TECHNICAL REPORT ON 2012-14 HYDROGEOLOGIC EVALUATION FOR SIERRA VALLEY

Prepared for
Sierra Valley Groundwater Management District
Sierraville, California

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August 11, 2015

Ms. Juliana Walsh
Sierra Valley Groundwater
Management District
P.O. Box 102
Sierra Valley, California 96126

Re: 2012-14 Hydrogeologic Evaluation

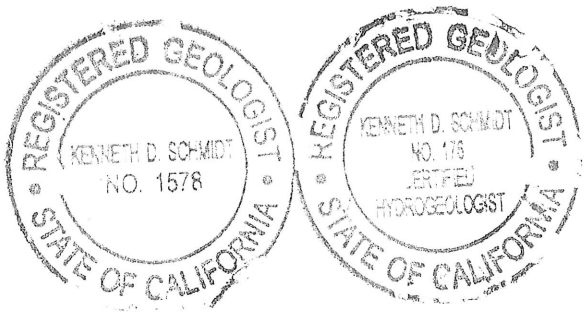
Dear Juliana:

Submitted herewith is our report on the 2012-14 groundwater evaluation in Sierra Valley. We appreciate the cooperation of the Groundwater Management District and the Northern District of the California Department of Water Resources in supplying information for this report.

Sincerely yours,

Kenneth D. Schmidt
Geologist No. 1578
Certified Hydrogeologist
No. 176

KDS/td



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INTRODUCTION

The California Department of Water Resources (1963 and 1983a and b) described groundwater conditions in Sierra Valley. The California Department of Water Resources (DWR), Northern District, subsequently prepared eight annual updates on groundwater conditions in the Sierra Valley Basin, extending through Spring 1991. Kenneth D. Schmidt and Associates prepared a triennial update extending through Spring 1994, a quadrennial update extending through Spring 1998, a five-year update extending through Spring 2003, a two year update extending through Spring 2005, and a six-year update extending through Spring 2011. As of 2014, pumpage from 43 active wells was measured with flowmeters by the Sierra Valley Groundwater Management District. As of 2015, water levels were measured in 45 wells in the main part of Sierra Valley and in seven wells in the Chilcoot sub-basin, in the northeast part of the valley, by the DWR. This update covers the period from Spring 2012 to Spring 2015.

WATER-LEVEL ELEVATION CONTOURS

Appendix A contains water-level data for Spring 2012 through Spring 2015 from the DWR CASGEM website. These data are for wells in Sierra Valley that are measured twice a year by DWR. Figure 1 shows water-level elevation contours and the direction

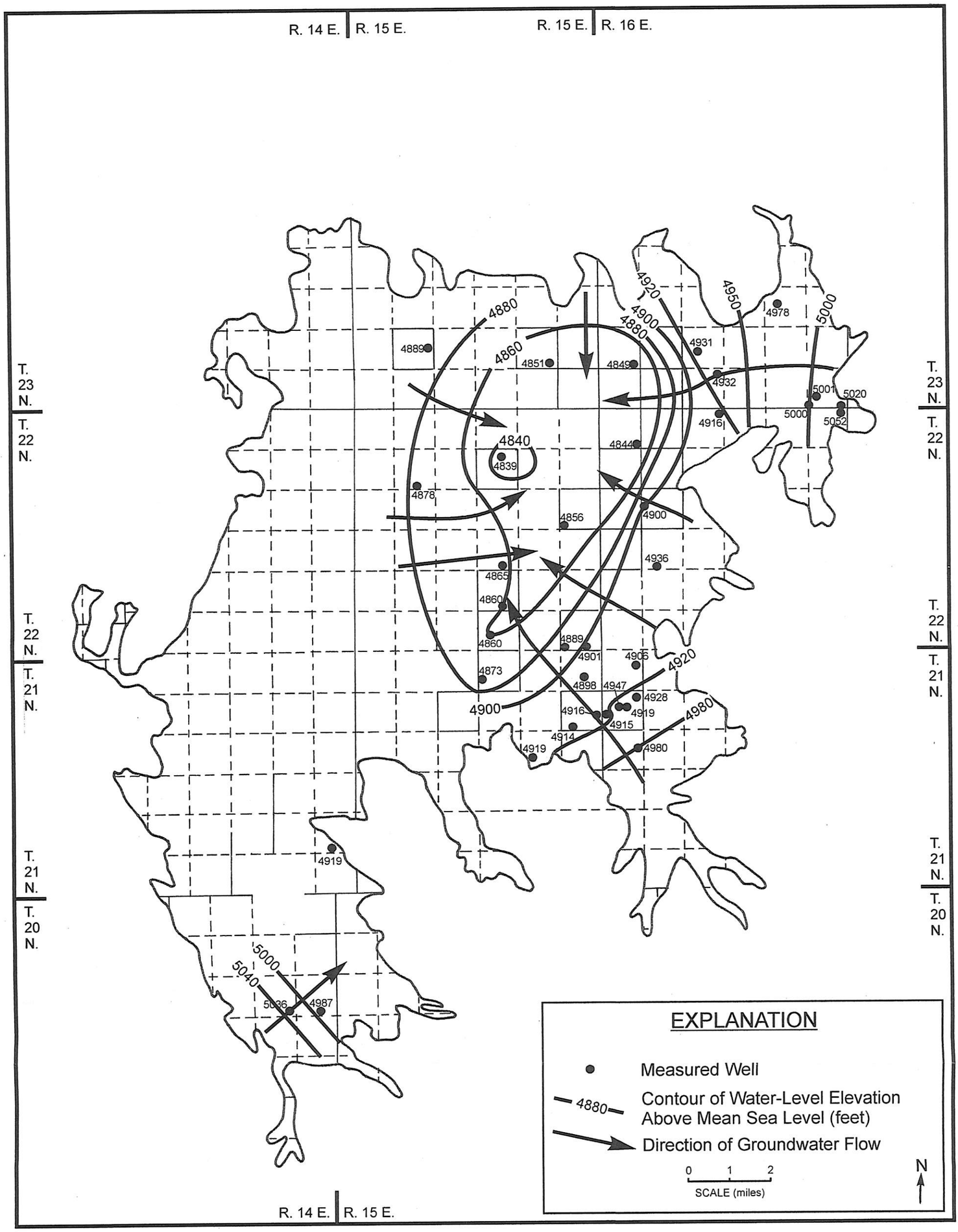


FIGURE 1 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW IN SPRING 2012

of groundwater flow for Spring 2012. Water-level elevations at that time were greater then 4,980 feet above mean sea level southeast of Loyalton in Sierra Brooks, about 5,000 feet near Sierraville, and about 5,050 feet east of Chilcoot. Water-level elevations were less than 4,880 feet in a large pumping depression located north of Loyalton and west and southwest of Vinton. In Spring 2012, there appeared to be little groundwater outflow from Sierra Valley in the primary pumped zone because of this depression. This map represents conditions after a year of high pumpage in 2010 and relatively moderate pumpage in 2011.

Figure 2 shows water-level elevations and the direction of groundwater flow in Spring 2013. This map is very similar to the map for Spring 2012, except water-level elevations were lower in the large cone of depression in Spring 2013 than in Spring 2012. This map shows conditions after one year of relatively high pumpage. Figure 3 shows water-level elevations and the direction of groundwater flow in Spring 2014. This map is similar to the previous map, except that water levels were lower in the large cone of depression in 2014 than in 2013. This map shows conditions after two years of high pumping, including the greatest historical pumpage in 2013.

Figure 4 shows water-level elevation contours and the direction of groundwater flow for Spring 2015. Water-level elevation at that time were greater than 4,975 feet above mean sea level southeast of

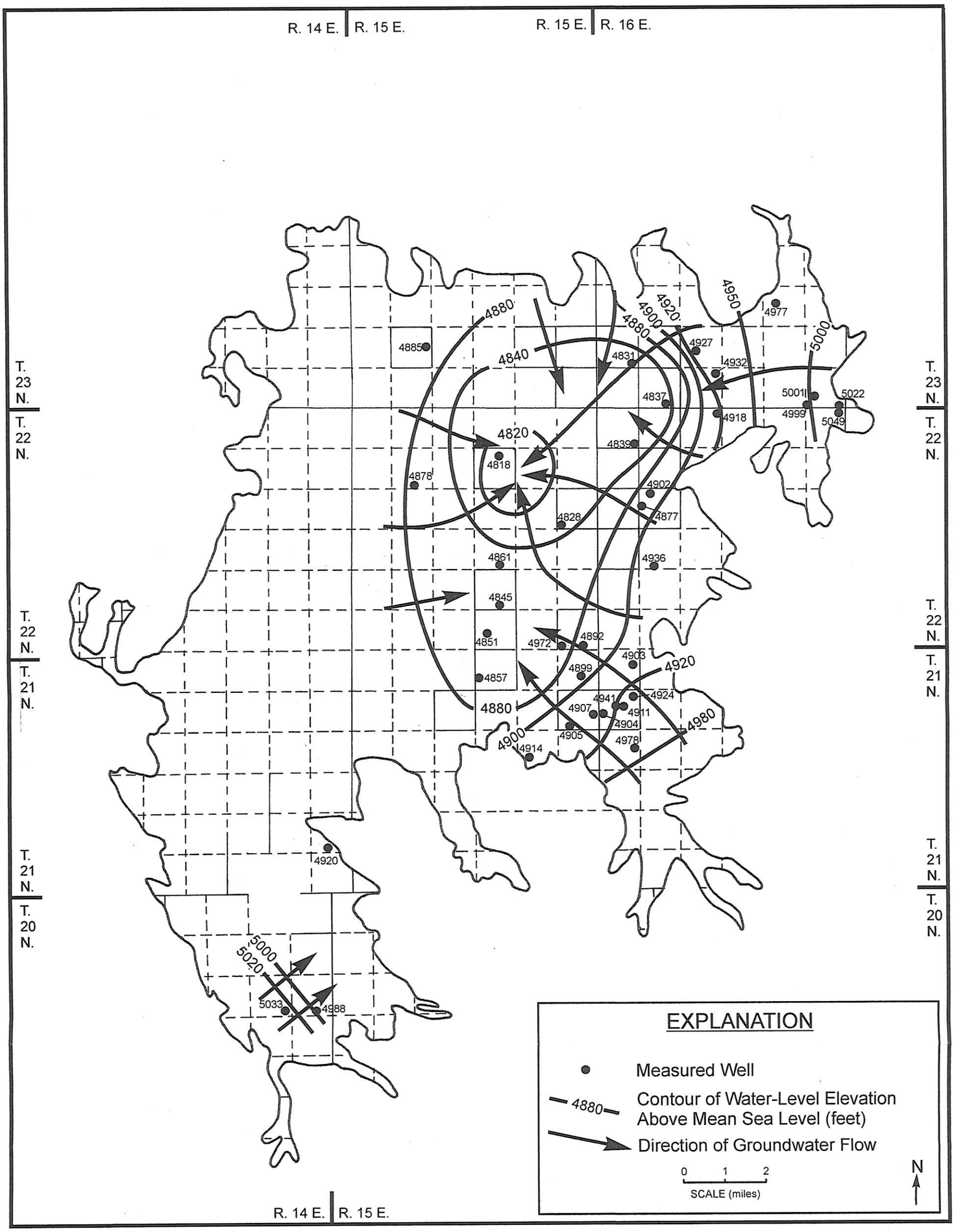


FIGURE 2 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW IN SPRING 2013

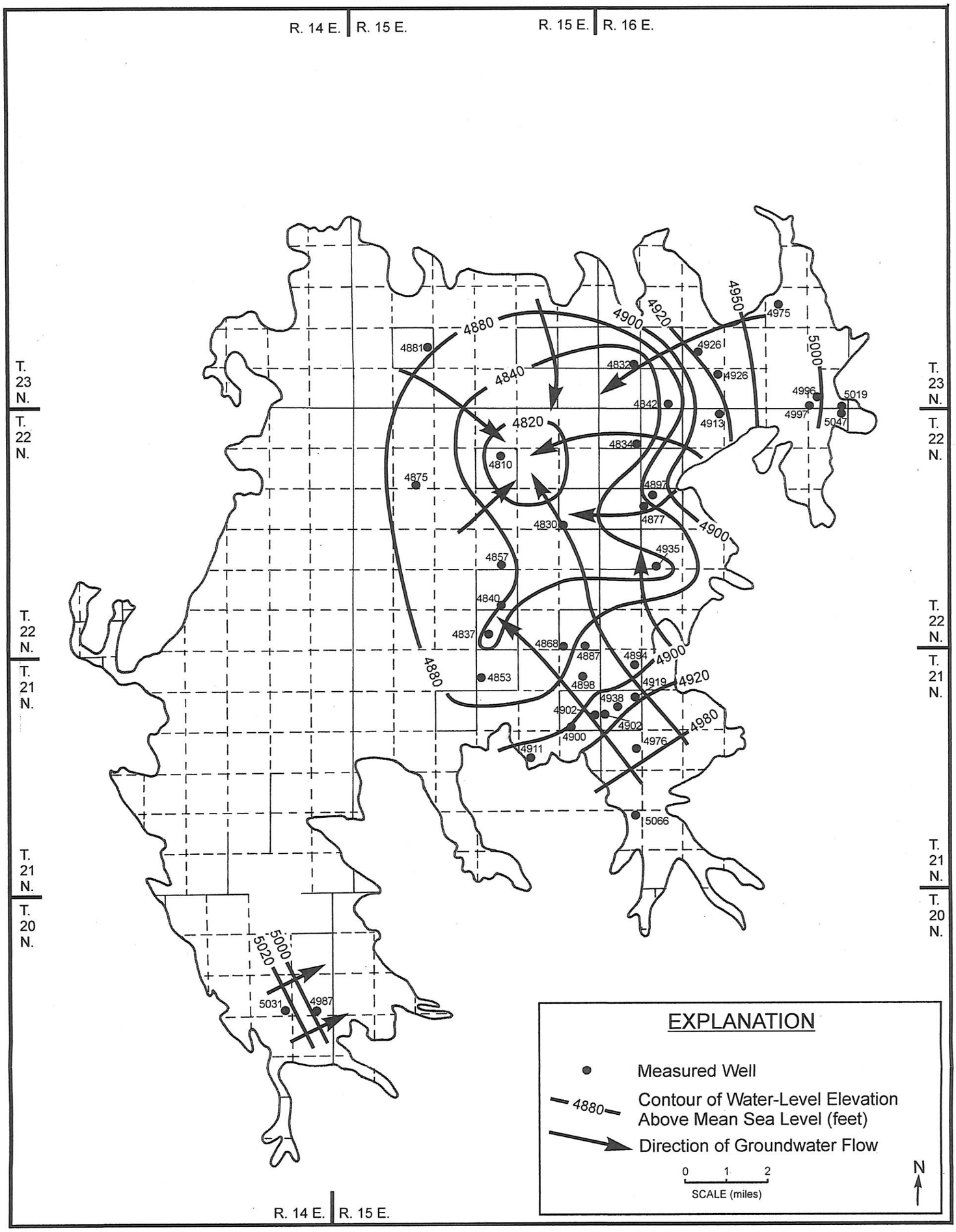


FIGURE 3 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW IN SPRING 2014

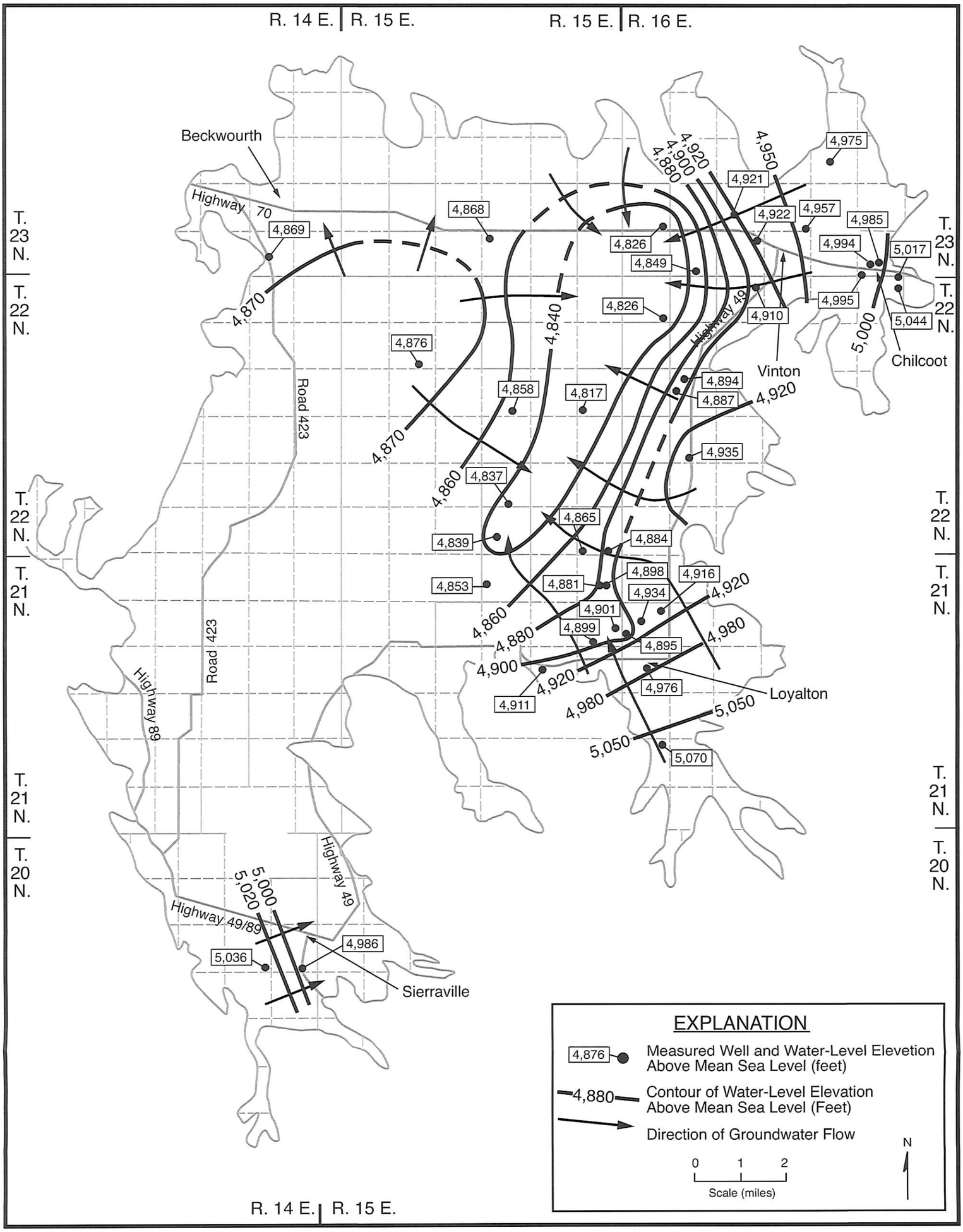


FIGURE 4 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW IN SPRING 2015

Loyalton in Sierra Brooks, about 5,000 feet near Sierraville, and about 5,040 feet east of Chilcoot. Water-level elevations were less than 4,830 feet in a large pumping depression located north of Loyalton and west and southwest of Vinton. In Spring 2015, there appeared to be little groundwater outflow from Sierra Valley in the primary pumped zone because of this depression. This map represents conditions after two consecutive years of the highest historical pumpage in the valley (2013 and 2014).

WATER-LEVEL CHANGES

Figure 5 shows changes in water levels between Spring 2005 and Spring 2015. Water levels were lower in all of the wells measured in the valley in Spring 2015 than in Spring 2005. Water levels in four wells in the Vinton area and to the west fell from 9 to 26 feet during this period. In the Chilcoot subarea, water levels in the measured wells were three to five feet deeper in Spring 2015 than in Spring 2005. Water levels in nine wells in the Loyalton subarea were 13 to 19 feet deeper in Spring 2015 than in Spring 2005. The water levels in two wells near Sierraville were from two to three feet lower in Spring 2015 than in Spring 2005.

WATER-LEVEL HYDROGRAPHS

Monitor Wells

Water-level measurements for District monitor wells and other

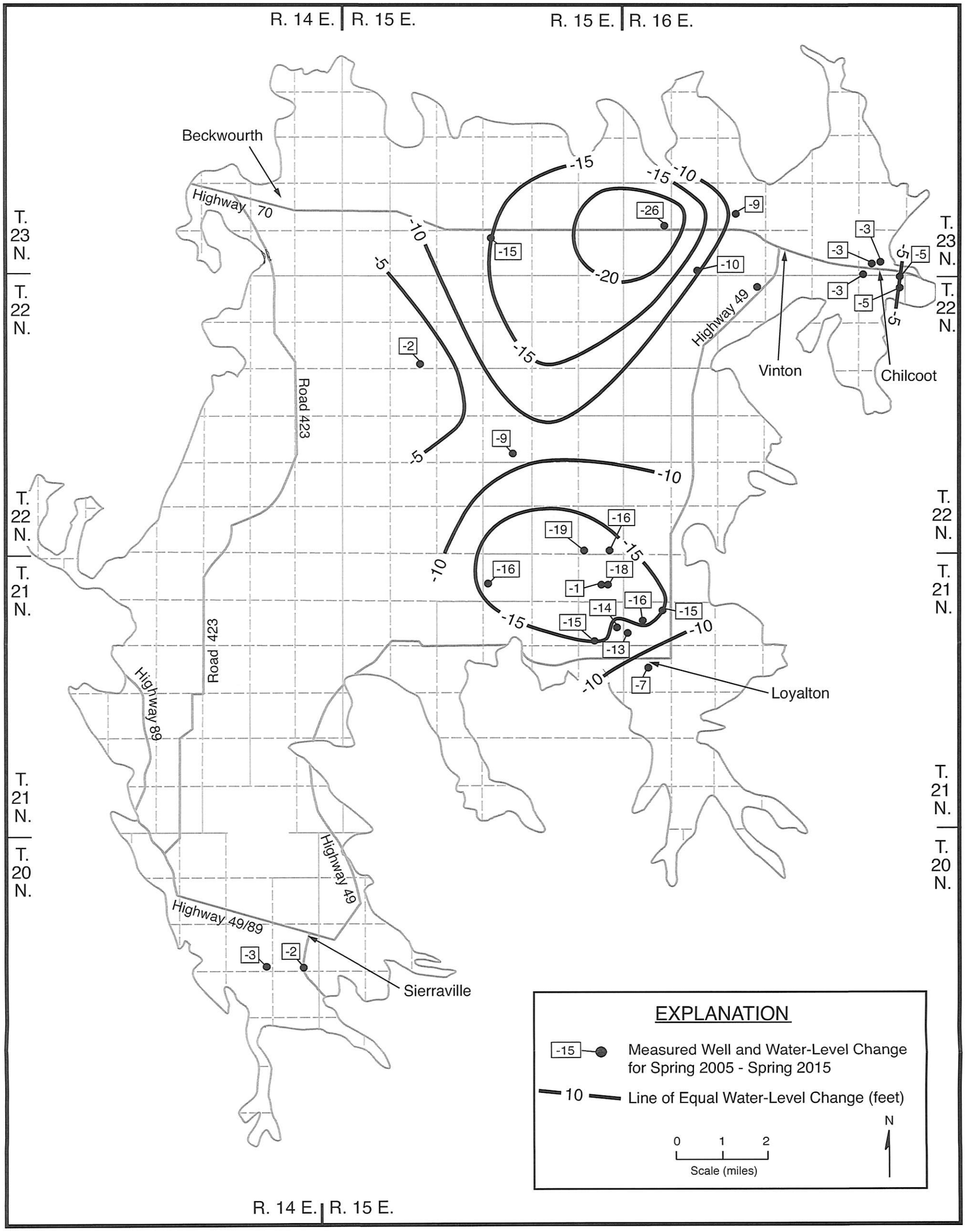


FIGURE 5 - WATER-LEVEL CHANGE MAP FOR SPRING 2005 TO SPRING 2015

frequently measured wells are provided in Appendix B. There are six sets of monitor wells. Water levels were formerly frequently measured in a number of District monitor wells and other wells, but this program was discontinued in the mid 2005. The program was resumed during June-December 2011. Water levels in MW-1s and 1d (north of Loyalton) fell from 1996 through Spring 2005. In 2011, water levels were slightly lower than in Spring 2005. Measurements for MW-1d show much more seasonal fluctuations, characteristic of confined groundwater. Spring water levels in this well fell between 1996 and 2004. Water levels in MW-1d were lower in 2011 than during 1996-2004. The water levels in MW-2 (all three completions) generally rose or were stable from Fall 2002 through Spring 2007. MW-2 is located several miles northwest of Sierraville. Water levels at this site were about the same in 2011, but were falling during the year due to the low precipitation. Water levels in MW-3 (all three completions) were relatively stable from Fall 2002 through Spring 2007, and each completion clearly showed a marked response to summer pumping in 2003 and 2004. The water levels at this site were about the same in 2011 as previously, and indicated no overall decline. MW-3 is located northeast of Sattley. The water levels in MW-4 (all three completions) were relatively stable between Fall 2002 and Spring 2007. Summer declines were evident in 2003, 2004, and 2005. Water levels in 2011 were about the same as previously and showed no overall decline. Water levels in MW-5 (all three

completions) were stable or rose between October 2004 and Spring 2009. MW-5 is located near Chilcoot. The water levels at MW-5 slightly fell during 2011 due to the low precipitation. Water levels in MW-6 (two completions) also rose or were relatively stable between Fall 2004 and Spring 2009. MW-6 is located east of Beckwourth. Temporary summer declines were evident in 2005, 2007, 2008, and 2011. Water levels in these monitor wells were not frequently measured during 2012-13. Quarterly measurements in these wells were resumed in 2014.

Other Frequently Measured Wells

Four wells near the Grizzly Ranch project have been frequently measured. The water level in the easternmost of these (W-3) feel from 57.6 feet in June 1996 to 110.5 feet in February 2001. In 2011, depth to water in W-3 ranged from 102 to 114 feet. Water levels in the next most easterly well (W-2) fell from 34.7 feet in May 1997 to 73.1 feet in March 2001. In 2011, the water level in W-2 ranged from 75.0 to 78.3 feet deep. The water level in W-4 fell from flowing prior to October 1998 to 18.6 feet deep in September 2007. Measurements for 2011 aren't available for this well. The water level in W-8 fell from 7.6 feet in June 2000 to 15.5 feet in November 2002. The water level then rose to a depth of 8.1 feet in April 2003, and then fell to 17.0 feet in September 2004. The water level in this well has risen since September 2004, and was the shallowest of record

(3 feet deep) in 2011. No records for these wells after 2011 were provided.

Long-Term Trends

In previous groundwater updates, long-term water-level hydrographs were discussed for four wells in the main part of the valley and two wells in the Chilcoot Sub-basin. The wells in the main part of the valley were:

T22N/R15E-22Q1 (northwest of Loyalton)
T22N/R15E-36N1 (north of Loyalton)
T22N/R16E-17C1 (southwest of Vinton)
T22N/R16E-4A1 (southwest of Vinton).

Fairly continuous water-level records are available for 29 other wells in the valley, extending from at least about 1980 to 2015. Most of these wells began to be measured by DWR as part of Sierra Valley Groundwater Management District activities. Long-term water-level hydrographs for these wells are provided in Appendix C.

Vinton Subarea

Figure 6 shows long-term water-level hydrographs for two wells southwest of Vinton: T22N/R16E-4A1 and 17C1. Well 4A1 is reportedly 251 feet deep. The well was flowing prior to 1979. The water level in this well was relatively stable and showed small seasonal fluctuations prior to 1979. The water level then began to decline after 1978, and reached a depth of about 25 feet in Fall 1991-92. After 1992, the water level recovered through Spring 1999

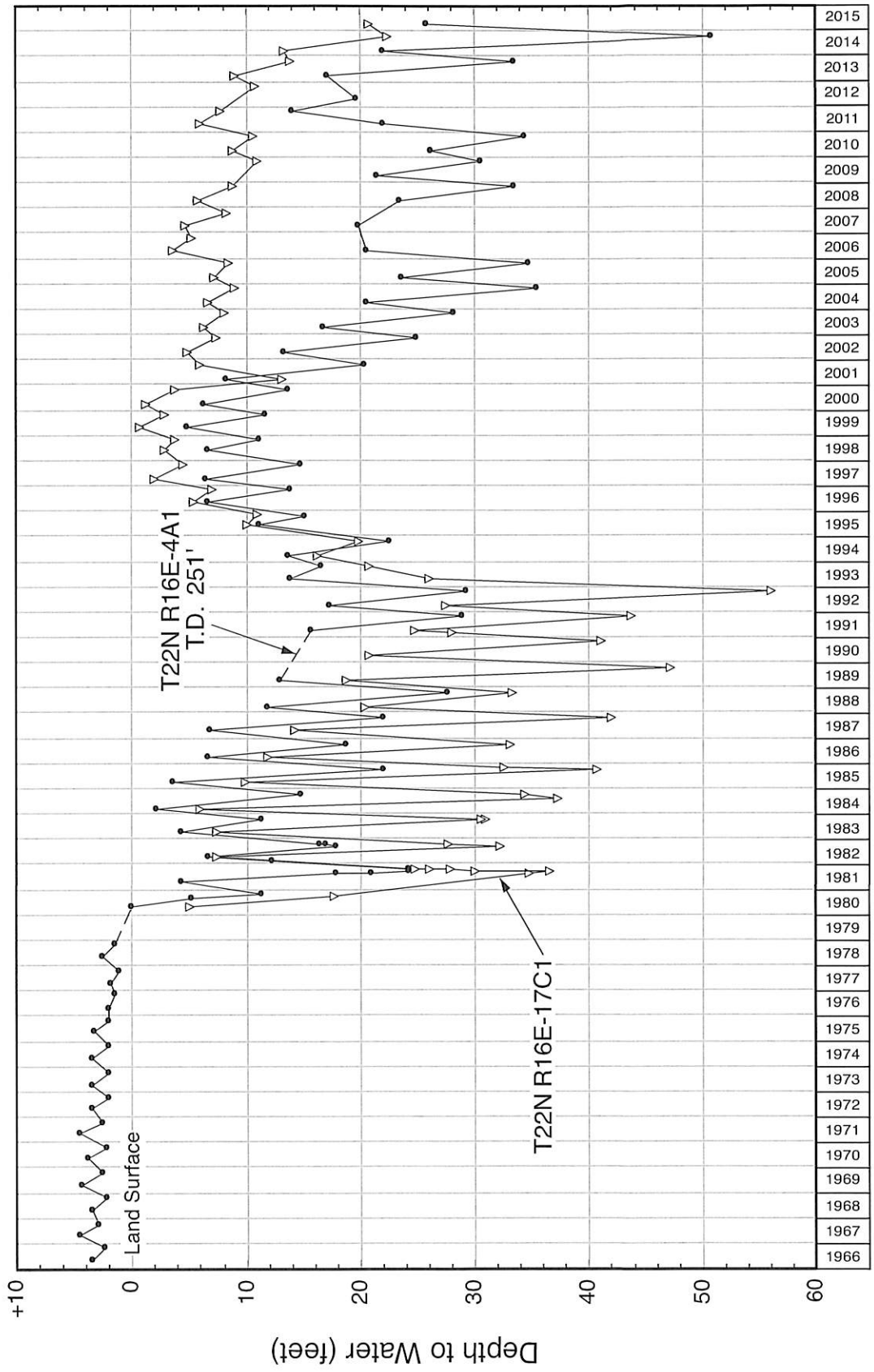


FIGURE 6 - WATER-LEVEL HYDROGRAPHS FOR VINTON AREA

(to about five feet deep). After Spring 1999, the water level fell to about 35 feet by Fall 2004. By Fall 2004, depth to water in Well 4A1 was the deepest of record as of that time. Between Spring 2005 and 2012, the spring water levels have ranged from about 14 to 26 feet deep. Water levels fell about nine feet between Spring 2013 and Spring 2015. In Fall 2014, the water level was the deepest of record. These water-level trends have been directly related to pumping patterns.

Well 17C1 is also termed the Dyson Lane recorder, and has been equipped with a continuous water-level recorder since 1981. This well is indicated to be about 100 feet deep. The well was originally perforated from 73 to 184 feet, but was sanded in to a depth of about 100 feet as of Fall 1980. The water level in this well has also responded highly to pumping of nearby irrigation wells, primarily to the north. Water-level records started in 1980, when depth to water was about five feet (Figure 6). Water levels fell from 1980 through 1993. The deepest water level in this well was about 56 feet in Fall 1992. By April 1999, the water level in Well 17C1 had recovered to a depth of about one foot. By Spring of 2005, the depth to water was about nine feet. During 2005-11, spring water levels in this well ranged from four to nine feet deep and were relatively stable. The spring water levels in Well 17C1 fell about 13 feet between Spring 2013 and Spring 2015.

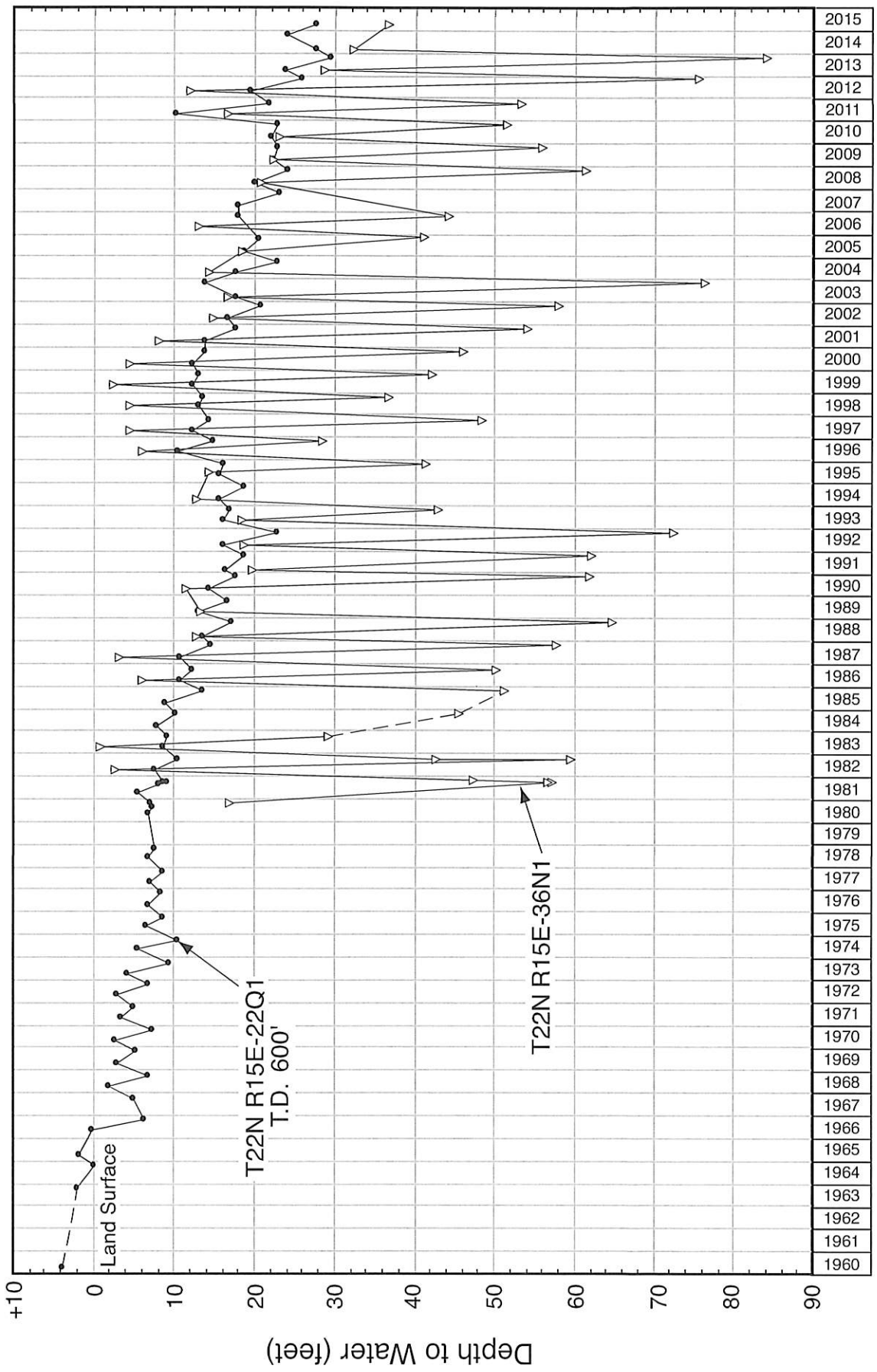


FIGURE 7 - WATER-LEVEL HYDROGRAPHS FOR LOYALTON AREA

Loyalton Subarea

Figure 7 shows long-term water level hydrographs for two wells in the Loyalton area: T22N/R15E-22Q1 and 36N1. Well 22Q1 is reportedly about 600 feet deep, and was flowing prior to 1966. The water level then declined slightly through 1981, and more sharply through Fall 1992 (23 feet deep). The water level in this well then recovered to 10 feet deep by Spring 1996. The water level in Well 22Q1 was relatively stable through early 2000, then fell to a depth of 23 feet by Fall 2005. Spring measurements for 2005 to 2010 indicated depth to water ranging from about 18 to 22 feet, and relatively stable water levels. The water level fell about eight feet between Spring 2012 and Spring 2015, and was the deepest of record (about 30 feet deep) in Fall 2013. The water-level trend in this well is related to pumping patterns of wells in the Loyalton subarea. The small seasonal fluctuations in this well are more typical of the shallow zone.

Well 36N1 is perforated from 268 to 792 feet in depth. The water level in Well 36N1 was near the land surface prior to 1986, then gradually declined to a depth of 62 feet in Fall 1992. From Fall 1992 through Spring 1996, the water level in this well rose to a depth of 7 feet in Spring 1996. The water level in this well was relatively stable from Spring 1991 through Spring 2000, then fell to a depth of 77 feet in Fall 2005. This was the deepest water level of record for this well at that time. Spring measurements for 2012-15 indicate depth to water ranging from about 29 to 37 feet, the deepest of record.

Fall water-level measurements ranged from about 76 to 84 feet during 2012-13, and the latter value was the deepest of record. The water level in this well also responded primarily to pumping in the subarea. Seasonal water-level fluctuations in this well are representative of the deep zone in this subarea.

Chilcoot Subarea

Figure 8 shows water-level hydrographs for two wells in the Chilcoot subarea: T22N/R16E-1A2 and T23N/R16E-36N2. Both of these are shallow wells, tapping alluvial deposits. Water levels were the shallowest in the mid 1980's, during and following years of high precipitation, and were lowest in later 1992, following years of very low precipitation. By Fall 2004, water levels in both wells were the shallowest of record. Spring measurements for Well 1A2 indicate depth to water ranging from 39 to 50 feet and declining water levels since Spring 2011. Spring measurements for Well 36N2 also indicated declining levels since Spring 2011. Water levels in these wells respond primarily to precipitation patterns and recharge, as there are no large-capacity wells in the subarea. Precipitation records were discontinued for the Vinton Station in late 2003.

PUMPAGE

Figures 9, 10 and 11 show the distribution of the metered pumpage in the valley by section for 2012, 2013, and 2014, respectively. The

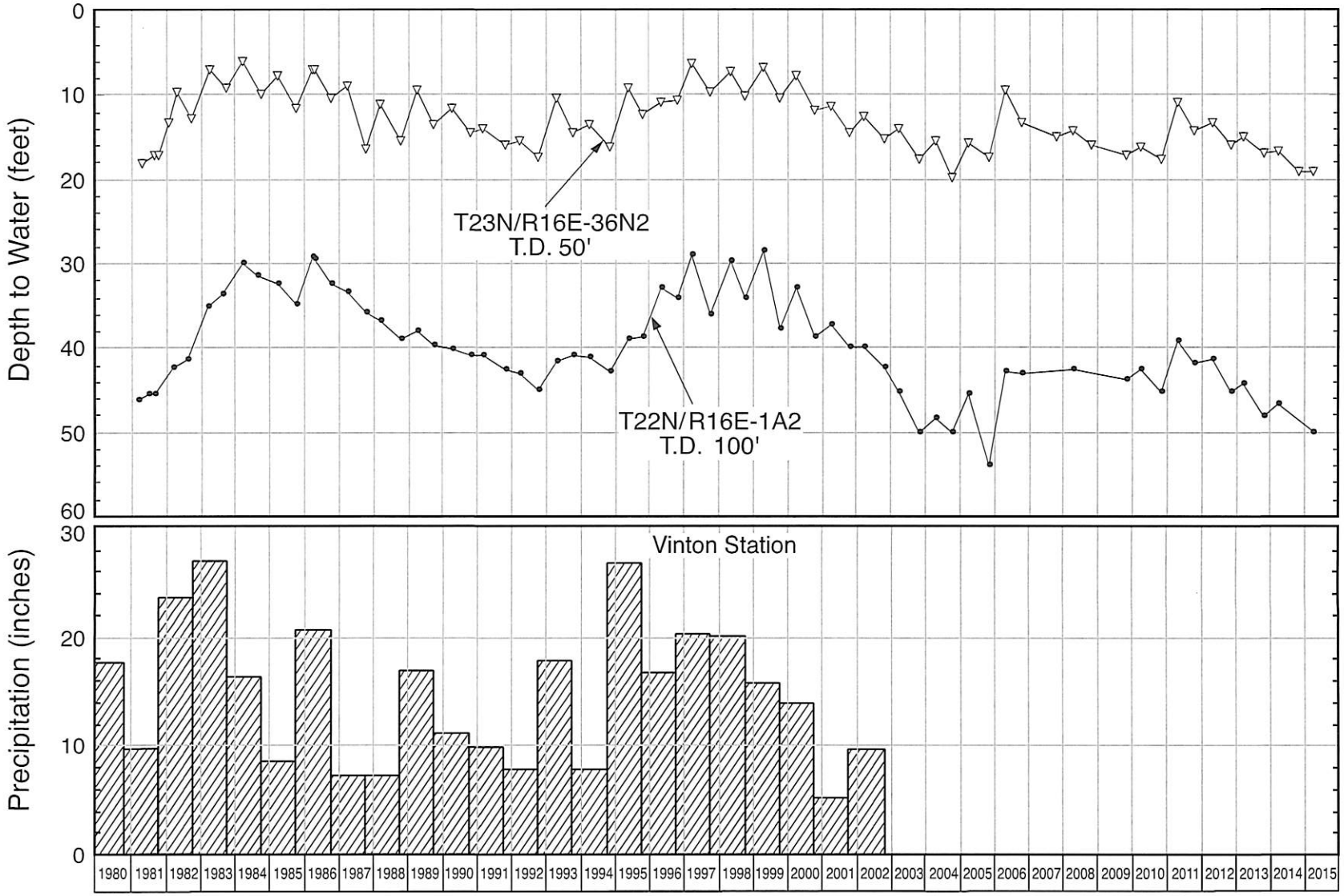


FIGURE 8 - WATER-LEVEL HYDROGRAPHS AND PRECIPITATION FOR CHILCOOT SUB-BASIN

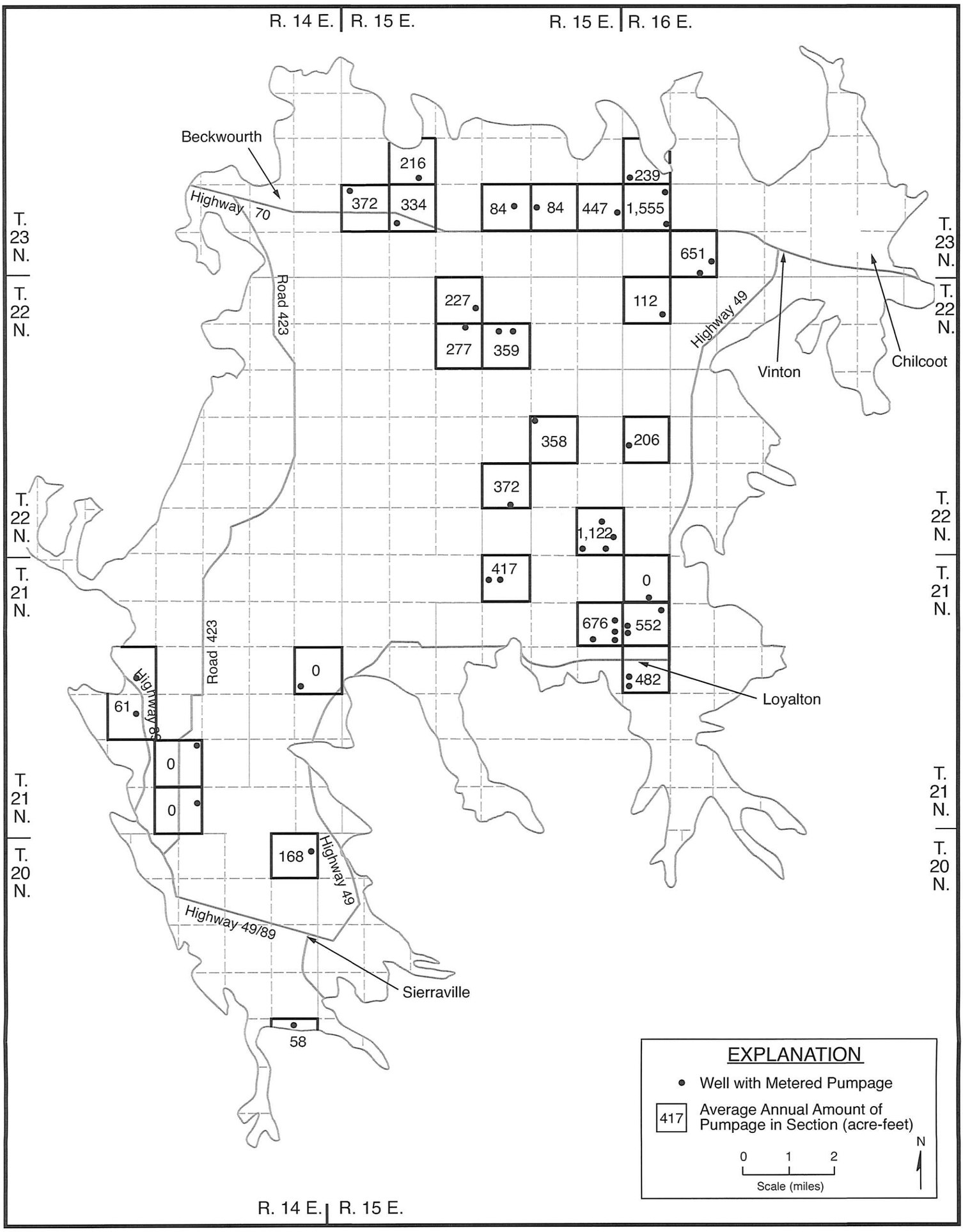


FIGURE 9 - ANNUAL METERED GROUNDWATER PUMPAGE FOR 2012

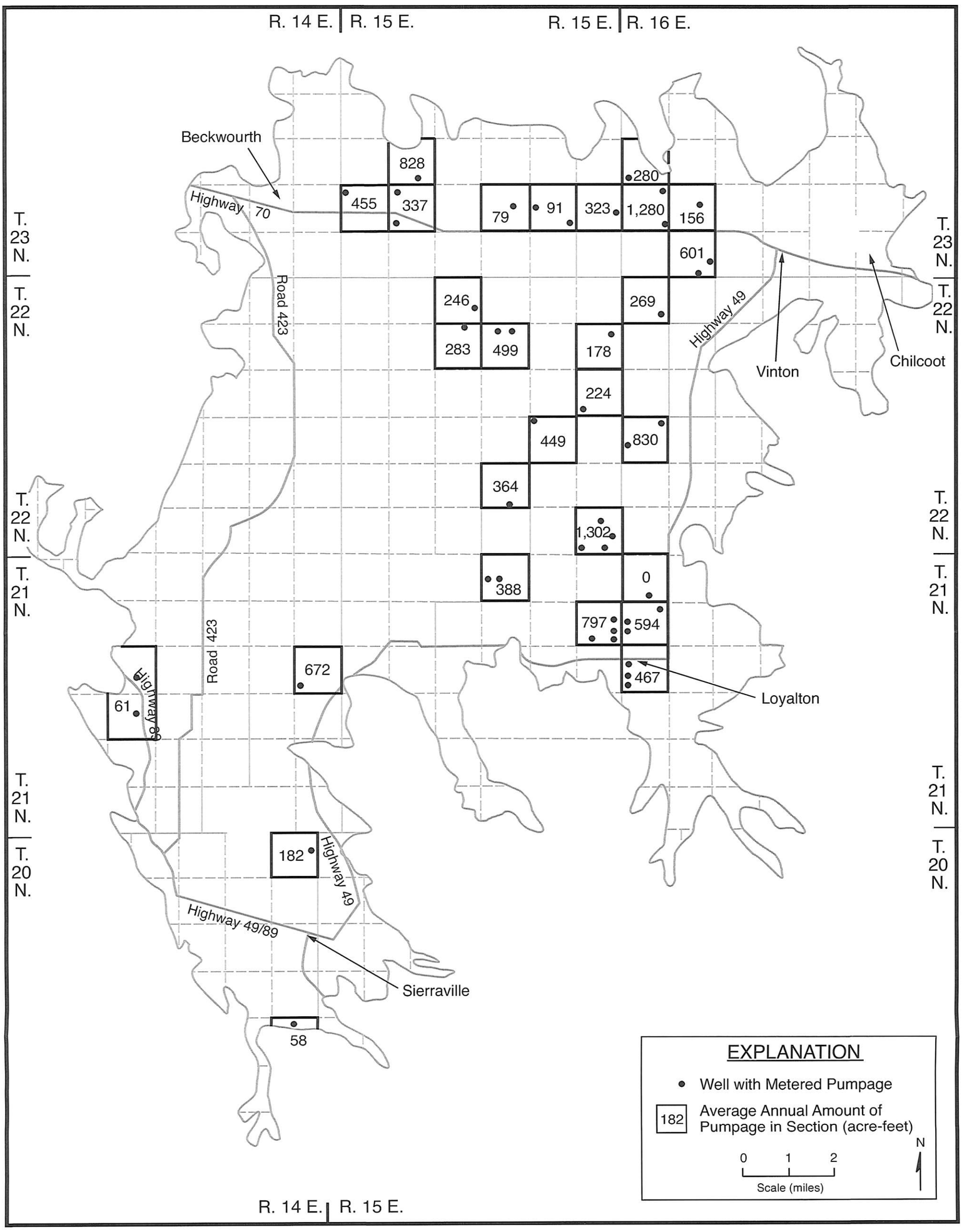


FIGURE 10 - ANNUAL METERED GROUNDWATER PUMPAGE FOR 2013

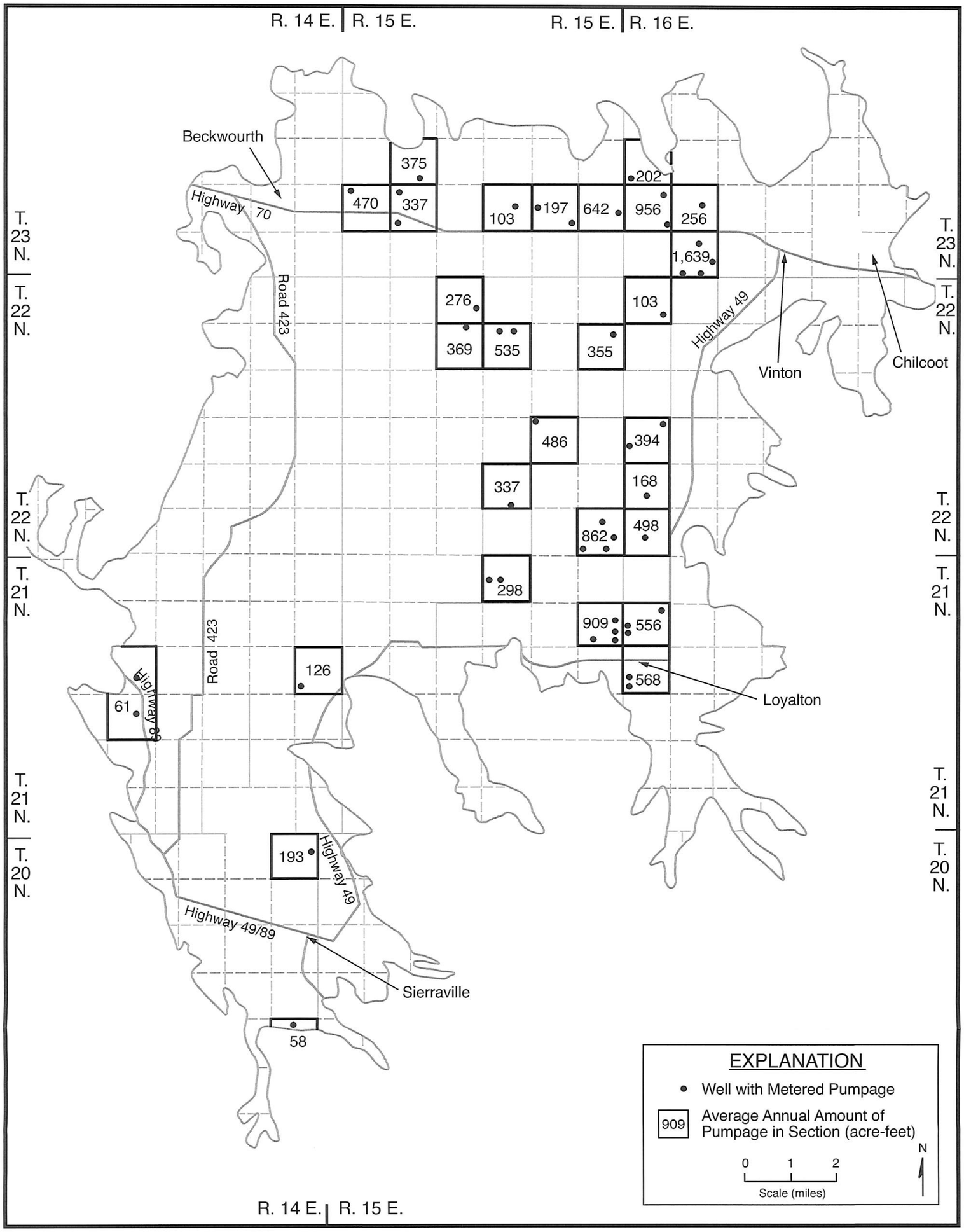


FIGURE 11 - ANNUAL METERED GROUNDWATER PUMPAGE FOR 2014

total metered pumpage was about 9,400 acre-feet in 2012, about 12,300 acre-feet in 2013, and about 12,200 acre-feet in 2014. The last two years have been the largest annual amounts pumped since metering of the wells began. Table 1 indicates the distribution of the annual metered pumpage in the valley subareas during 2012-14. Two thirds or more of the annual pumpage in the last three years was in the combined Loyalton and Vinton subareas.

Table 2 summarizes annual metered pumpage for Sierra Valley by section for 2005-2014. Table 3 summarizes metered pumpage in Sierra Valley by sub-area since 1989. Annual metered pumpage ranged from a low of 3,470 acre-feet in 1998, to two consecutive highs of 12,290 acre-feet in 2013 and 12,160 acre-feet in 2014. These highs exceeded the previous high of 10,131 acre-feet in 1990. The period 1989-1994 was one of moderately high metered pumpage (average of about 7,800 acre-feet per year), whereas the period 1995-1999 was one of much lower pumpage (average of about 4,700 acre-feet per year). Metered pumpage during 2001-2005 averaged about 8,300 acre-feet per year, greater than the average during 1989-94. Annual pumpage in 2004, 2010, and 2012 (9,427 to 9,680 acre-feet per year) was the largest annual amount since 1990 and until 2013-14. The average annual pumpage during 2012-14 was about 11,300 acre-feet per year, the greatest three-year average since metering of the wells commenced.

TABLE 1-DISTRIBUTION OF AVERAGE ANNUAL METERED PUMPAGE BY SUBAREA FOR 2012-14

	2012		2013		2014	
Subarea	Pumpage (acre-feet)	% of Total	Pumpage (acre-feet)	% of Total	Pumpage (acre-feet)	% of Total
Near Beckwourth	922	10	1,620	13	1,182	10
Vinton	3,292	35	4,232	34	4,744	39
Loyalton	3,621	38	3,912	32	4,028	33
Other	1,592	17	2,529	21	2,207	18
Total	9,427		12,293		12,161	

TABLE 2- ANNUAL METERED PUMPAGE FOR 2005-14

Location	Amount Pumped (Acre-feet)									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
T20N/R14E-1	-	-	-	-	-	-	-	168	182	193
-25	58	58	58	58	58	58	58	58	58	58
T21N/R14E-3	-	-	-	-	-	-	-	-	672	-
-13	-	-	-	-	-	-	-	-	-	126
-17&20	61	61	61	61	61	61	61	61	61	61
T21N/R15E-3	326	357	486	159	208	-	814	417	388	298
-12	774	797	1,133	1,016	769	1,640	771	676	797	909
T21N/R16E-7	356	297	530	465	347	65	311	552	594	669
-18	920	874	-	409	245	-	140	482	467	568
T22N/R15E-4	236	208	202	238	153	61	120	227	246	276
-9	0	881	543	303	99	434	67	277	283	369
-10	520	431	600	656	553	510	127	359	499	535
-12	-	-	-	-	-	-	-	-	178	355
-13	-	-	-	-	-	-	-	-	224	-
-23	308	173	522	341	228	242	242	358	449	486
-27	260	309	430	366	235	866	169	372	364	337
-34	186	157	288	283	176	-	-	-	-	-
-36	469	634	935	1,008	640	1,913	533	1,122	1,302	684
T22N/R16E-6	213	68	325	467	66	34	0	112	269	103
-19	11	11	10	10	135	43	130	206	830	394
-30	-	-	-	-	-	-	-	-	-	168
-31	-	-	-	-	-	-	-	-	-	498
T23N/R15E-20	208	227	331	244	185	418	107	216	828	375
-25	27	3	1	24	-	-	594	447	323	642
-26	63	63	60	108	68	-	66	84	91	197
-27	106	101	115	105	38	417	52	84	79	103
-29	296	176	399	0	0	28	261	334	337	337
-30	-	-	-	-	-	-	-	372	455	470
T23N/R16E-19	15	60	125	143	98	168	119	239	280	202
-29	173	97	241	390	271	535	233	-	156	256
-30	1,032	663	1,045	989	687	1,070	613	1,553	1,280	956
-32	487	430	523	653	245	952	508	651	601	1,639
Total	7,105	7,136	8,963	8,496	5,565	9,515	6,096	9,427	12,293	12,161

Records for Sections T20N/R14E-25 and T21N/R14E-17 and 20 were taken from previous years.

TABLE 3-SUMMARY OF METERED PUMPAGE BY SUBAREA FOR 1989-2014

	Beckwourth	Vinton	Loyalton	Other	Total
1989	668	3,574	2,798	616	7,656
1990	489	5,139	3,875	628	10,131
1991	289	3,607	3,486	935	8,317
1992	120	3,326	4,548	1,119	9,113
1993	83	1,226	2,066	719	4,094
1994	388	1,558	3,831	1,552	7,329
1995	533	973	1,964	630	4,100
1996	778	1,692	2,457	892	5,819
1997	932	1,685	2,242	457	5,316
1998	212	606	2,336	311	3,465
1999	385	1,350	2,333	797	4,865
2000	417	2,599	1,938	1,015	5,969
2001	809	2,641	2,824	1,217	7,491
2002	1,099	2,393	3,225	1,596	8,313
2003	733	2,332	3,154	1,618	7,837
2004	657	3,200	3,887	1,936	9,680
2005-11*	412	2,214	3,691	1,537	7,854
2012	922	3,292	3,621	1,592	9,427
2013	1,620	4,232	3,912	2,529	12,293
2014	1,182	4,744	4,028	2,207	12,162

The "other" subarea for 2000-2014 includes areas adjacent to the Loyalton or Vinton subareas that were previously delineated. *Values for the 2005-11 period are average annual values.

SUMMARY AND CONCLUSIONS

Records of metered pumpage during 2012, 2013, and 2014 and water levels for the period Spring 2012 to Spring 2015 in Sierra Valley were reviewed and trends interpreted. In addition, long-term water-level records extending back to the 1960's were reviewed. The primary influences on water-level changes from year to year are 1) pumping amounts, and 2) recharge from winter precipitation. There was a significant reduction in metered pumpage in the valley during 1993-97, following a severe drought. Metered pumpage during 1993-1997 averaged about 5,300 acre-feet per year, compared to an average of about 9,200 acre-feet per year during 1990-92. Because of the reductions in pumpage, water levels in many wells in pumped parts of the valley recovered in the late 1990's to near levels prior to the onset of heavy pumping in the late 1970's. Precipitation during 1993-97 was above average except for one year, and the increased recharge also caused water levels to rise. The lowest metered pumpage since 1989 was in 1998. Metered pumpage increased after 1998, and by 2004 was in the range of that for 1991-92. This increased pumpage, along with below average precipitation and less recharge, caused water levels in most wells in pumped parts of the valley to fall after 1998, in some cases to the deepest levels as of that time (in Fall 2004). During 2005-2011, the pumpage averaged about 7,800 acre-feet per year, greater than the estimated safe yield

(the amount of groundwater that can be pumped without overdraft). Most of the overdraft was indicated to be in or west of the Vinton subarea.

Metered pumpage records indicate that the safe yield is about 6,000 acre-feet per year in the part of the valley now tapped by large-capacity supply wells. Metered pumpage of about 3,500 to 5,000 acre-feet per year during wet years was associated with water-level rises. Metered pumpage of about 8,000 to 12,000 acre-feet per year during dry years has resulted in water-level declines. Pumpage during 2013 and 2014 averaged about 12,200 acre-feet per year, and at the end of this pumpage, water levels in some wells were the deepest of record. Much of this pumping was centered in the Vinton and Loyalton areas. The average pumpage during 2013 and 2014 was thus about double the estimated safe yield.

Groundwater monitoring in the District provides a valuable data base for future groundwater management activities. Historical records provide a good indication of water-level declines that can occur due to increases in pumpage. Also, the influence of changes in precipitation on recharge and water levels have been determined.

It is recommended that water levels in the six district monitor wells (MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6) be measured manually on a monthly basis during months of heavy pumping in 2015.

REFERENCES

California Department of Water Resources, 1963, "Northeastern Counties Ground Water Investigation", Bulletin 98, 224 p.

California Department of Water Resources, 1983, "Sierra Valley Ground Water Study", Northern District memorandum report, 79 p.

California Department of Water Resources, 1983, "Sierra Valley Water Quality", Northern District preliminary report, 10 p.

Kenneth D. Schmidt and Associates, 1994, "1991-94 Sierra Valley Groundwater Update", prepared for Sierra Valley Groundwater Management District, Loyalton, California, 23 p.

Kenneth D. Schmidt and Associates, 1998, "1994-1998 Sierra Valley Groundwater Update", prepared for Sierra Valley Groundwater Management District, Loyalton, California, 24 p.

Kenneth D. Schmidt and Associates, 2003, "Technical Report on 1998-2003 Hydrogeologic Evaluation for Sierra Valley", prepared for Sierra Valley Groundwater Management District, Sierraville, California, 48p.

Kenneth D. Schmidt and Associates, 2005, "Technical Report 2003-2005 Hydrogeologic Evaluation for Sierra Valley", prepared for Sierra Valley Groundwater Management District, Sierraville, California, 37p.

Kenneth D. Schmidt and Associates, 2012, "Technical Report 2005-2011 Hydrogeologic Evaluation for Sierra Valley", prepared for Sierra Valley Groundwater Management District, Sierraville, California, 23p.

Kenneth D. Schmidt and Associates, 2014, Draft "Technical Report 2012-2014 Hydrogeologic Evaluation for Sierra Valley", prepared for Sierra Valley Groundwater Management District, Sierraville, California, 25p.

APPENDIX A

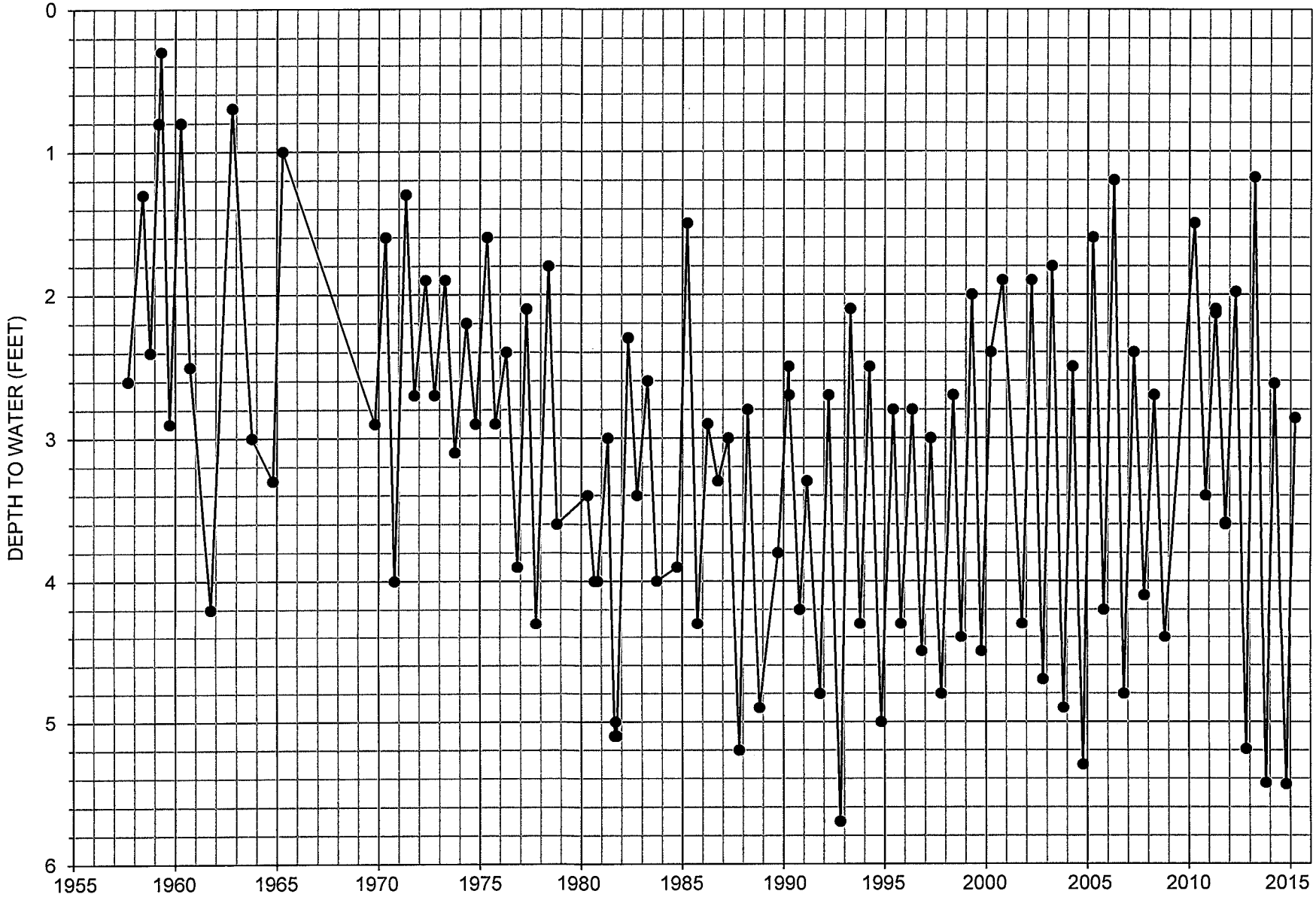
WATER-LEVEL MEASUREMENTS FOR SPRING AND FALL 2012, 2013, 2014 AND SPRING 2015

APPENDIX B

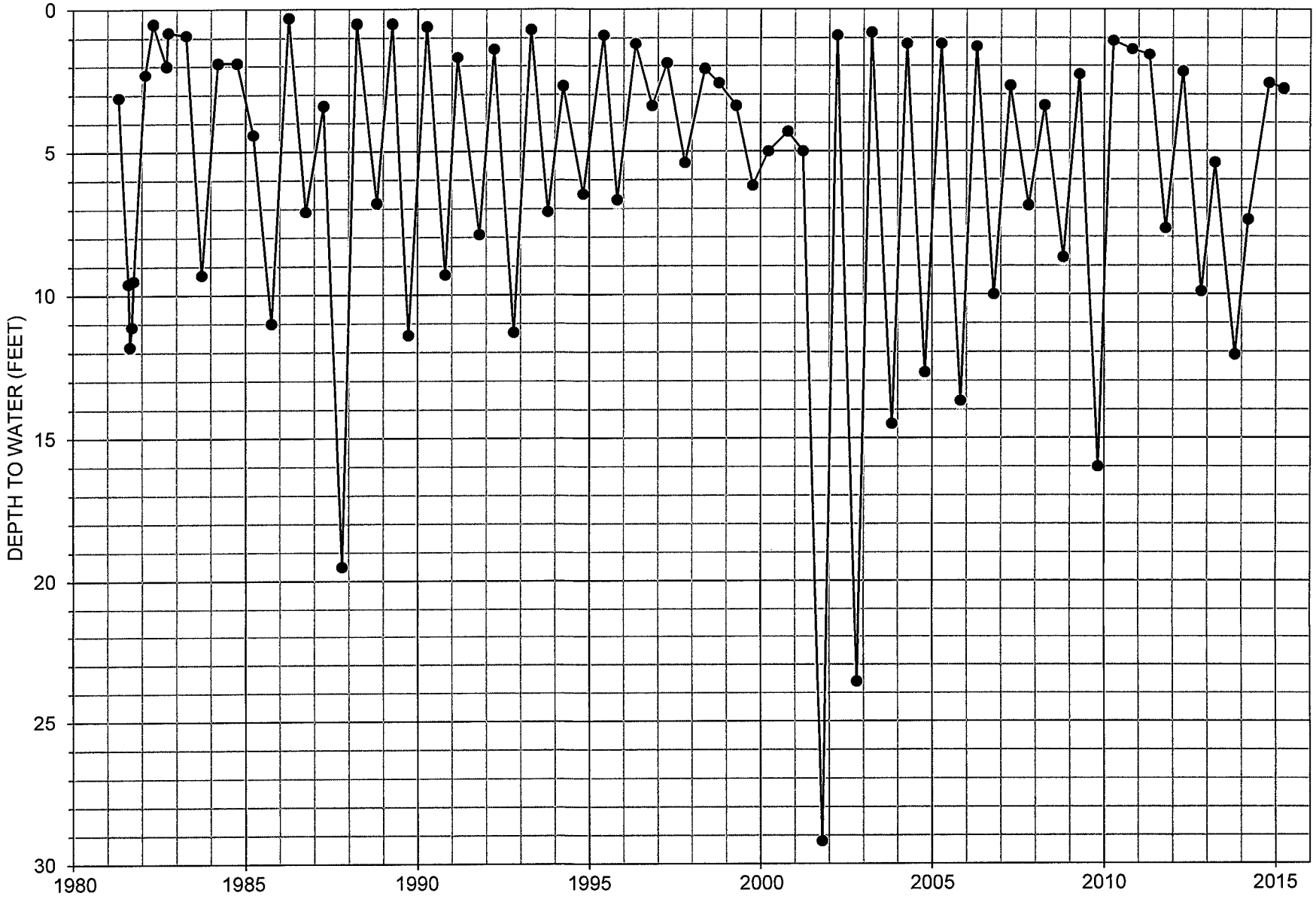
WATER-LEVEL MEASUREMENTS FOR FREQUENTLY MEASURED WELLS

APPENDIX C

LONG-TERM WATER-LEVEL HYDROGRAPHS



WATER-LEVEL HYDROGRAPH FOR WELL T20N/R14E-13Q002



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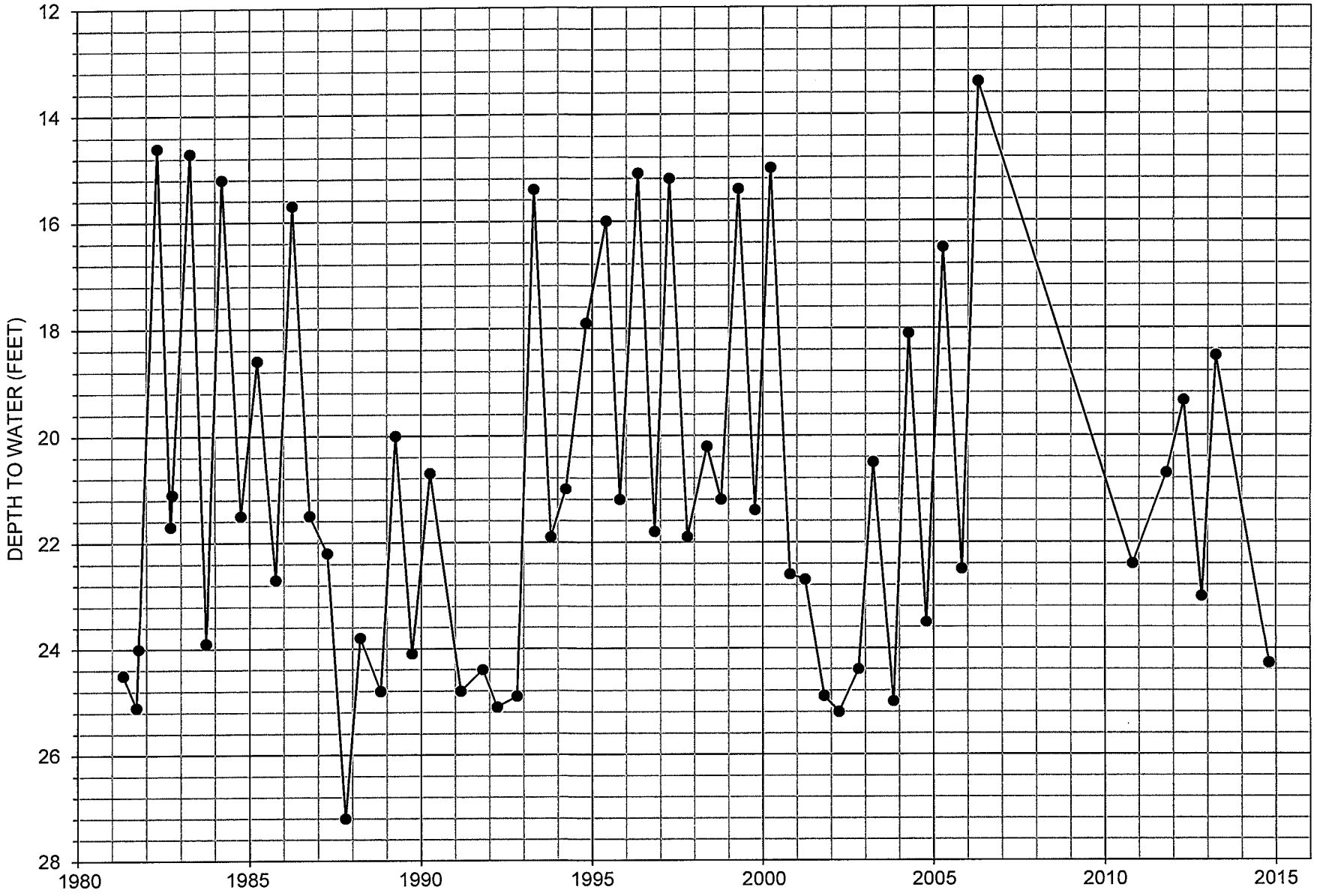

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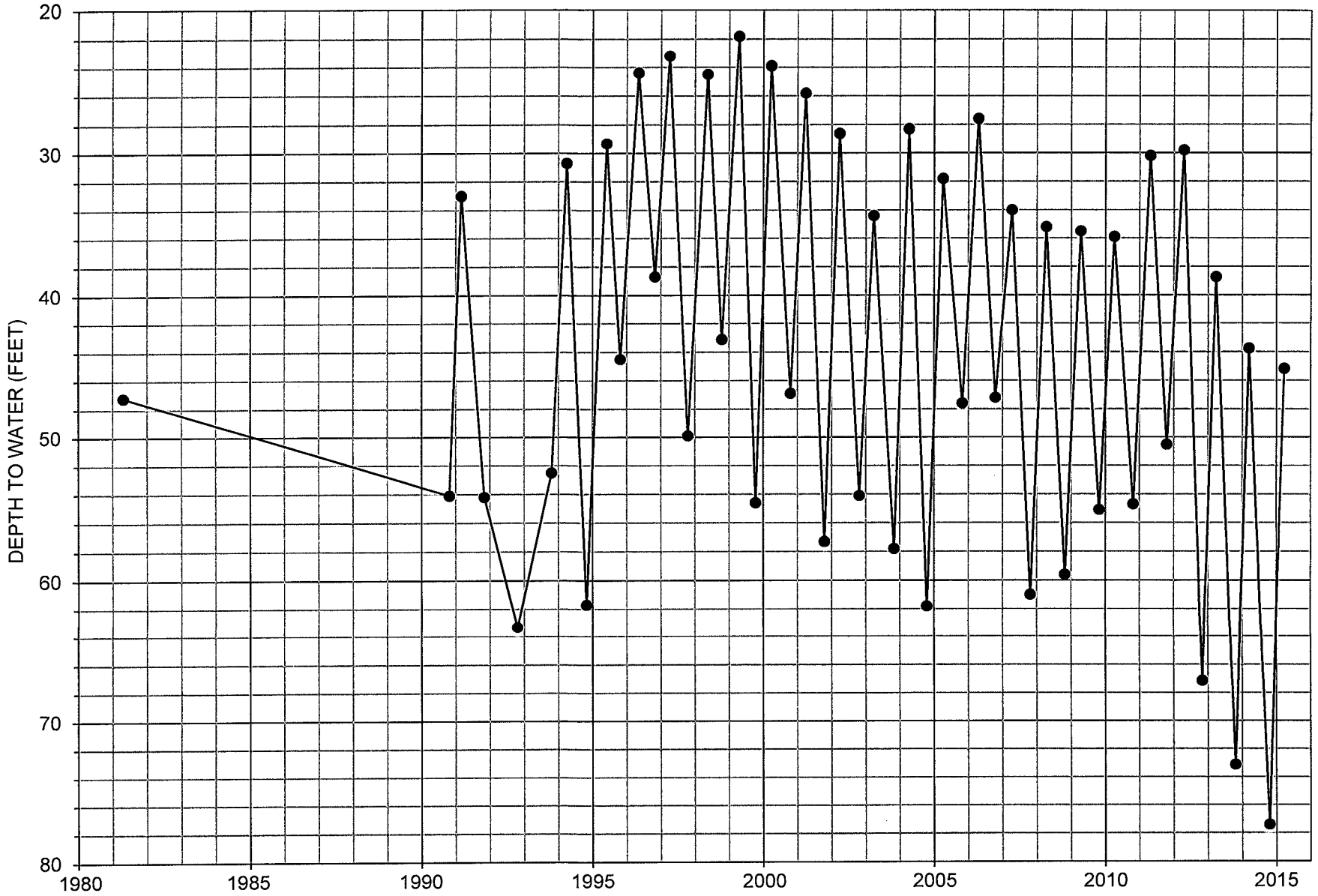

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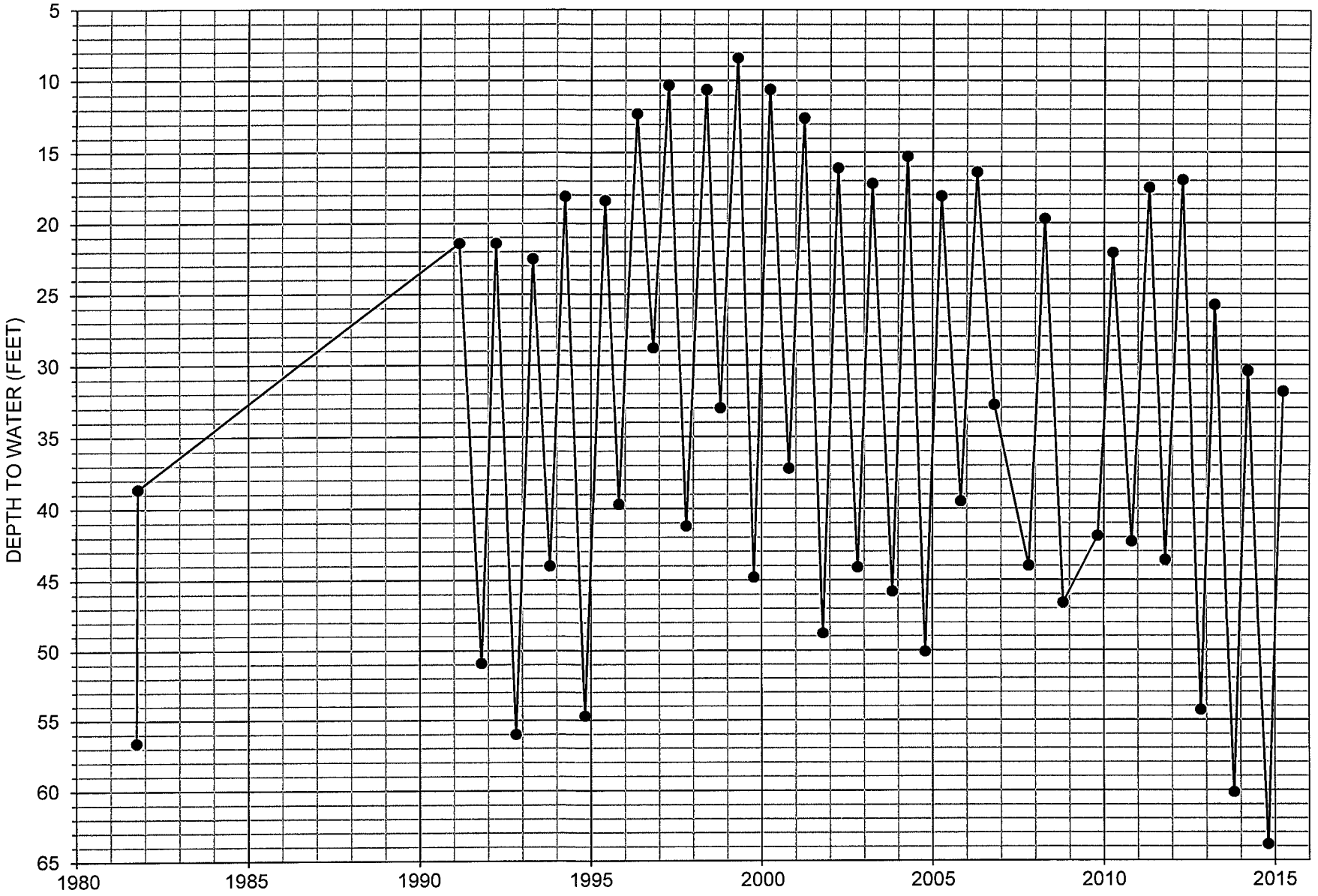
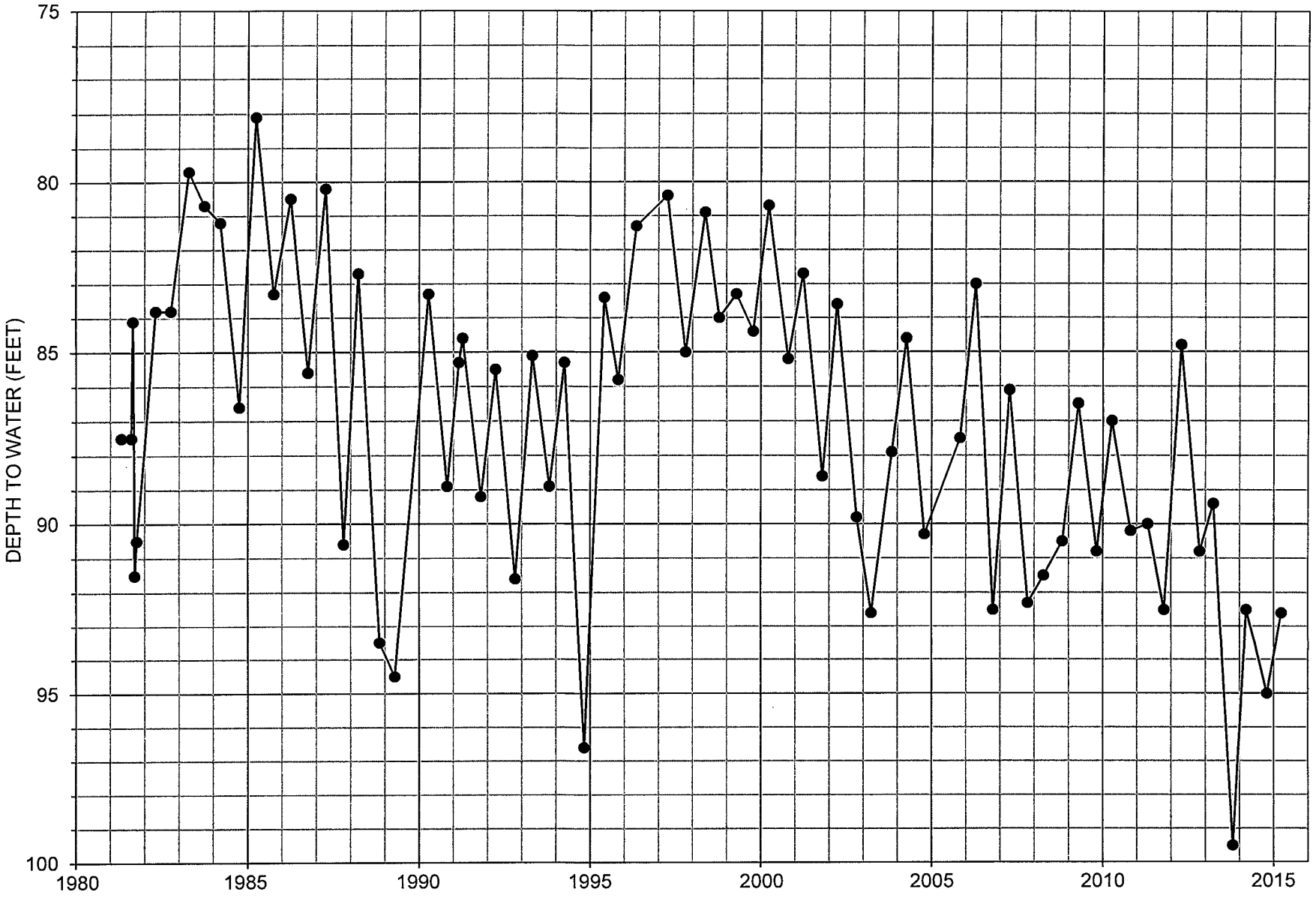


WATER-LEVEL HYDROGRAPH FOR WELL T21N/R15E-12P003



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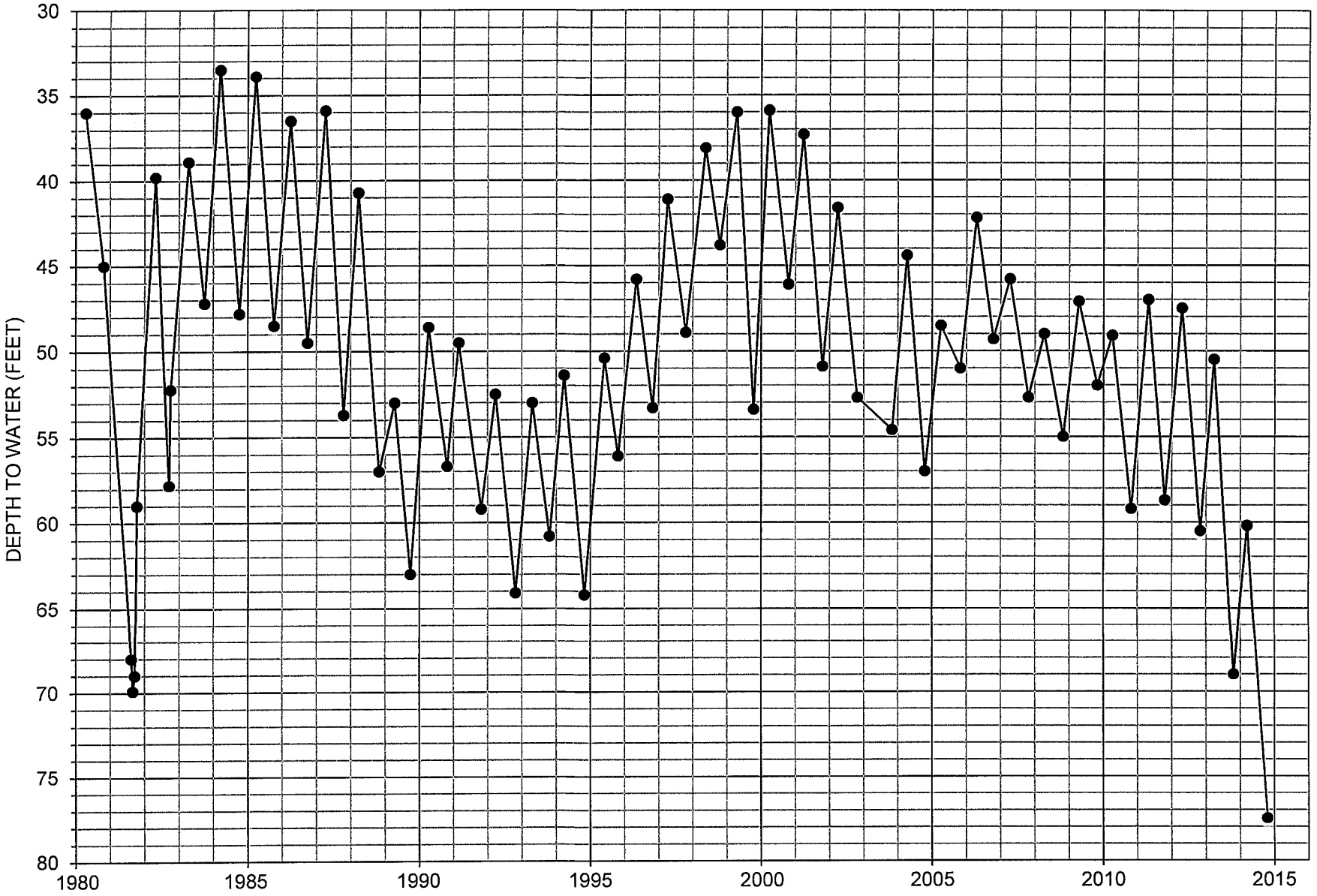
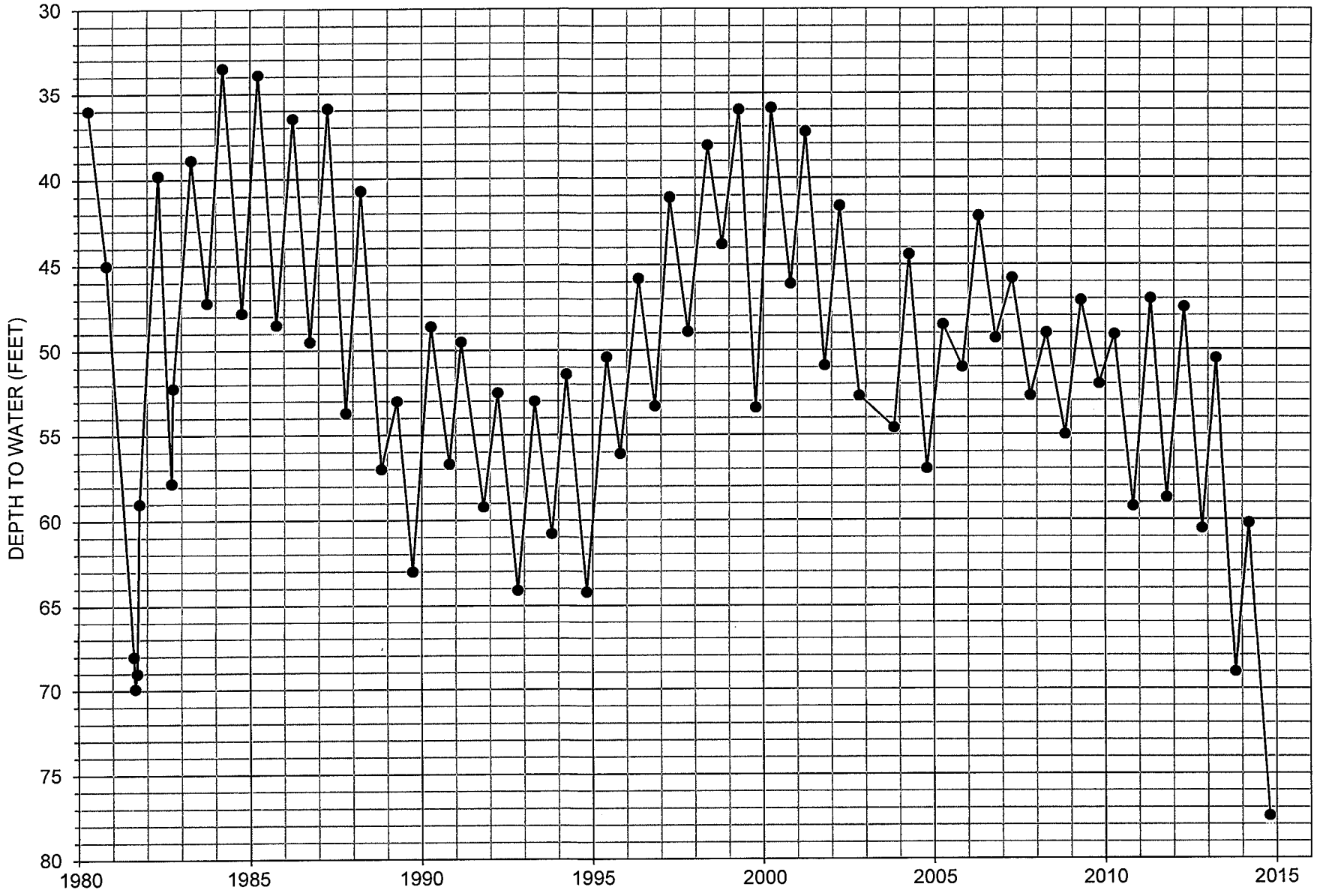


WATER-LEVEL HYDROGRAPH FOR WELL T21N/R16E-06H003



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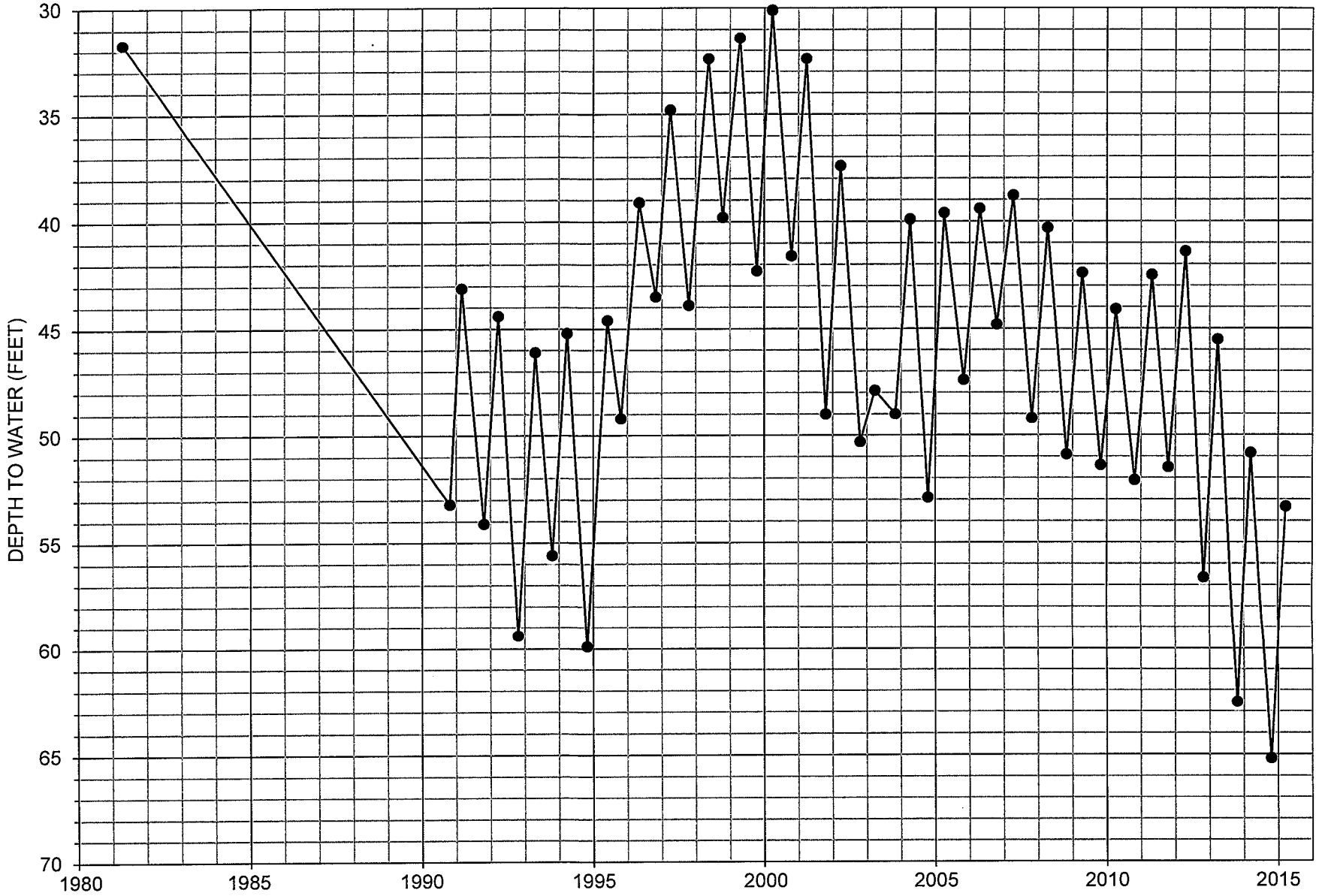

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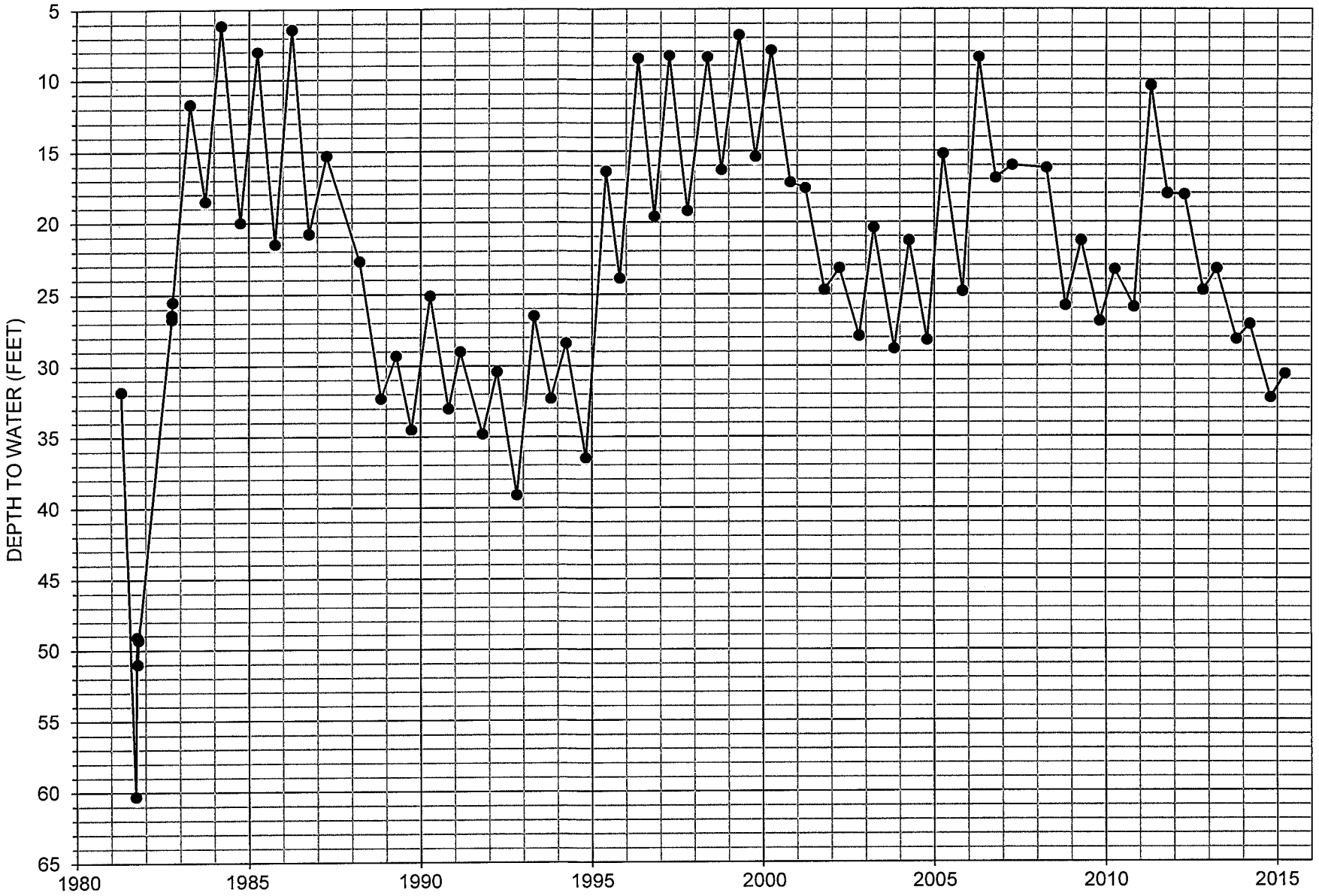

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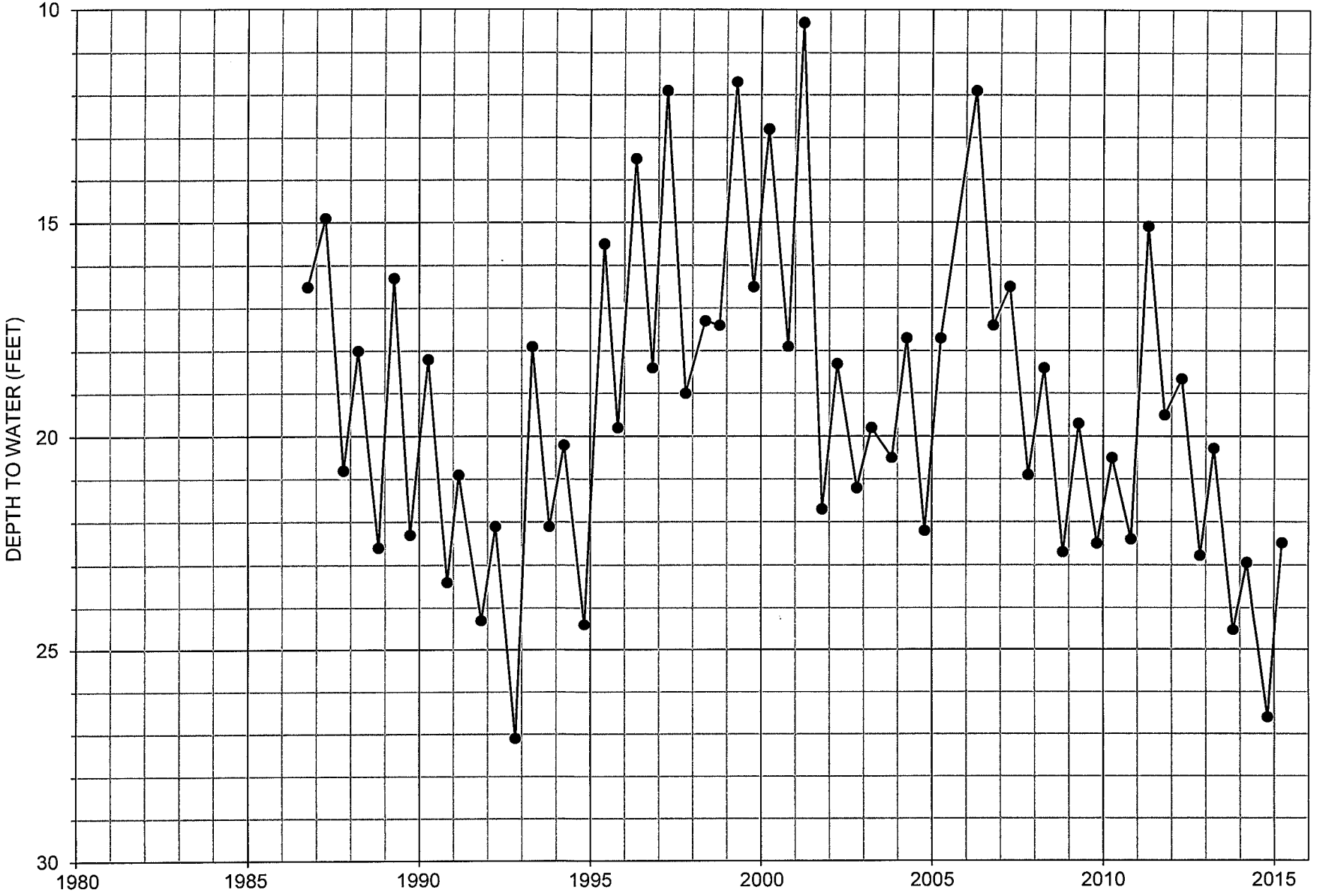
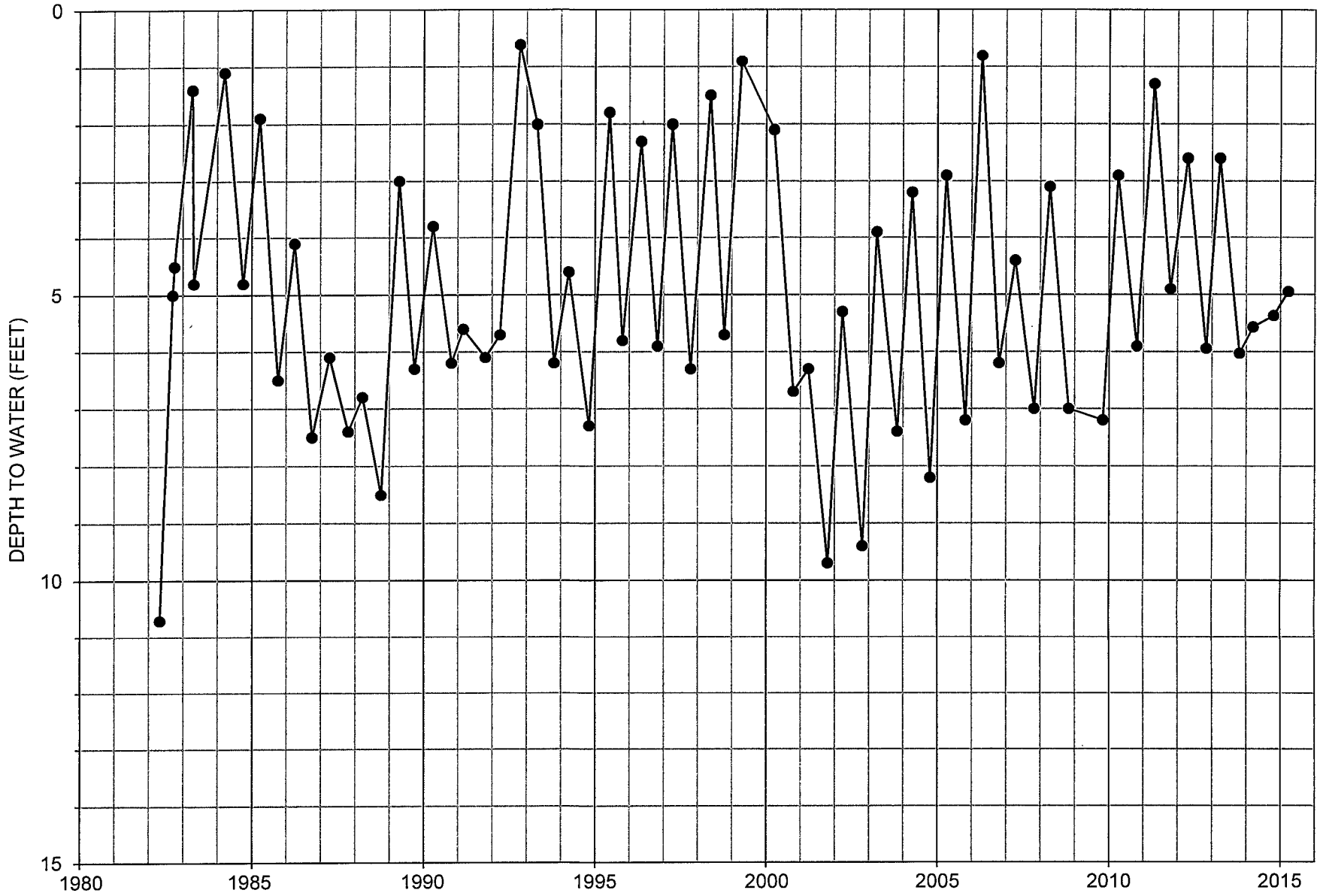
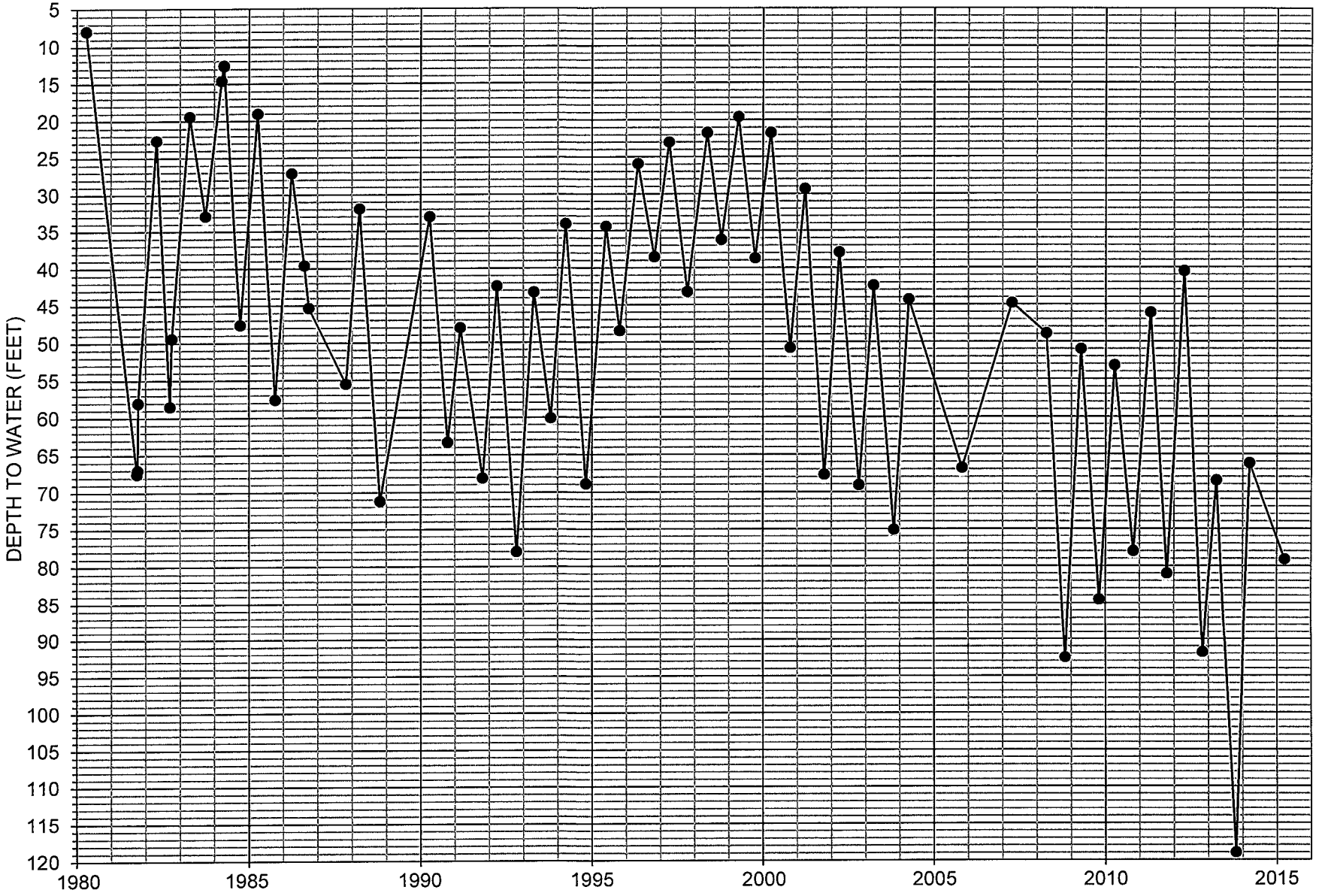


WATER-LEVEL HYDROGRAPH FOR WELL T21N/R16E-18G002

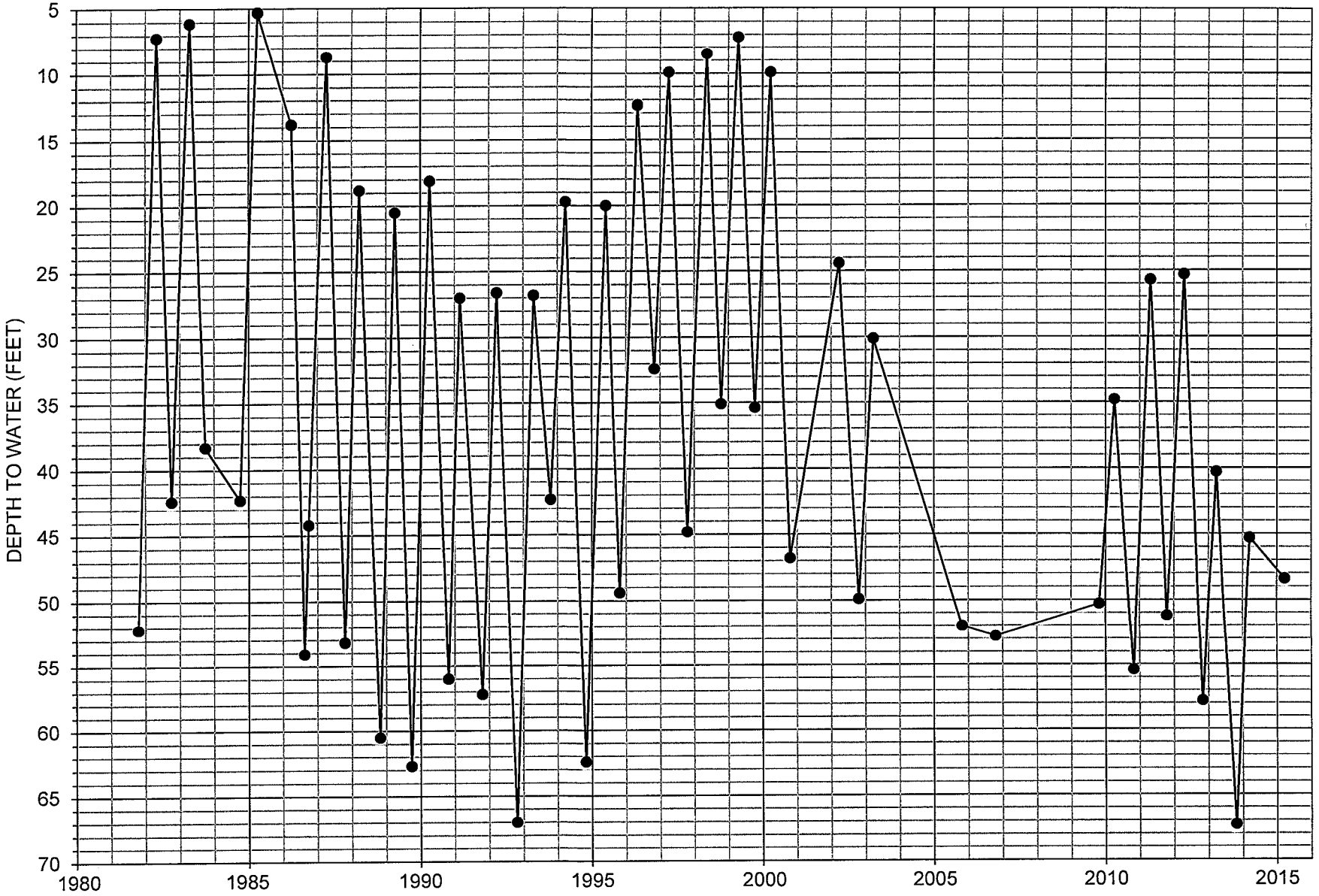


WATER-LEVEL HYDROGRAPH FOR WELL T22N/R15E-08Q001

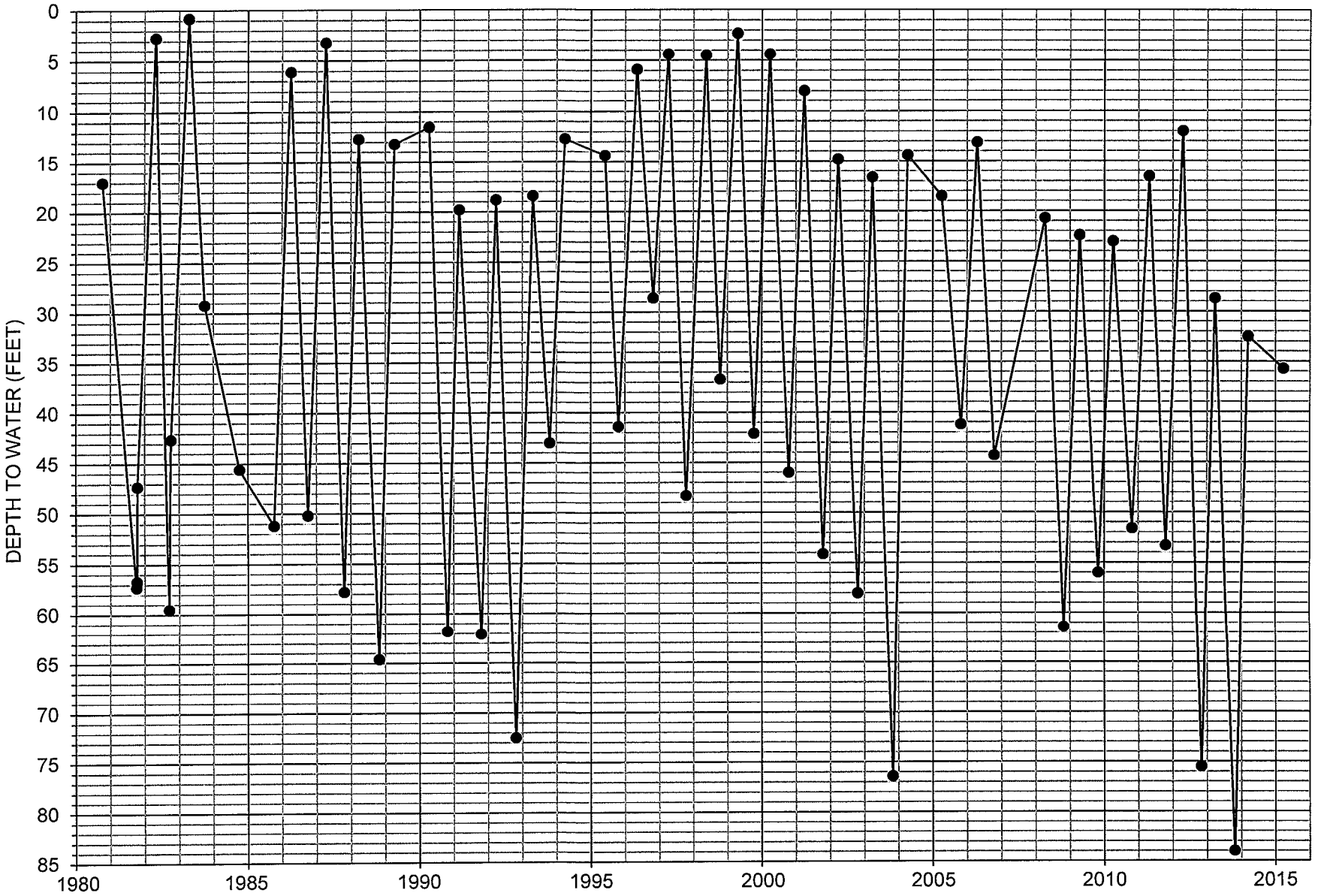


WATER-LEVEL HYDROGRAPH FOR WELL T22N/R15E-13N001

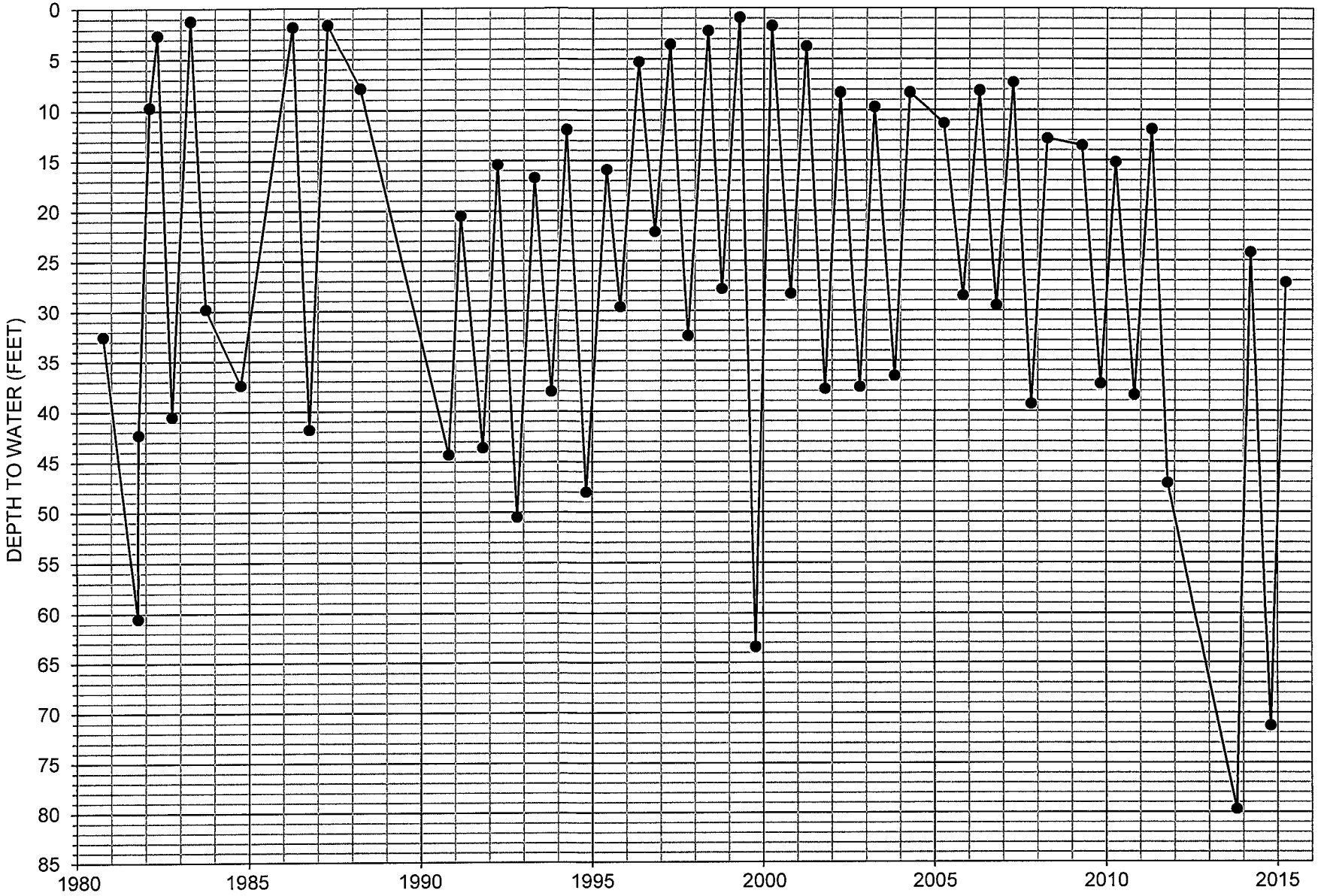
WATER-LEVEL HYDROGRAPH FOR WELL T22N/R15E-22Q001



WATER-LEVEL HYDROGRAPH FOR WELL T22N/R15E-27Q001



WATER-LEVEL HYDROGRAPH FOR WELL T22N/R15E-36N001



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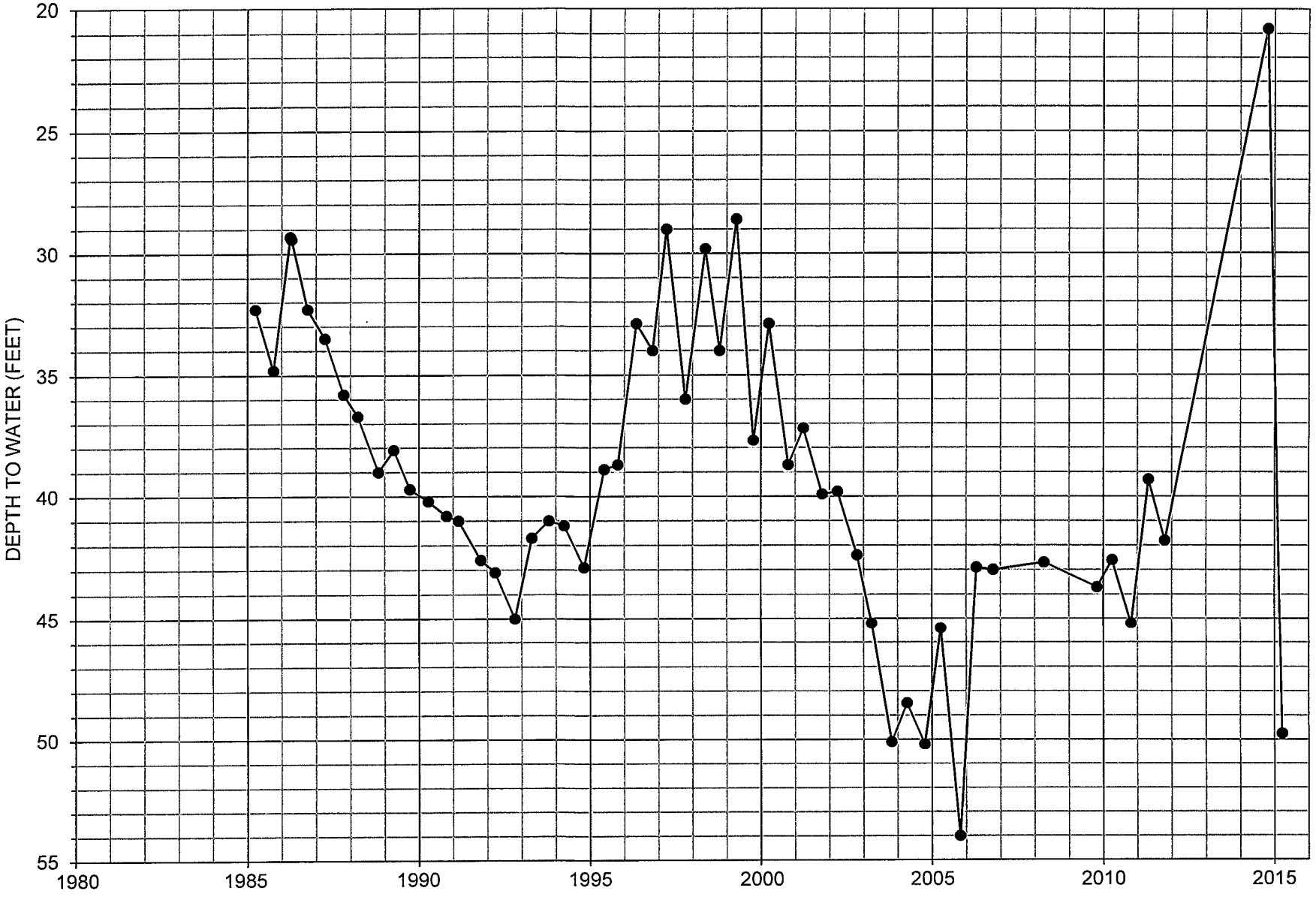
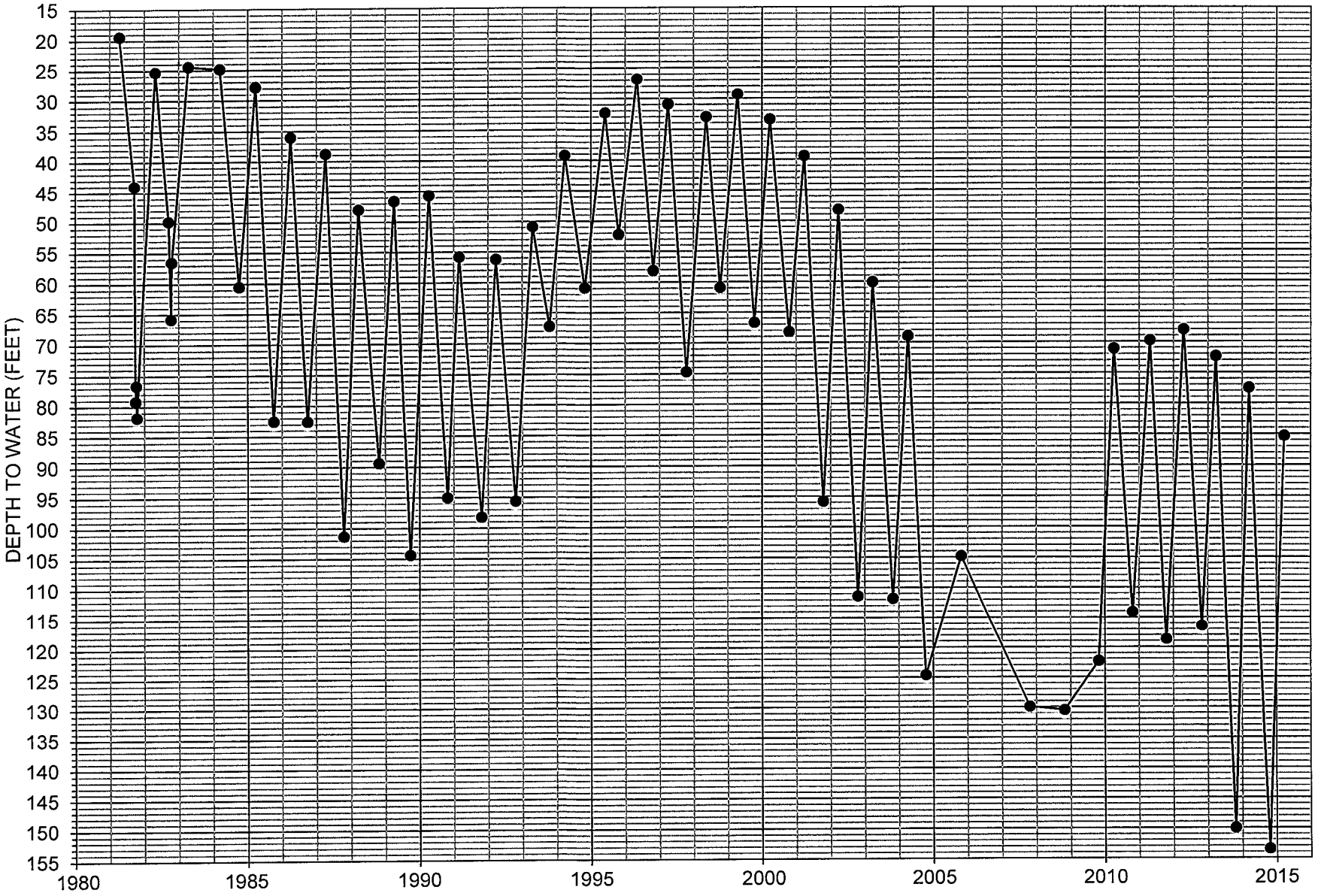
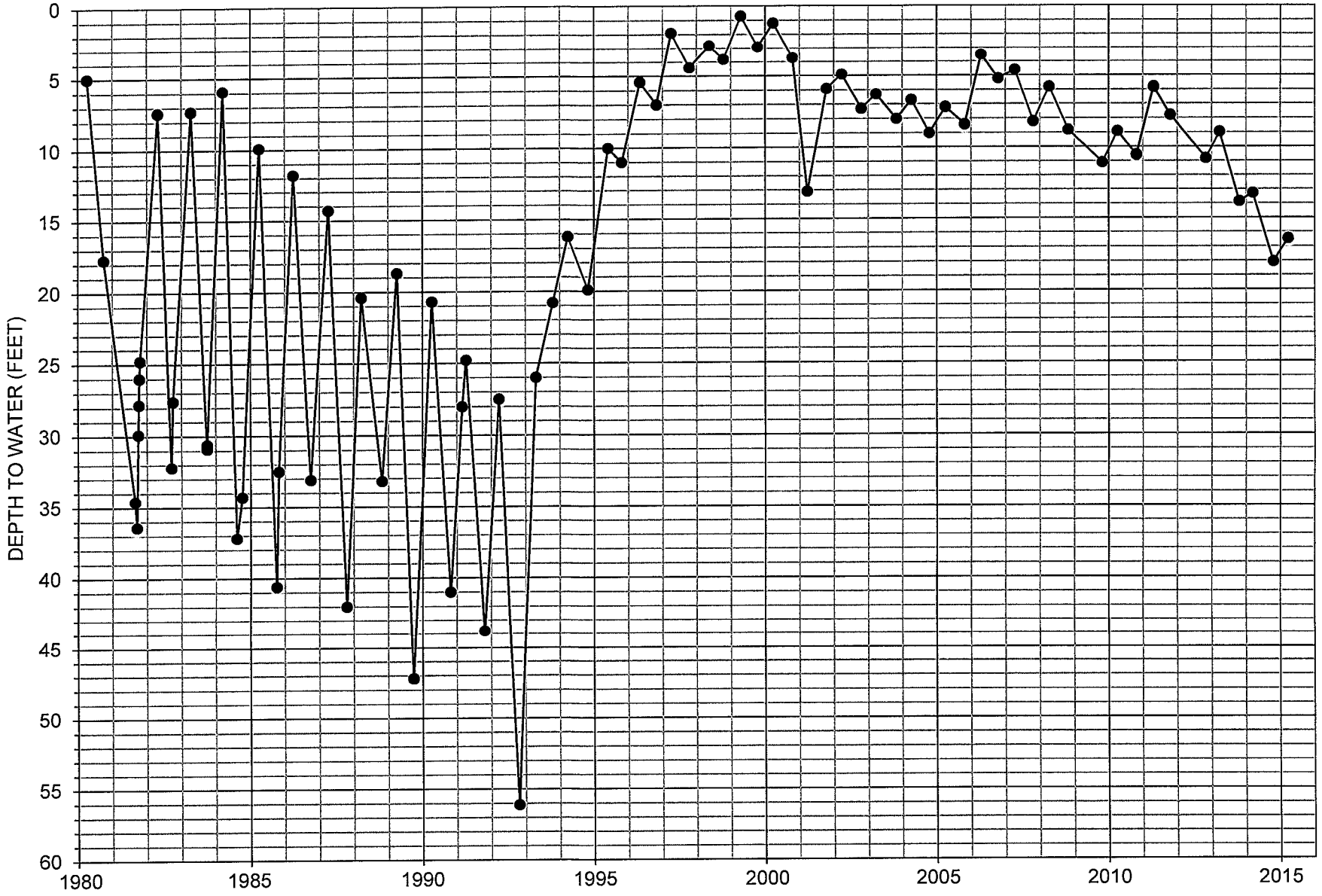


WATER-LEVEL HYDROGRAPH FOR WELL T22N/R16E-01A002

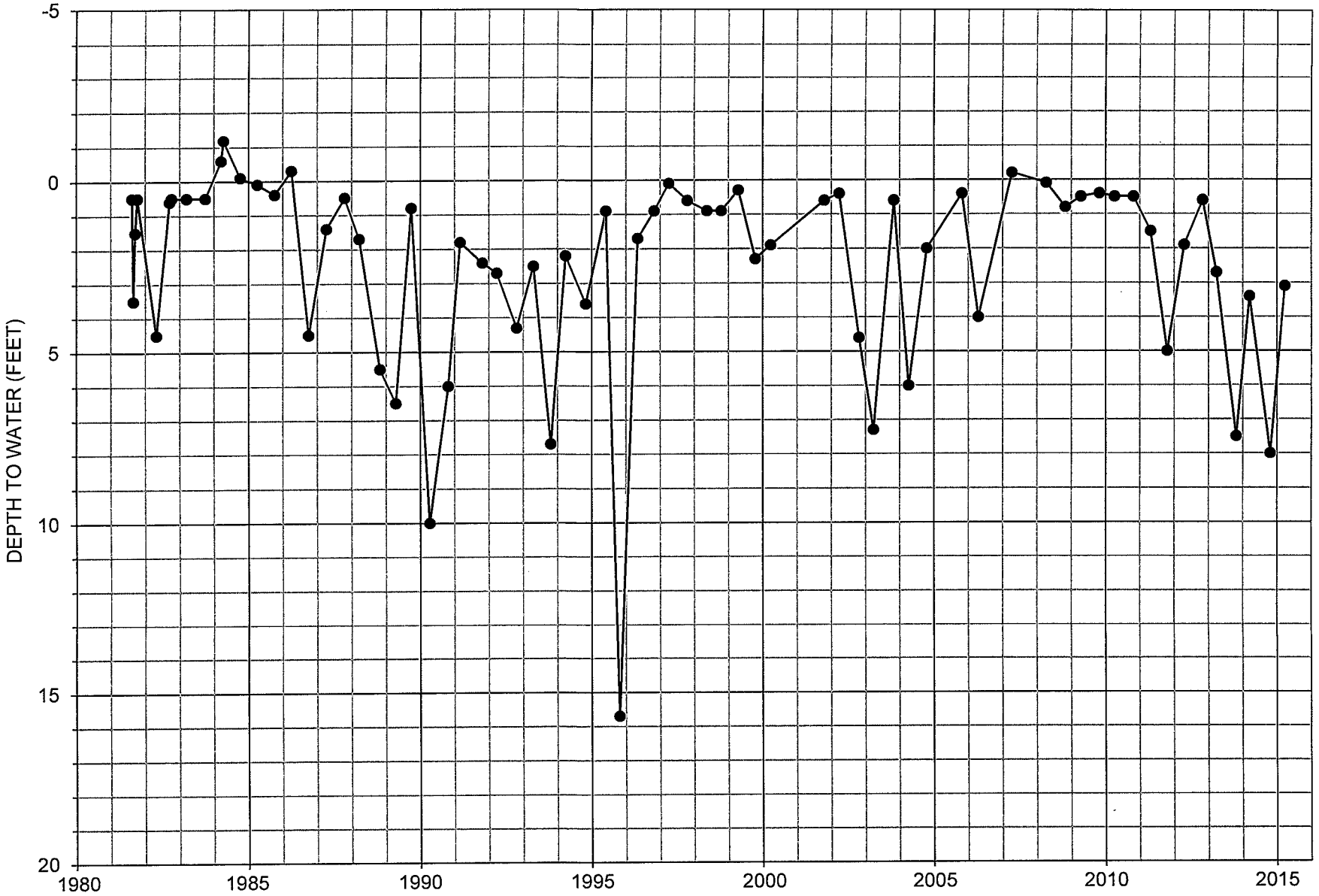


WATER-LEVEL HYDROGRAPH FOR WELL T22N/R16E-06R002

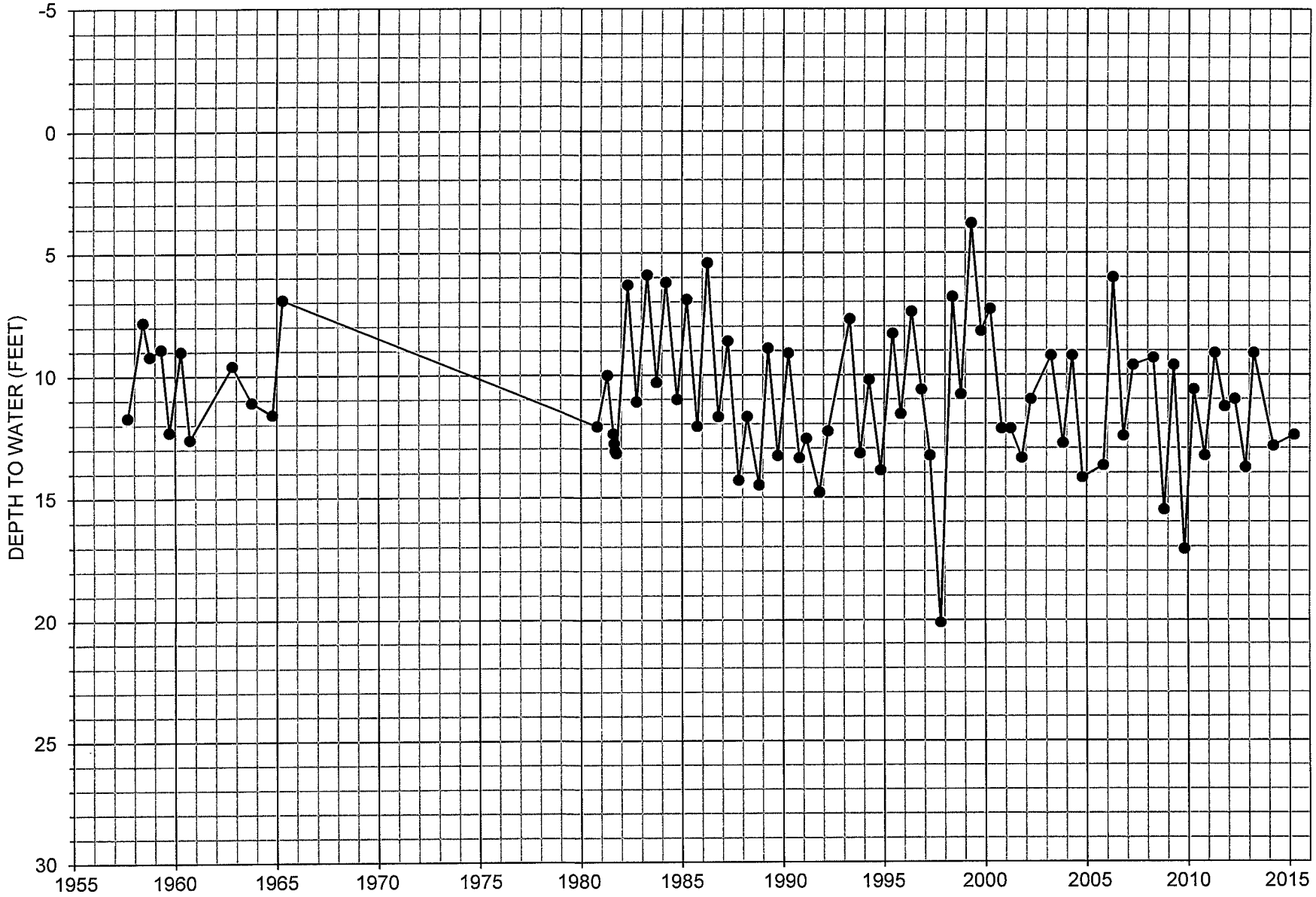


WATER-LEVEL HYDROGRAPH FOR WELL T22N/R16E-17C001

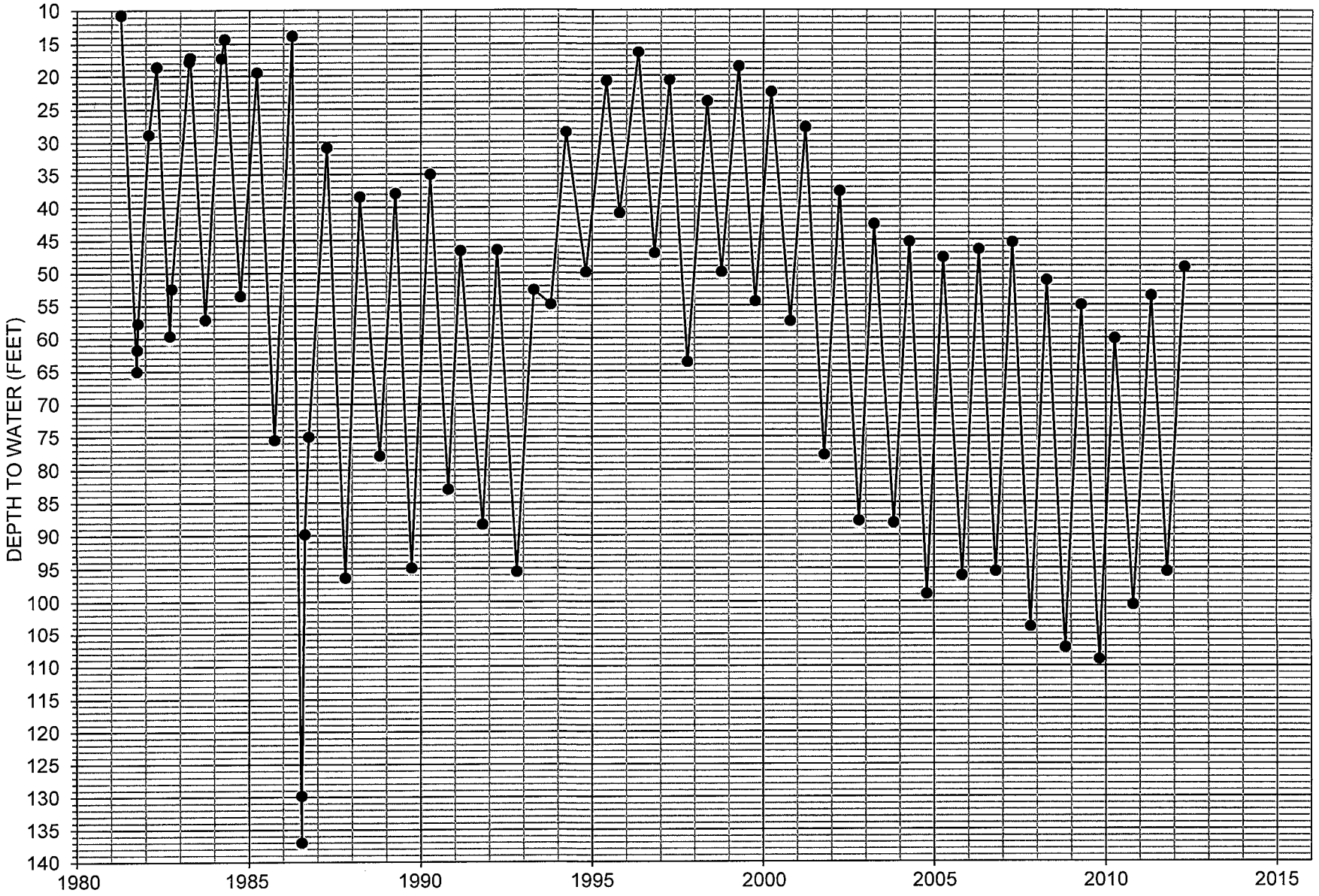
WATER-LEVEL HYDROGRAPH FOR WELL T22N/R16E-17E002



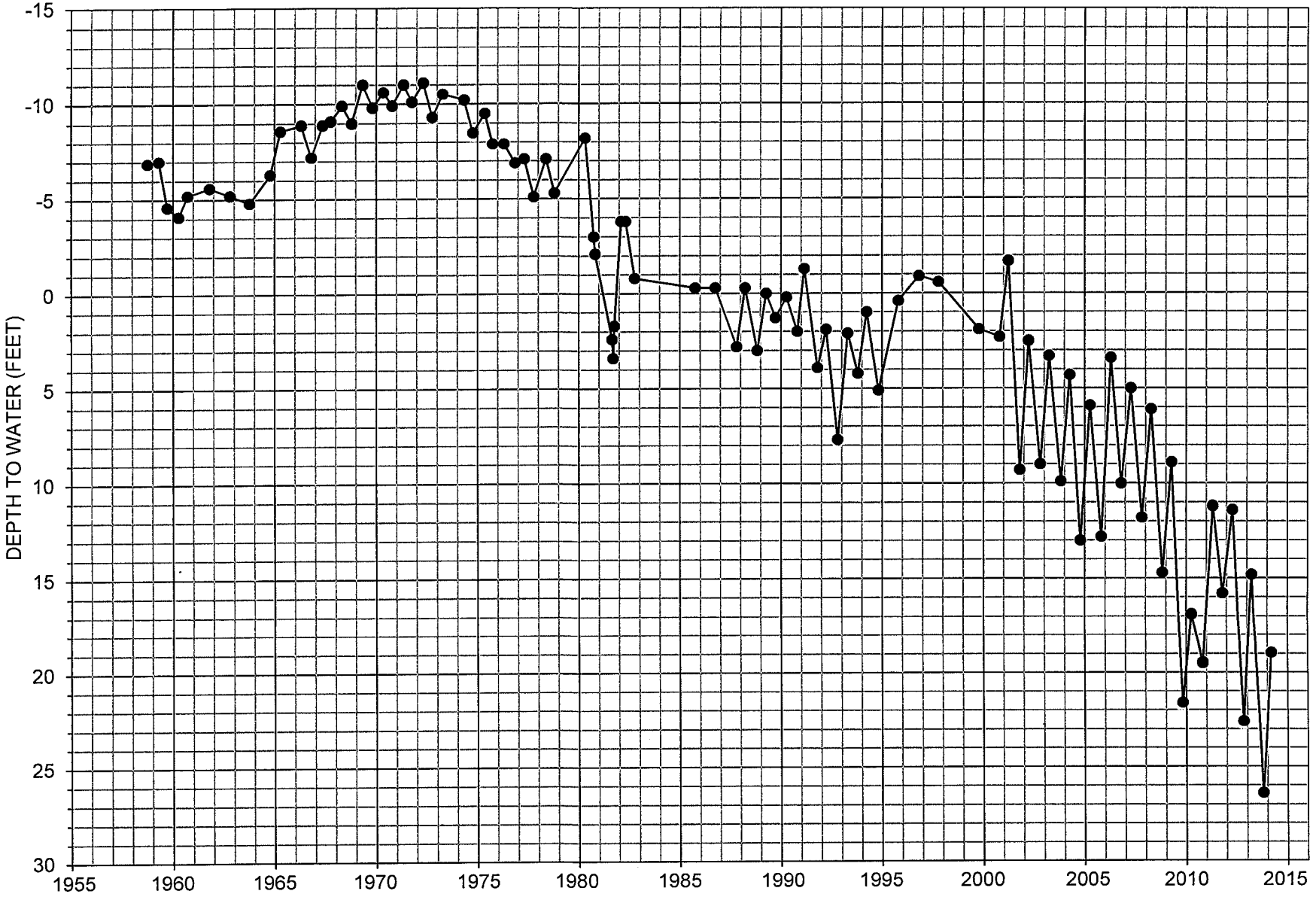
WATER-LEVEL HYDROGRAPH FOR WELL T22N/R16E-20P002



WATER-LEVEL HYDROGRAPH FOR WELL T23N/R14E-35L001



WATER-LEVEL HYDROGRAPH FOR WELL T23N/R15E-26R001



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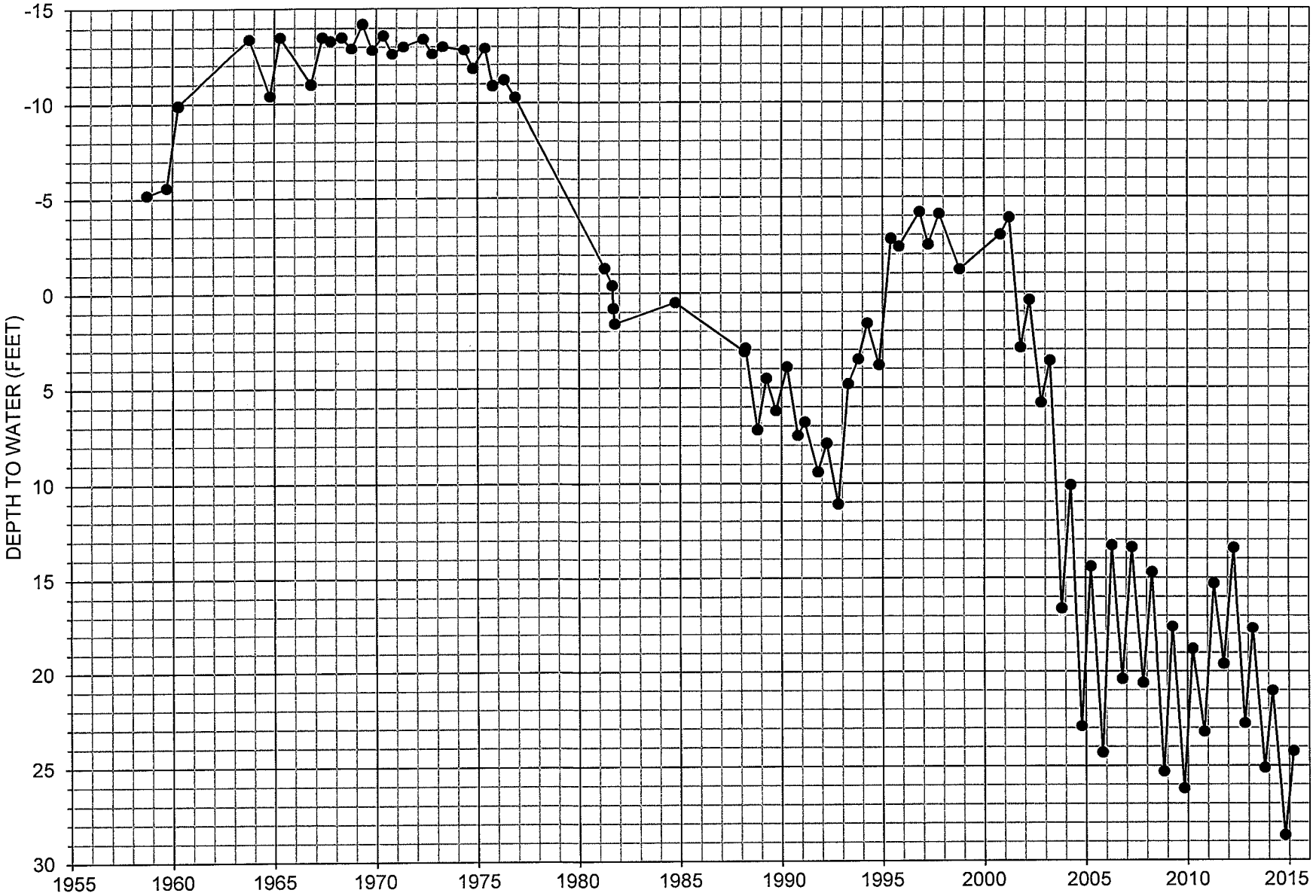

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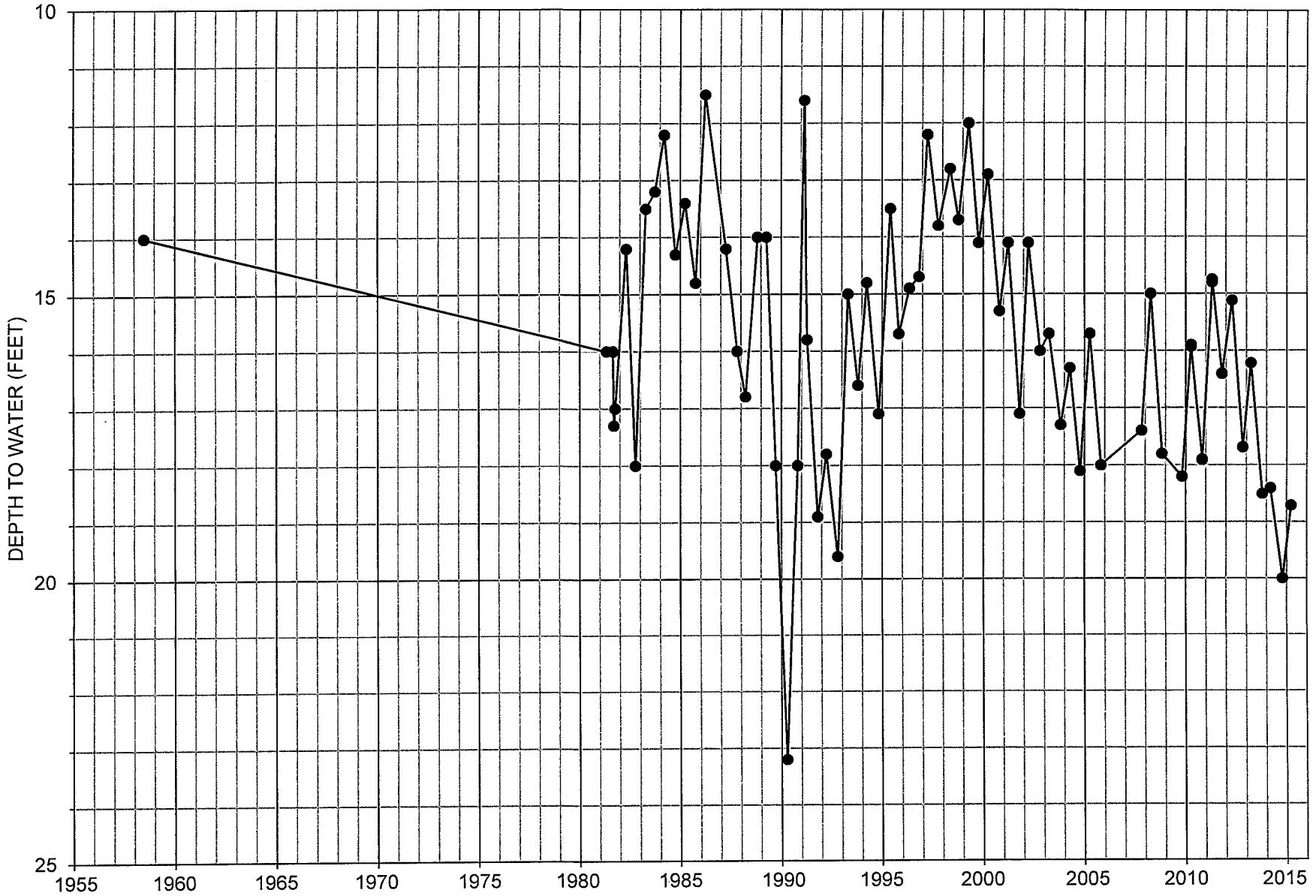
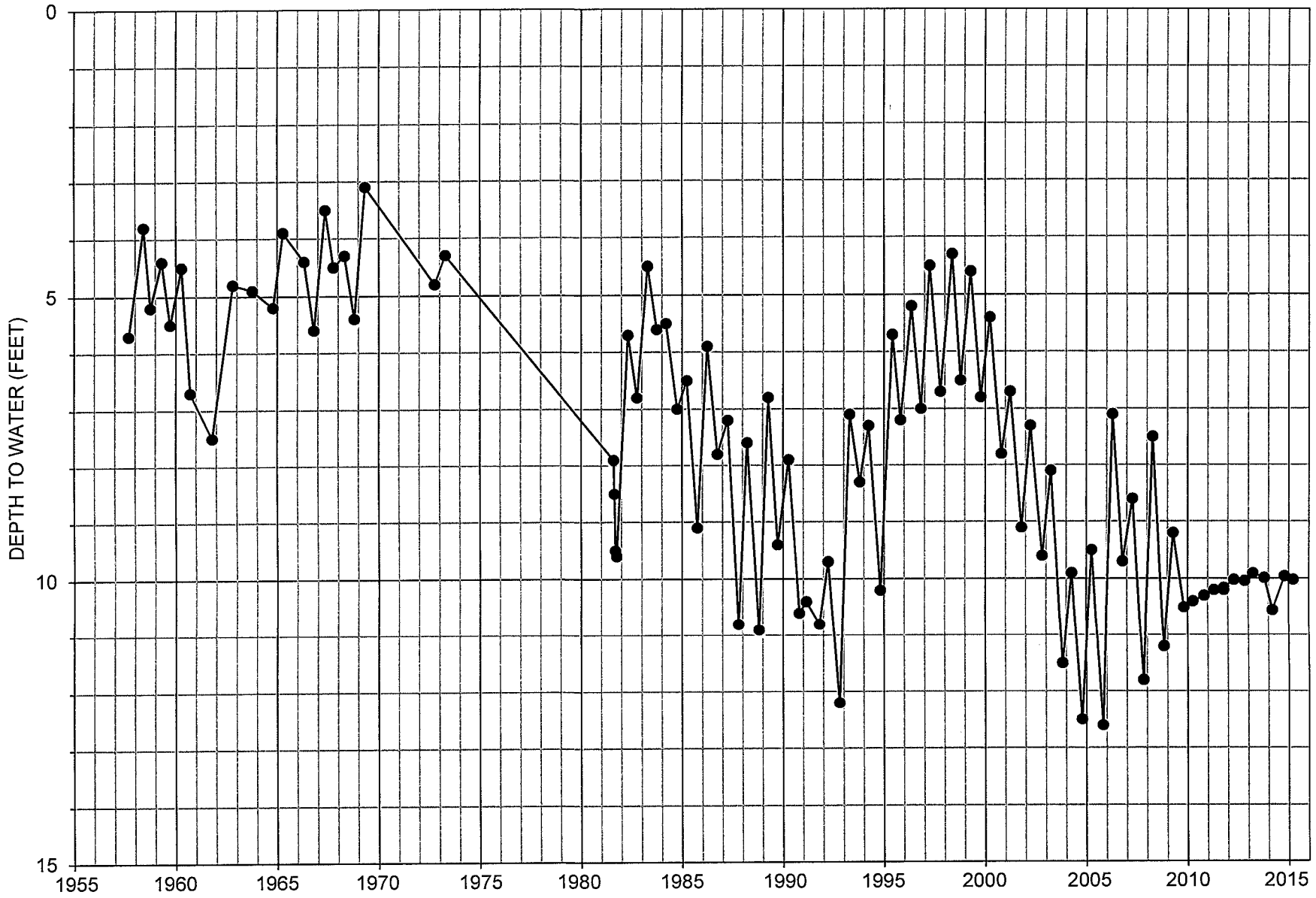
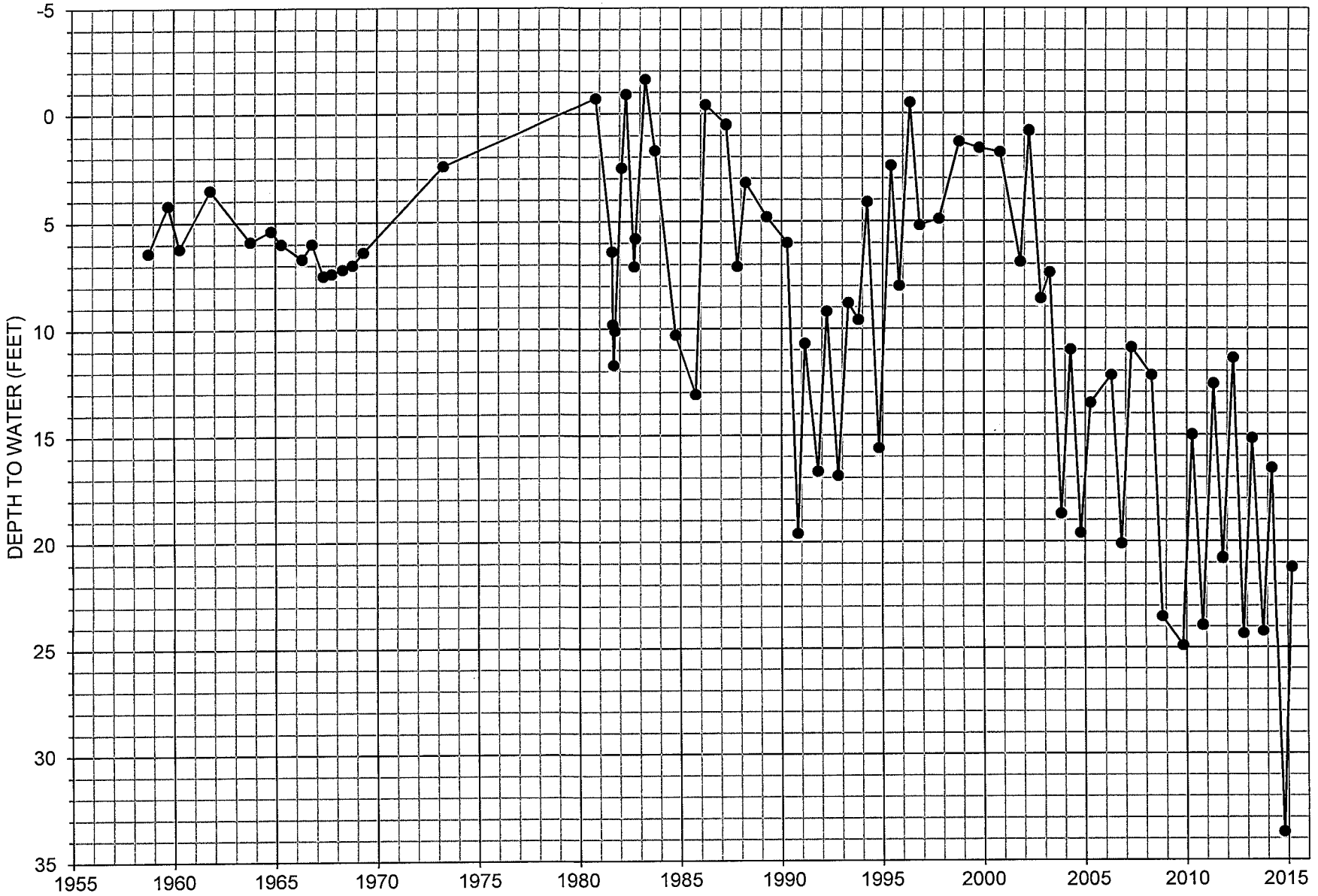


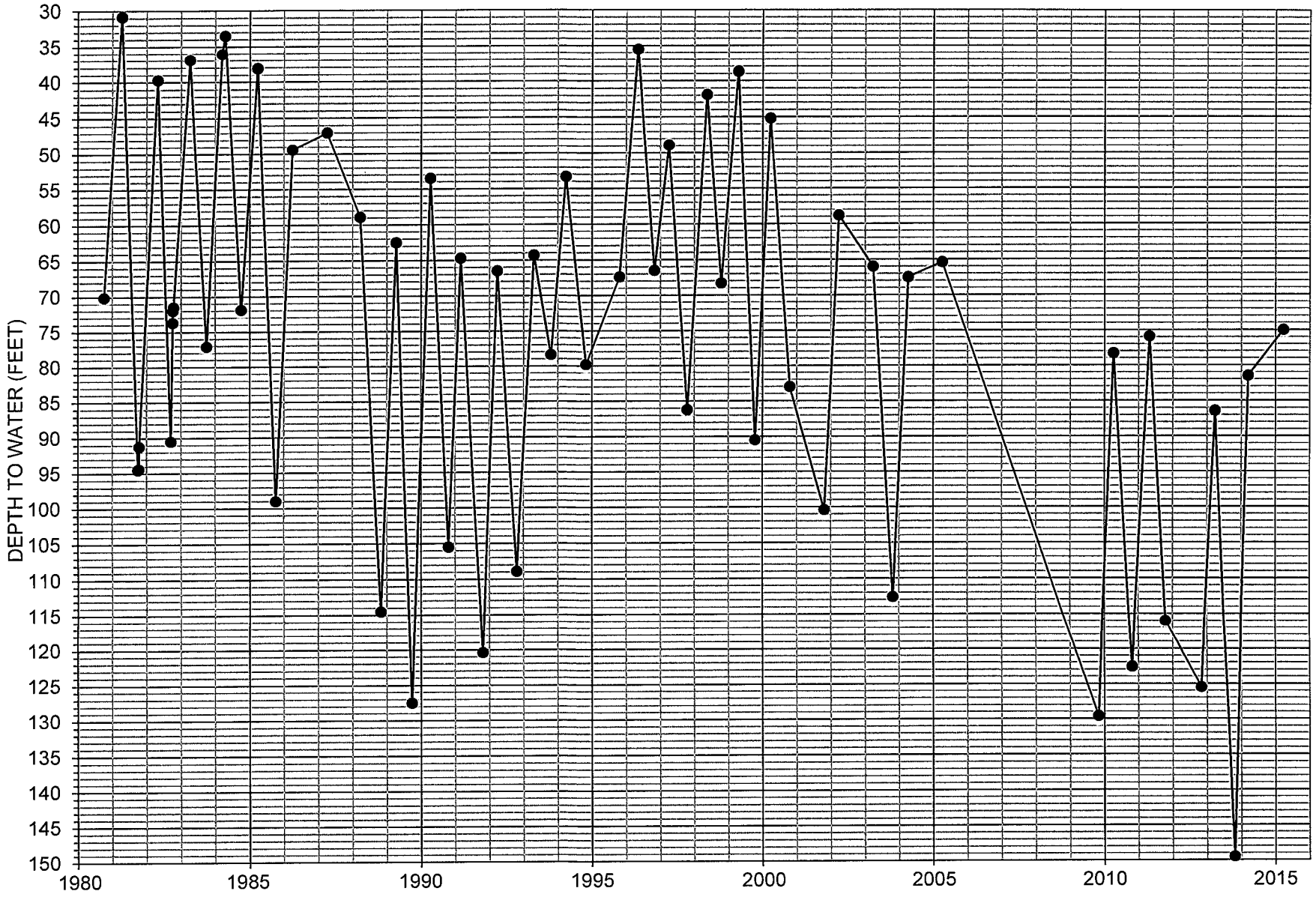
WATER-LEVEL HYDROGRAPH FOR WELL T23N/R16E-23F001



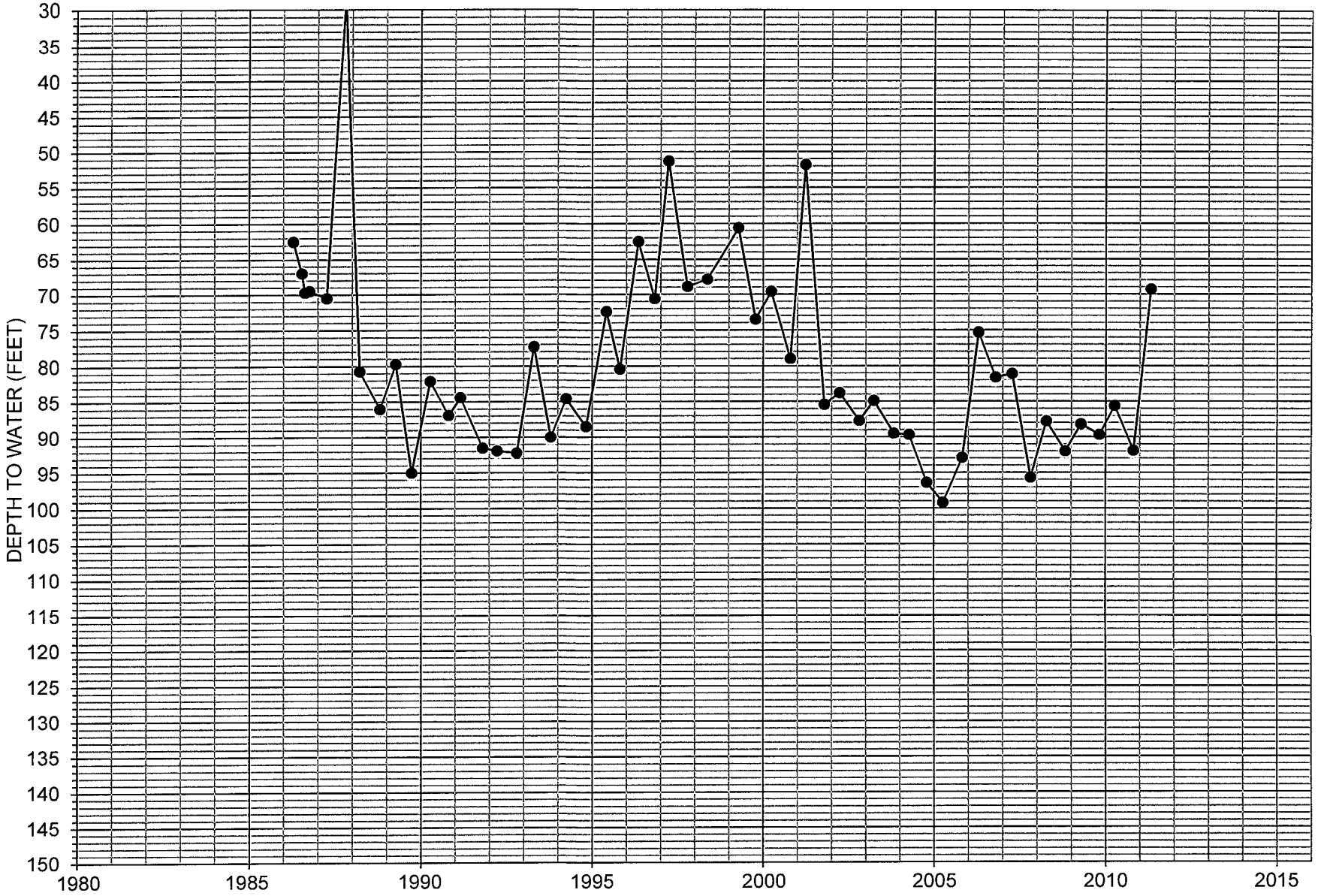
WATER-LEVEL HYDROGRAPH FOR WELL T23N/R16E-27R001



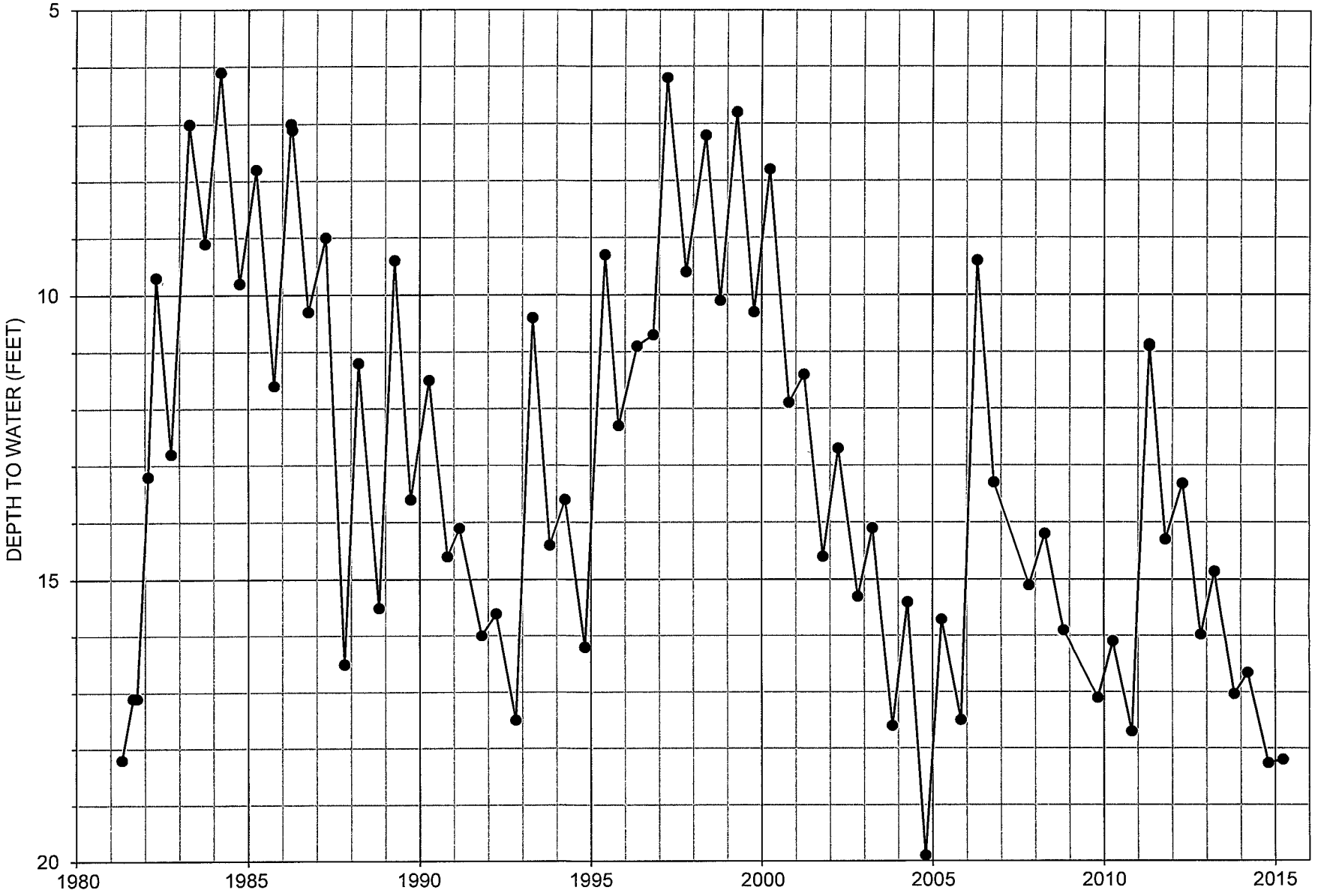
WATER-LEVEL HYDROGRAPH FOR WELL T23N/R16E-28L001



WATER-LEVEL HYDROGRAPH FOR WELL T23N/R16E-32Q001



WATER-LEVEL HYDROGRAPH FOR WELL T23N/R16E-36D002



WATER-LEVEL HYDROGRAPH FOR WELL T23N/R16E-36N002

APPENDIX A

WATER-LEVEL MEASUREMENTS FOR SPRING AND FALL 2012, 2013, 2014 AND SPRING 2015

WATER-LEVEL DATA FOR SPRING 2012 TO SPRING 2014

DWR WATER-LEVEL DATA FOR SIERRA VALLEY

Local Well Number	Date	Depth to Water (feet)	Measuring Point (feet)	Water-Level Elevation (feet)
20N14E13Q002M	4/17/2012	2.980	4,990.250	4,987.270
20N14E13Q002M	10/30/2012	6.190	4,990.250	4,984.060
20N14E13Q002M	3/25/2013	2.180	4,990.250	4,988.070
20N14E13Q002M	10/21/2013	6.430	4,990.300	4,983.870
20N14E13Q002M	3/14/2014	3.620	4,990.300	4,986.680
20N14E14R001M	4/17/2012	3.100	5,039.540	5,036.440
20N14E14R001M	10/30/2012	10.800	5,039.540	5,028.740
20N14E14R001M	3/25/2013	6.300	5,039.540	5,033.240
20N14E14R001M	10/21/2013	13.000	5,039.500	5,026.500
20N14E14R001M	3/14/2014	8.300	5,039.500	5,031.200
21N14E25P003M	4/17/2012	20.350	4,939.610	4,919.260
21N14E25P003M	10/30/2012	24.010	4,939.610	4,915.600
21N14E25P003M	3/25/2013	19.520	4,939.610	4,920.090
21N15E01K001M	4/17/2012	86.530	5,095.570	5,009.040
21N15E01K001M	10/30/2012	28.570	5,095.570	5,067.000
21N15E01K001M	3/25/2013	88.400	5,095.570	5,007.170
21N15E01K001M	10/21/2013	29.120	5,095.600	5,066.480
21N15E01K001M	3/14/2014	29.120	5,095.600	5,066.480
21N15E01K002M	4/17/2012	85.300	5,004.170	4,918.870
21N15E01K002M	10/30/2012	91.300	5,004.170	4,912.870
21N15E01K002M	3/25/2013	89.900	5,004.170	4,914.270
21N15E01K002M	10/21/2013	100.000	5,004.200	4,904.200
21N15E01K002M	3/14/2014	93.000	5,004.200	4,911.200
21N15E03M003M	4/17/2012	20.360	5,000.410	4,980.050
21N15E03M003M	10/30/2012	24.480	5,000.410	4,975.930
21N15E03M003M	3/25/2013	21.980	5,000.410	4,978.430
21N15E03M003M	10/21/2013	26.230	5,000.400	4,974.170
21N15E03M003M	3/14/2014	24.650	5,000.400	4,975.750
21N15E12J001M	4/17/2012	18.350	4,932.050	4,913.700
21N15E12J001M	10/30/2012	55.680	4,932.050	4,876.370
21N15E12J001M	3/25/2013	27.160	4,932.050	4,904.890
21N15E12J001M	10/21/2013	61.550	4,932.100	4,870.550
21N15E12J001M	3/14/2014	31.820	4,932.100	4,900.280
21N15E12P003M	4/17/2012	30.600	4,946.460	4,915.860
21N15E12P003M	10/30/2012	67.950	4,946.460	4,878.510
21N15E12P003M	3/25/2013	39.530	4,946.460	4,906.930
21N15E12P003M	10/21/2013	73.930	4,946.500	4,872.570
21N15E12P003M	3/14/2014	44.550	4,946.500	4,901.950

Continued:

DWR WATER-LEVEL DATA FOR SIERRA VALLEY
(Continued:)

Local Well Number	Date	Depth to Water (feet)	Measuring Point (feet)	Water-Level Elevation (feet)
21N15E14L001M	4/17/2012	26.600	4,941.650	4,915.050
21N15E14L001M	10/30/2012	63.500	4,941.650	4,878.150
21N15E14L001M	3/25/2013	37.200	4,941.650	4,904.450
21N15E14L001M	10/21/2013	77.000	4,941.700	4,864.700
21N15E14L001M	3/14/2014	39.700	4,941.700	4,902.000
21N16E06H003M	4/17/2012	44.490	4,963.870	4,919.380
21N16E06H003M	10/30/2012	79.750	4,963.870	4,884.120
21N16E06H003M	3/25/2013	52.610	4,963.870	4,911.260
21N16E07A001M	4/17/2012	18.800	4,965.360	4,946.560
21N16E07A001M	10/30/2012	25.440	4,965.360	4,939.920
21N16E07A001M	3/25/2013	23.950	4,965.360	4,941.410
21N16E07A001M	10/21/2013	28.850	4,965.400	4,936.550
21N16E07A001M	3/14/2014	27.800	4,965.400	4,937.600
21N16E07F004M	4/17/2012	43.000	4,971.270	4,928.270
21N16E07F004M	10/30/2012	58.250	4,971.270	4,913.020
21N16E07F004M	3/25/2013	47.110	4,971.270	4,924.160
21N16E07F004M	10/21/2013	64.160	4,971.300	4,907.140
21N16E07F004M	3/14/2014	52.440	4,971.300	4,918.860
21N16E07G001M	4/17/2012	24.700	4,897.790	4,873.090
21N16E07G001M	10/30/2012	81.300	4,897.790	4,816.490
21N16E07G001M	3/25/2013	40.700	4,897.790	4,857.090
21N16E07G001M	10/21/2013	100.000	4,897.800	4,797.800
21N16E07G001M	3/14/2014	44.400	4,897.800	4,853.400
21N16E07M001M	4/17/2012	18.870	4,917.090	4,898.220
21N16E07M001M	10/30/2012	19.020	4,917.090	4,898.070
21N16E07M001M	3/25/2013	18.420	4,917.090	4,898.670
21N16E07M001M	10/21/2013	18.920	4,917.100	4,898.180
21N16E07M001M	3/14/2014	19.300	4,917.100	4,897.800
21N16E18G002M	4/17/2012	18.520	4,917.290	4,898.770
21N16E18G002M	10/30/2012	68.930	4,917.290	4,848.360
21N16E18G002M	3/25/2013	29.780	4,917.290	4,887.510
21N16E18G002M	10/21/2013	75.850	4,917.300	4,841.450
21N16E18G002M	3/14/2014	34.050	4,917.300	4,883.250
21N16E30A001M	4/17/2012	48.500	4,954.660	4,906.160
21N16E30A001M	10/30/2012	61.500	4,954.660	4,893.160
21N16E30A001M	3/25/2013	51.500	4,954.660	4,903.160
21N16E30A001M	10/21/2013	70.000	4,954.700	4,884.700
21N16E30A001M	3/14/2014	61.200	4,954.700	4,893.500

Continued:

DWR WATER-LEVEL DATA FOR SIERRA VALLEY

(Continued:)

Local Well Number	Date	Depth to Water (feet)	Measuring Point (feet)	Water-Level Elevation (feet)
22N15E08Q001M	4/17/2012	10.700	4,911.890	4,901.190
22N15E08Q001M	10/30/2012	53.400	4,911.890	4,858.490
22N15E08Q001M	3/25/2013	20.100	4,911.890	4,891.790
22N15E08Q001M	10/21/2013	80.000	4,911.890	4,831.890
22N15E08Q001M	3/14/2014	24.500	4,911.890	4,887.390
22N15E08Q001M	4/17/2012	13.000	4,901.570	4,888.570
22N15E13N001M	10/30/2012	76.500	4,901.570	4,825.070
22N15E13N001M	3/25/2013	29.700	4,901.570	4,871.870
22N15E13N001M	10/21/2013	85.000	4,901.570	4,816.570
22N15E13N001M	3/14/2014	33.500	4,901.570	4,868.070
22N15E13N001M	4/17/2012	29.260	4,889.580	4,860.320
22N15E22Q001M	10/30/2012	104.390	4,889.580	4,785.190
22N15E22Q001M	3/25/2013	38.330	4,889.580	4,851.250
22N15E22Q001M	10/21/2013	101.610	4,889.580	4,787.970
22N15E22Q001M	3/14/2014	52.150	4,889.580	4,837.430
22N15E22Q001M	4/17/2012	28.000	4,888.270	4,860.270
22N15E27Q001M	10/30/2012	60.500	4,888.270	4,827.770
22N15E27Q001M	3/25/2013	43.000	4,888.270	4,845.270
22N15E27Q001M	10/21/2013	70.000	4,888.270	4,818.270
22N15E27Q001M	3/14/2014	48.000	4,888.270	4,840.270
22N15E27Q001M	4/17/2012	4.400	4,940.720	4,936.320
22N15E34L006M	10/30/2012	3.100	4,940.720	4,937.620
22N15E34L006M	3/25/2013	5.200	4,940.720	4,935.520
22N15E34L006M	10/21/2013	10.000	4,940.720	4,930.720
22N15E34L006M	3/14/2014	5.900	4,940.720	4,934.820
22N15E34L006M	4/17/2012	20.710	4,885.770	4,865.060
22N15E36N001M	10/30/2012	27.260	4,885.770	4,858.510
22N15E36N001M	3/25/2013	25.100	4,885.770	4,860.670
22N15E36N001M	10/21/2013	30.880	4,885.770	4,854.890
22N15E36N001M	3/14/2014	28.880	4,885.770	4,856.890
22N15E36N001M	4/17/2012	41.500	4,897.570	4,856.070
22N15E36Q001M	10/30/2012	92.800	4,897.570	4,804.770
22N15E36Q001M	3/25/2013	69.500	4,897.570	4,828.070
22N15E36Q001M	10/21/2013	120.000	4,897.570	4,777.570
22N15E36Q001M	3/14/2014	67.200	4,897.570	4,830.370
22N15E36Q001M	4/17/2012	5.900	4,906.190	4,900.290
22N16E04A001M	10/30/2012	12.300	4,906.190	4,893.890
22N16E04A001M	3/25/2013	9.110	4,906.190	4,897.080

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DWR WATER-LEVEL DATA FOR SIERRA VALLEY

(Continued:)

Local Well Number	Date	Depth to Water (feet)	Measuring Point (feet)	Water-Level Elevation (feet)
22N16E04A001M	10/21/2013	15.770	4,906.190	4,890.420
22N16E04A001M	3/14/2014	29.400	4,906.190	4,876.790
22N16E06R002M	10/30/2012	15.030	4,914.790	4,899.760
22N16E06R002M	3/25/2013	13.160	4,914.790	4,901.630
22N16E06R002M	4/25/2011	10.030	4,914.790	4,904.760
22N16E06R002M	10/18/2011	11.980	4,914.790	4,902.810
22N16E06R002M	10/21/2013	18.050	4,914.790	4,896.740
22N16E17C001M	3/14/2014	17.480	4,914.790	4,897.310
22N16E17C001M	10/18/2011	4.930	4,880.520	4,875.590
22N16E17C001M	4/17/2012	2.600	4,880.520	4,877.920
22N16E17C001M	10/30/2012	5.940	4,880.520	4,874.580
22N16E17C001M	3/25/2013	2.600	4,880.520	4,877.920
22N16E17C001M	10/21/2013	6.030	4,880.520	4,874.490
22N16E17C001M	3/14/2014	5.570	4,880.520	4,874.950
22N16E17E002M	4/17/2012	68.000	4,911.580	4,843.580
22N16E17E002M	10/30/2012	116.400	4,911.580	4,795.180
22N16E17E002M	3/25/2013	72.400	4,911.580	4,839.180
22N16E17E002M	10/21/2013	150.000	4,911.580	4,761.580
22N16E17E002M	3/14/2014	77.500	4,911.580	4,834.080
22N16E20P002M	4/17/2012	20.100	4,936.100	4,916.000
22N16E20P002M	10/30/2012	34.000	4,936.100	4,902.100
22N16E20P002M	3/25/2013	17.700	4,936.100	4,918.400
22N16E20P002M	3/14/2014	22.500	4,936.100	4,913.600
23N15E26R001M	10/30/2012	126.000	4,924.090	4,798.090
23N15E26R001M	3/25/2013	86.900	4,924.090	4,837.190
23N15E26R001M	10/21/2013	150.000	4,924.090	4,774.090
23N15E26R001M	3/14/2014	82.000	4,924.090	4,842.090
23N16E30R001M	4/17/2012	12.940	4,944.590	4,931.650
23N16E30R001M	10/30/2012	23.160	4,944.590	4,921.430
23N16E30R001M	3/25/2013	5.940	4,944.590	4,938.650
23N16E30R001M	10/21/2013	30.680	4,944.590	4,913.910
23N16E30R001M	3/14/2014	18.500	4,944.590	4,926.090
23N16E32Q001M	4/17/2012	70.300	4,919.580	4,849.280
23N16E32Q001M	10/30/2012	128.600	4,919.580	4,790.980
23N16E32Q001M	3/25/2013	88.700	4,919.580	4,830.880
23N16E32Q001M	10/21/2013	160.000	4,919.580	4,759.580
23N16E32Q001M	3/14/2014	87.500	4,919.580	4,832.080
23N16E33A002M	4/17/2012	50.200	4,901.560	4,851.360

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DWR WATER-LEVEL DATA FOR SIERRA VALLEY

(Continued:)

Local Well Number	Date	Depth to Water (feet)	Measuring Point (feet)	Water-Level Elevation (feet)
	4/17/2012	10.620	4,967.390	4,956.770
	10/30/2012	10.640	4,967.390	4,956.750
	3/25/2013	10.510	4,967.390	4,956.880
	10/21/2013	10.590	4,967.390	4,956.800
	3/14/2014	11.150	4,967.390	4,956.240
23N16E28L001M	4/18/2012	13.080	4,943.790	4,930.710
23N16E28L001M	10/30/2012	26.030	4,943.790	4,917.760
23N16E28L001M	3/25/2013	16.860	4,943.790	4,926.930
23N16E28L001M	10/21/2013	25.920	4,943.790	4,917.870
23N16E28L001M	3/14/2014	18.270	4,943.790	4,925.520
23N15E29H001M	4/17/2012	13.400	4,901.930	4,888.530
23N15E29H001M	10/30/2012	24.580	4,901.930	4,877.350
23N15E29H001M	3/25/2013	16.810	4,901.930	4,885.120
23N15E29H001M	10/21/2013	28.400	4,901.930	4,873.530
23N15E29H001M	3/14/2014	20.950	4,901.930	4,880.980
23N16E23F001M	4/17/2012	17.120	4,995.590	4,978.470
23N16E23F001M	10/30/2012	19.690	4,995.590	4,975.900
23N16E23F001M	3/25/2013	18.220	4,995.590	4,977.370
23N16E23F001M	10/21/2013	20.500	4,995.590	4,975.090
23N16E23F001M	3/14/2014	20.400	4,995.590	4,975.190
DMW 2s	4/17/2012	7.510	4,953.260	4,945.750
DMW 2s	10/30/2012	10.300	4,953.260	4,942.960
DMW 2s	3/25/2013	7.820	4,953.260	4,945.440
DMW 2s	10/21/2013	10.530	4,955.140	4,944.610
DMW 2s	3/14/2014	8.880	4,955.140	4,946.260
DMW 2I	4/17/2012	5.220	4,953.430	4,948.210
DMW 2I	10/30/2012	6.640	4,953.430	4,946.790
DMW 2I	3/25/2013	6.640	4,953.430	4,946.790
DMW 2I	10/21/2013	7.040	4,955.250	4,948.210
DMW 2I	3/14/2014	6.920	4,955.250	4,948.330
DMW 2d	4/17/2012	1.830	4,953.420	4,951.590
DMW 2d	10/30/2012	2.710	4,953.420	4,950.710
DMW 2d	3/25/2013	5.500	4,953.420	4,947.920
DMW 2d	10/21/2013	3.050	4,955.080	4,952.030
DMW 2d	3/14/2014	3.220	4,955.080	4,951.860
DMW 3s	10/30/2012	2.860	4,915.230	4,912.370
DMW 3s	3/25/2013	0.750	4,915.230	4,914.480
DMW 3s	10/21/2013	4.910	4,915.200	4,910.290

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DWR WATER-LEVEL DATA FOR SIERRA VALLEY

(Continued:)

Local Well Number	Date	Depth to Water (feet)	Measuring Point (feet)	Water-Level Elevation (feet)
DMW 3i	10/30/2012	0.300	4,915.230	4,914.930
DMW 3i	3/25/2013	0.000	4,915.230	4,915.230
DMW 3i	10/21/2013	5.090	4,915.200	4,910.110
DMW 3d	10/30/2012	0.000	4,915.230	4,915.230
DMW 3d	3/25/2013	0.000	4,915.230	4,915.230
DMW 3d	10/21/2013	2.190	4,915.200	4,913.010
DMW 4s	4/17/2012	17.060	4,919.400	4,902.340
DMW 4s	10/30/2012	17.750	4,919.400	4,901.650
DMW 4s	3/25/2013	17.330	4,919.400	4,902.070
DMW 4s	10/21/2013	23.260	4,919.400	4,896.140
DMW 4s	3/14/2014	19.980	4,919.400	4,899.420
DMW 4i	4/17/2012	34.230	4,920.120	4,885.890
DMW 4i	10/30/2012	41.110	4,920.120	4,879.010
DMW 4i	3/25/2013	34.570	4,920.120	4,885.550
DMW 4i	10/21/2013	36.020	4,920.100	4,884.080
DMW 4i	3/14/2014	36.810	4,920.100	4,883.290
DMW 4d	4/17/2012	40.510	4,919.790	4,879.280
DMW 4d	10/30/2012	34.390	4,919.790	4,885.400
DMW 4d	3/25/2013	41.580	4,919.790	4,878.210
DMW 4d	10/21/2013	43.330	4,919.800	4,876.470
DMW 4d	3/14/2014	44.410	4,919.800	4,875.390
DMW 6d	4/17/2012	21.430	4,891.580	4,870.150
DMW 6d	10/30/2012	38.690	4,891.580	4,852.890
DMW 6d	3/25/2013	27.730	4,891.580	4,863.850
DMW 6d	10/21/2013	44.120	4,891.580	4,847.460
DMW 6d	3/14/2014	32.350	4,891.580	4,859.230
DMW 6s	4/17/2012	11.890	4,891.590	4,879.700
DMW 6s	10/30/2012	32.760	4,891.590	4,858.830
DMW 6s	3/25/2013	16.250	4,891.590	4,875.340
DMW 6s	10/21/2013	34.950	4,891.590	4,856.640
DMW 6s	3/14/2014	20.460	4,891.590	4,871.130
Roberti Well	4/17/2012	56.100	4,894.740	4,838.640
Roberti Well	10/30/2012	120.800	4,894.740	4,773.940
Roberti Well	3/25/2013	76.700	4,894.740	4,818.040
Roberti Well	10/21/2013	150.000	4,894.740	4,744.740
Roberti Well	3/14/2014	84.700	4,894.740	4,810.040

Data from DWR CASGEM.

DWR WATER-LEVEL DATA FOR CHILCOOT SUB-BASIN

Local Well Number	Date	Depth to Water (feet)	Measuring Point Elevation	Water-Level Elevation (feet)
22N16E01A002M	4/18/2012	41.800	5,094.030	5,052.230
22N16E01A002M	10/30/2012	45.620	5,094.030	5,048.410
22N16E01A002M	3/25/2013	44.550	5,094.030	5,049.480
22N16E01A002M	10/21/2013	48.550	5,094.000	5,045.450
22N16E01A002M	3/14/2014	46.970	5,094.000	5,047.030
23N16E36N002M	4/18/2012	14.120	5,014.410	5,000.290
23N16E36N002M	10/30/2012	16.780	5,014.410	4,997.630
23N16E36N002M	3/25/2013	15.660	5,014.410	4,998.750
23N16E36N002M	10/21/2013	17.830	5,014.400	4,996.570
23N16E36N002M	3/14/2014	17.450	5,014.400	4,996.950
23N16E36R001M	4/18/2012	20.120	5,039.620	5,019.500
23N16E36R001M	10/30/2012	18.150	5,039.620	5,021.470
23N16E36R001M	3/25/2013	17.780	5,039.620	5,021.840
23N16E36R001M	10/21/2013	21.330	5,039.600	5,018.270
23N16E36R001M	3/14/2014	20.330	5,039.600	5,019.270
23N17E31P001M	4/18/2012	121.460	5,174.630	5,053.170
23N17E31P001M	10/30/2012	125.800	5,174.630	5,048.830
23N17E31P001M	3/25/2013	148.140	5,174.630	5,026.490
23N17E31P001M	10/21/2013	126.690	5,174.600	5,047.910
23N17E31P001M	3/14/2014	125.430	5,174.600	5,049.170
23N17E31P001M	10/21/2013	126.690	5,174.600	5,047.910
23N17E31P001M	3/14/2014	125.430	5,174.600	5,049.170
23N17E31Q001M	4/18/2012	172.800	5,244.530	5,071.730
23N17E31Q001M	10/30/2012	177.500	5,244.530	5,067.030
23N17E31Q001M	10/21/2013	193.000	5,244.500	5,051.500
23N17E31Q001M	3/14/2014	184.500	5,244.500	5,060.000
23N17E31Q002M	4/18/2012	146.490	5,214.630	5,068.140
23N17E31Q002M	10/30/2012	148.910	5,214.630	5,065.720

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DWR WATER-LEVEL DATA FOR CHILCOOT SUB-BASIN

(Continued:)

Local Well Number	Date	Depth to Water (feet)	Measuring Point Elevation	Water-Level Elevation (feet)
23N17E31Q002M	10/21/2013	150.820	5,214.600	5,063.780
23N17E31Q002M	3/14/2014	150.190	5,214.600	5,064.410
DMW 5d	4/18/2012	4.890	5,011.920	5,007.030
DMW 5d	10/30/2012	7.610	5,011.920	5,004.310
DMW 5d	3/25/2013	6.240	5,011.920	5,005.680
DMW 5d	10/21/2013	9.200	5,011.900	5,002.700
DMW 5d	3/14/2014	8.430	5,011.900	5,003.470
DMW 5i	4/18/2012	8.160	5,011.920	5,003.760
DMW 5i	10/30/2012	10.720	5,011.920	5,001.200
DMW 5i	3/25/2013	9.500	5,011.920	5,002.420
DMW 5i	10/21/2013	12.100	5,011.900	4,999.800
DMW 5i	3/14/2014	11.780	5,011.900	5,000.120
DMW 5s	4/18/2012	11.150	5,011.910	5,000.760
DMW 5s	10/30/2012	13.570	5,011.910	4,998.340
DMW 5s	3/25/2013	12.460	5,011.910	4,999.450
DMW 5s	10/21/2013	14.750	5,011.900	4,997.150
DMW 5s	3/14/2014	14.810	5,011.900	4,997.090

Data from DWR CASGEM.

WATER-LEVEL DATA FOR FALL 2014 TO SPRING 2015

DWR WATER-LEVEL DATA FOR SIERRA VALLEY

Local Well Number	Date	Depth to Water (feet)	Measuring Point Elevation	Water-Level Elevation (feet)
20N14E13Q002M	10/20/2014	6.44	4,990.3	4,983.8
20N14E13Q002M	3/23/2015	3.86	4,990.3	4,986.4
20N14E14R001M	10/20/2014	3.50	5,039.5	5,036.0
20N14E14R001M	3/23/2015	3.70	5,039.5	5,035.8
21N14E25P003M	10/20/2014	25.28	4,939.6	4,914.3
21N14E25P003M	3/23/2015		4,939.6	
21N15E01K001M	10/20/2014	81.12	4,917.3	4,836.2
21N15E01K001M	3/23/2015	36.25	4,917.3	4,881.1
21N15E01K002M	10/20/2014	19.07	4,917.1	4,898.0
21N15E01K002M	3/23/2015	18.94	4,917.1	4,898.2
21N15E03M003M	10/20/2014	85.60	4,897.8	4,812.2
21N15E03M003M	3/23/2015	44.90	4,897.8	4,852.9
21N15E12J001M	10/20/2014	78.21	4,946.5	4,868.3
21N15E12J001M	3/23/2015	45.97	4,946.5	4,900.5
21N15E12P003M	10/20/2014	65.26	4,932.1	4,866.8
21N15E12P003M	3/23/2015	33.26	4,932.1	4,898.8
21N15E14L001M	10/20/2014	95.50	5,004.2	4,908.7
21N15E14L001M	3/23/2015	93.10	5,004.2	4,911.1
21N16E06H003M	10/20/2014	78.50	4,954.7	4,876.2
21N16E06H003M	3/23/2015		4,954.7	
21N16E07A001M	10/20/2014	66.78	4,971.3	4,904.5
21N16E07A001M	3/23/2015	54.93	4,971.3	4,916.4
21N16E07F004M	10/20/2014	32.98	4,965.4	4,932.4
21N16E07F004M	3/23/2015	31.31	4,965.4	4,934.1
21N16E07G001M	10/20/2014		4,963.9	

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DWR WATER-LEVEL DATA FOR SIERRA VALLEY

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Local Well Number	Date	Depth to Water (feet)	Measuring Point Elevation	Water-Level Elevation (feet)
21N16E07G001M	3/23/2015		4,963.9	
21N16E07M001M	10/20/2014	86.30	4,941.7	4,855.4
21N16E07M001M	3/23/2015	49.20	4,941.7	4,892.5
21N16E18G002M	10/20/2014	28.30	5,000.4	4,972.1
21N16E18G002M	3/23/2015	24.19	5,000.4	4,976.2
21N16E30A001M	10/20/2014	67.25	5,095.6	5,028.4
21N16E30A001M	3/23/2015	26.10	5,095.6	5,069.5
22N15E08Q001M	10/20/2014	5.37	4,880.5	4,875.2
22N15E08Q001M	3/23/2015	4.95	4,880.5	4,875.6
22N15E13N001M	10/20/2014		4,897.6	
22N15E13N001M	3/23/2015	80.10	4,897.6	4,817.5
22N15E22Q001M	10/20/2014	24.00	4,885.8	4,861.8
22N15E22Q001M	3/23/2015	27.55	4,885.8	4,858.2
22N15E27Q001M	10/20/2014		4,888.3	
22N15E27Q001M	3/23/2015	51.10	4,888.3	4,837.2
22N15E34L006M	10/20/2014	109.80	4,889.6	4,779.8
22N15E34L006M	3/23/2015	50.35	4,889.6	4,839.2
22N15E36N001M	10/20/2014		4,901.6	
22N15E36N001M	3/23/2015	36.70	4,901.6	4,864.9
22N15E36Q001M	10/20/2014	71.60	4,911.9	4,840.3
22N15E36Q001M	3/23/2015	27.50	4,911.9	4,884.4
22N16E01A002M	10/20/2014	21.20	5,094.0	5,072.8
22N16E01A002M	3/23/2015	50.15	5,094.0	5,043.9
22N16E04A001M	10/20/2014	50.73	4,936.1	4,885.4
22N16E04A001M	3/23/2015	25.80	4,936.1	4,910.3
22N16E06R002M	10/20/2014	153.50	4,911.6	4,758.1

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DWR WATER-LEVEL DATA FOR SIERRA VALLEY

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Local Well Number	Date	Depth to Water (feet)	Measuring Point Elevation	Water-Level Elevation (feet)
22N16E06R002M	3/23/2015	85.30	4,911.6	4,826.3
22N16E17C001M	10/20/2014	22.27	4,914.8	4,892.5
22N16E17C001M	3/23/2015	20.65	4,914.8	4,894.1
22N16E17E002M	10/20/2014	18.88	4,906.2	4,887.3
22N16E17E002M	3/23/2015	18.84	4,906.2	4,887.4
22N16E20P002M	10/20/2014	10.50	4,940.7	4,930.2
22N16E20P002M	3/23/2015	5.60	4,940.7	4,935.1
23N14E35L001M	10/20/2014		4,882.7	
23N14E35L001M	3/23/2015	14.17	4,882.7	4,868.5
23N15E26R001M	10/20/2014		4,901.6	
23N15E26R001M	3/23/2015		4,901.6	
23N15E29H001M	10/20/2014	30.66	4,901.9	4,871.3
23N15E29H001M	3/23/2015		4,901.9	
23N15E34D001M	10/20/2014	33.38	4,896.5	4,863.2
23N15E34D001M	3/23/2015	28.93	4,896.5	4,867.6
23N16E23F001M	10/20/2014	22.00	4,995.6	4,973.6
23N16E23F001M	3/23/2015	20.71	4,995.6	4,974.9
23N16E27R001M	10/20/2014	10.56	4,967.4	4,956.8
23N16E27R001M	3/23/2015	10.62	4,967.4	4,956.8
23N16E28L001M	10/20/2014	35.39	4,943.8	4,908.4
23N16E28L001M	3/23/2015	22.90	4,943.8	4,920.9
23N16E30R001M	10/20/2014	162.50	4,919.6	4,757.1
23N16E30R001M	3/23/2015	93.90	4,919.6	4,825.7
23N16E32Q001M	10/20/2014		4,924.1	
23N16E32Q001M	3/23/2015	75.50	4,924.1	4,848.6
23N16E33A002M	10/20/2014	33.28	4,944.6	4,911.3

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DWR WATER-LEVEL DATA FOR SIERRA VALLEY

(Continued:)

Local Well Number	Date	Depth to Water (feet)	Measuring Point Elevation	Water-Level Elevation (feet)
23N16E33A002M	3/23/2015	22.36	4,944.6	4,922.2
23N16E36D002M	10/20/2014		5,116.8	
23N16E36D002M	3/23/2015		5,116.8	
23N16E36L003M	10/20/2014	23.78	5,014.8	4,991.0
23N16E36L003M	3/23/2015	21.15	5,014.8	4,993.7
23N16E36L004M	10/20/2014	52.73	5,034.7	4,982.0
23N16E36L004M	3/23/2015	49.53	5,034.7	4,985.2
23N16E36N002M	10/20/2014	19.06	5,014.4	4,995.3
23N16E36N002M	3/23/2015	19.00	5,014.4	4,995.4
23N16E36R001M	10/20/2014	22.26	5,039.6	5,017.3
23N16E36R001M	3/23/2015	23.13	5,039.6	5,016.5
23N17E31P001M	10/20/2014	131.66	5,174.6	5,042.9
23N17E31P001M	3/23/2015	127.65	5,174.6	5,047.0
23N17E31Q001M	10/20/2014	196.50	5,244.5	5,048.0
23N17E31Q001M	3/23/2015	188.80	5,244.5	5,055.7
23N17E31Q002M	10/20/2014	153.15	5,214.6	5,061.5
23N17E31Q002M	3/23/2015	151.95	5,214.6	5,062.7
DMW 2d	10/20/2014	3.72	4,955.1	4,951.4
DMW 2d	3/23/2015	3.22	4,955.1	4,951.9
DMW 2I	10/20/2014	7.78	4,955.3	4,947.5
DMW 2I	3/23/2015	6.73	4,955.3	4,948.5
DMW 2s	10/20/2014	10.96	4,955.1	4,944.2
DMW 2s	3/23/2015	8.73	4,955.1	4,946.4
DMW 3d	10/20/2014	4.35	4,915.2	4,910.9
DMW 3d	3/23/2015		4,915.2	
DMW 3i	10/20/2014	6.77	4,915.2	4,908.4

Continued:

DWR WATER-LEVEL DATA FOR SIERRA VALLEY

Local Well Number	Date	Depth to Water (feet)	Measuring Point Elevation	Water-Level Elevation (feet)
DMW 3i	3/23/2015	0.05	4,915.2	4,915.2
DMW 3s	10/20/2014	12.30	4,915.2	4,902.9
DMW 3s	3/23/2015	1.88	4,915.2	4,913.3
DMW 4d	10/20/2014	45.93	4,919.8	4,873.9
DMW 4d	3/23/2015	46.91	4,919.8	4,872.9
DMW 4i	10/20/2014	38.05	4,920.1	4,882.1
DMW 4i	3/23/2015	38.87	4,920.1	4,881.2
DMW 4s	10/20/2014	24.28	4,919.4	4,895.1
DMW 4s	3/23/2015	20.86	4,919.4	4,898.5
DMW 5d	10/20/2014	10.68	5,011.9	5,001.2
DMW 5d	3/23/2015	9.87	5,011.9	5,002.0
DMW 5i	10/20/2014	13.62	5,011.9	4,998.3
DMW 5i	3/23/2015	12.99	5,011.9	4,998.9
DMW 5s	10/20/2014	16.30	5,011.9	4,995.6
DMW 5s	3/23/2015	15.93	5,011.9	4,996.0
DMW 6d	10/20/2014	48.65	4,891.6	4,842.9
DMW 6d	3/23/2015	37.11	4,891.6	4,854.5
DMW 6s	10/20/2014	39.20	4,891.6	4,852.4
DMW 6s	3/23/2015	24.26	4,891.6	4,867.3
Roberti Well	10/20/2014		4,894.7	
Roberti Well	3/23/2015	90.70	4,894.7	4,804.0

Data from DWR CASGEM.

APPENDIX B

WATER-LEVEL MEASUREMENTS FOR FREQUENTLY MEASURED WELLS

MONITOR WELLS				
WELL	1/1/2013	1/1/2014	1/3/2015	2/1/2015
MW 1s	18.3	18.8	19	19 Dotta-Lyltn
MW 1d	40.1	46.5	48.5	42.9 Dotta
MW 2s	9.5	10.5	9.2	9. Sanford-Sville
MW 2i	6	7.5	7.5	7.5 Sanford
MW 2d	2.5	3.5	3.6	3.5 Sanford
MW 3s	2	2	4.5	4.5 Dobbas-Sattley
MW 3i	FULL	FULL	1	0.5 Dobbas
MW 3d	FLOWING	FULL	FLOWING	FULL-Dobbas
MW 4s	16	22	23.1	21.7 Bradley-Calpine
MW 4i	30.6	36.5	38.3	38.8 Bradley
MW 4d	41.5	44.5	46.4	46.9 Bradley
MW 5s	13.1	15	16.1	16.1 Potter-Chilcoot
MW 5i	10	11.8	13.2	13.2 Potter
MW 5d	6.8	8.3	10	10 Potter
MW 6s	24	25	29	27 Feather R Land Trust
MW 6d	32	37	41.8	39.9 FRLT
W1	14.2	18.4	22	21.8 DS Ranch-Dyson Ln
W2	86.2	100	125 dry	125 dry? Murray-Bkwrth
W3	135	145	153	153 Williams-Bkwrth
W5	64	87	97	89 DS Ranch-Hwy 70
W6	43.5	46.8	49	49.2 S Black-Chilcoot
W8	6	10	10	10 Grizzly Ranch Golf Course

MONITOR WELLS				
WELL	1/1/2014	4/1/2014	7/18/2014	1/3/2015
MW 1D	46.5	34.5	115.3	48.5 T Dotta-Loyalton
MW 2D	3.5	3.1	4 11/30	3.6 L Sanford-Sierraville
MW 3D	FULL	FLOWING	28 11/1	FLOWING J Dobbas-Sattley
MW 4D	44.5	44.2	44.8 8/1	46.4 D Bradley-Calpine
MW 5D	8.3	8.3	11 8/17	10 E Potter-Chilcoot
MW 6D	37	32	50,5 9/20	41.8 Feather R L T-Bkwrth
W 1	18.4	16.5	22.8 11/1	22 DS Ranch-Dyson Ln
W 2	100	105	110 11/1	125 dry? K Murray-Bkwrth
W 3	145	146.5	152.6 11/1	153 J Williams-Bkwrth
W 5	87	71	141 10/1	97 DS Ranch-Hwy 70
W 6	46.8	45.5	49.2 10/1	49 S Black-Chilcoot
W 8	10	9.5	14.4 9/1	10 Grizzly Ranch Golf Course