

Spring 2014 Static Water Levels

May 16, 2014

In this year's report there is the township map which shows the change from 2013 to 2014, two graphs for Static Water Level and Annual Rainfall, and comparisons dictated by the groundwater management plan which measures each well from its' lowest point.

Last year was average; at least in the influence from the factors that affect spring static water levels. From data collected in the volunteer pumping program the average irrigation applied for an irrigated crop was 9.8 inches per acre over a reported 117,405 acres. The Nebraska Department of Natural Resources uses 9.0 inches as an average net requirement for supplemental irrigation in their annual fully appropriated review of the Little Blue Basin. Both are a little above what evapo-transpiration numbers say was required for 2013.

Data from the High Plains Regional Center on crop use based on evapo-transpiration rates, rainfall, and growing degree days calculate to a 7.8 inch supplemental water need for an irrigated crop; less than the averages reported above. From the same resource 46 recording stations in the Little Blue NRD reported an annual rainfall of only 0.26 inches below average.

However; the spring water table across the Little Blue NRD as an average of all wells measured declined -1.00 feet. The township map shows most areas around the -1.00 feet of decline, some more or maybe a little less. Southern Thayer and Jefferson counties were a little less than that average drop.

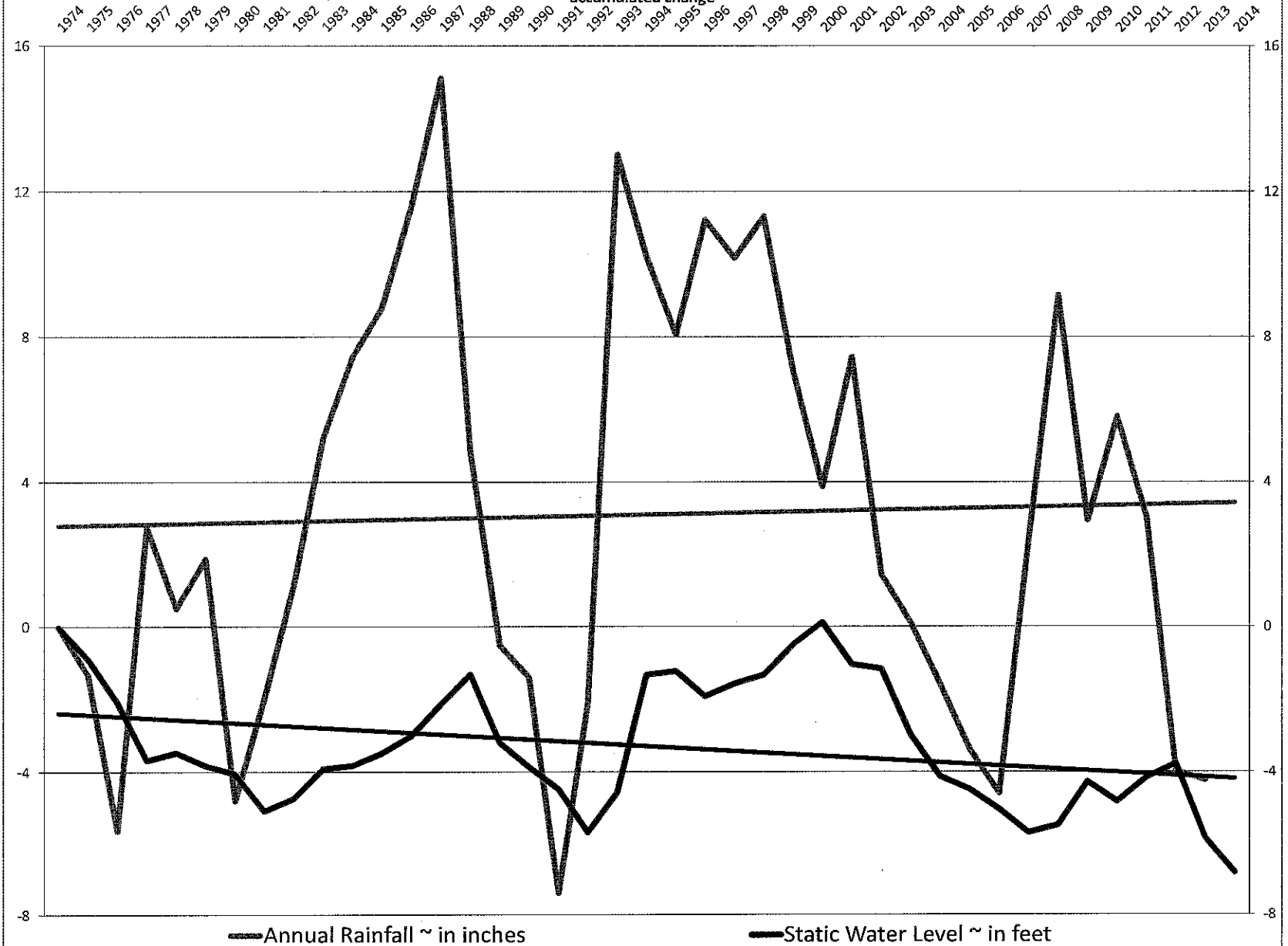
The yellow District map depicts the status for every site measured in the spring of 2014. 116 wells are still above their lowest level (action level) by an average of 2.90 feet, while 220 are below their lowest level by an average of -2.16. The 23 wells that are below the 50% RAD have fallen an average of -5.63 feet below their lowest level ever measured.

The graph which depicts the accumulated change in the Static Water Level, is shown together with a graph of accumulated change in Annual Rainfall from average. The trend lines drawn by the graphing program for the time period 1974 to 2014 was placed for each chart. It appears to take several years of above average rainfall to bring about rises in the water table, with a gradual divergence between both.

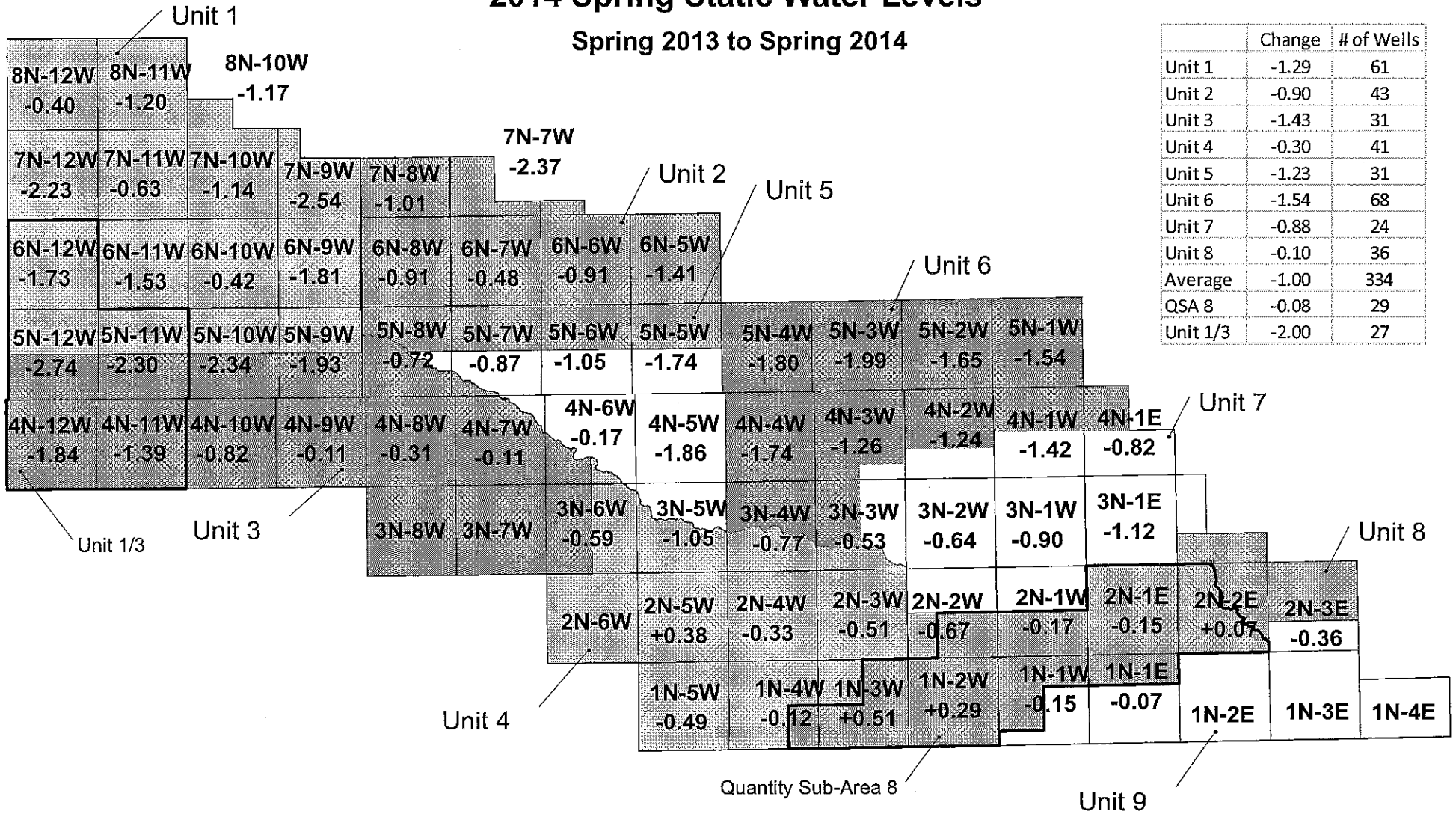
With this data in hand, the steps taken by the District to begin installation of flow meters on high capacity wells and reporting of annual usage appears to be justified. Especially realizing that demand on the groundwater resource continues to grow, and droughts will come and go. The challenge will be for groundwater consumers to become efficient enough so that during periods of drought impact to the resource will be limited.

Little Blue Natural Resources District

SWL & Rainfall
accumulated change



Little Blue Natural Resources District 2014 Spring Static Water Levels Spring 2013 to Spring 2014



8N-12W	8N-11W	8N-10W											
-0.40	-1.20	-1.17											
7N-12W	7N-11W	7N-10W	7N-9W	7N-8W	7N-7W								
-2.23	-0.63	-1.14	-2.54	-1.01	-2.37								
6N-12W	6N-11W	6N-10W	6N-9W	6N-8W	6N-7W	6N-6W	6N-5W						
-1.73	-1.53	-0.42	-1.81	-0.91	-0.48	-0.91	-1.41						
5N-12W	5N-11W	5N-10W	5N-9W	5N-8W	5N-7W	5N-6W	5N-5W	5N-4W	5N-3W	5N-2W	5N-1W		
-2.74	-2.30	-2.34	-1.93	-0.72	-0.87	-1.05	-1.74	-1.80	-1.99	-1.65	-1.54		
4N-12W	4N-11W	4N-10W	4N-9W	4N-8W	4N-7W	4N-6W	4N-5W	4N-4W	4N-3W	4N-2W	4N-1W	4N-1E	
-1.84	-1.39	-0.82	-0.11	-0.31	-0.11	-0.17	-1.86	-1.74	-1.26	-1.24	-1.42	-0.82	
		3N-8W	3N-7W	3N-6W	3N-5W	3N-4W	3N-3W	3N-2W	3N-1W	3N-1E			
				-0.59	-1.05	-0.77	-0.53	-0.64	-0.90	-1.12			
				2N-6W	2N-5W	2N-4W	2N-3W	2N-2W	2N-1W	2N-1E	2N-2E	2N-3E	
					+0.38	-0.33	-0.51	-0.67	-0.17	-0.15	+0.07	-0.36	
				1N-5W	1N-4W	1N-3W	1N-2W	1N-1W	1N-1E				
				-0.49	-0.12	+0.51	+0.29	-0.15	-0.07				
								1N-2E	1N-3E	1N-4E			