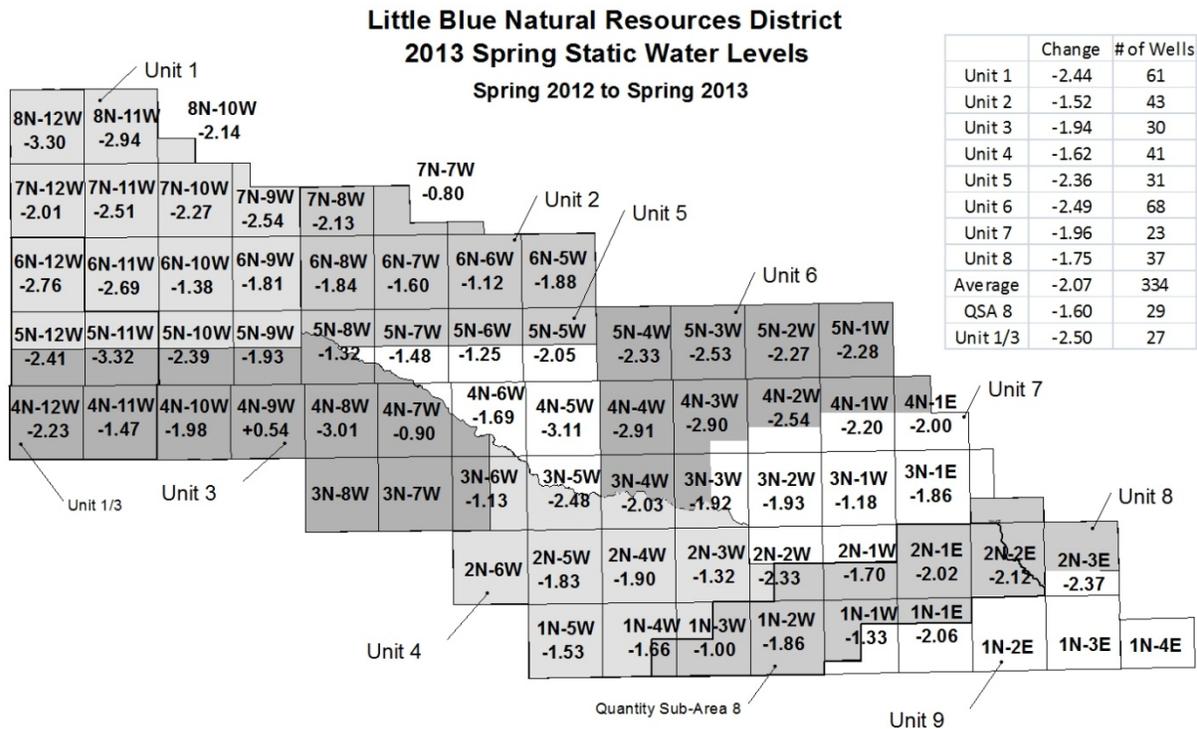


# RECORD DECLINES SPRING UP IN WATER TABLE

Spring static water levels were finished up a little late this spring; the wet and cold weather delayed a lot of early field work. The last wells were measured on May 6<sup>th</sup> of this year; in 2012 the data collections were completed on April 27<sup>th</sup>.

“The average depth to water in all the monitored sites this spring was a decline of -2.07 feet, a record for the Little Blue NRD,” according to Projects Manager Kevin Orvis. The previous largest decline was -1.88 in the spring of 1989.



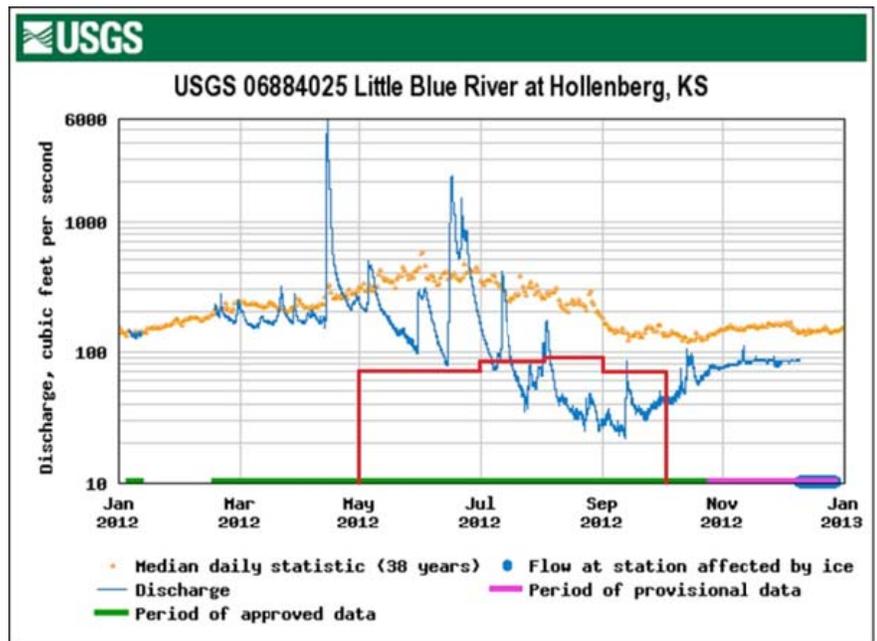
Last year was a very dry year and there was a lot of demand placed on the District’s groundwater aquifer for municipal, domestic, rural, irrigation, and commercial use. The average annual rainfall for the Little Blue, from data collected by the High Plains Regional Climate Center, is 27.52 inches. This number is an average of 58 years of data, dating back to 1955. In 2012, that Center recorded the District’s total precipitation, averaged from 22 reporting stations, at 20.11 inches. This is the 6<sup>th</sup> lowest total in the 58 years.

The largest consumer of groundwater is irrigation; however, the District doesn’t have a very good handle on what is being used. The Little Blue NRD doesn’t require certification of irrigated acres; or reporting of groundwater withdrawals for irrigation. There are 6,415 active irrigation wells registered with the State of Nebraska likely irrigating more than 600,000 acres. The District approved 177 new irrigation wells in 2012 which were estimated to provide water for another 9,945 acres.

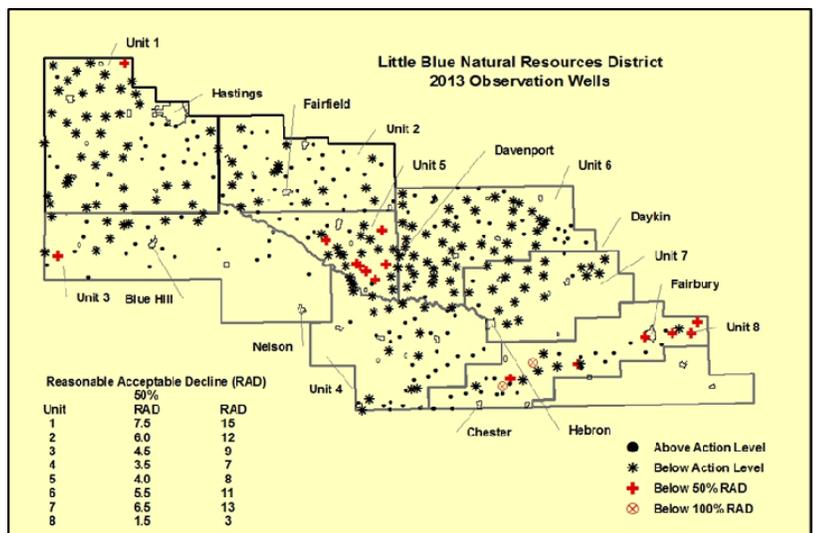
Orvis said, “The District does have a voluntary program in which irrigation use has been reported on 120,000 acres since 1999. The average use in the program since 1999 for three different categories of irrigation is gravity 13.4 inches per acre; pivot 8.4 inches per acres; and all acres 10.0 inches per acre. In 2012, the application rates for irrigation in this voluntary program averaged gravity 16.8, pivot 11.9, and all acres 12.1.”

Orvis believes the lack of rainfall coupled with the increased demands placed on the aquifer clearly shows why the water table is lower this spring. These factors also spill over into river flows on the Little Blue River. The Nebraska Department of Natural Resources had regulated surface water users closed for 69 days last summer, as a requirement of a compact with Kansas.

And at a recent Kansas/Nebraska Blue River Compact meeting flows for both the Big and Little Blue Rivers were the item for presentation. The 2012 annual graph for the flows of the Little Blue River at Hollenberg, KS are shown. The yellow line is the median flow for the last 38 years and the blue line is the actual flows in cubic feet per second. The red line is the Little Blue River Compact state line flow requirements for May through September and are as follows: May and June – 45 cfs; July – 75 cfs; August – 80 cfs and September 60 cfs. The flows can be viewed at any time at the following link: <http://waterdata.usgs.gov/ks/nwis/uv?06884025>. If flows are not met, surface water pumping for water rights newer than November 1968 must be shut down.



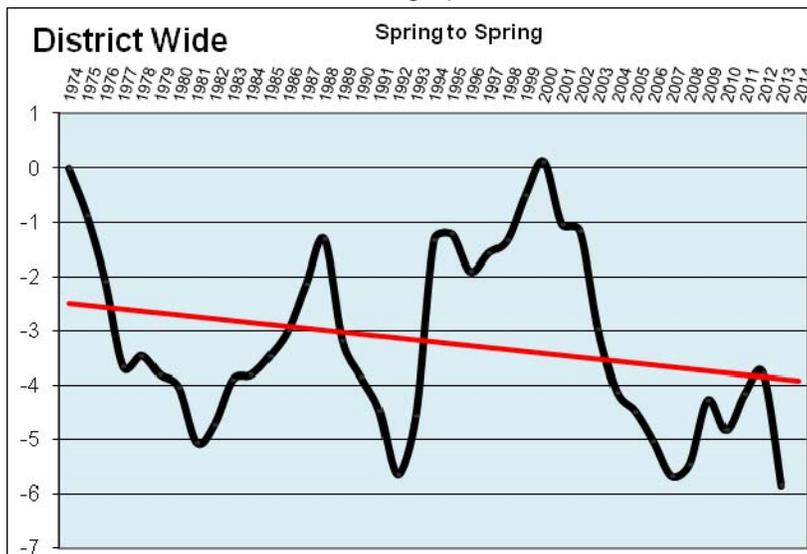
So where is the water table in relation to the District’s regulatory process as outlined in their Groundwater Management Plan? All levels are measured from each well’s lowest level of record prior to 1994. This spring 152 monitored wells were still above that level, even with last year’s significant lack of rainfall. 182 were below their lowest ever recorded level. 15 of those were below a point that would



require a Level 2 declaration, 2 were below a Level 3 declaration. That's 17 monitored wells below the Level 2 declatory decline. As a side note, this is the first spring any well has fallen below that Level 3 declaration.

The District's plan for regulatory action, on a District wide basis, would require 262 wells be below that Level 2 decline point before any enforcement such as flow meters or acreage reporting be enacted. The map above depicts the various levels of decline mentioned in the District's Groundwater Management Plan and locations of monitored wells.

So, while the District's Groundwater Management Plan isn't considering the current declines in the water table as severe; most would agree they are still concerning. This last graph shows the average annual change of all the monitored wells in the static water level program. Since 1974 the water table has been fluctuating up and down in



response to the outside influences, the trend line shows about a 1½ foot drop over this time period. It would have been better to see a few more years of upward trends before this last spring's record decline. For more information on aquifer characteristics, water quality issues, and other District programs please contact the office at 1 (402) 364-2145 or visit the web site at <http://littlebluenrd.org>.