Oakley Kenyon Critical Ground Water Area

Ken Neely, Technical Hydrogeologist

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This area was originally established as the Goose Creek-Rock Creek Critical Ground Water Area (CGWA) in 1962. This area was subdivided into 3 CGWAs in 1967. The West Oakley Fan CGWA was established in 1982; it is now known simply as the Oakley Fan CGWA. The Oakley Kenyon CGWA is the easternmost CGWA in this region (Figure 1).

The aquifer in the northern part of the Oakley Kenyon CGWA is predominately Quaternary Snake River Group (basalt) with some wells possibly extending into the Tertiary Idavada Volcanics (rhyolite). The aquifers in the southern part of the CGWA are mainly found in the Quaternary alluvium.

There are 11 active IDWR monitoring wells (Figures 2 – 13). Ten of these wells have average annual declines ranging from 0.1 to 4.9 ft/yr, with an overall average of 2 ft/yr. One well had an increase of 1.6 ft/yr. The 6 wells in the southern part of the CGWA are probably completed in alluvium, and their average decline is 2.2 ft/yr. The 7 wells in the northern part of the CGWA are probably completed in basalt and/or rhyolite, and these wells have an average decline of 2 ft/yr. Four of the northern wells are in IDWR's monitoring program. The other 3 wells have monitoring data as recently as 2011 to 2013 (Figures 14 – 16).

Nine of the 13 wells with declining trends had trend results that were statistically significant at the 95 percent confidence level. Well #5 has an increasing trend that was significant at the 95 percent confidence level. Summary statistics for the 14 wells that were analyzed are provided in Table 1.

Table 1. Summary statistics for 14 wells in the Oakley Kenyon CGWA.

Map Well Number	Station Name	Probability[1]	Mann Kendall Statistic
1	11S 22E 35DCC1	0.209	0.019
2	11S 23E 34CDC1	0	0.538
3	12S 23E 06DCC1	0	0.62
4	12S 22E 35BCC1	0	0.441
5	13S 22E 03BCC2	0	0.306
6	13S 22E 09DDC1	0	0.468
7	13S 23E 08CDD1	0.116	0.148
8	13S 22E 15CCC2	0	0.985
9	13S 22E 21CAA1	0	0.754
10	13S 22E 27BDD2	0.534	0.002
11	13S 22E 28CDD1	0	0.640
12	11S 22E 22CAD2	0.119	0.467
13	11S 22E 32CCC1	0	0.608
14	12S 22E 18ACD1	0	0.591

[1]Probability values less than 0.05 indicate that the trend is significant at the 95 percent confidence level.

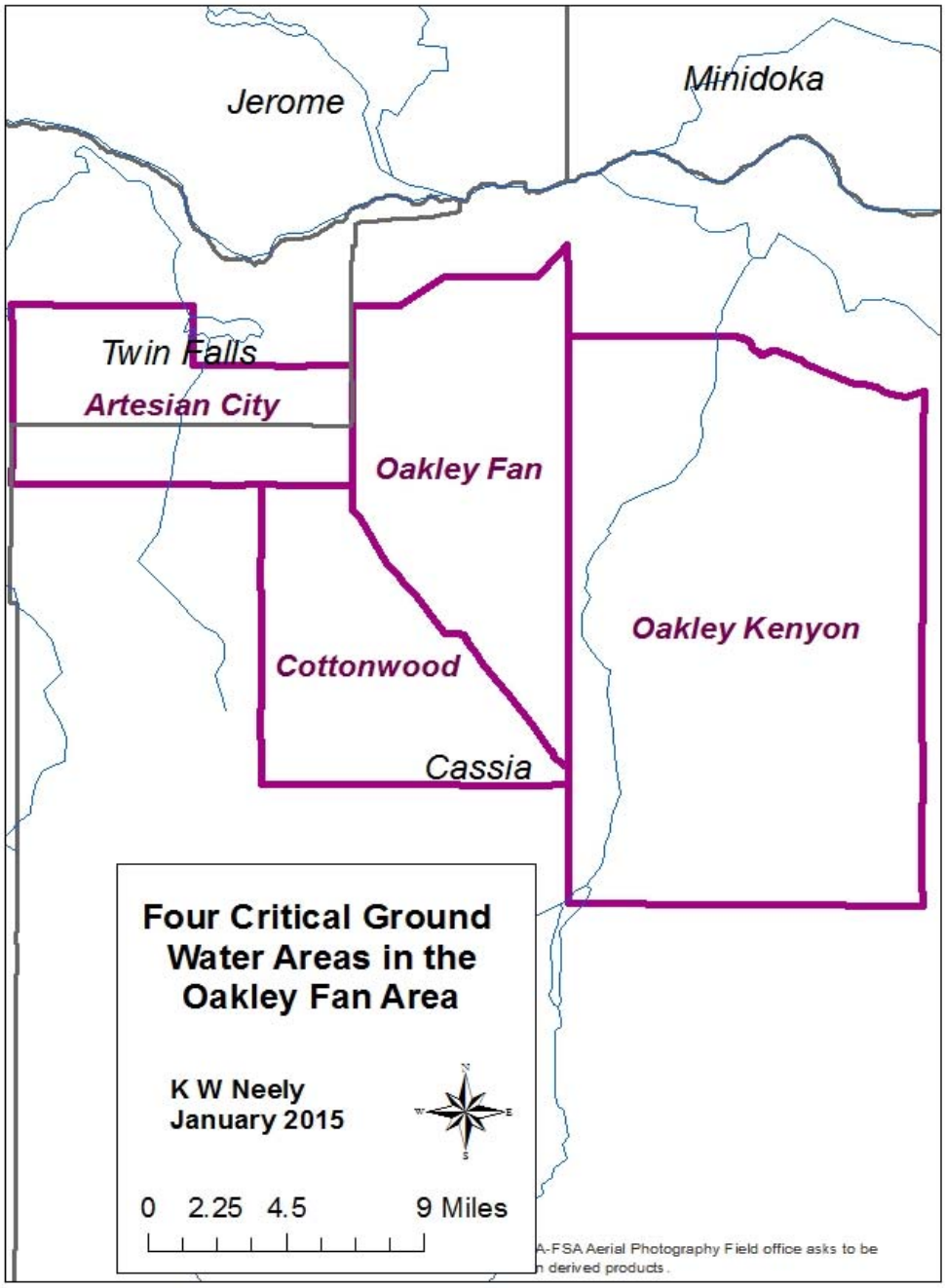

Figure 1. IDWR's four Critical Ground Water Areas in the Oakley Fan.

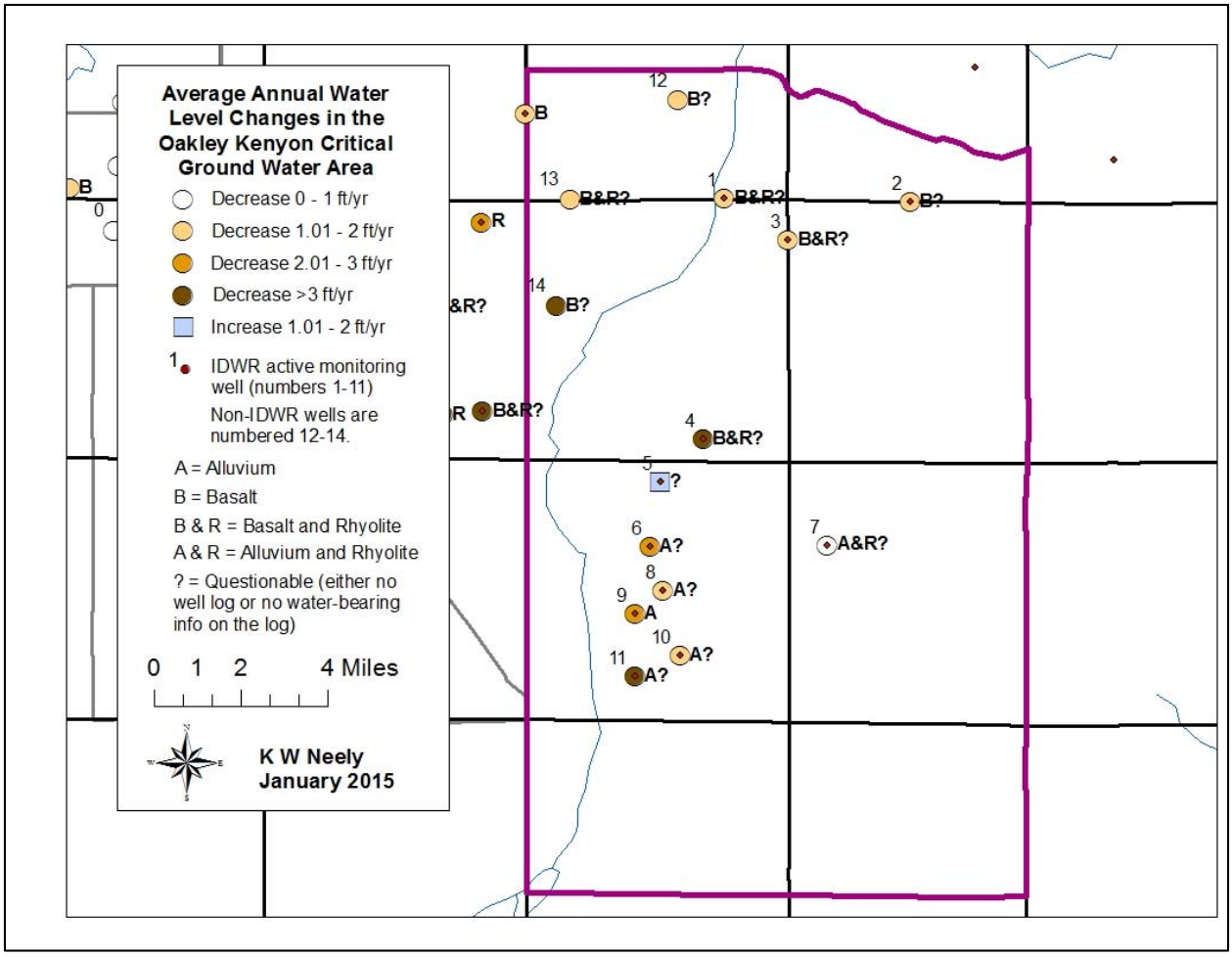

Figure 2. Average annual water level changes in the Oakley Kenyon Critical Ground Water Area.

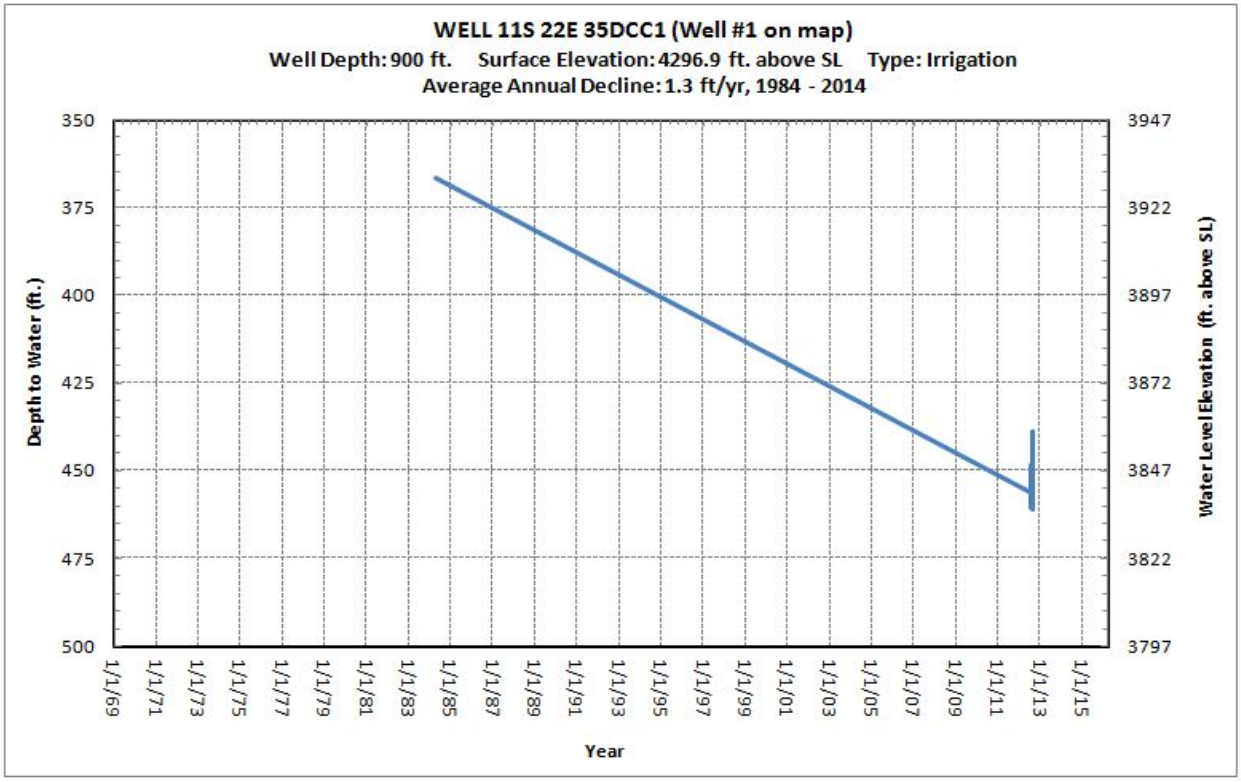

Figure 3. Ground water level hydrograph for 11S 22E 35DCC1, 1984 – 2014.

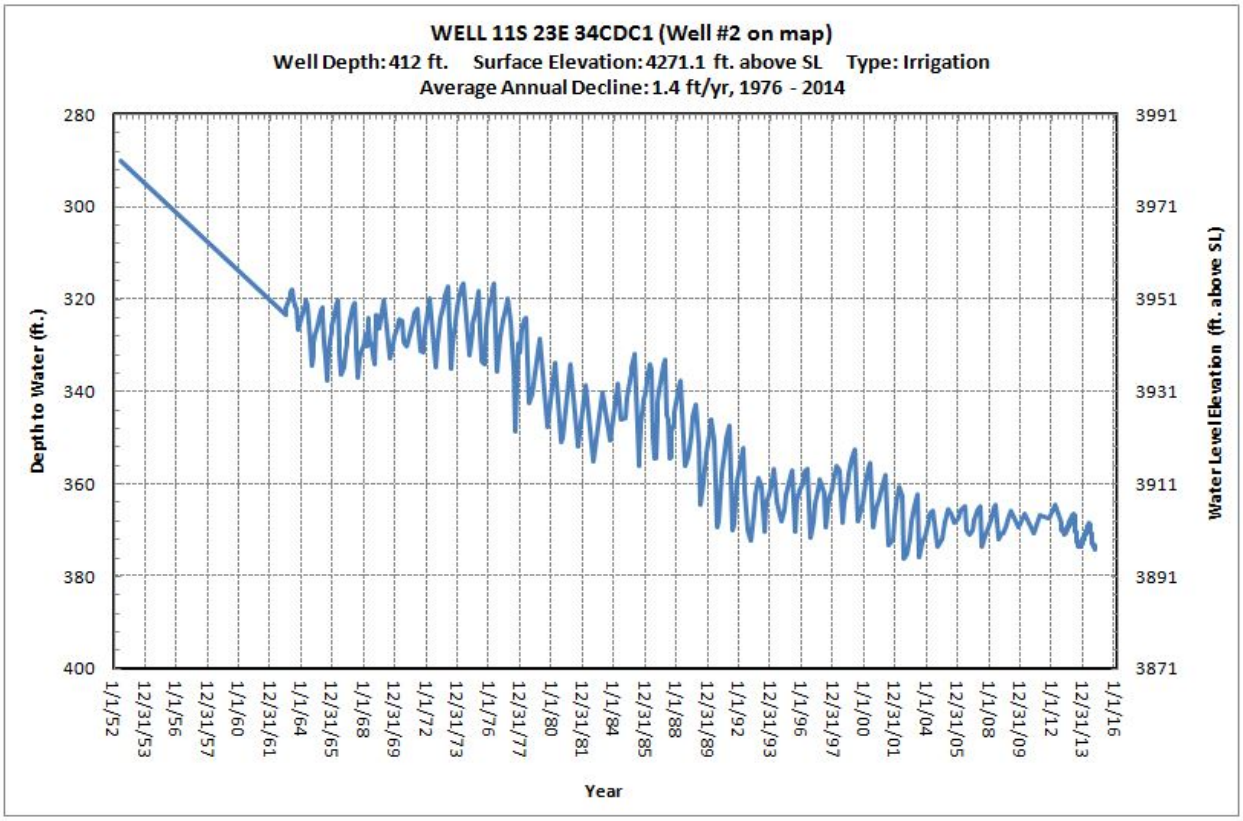

Figure 4. Ground water level hydrograph for 11S 23E 34CDC1, 1952 – 2014.

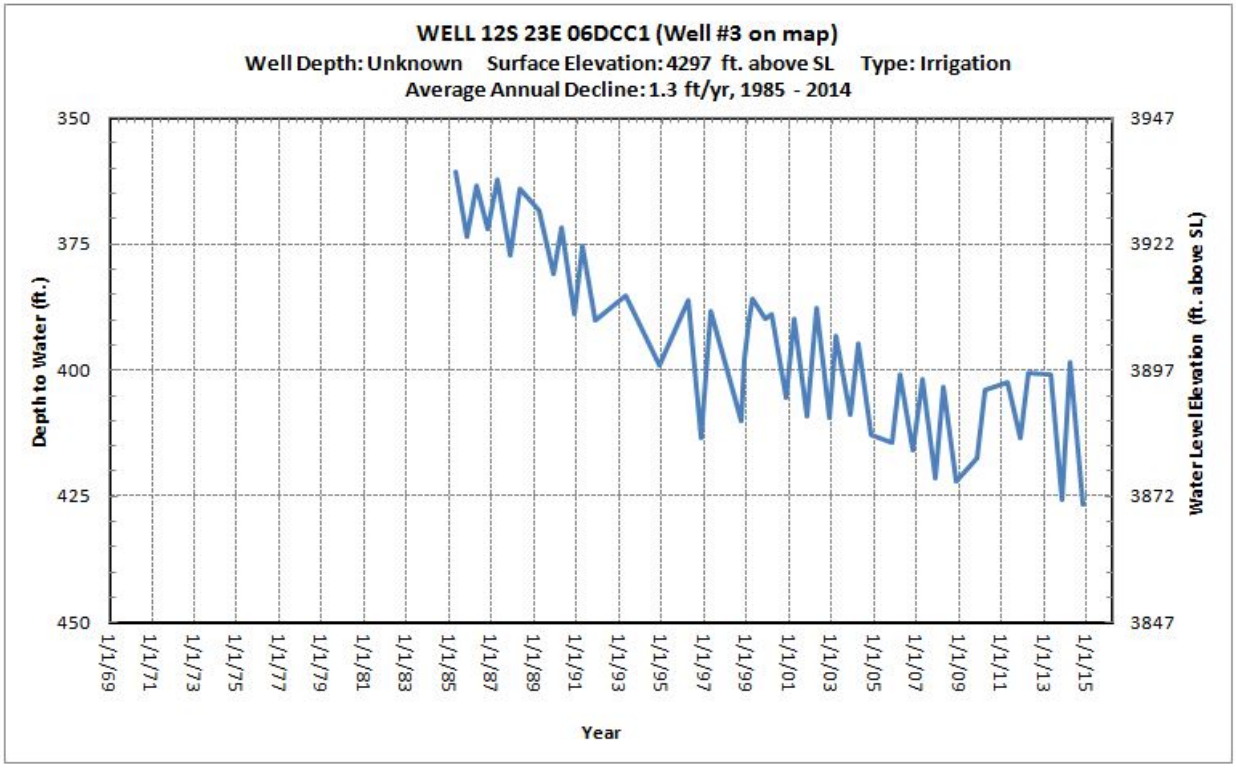

Figure 5. Ground water level hydrograph for 12S 23E 06DCC1, 1985 – 2014.

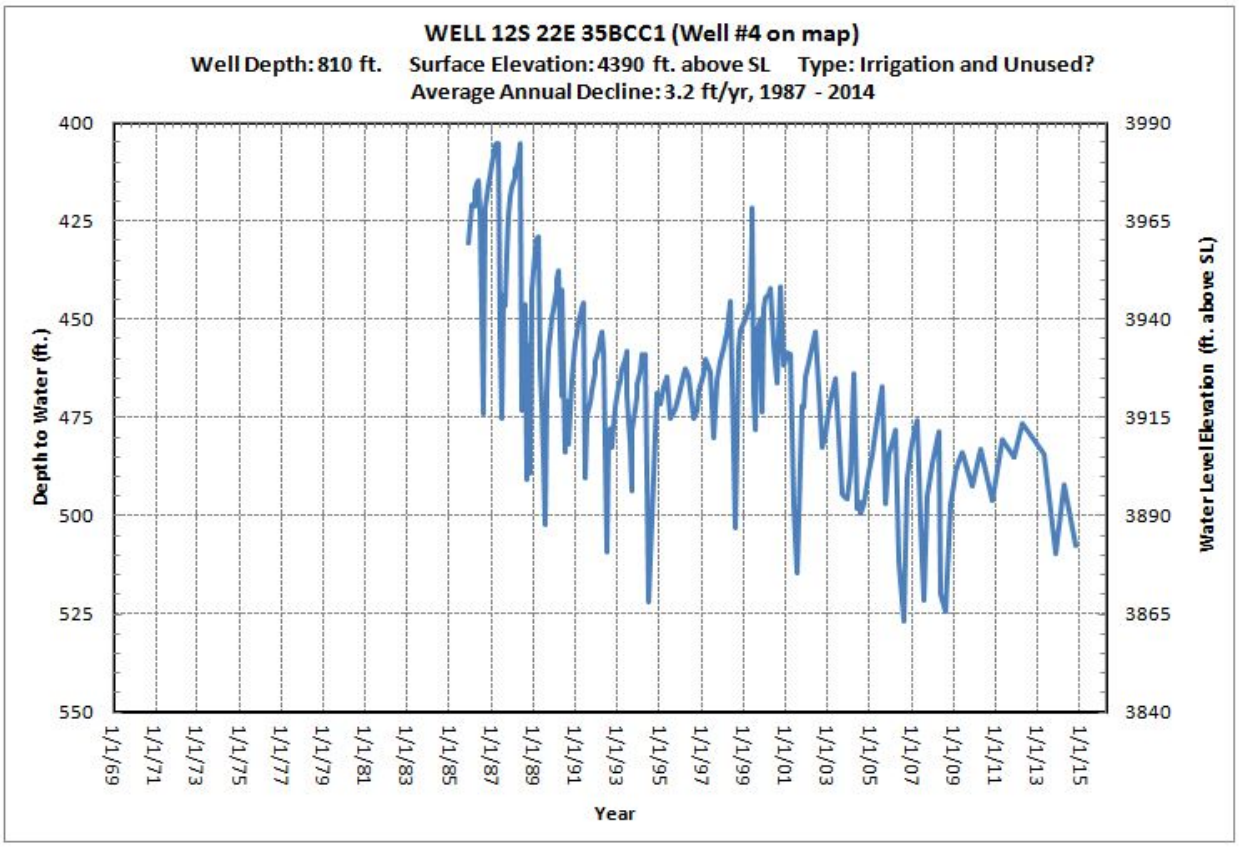

Figure 6. Ground water level hydrograph for 12S 22E 35BCC1, 1985 – 2014.

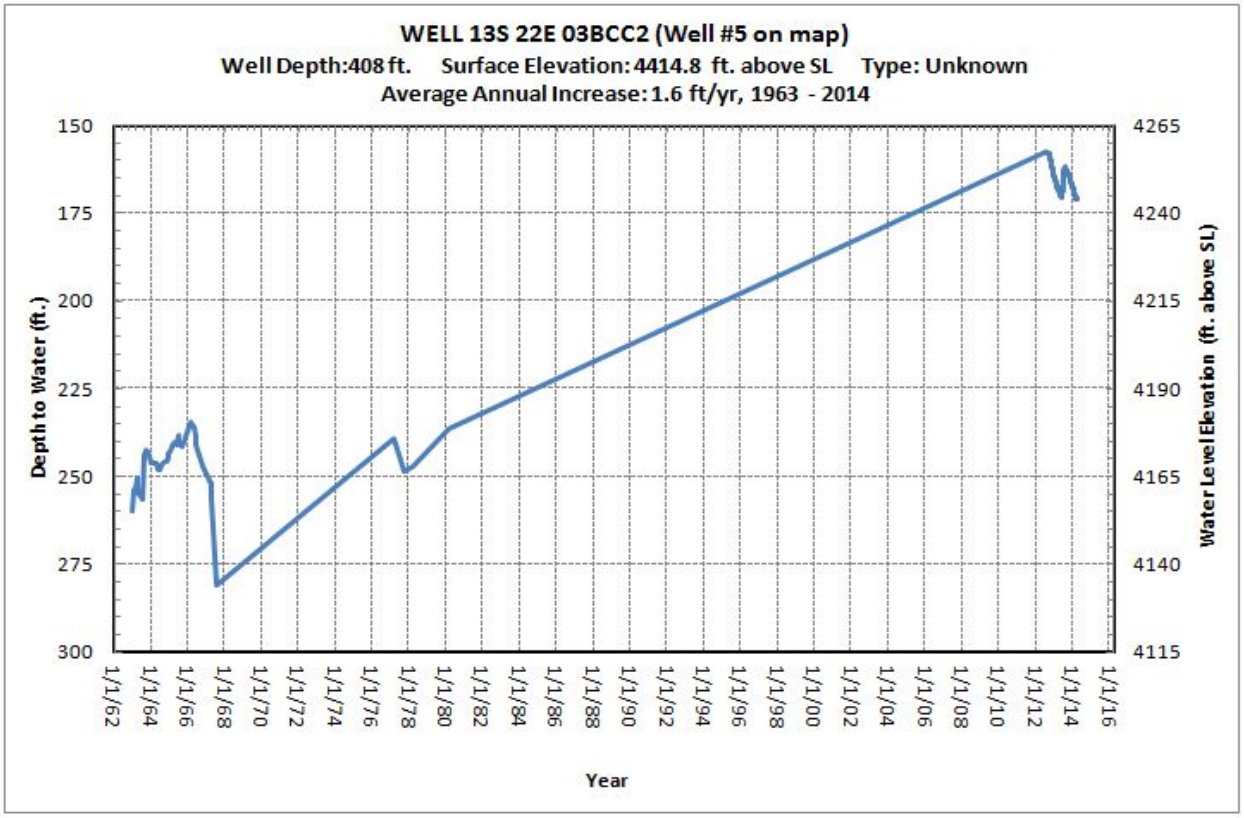

Figure 7. Ground water level hydrograph for 13S 22E 03BCC2, 1962 – 2014.

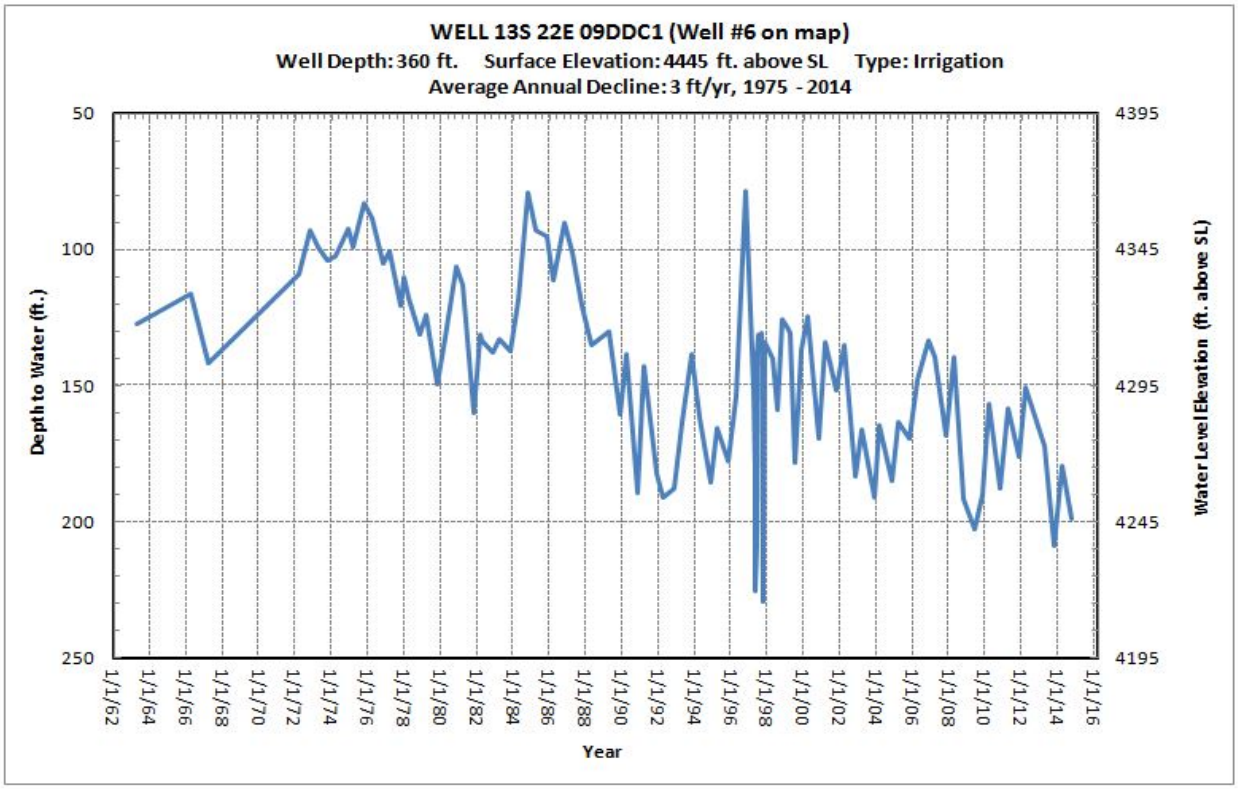

Figure 8. Ground water level hydrograph for 13S 22E 09DDC1, 1963 – 2014.

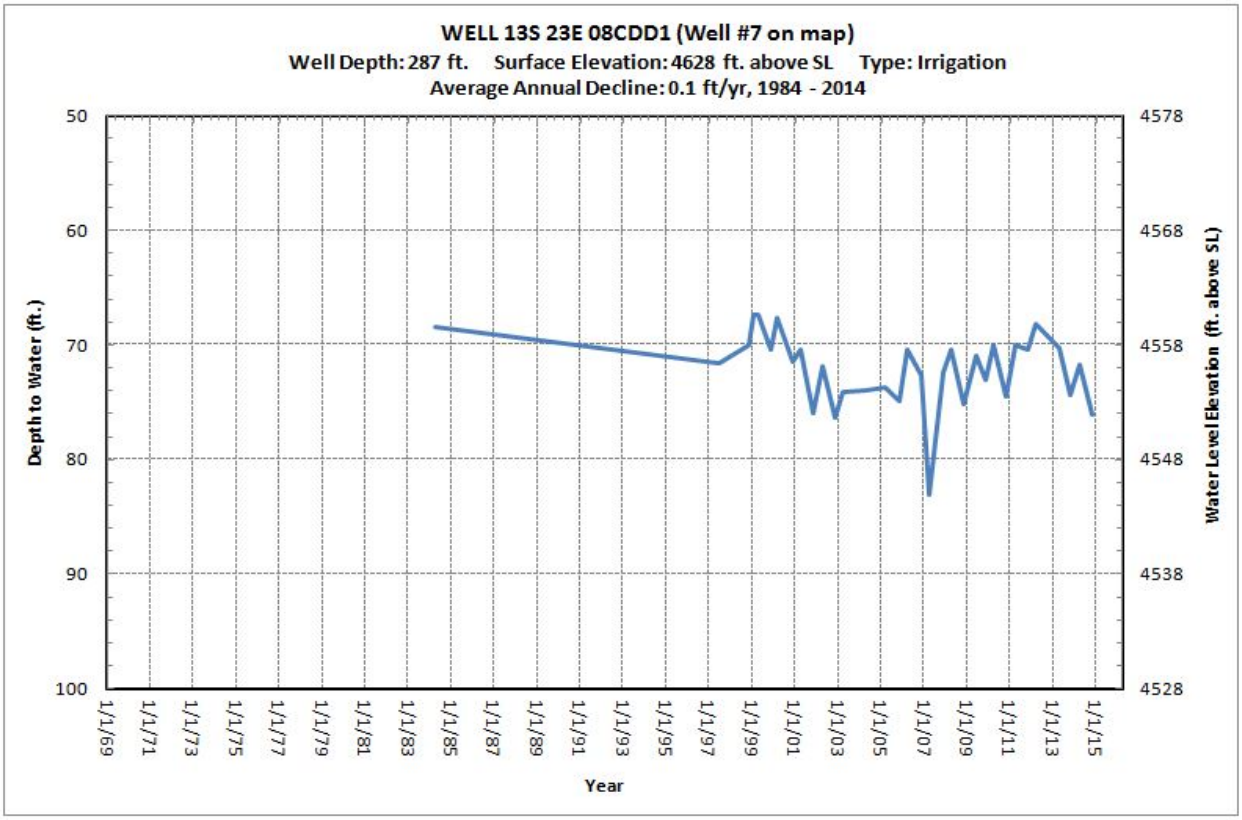

Figure 9. Ground water level hydrograph for 13S 23E 08CDD1, 1984 – 2014.

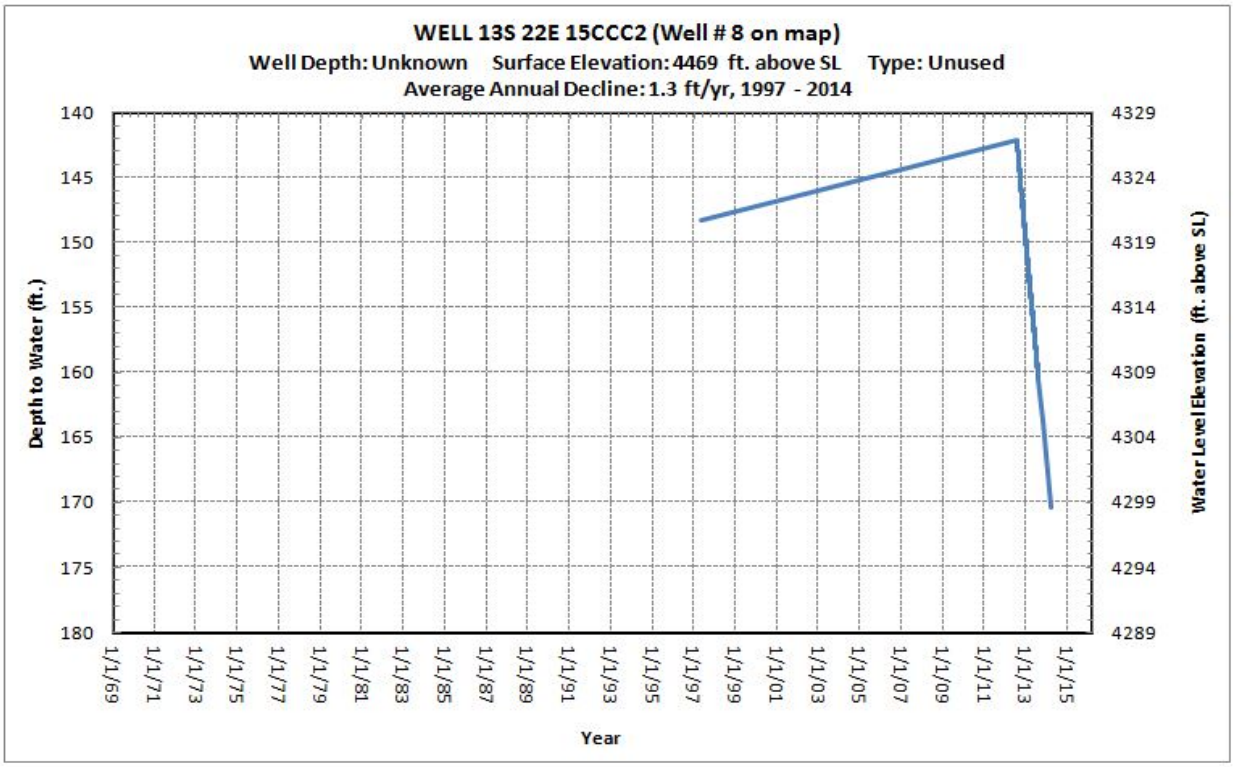

Figure 10. Ground water level hydrograph for 13S 22E 15CCC2, 1997 – 2014.

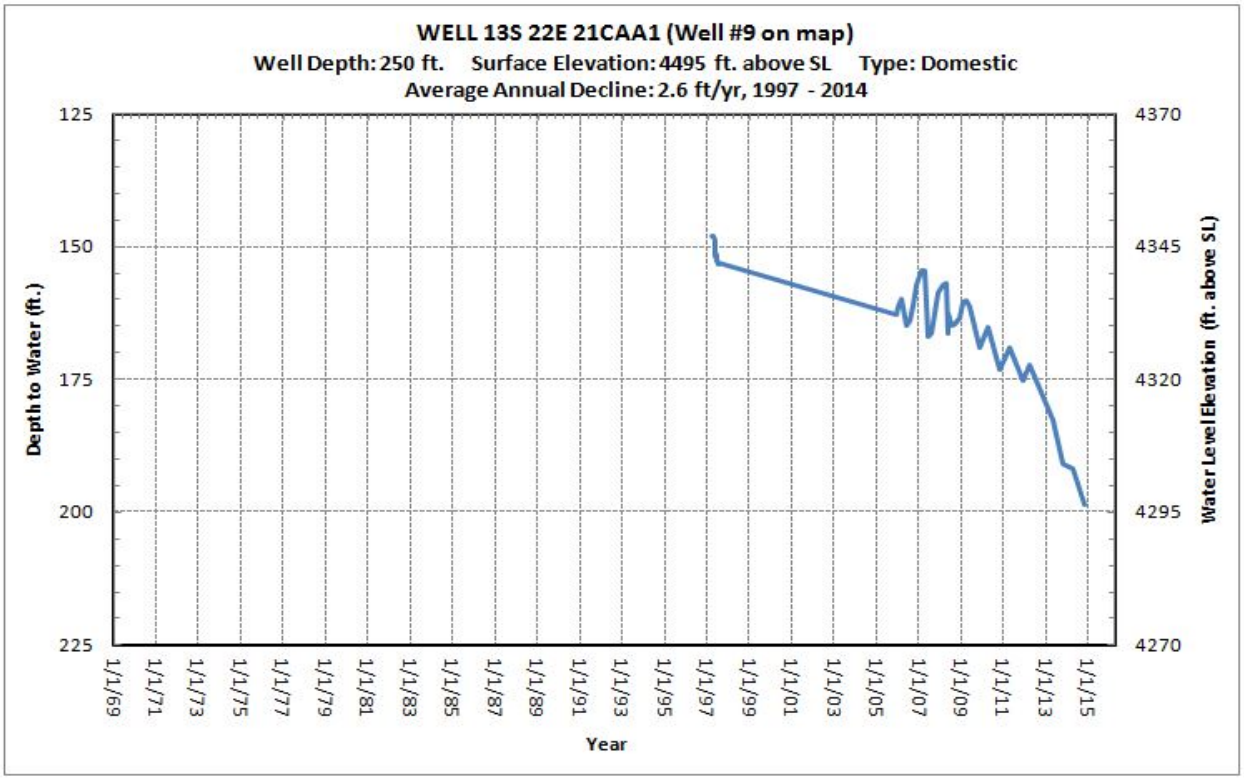

Figure 11. Ground water level hydrograph for 13S 22E 21CAA1, 1997 – 2014.

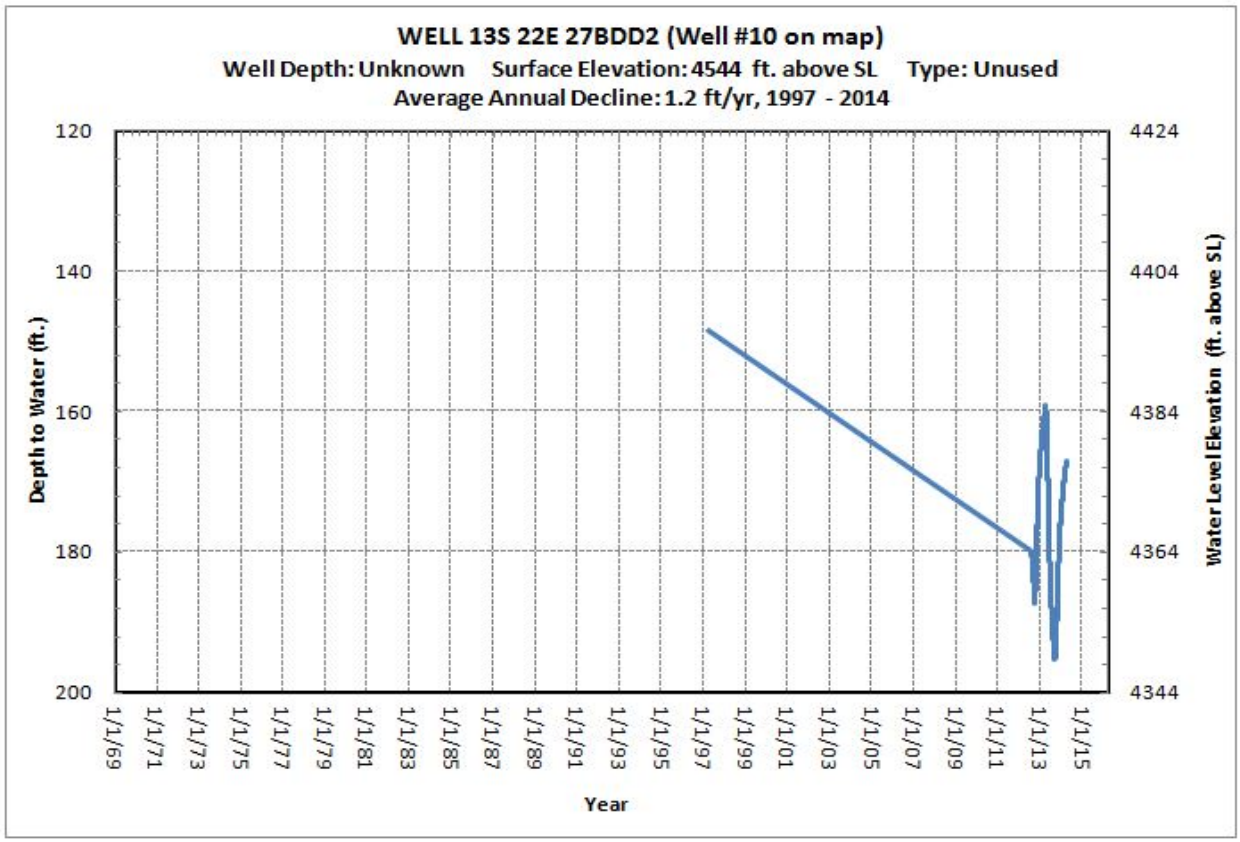

Figure 12. Ground water level hydrograph for 13S 22E 27BDD2, 1997 – 2014.

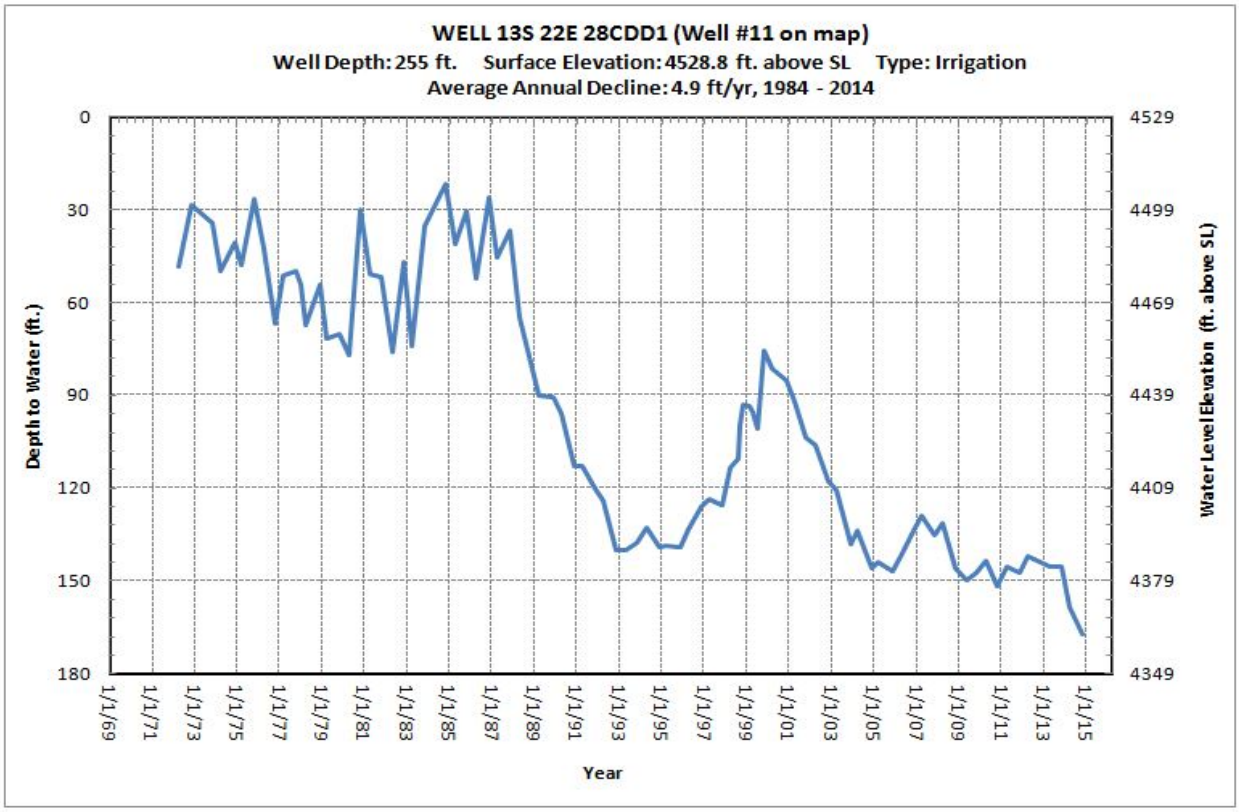

Figure 13. Ground water level hydrograph for 13S 22E 28CDD1, 1972 – 2014.

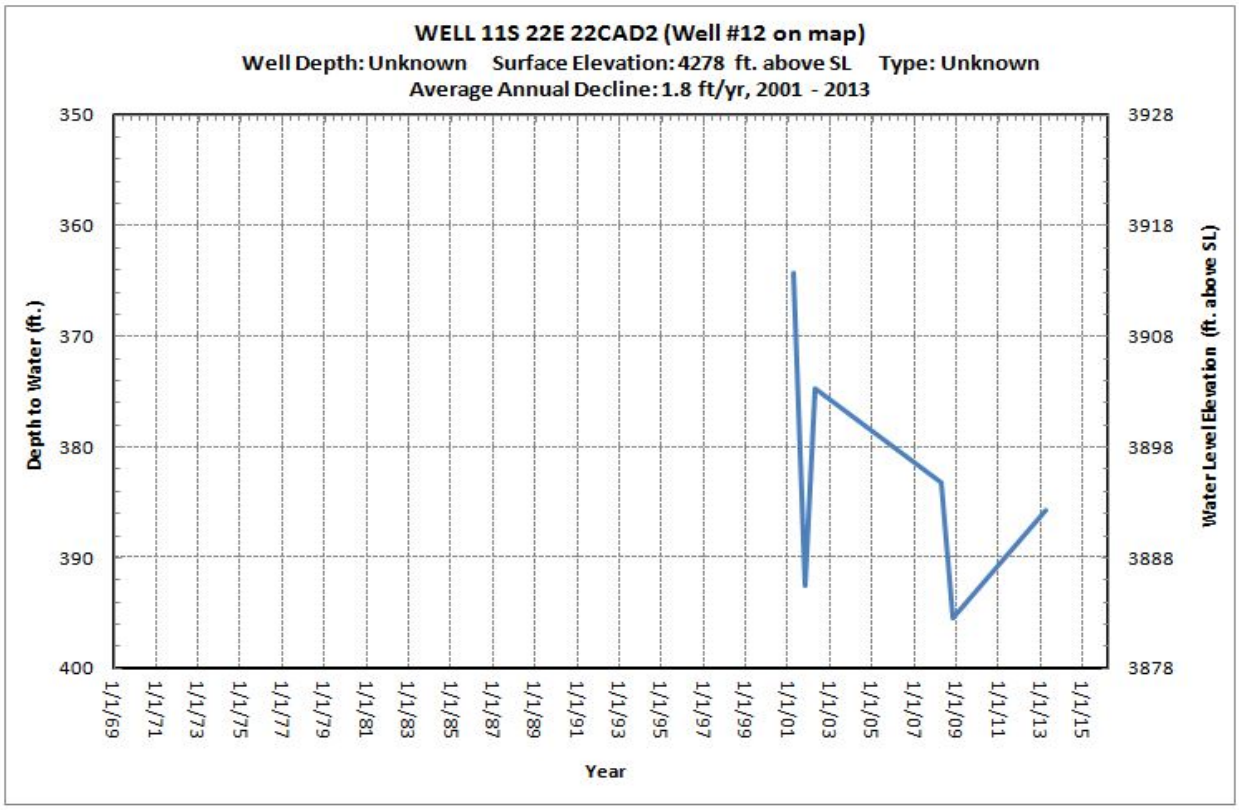

Figure 14. Ground water level hydrograph for 11S 22E 22CAD2, 2001 – 2013.

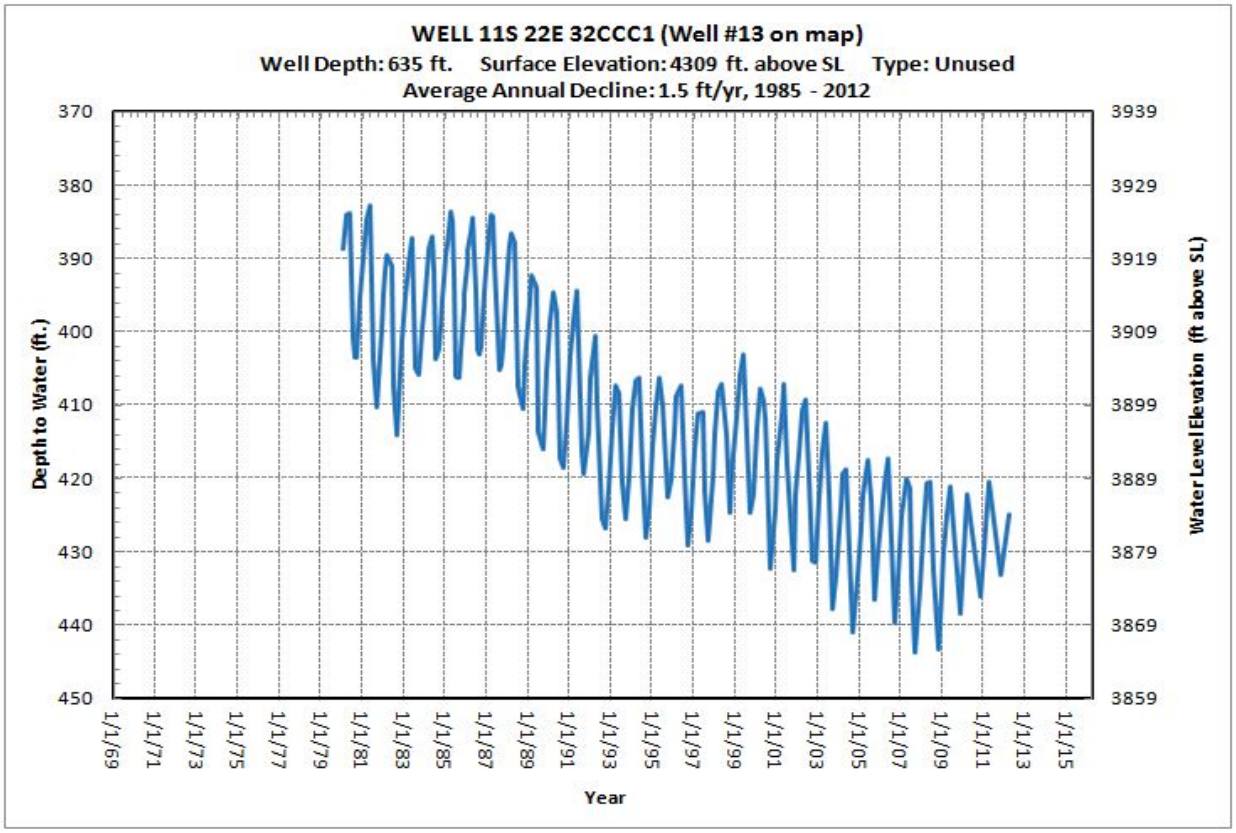

Figure 15. Ground water level hydrograph for 11S 22E 32CCC1, 1980 – 2012.

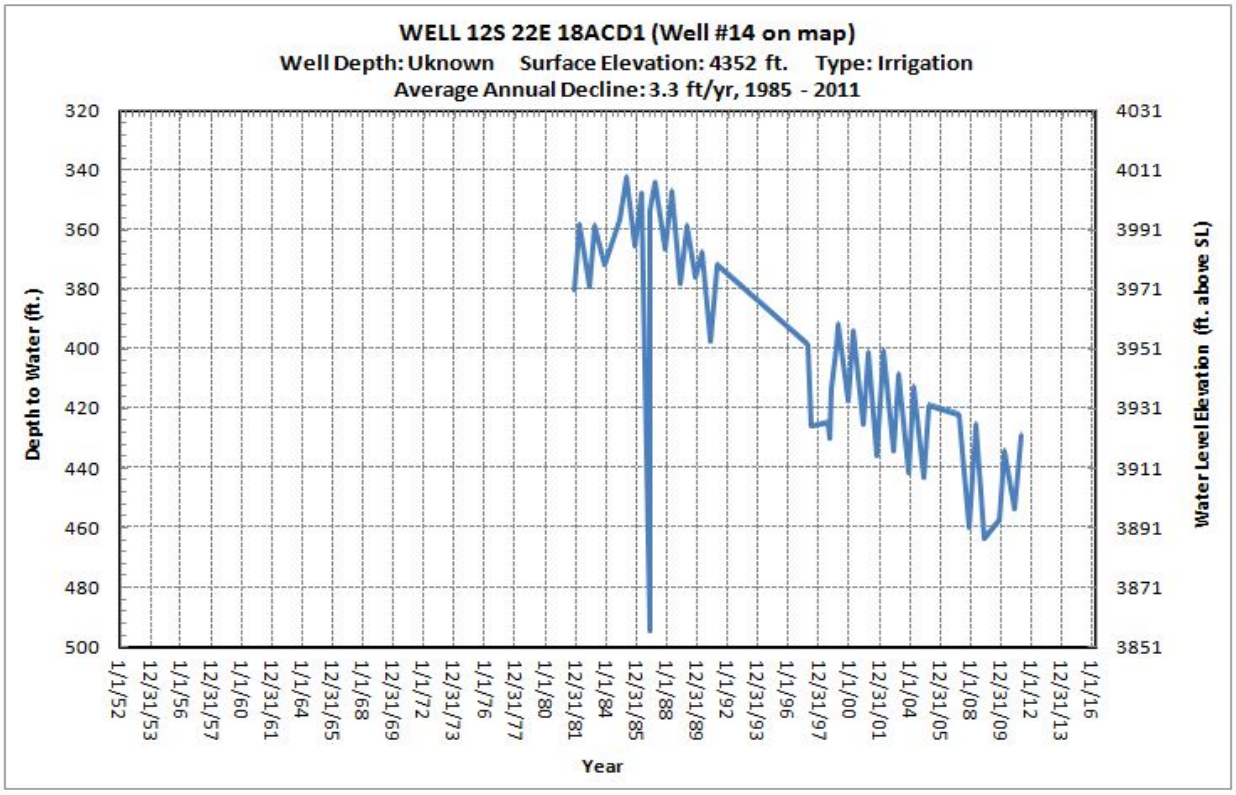

Figure 16. Ground water level hydrograph for 12S 22E 18ACD1, 1981 – 2011.