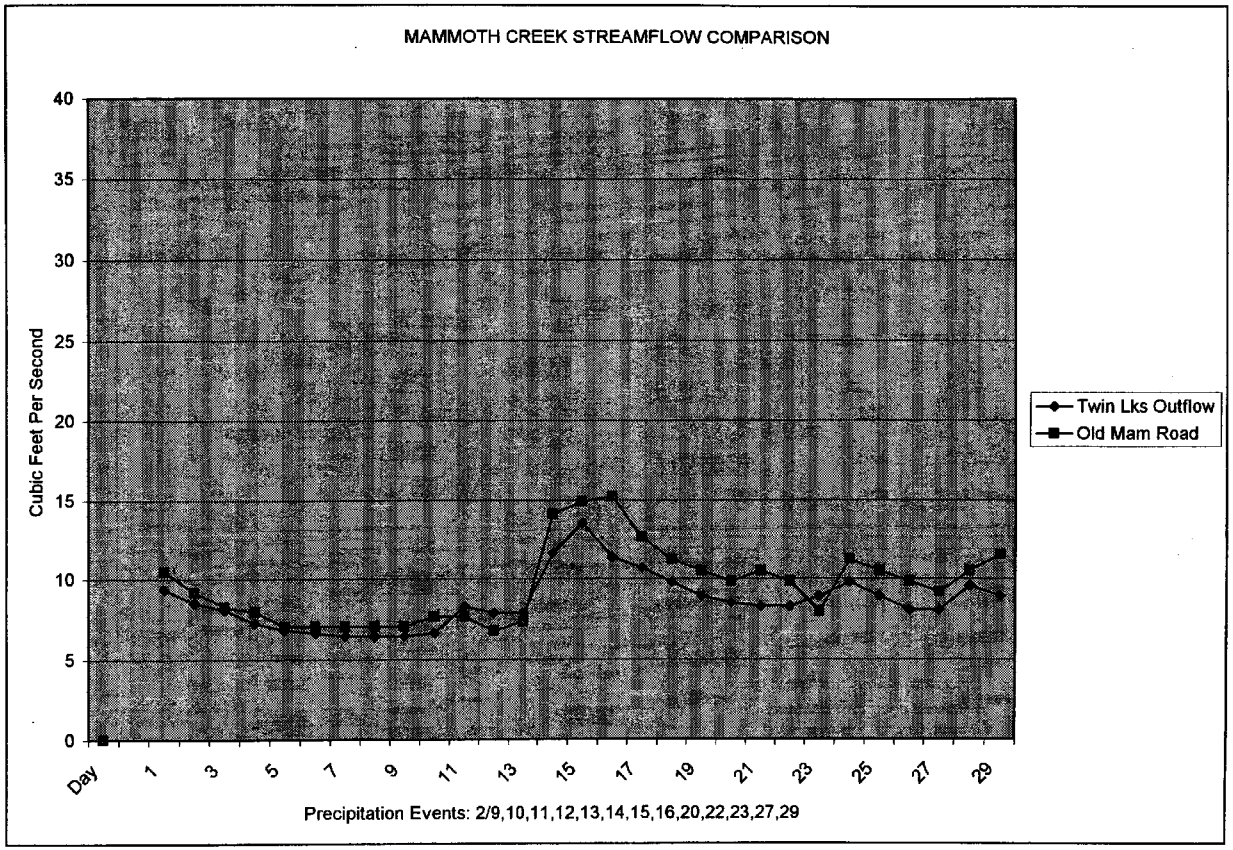
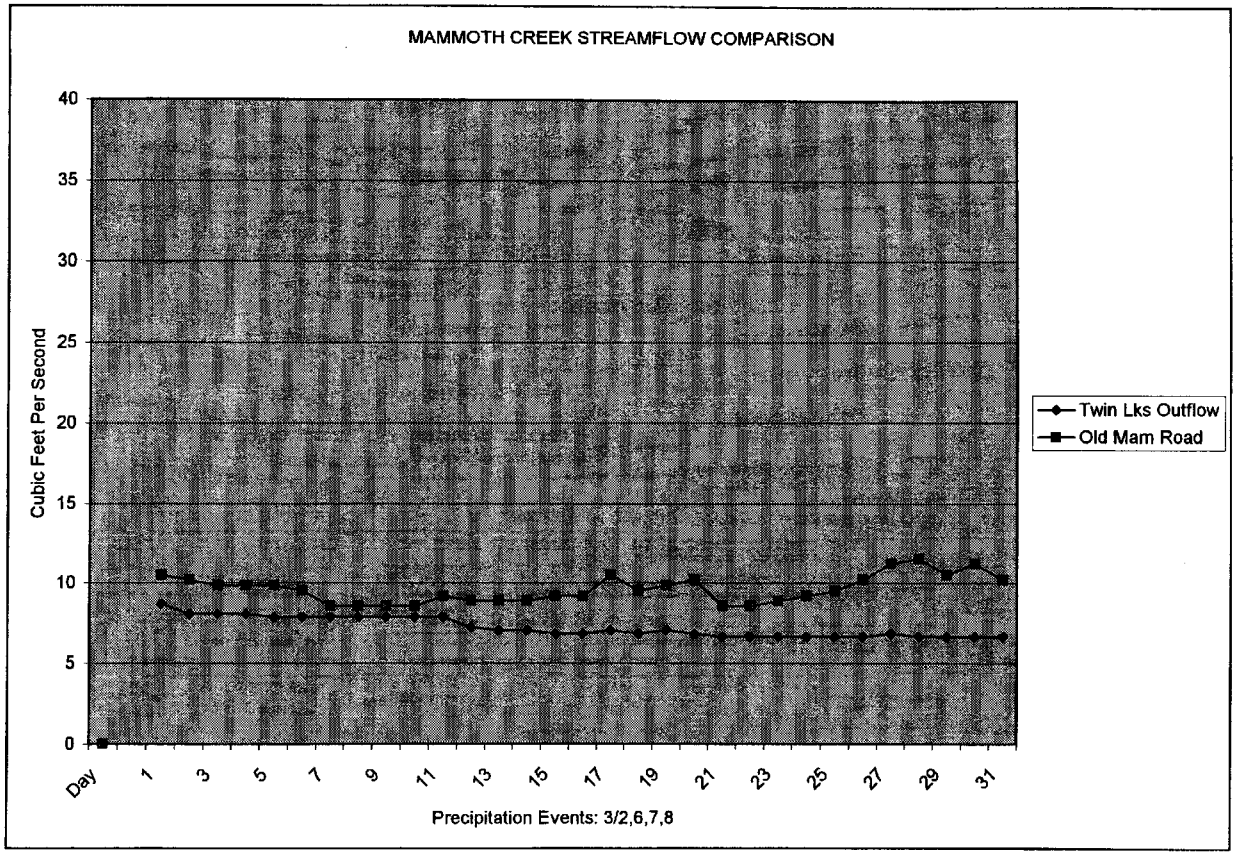
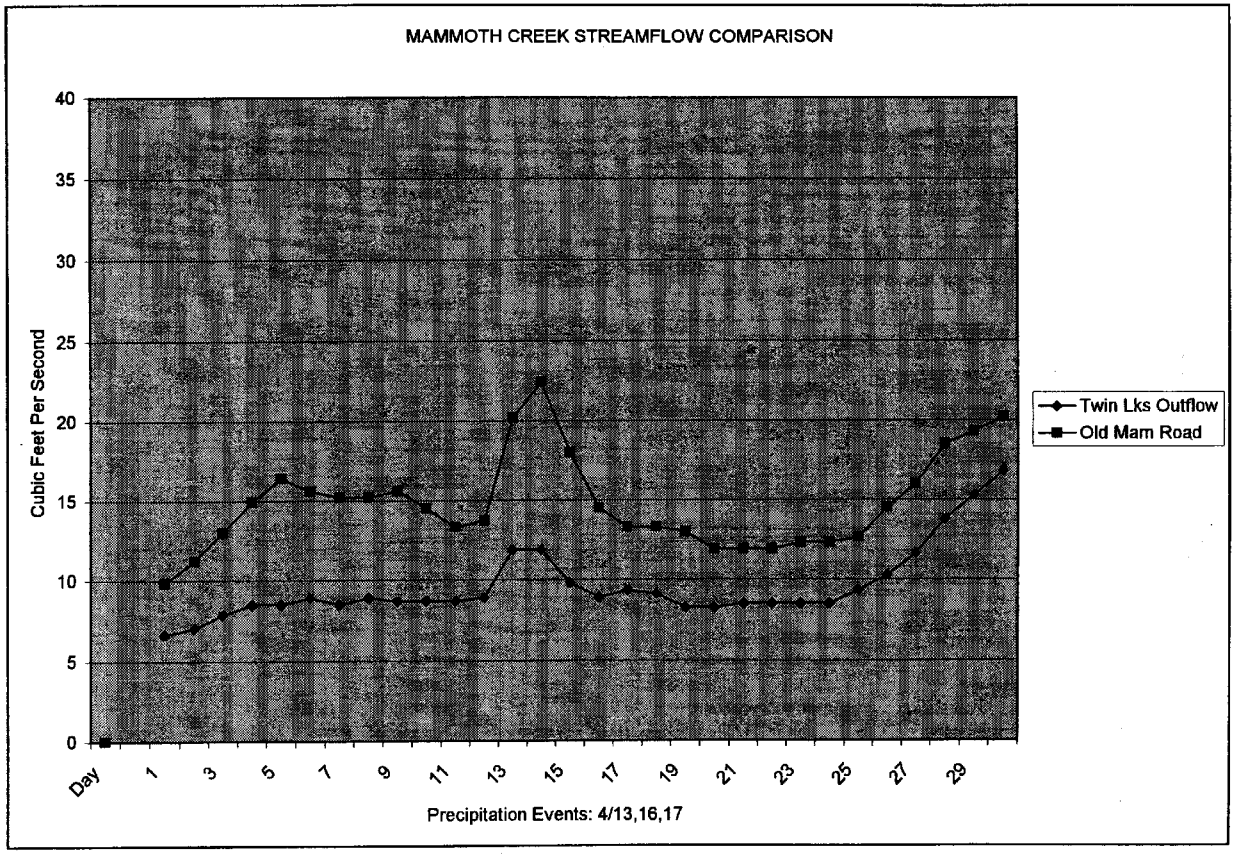


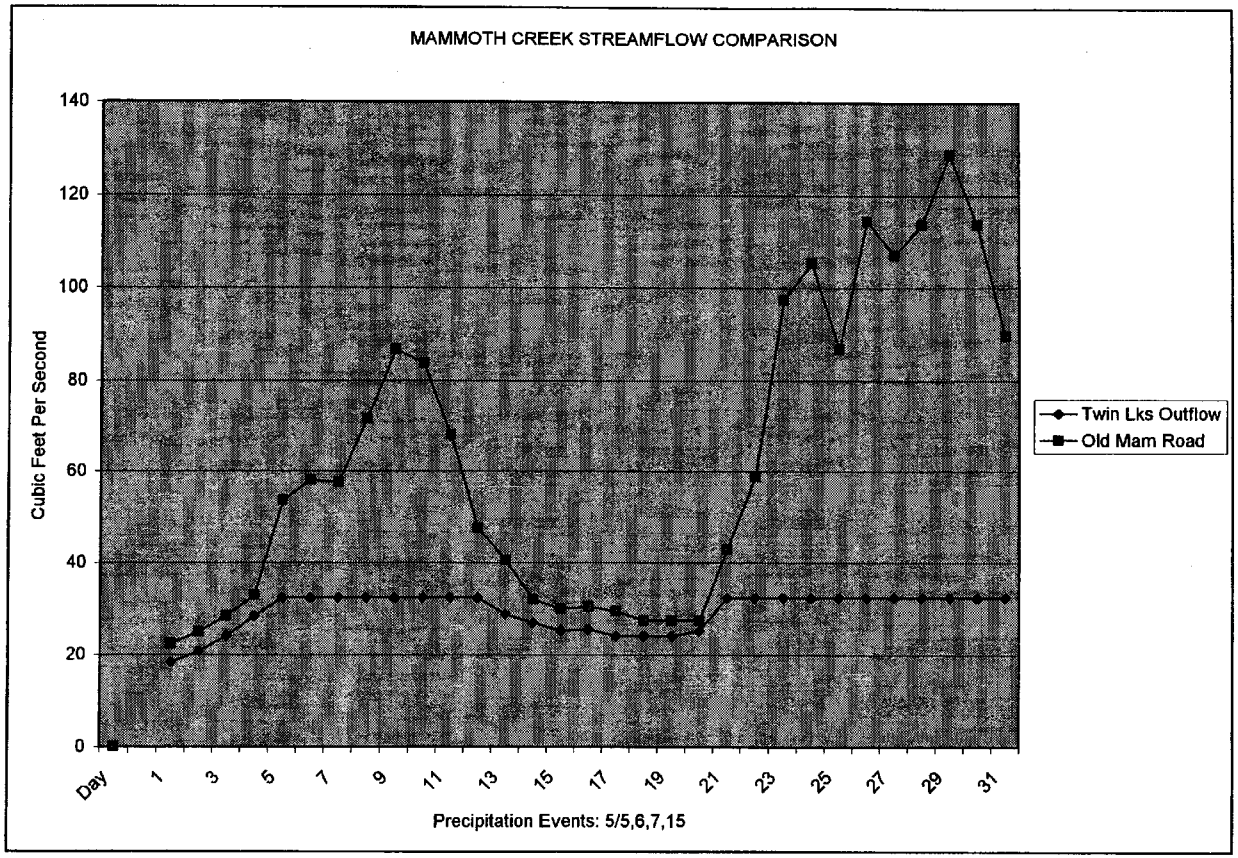
February 2000


MAMMOTH CREEK STREAMFLOW COMPARISON
Cubic Feet Per Second
40
35
30
25
20
15
10
5
0
Day
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
Twin Lks Outflow
Old Mam Road
Precipitation Events: 3/2,6,7,8

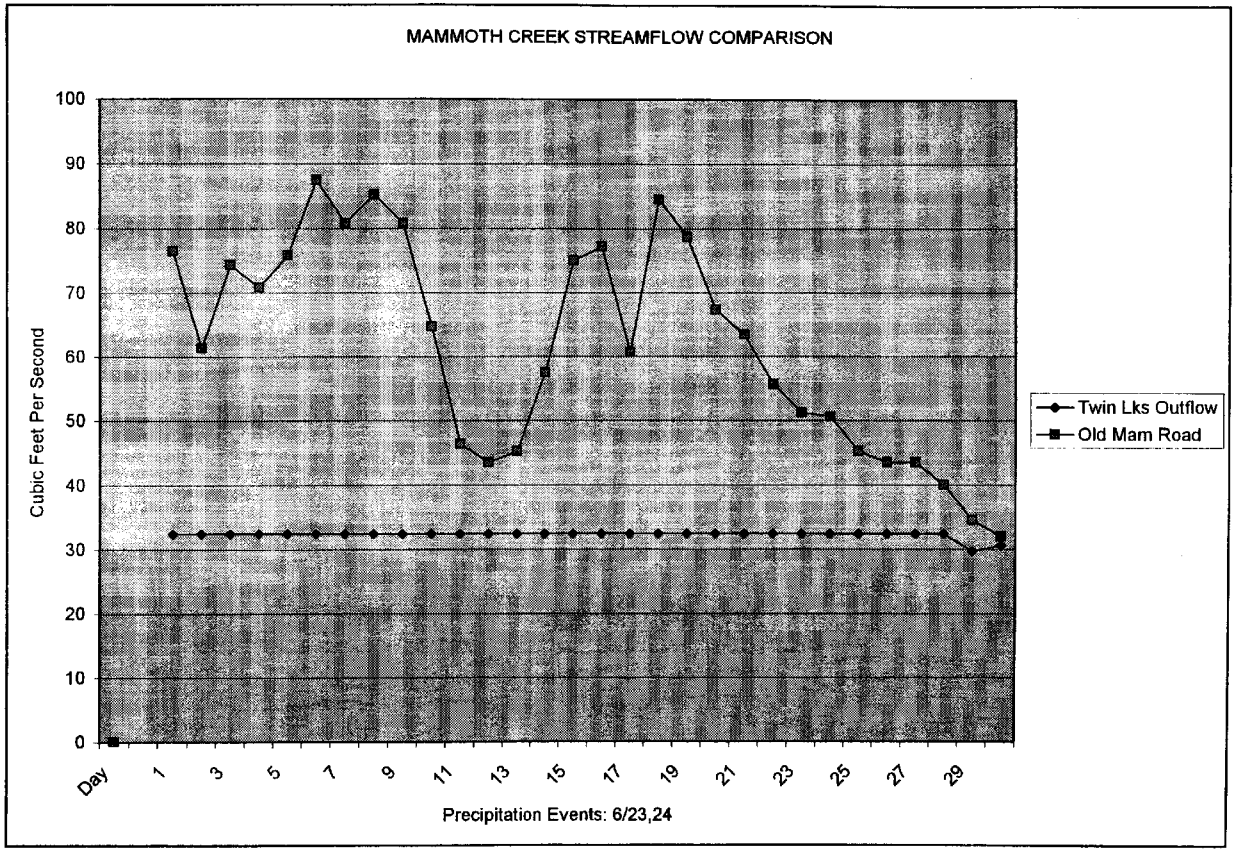
March 2000


MAMMOTH CREEK STREAMFLOW COMPARISON
Cubic Feet Per Second
40
35
30
25
20
15
10
5
0
Day
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
Precipitation Events: 4/13,16,17
Twin Lks Outflow
Old Mam Road

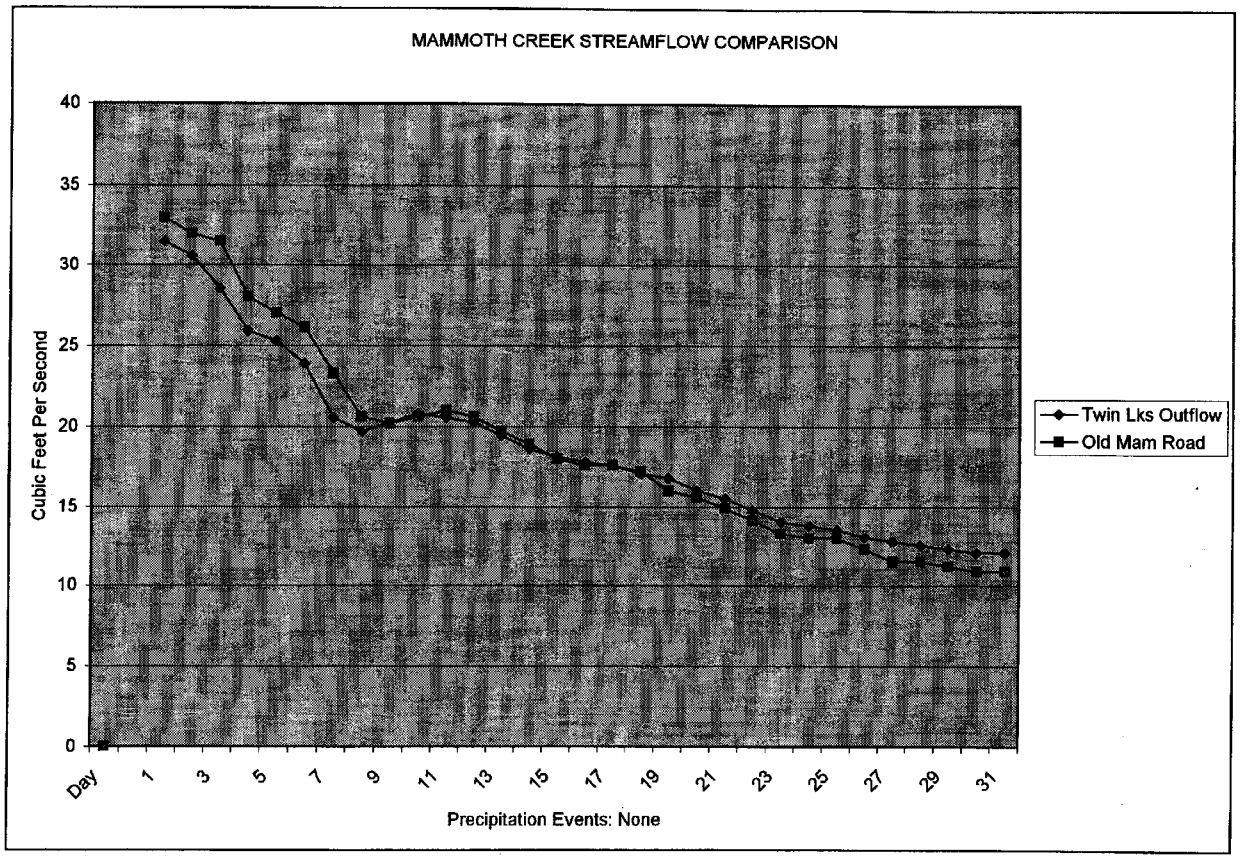
April 2000



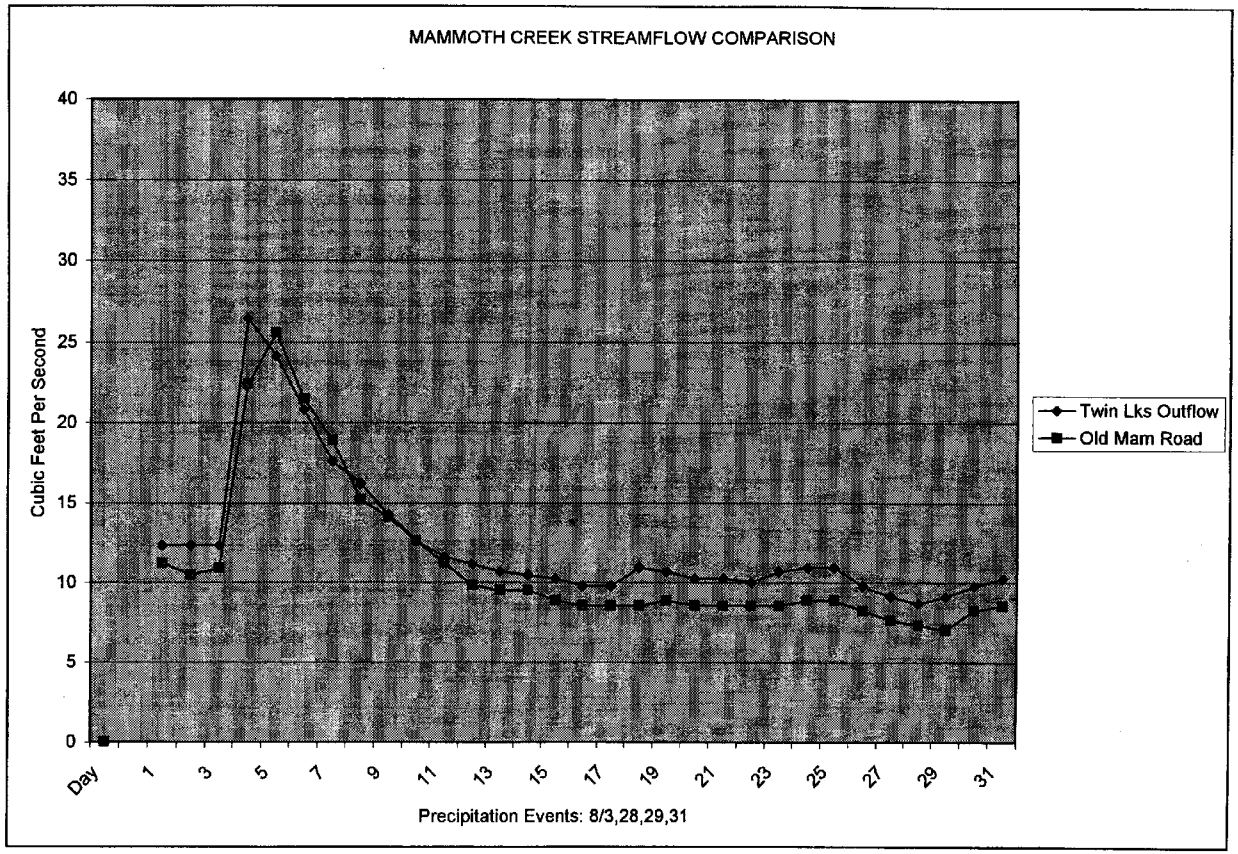
May 2000
Twin Lakes weir capacity at 32.42 cfs



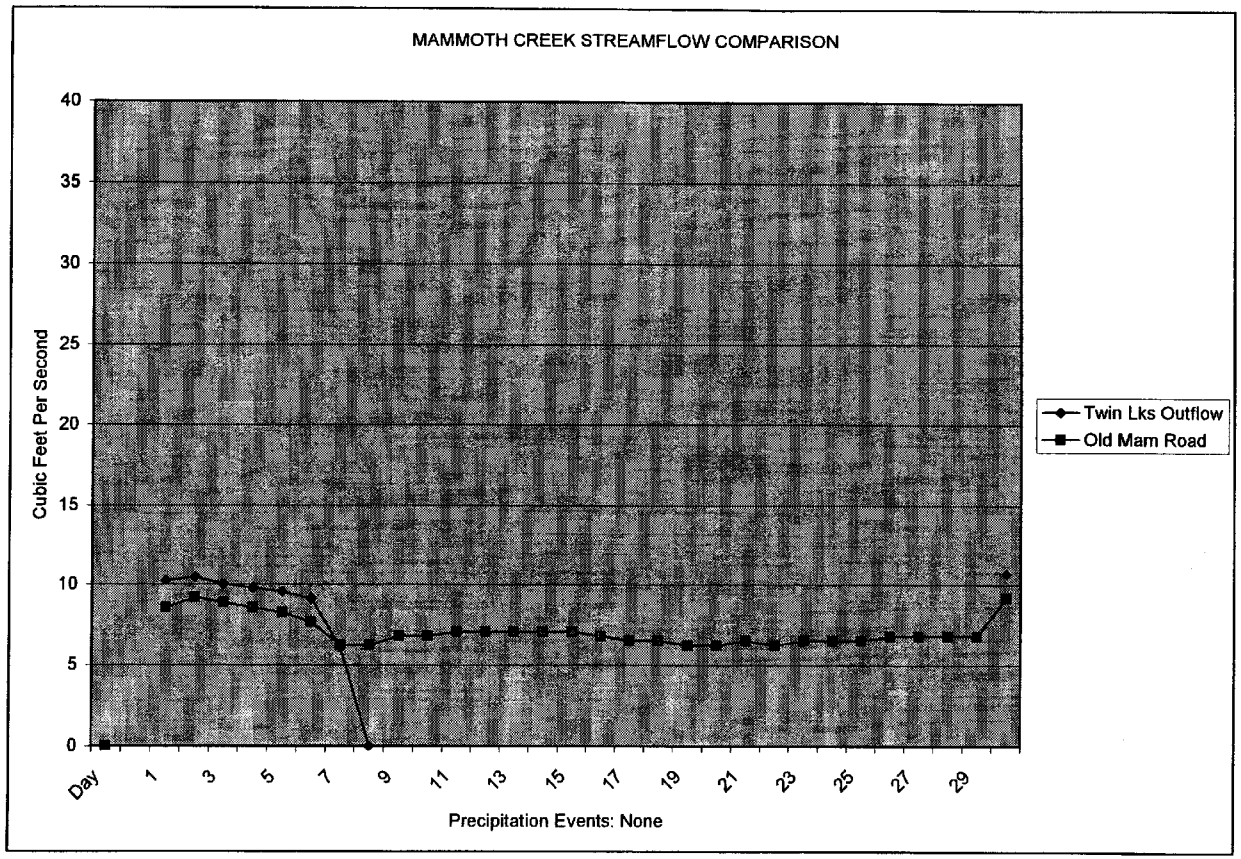
June 2000
Twin Lakes Weir Capacity at 32.42 cfs


MAMMOTH CREEK STREAMFLOW COMPARISON
Cubic Feet Per Second
40
35
30
25
20
15
10
5
0
Day
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
Precipitation Events: None
Twin Lks Outflow
Old Mam Road

July 2000


MAMMOTH CREEK STREAMFLOW COMPARISON
Cubic Feet Per Second
40
35
30
25
20
15
10
5
0
Day
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
Precipitation Events: 8/3,28,29,31
Twin Lks Outflow
Old Mam Road

August 2000



Note: Bridge reconstruction at Twin Lakes prevents flow measurement.

September 2000

APPENDIX G

VALENTINE RESERVE SPRINGFLOW

Valentine Reserve Spring Discharge
1999 - 2000

Date	Time	Flow (gpm) 24 Hr Avg
30-Dec	14:00	45.9
31-Dec	14:00	45.4
1-Jan	14:00	34.3
2-Jan	14:00	45.8
3-Jan	14:00	45.6
4-Jan	14:00	44.9
5-Jan	14:00	45.7
6-Jan	14:00	45.3
7-Jan	14:00	45.5
8-Jan	14:00	33.2
9-Jan	14:00	43.3

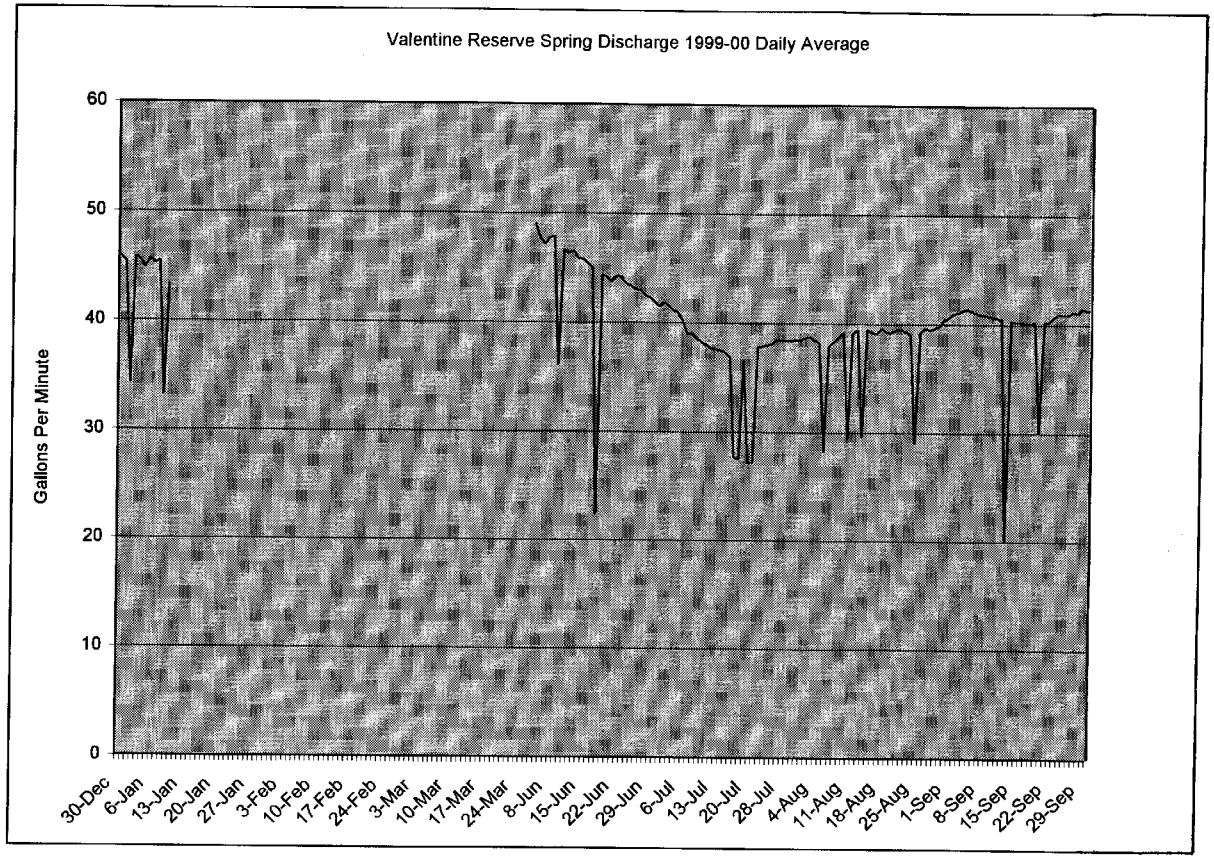
Date		Time	Flow (gpm) 24 Hr Avg
4-Jun	2000	23:59	49.1
5-Jun		23:59	47.7
6-Jun		23:59	47.2
7-Jun		23:59	47.8
8-Jun		23:59	47.9

Valentine Reserve Spring Discharge
1999 - 2000

Date		Time	Flow (gpm) 24 Hr Avg		Date		Time	Flow (gpm) 24 Hr Avg
9-Jun	2000	23:59	36.1		27-Jul	2000	23:59	38.4
10-Jun		23:59	46.7		28-Jul		23:59	38.4
11-Jun		23:59	46.4		29-Jul		23:59	38.4
12-Jun		23:59	46.6		30-Jul		23:59	38.5
13-Jun		23:59	45.9		31-Jul		23:59	38.5
14-Jun		23:59	45.8					
15-Jun		23:59	45.4		1-Aug		23:59	38.7
16-Jun		23:59	45.1		2-Aug		23:59	38.8
17-Jun		23:59	22.4		3-Aug		23:59	38.5
18-Jun		23:59	44.4		4-Aug		23:59	38.2
19-Jun		23:59	44.2		5-Aug		23:59	28.2
20-Jun		23:59	43.8		6-Aug		23:59	37.9
21-Jun		23:59	44.3		7-Aug		23:59	38.3
22-Jun		23:59	44.2		8-Aug		23:59	38.7
23-Jun		23:59	43.6		9-Aug		23:59	39.2
24-Jun		23:59	43.4		10-Aug		23:59	29.4
25-Jun		23:59	43.1		11-Aug		23:59	39.1
26-Jun		23:59	43		12-Aug		23:59	39.4
27-Jun		23:59	42.6		13-Aug		23:59	29.6
28-Jun		23:59	42.3		14-Aug		23:59	39.5
29-Jun		23:59	42		15-Aug		23:59	39.2
30-Jun		23:59	41.5		16-Aug		23:59	39.1
					17-Aug		23:59	39.6
1-Jul		23:59	41.9		18-Aug		23:59	39.3
2-Jul		23:59	41.6		19-Aug		23:59	39.2
3-Jul		23:59	41.2		20-Aug		23:59	39.5
4-Jul		23:59	41		21-Aug		23:59	39.5
5-Jul		23:59	40.2		22-Aug		23:59	39.3
6-Jul		23:59	39		23-Aug		23:59	39.1
7-Jul		23:59	39.1		24-Aug		23:59	29.1
8-Jul		23:59	38.6		25-Aug		23:59	39.2
9-Jul		23:59	38.3		26-Aug		23:59	39.6
10-Jul		23:59	38		27-Aug		23:59	39.5
11-Jul		23:59	37.7		28-Aug		23:59	39.6
12-Jul		23:59	37.6		29-Aug		23:59	39.9
13-Jul		23:59	37.5		30-Aug		23:59	40.4
14-Jul		23:59	37.3		31-Aug		23:59	40.6
15-Jul		23:59	36.9					
16-Jul		23:59	27.7					
17-Jul		23:59	27.5					
18-Jul		23:59	36.6					
19-Jul		23:59	27.1					
20-Jul		23:59	27.2					
21-Jul		23:59	37.8					
22-Jul		23:59	37.9					
23-Jul		23:59	38					
24-Jul		23:59	38.1					
25-Jul		23:59	38.5					

Valentine Reserve Spring Discharge
1999 - 2000

Date		Time	Flow (gpm) 24 Hr Avg
1-Sep	2000	23:59	41
2-Sep		23:59	41.1
3-Sep		23:59	41.3
4-Sep		23:59	41.4
5-Sep		23:59	41.2
6-Sep		23:59	41
7-Sep		23:59	40.9
8-Sep		23:59	40.8
9-Sep		23:59	40.7
10-Sep		23:59	40.6
11-Sep		23:59	40.4
12-Sep		23:59	20.1
13-Sep		23:59	40.3
14-Sep		23:59	40.2
15-Sep		23:59	40.2
16-Sep		23:59	40.1
17-Sep		23:59	40.1
18-Sep		23:59	40.2
19-Sep		23:59	30.1
20-Sep		23:59	40.2
21-Sep		23:59	40.2
22-Sep		23:59	40.7
23-Sep		23:59	41
24-Sep		23:59	40.9
25-Sep		23:59	40.9
26-Sep		23:59	41.2
27-Sep		23:59	41.1
28-Sep		23:59	41.5
29-Sep		23:59	41.3
30-Sep		23:59	41.4


Valentine Reserve Spring Discharge 1999-00 Daily Average
Gallons Per Minute
60
50
40
30
20
10
0
30-Dec
6-Jan
13-Jan
20-Jan
27-Jan
3-Feb
10-Feb
17-Feb
24-Feb
3-Mar
10-Mar
17-Mar
24-Mar
8-Jun
15-Jun
22-Jun
29-Jun
6-Jul
13-Jul
20-Jul
28-Jul
4-Aug
11-Aug
18-Aug
25-Aug
1-Sep
8-Sep
15-Sep
22-Sep
29-Sep