## Fall 2017 Water Levels

Fall levels are inconsistent, as usual, being more effected by withdrawals rather than giving a true picture of where water levels are at. Township map A is the usual depiction of how the water table changed comparing fall of 2016 to fall of 2017. Units 1, 2, and 3 had small rises; the other units were all declines getting greater as you move east. Just about the exact opposite as to what has happened the last two irrigation seasons. The District change of all the wells measured was a decline of -0.25 feet, Quantity Sub-Area 8 fell -0.44, but Unit 1/3 rose +0.64 feet.

A well in 4N-11W rose 4.05 feet, but that irrigation system was converted from gravity to SDI, which could account for a lot of that. Wells in 4N-10W include 3 installed in the High Plains Aquifer and 1 in the Dakota limestone. The Dakota well was up 1.00 feet while the other 3 were down. Townships 4N-09W and 4N-08W constitute only 2 wells, both drilled into the Dakota and both up. Township 3N-08W is a Dakota limestone well and it fell some this year. East of Fairbury in township 2N-03E the decline from 8 wells was -3.66 feet. The 5 High Plains Aquifer wells declined -1.28 feet but the 3 Dakota sandstone wells fell and average of -6.88 feet, the largest being a whopping -14.09.

With the proposed change in Chapter 10 of the Groundwater Management Plan the Units go away and the Township map for the spring will look like Map B. Considering the differences mentioned in the previous paragraph, splitting levels out to the 3 Geologic Areas defined in the Hydro-geologic Study seems to be appropriate. Geologic Area 1, the large sand & gravel unit from Adams to Jefferson counties fell -0.16 of a foot; Geologic Area 2, the buried paleo-valley containing sand & gravel fell -0.66 of a foot; and Geologic Area 3, the limestone and sandstone Dakota aquifer fell -1.07 feet.

However; the question most want to know, is what will spring levels be. To see if the dedicated observation wells might shed some light Map C and Sheets D & E were created. Map C locates the dedicated observation well sites and sheets D and E have daily water levels for 6 sites from spring of 2010 to fall of 2017. These graphs are not depths to water, but rather elevation of the water table. Sheet D doesn't show much, except that the elevation of the water table in Jacobitz's well is 100 feet higher than in W Hergott's well. It was hoped that 2017 summer declines would show a marked up tick on sheet E. That would be true for Harms and Nedrow, but the results aren't so defined on the other 4.

Whatever the spring levels may be, it does appear unlikely that the new trigger level for allocations based on the spring graph will be met.

A

Little Blue Natural Resources District 2017 Fall Static Water Levels Unit 1 # of Wells Change Fall 2016 to Fall 2017 +0.38 66 Unit 1 8N-10W 8N-12W 8N-11W 45 Unit 2 +0.03 +0.46 +0.26 +1.45 +0.67 33 Unit 3 -0.2141 7N-7W Unit 4 7N-12W 7N-11W 7N-10W 7N-9W 7N-8W -0.54 32 +0.51 Unit 2 Unit 5 -0.22 +0.16 +0.21 -0.04+0.51 Unit 6 -0.4969 26 -1.05 Unit 7 Unit 5 6N-5W 6N-8W 6N-7W 6N-6W 6N-12W 6N-11W 6N-10W 6N-9W 39 Unit 8 -1.01 Unit 6 -0.13 -0.43 -0.58 +0.42 +0.45 +0.42 +0.24 +0.51 -0.25 352 Average QSA 8 -0.4429 5N-8W 5N-7W 5N-6W 5N-4W 5N-3W 5N-2W 5N-1W 5N-5W 5N-10W 5N-9W 5N-12W 5N-11W Unit 1/3 +0.64 29 -0.62<sup>3</sup> \*-0.48 +1.15 +0.03 +0.14 -0.10 +0.79 -0.20 +0.03 +1.07 **\*+0.59** Unit 7 4N-6W 4N-1W 4N-1E 4N-12W 4N-11W 4N-10W 4N-9W 4N-8W 4N-7W 4N-4W 4N-3W 4N-2W 4N-5W **+**0.16 -0.90 -1.21 +0.63 +1.44 -0.58 +1.08 +3.15 -0.62 -0.69 -0.16 -1.24 3N-8W 3/1-6W ∖3N-5W 3N-4W 3N-1E 3N-3W 3N-2W 3N-1W Unit 3 -0.12 3N-7W -0.48 Unit 8 -0.77 -1.03 -0.82 -0.84 **-0.67** -0.76 **Unit 1/3** 2N-1E 2N 2E 2N-2W 2N-1W 2N-3W 2N-3E 2N-5W 2N-4W 2N-6W -202 -0.54 -0.10 -0.91 +1.05 -0.63 -0.67 -3.66 1N-1W 1N-1E 1N 3W 1N-2W 1N-5W 1N-4W -0|31 -0.40 -0.55 1N-3E | 1N-4E -0.42 1N-2E +0.19 Unit 4 -0.09

Quantity Sub-Area 8

Unit 9

B

Geologic Area 1

## Little Blue Natural Resources District 2017 Fall Static Water Levels

Fall 2016 to Fall 2017

		1				• •								
	8N-11W	8N-10W , +0.46									Ge	ologic Area	Change 1 -0.16	# of Wells 288
+0.26	+1.45									ļ	ologic Area		36	
	7N-11W +0.16		] ]		7N-7	W					·	ologic Area		12
7N-12W -0.22		7N-10W +0.21	7N-9W -0.04		7N-8W +0.51 +0.51						QS	SA 8	-0.44	29
-			-0.04	70.51							Ur	nit 1/3	0.64	29
6N-12W	6N-11W	6N-10W	6N-9W	6N-8W	6N-7W	6N-6W	6N-5W							
+0.24	+0.51	+0.45	+0.42	+0.42	-0.58	-0.13	-0.43		<del></del>			†		
5N-12W	5N_11W/	5N-10W	/ 5N_QW/	5N-8W	5N-7W	5N-6W	5N-5W	5N-4W	5N-3W	5N-2W	5N-1W			
+0.03	+1.07	+0.59	+0.79	+1.15	+0.03	-0.20	-0.10	+0.14	-0.62	-0.48	-0.45			
4N-12W	4N-11W	4N-10W	4N-9W	4N-8W	≥4N_7W	4N-6W		4N-4W	4N-3W	4N-2W	4N-1W	4N-1E		
+0.63	+1.44		\$66.00 \$66.00 \$60.00 \$6	+3:15	-0.62	+0.16	-1.24	-0.69	-0.90	-0.79	-0.16	-1.21	_	
				3N-8W	18 de 18	3N-6W	3N-5W	3N-4W	3N-3W	3N-2W	3N-1W	3N-1E		
Ur	nit 1/3			-0.12	3N-7W	-0.48	-0.77	-0.82	-0.67	-0.76	-0.84	-1:03		·
						Sec. 1	2N-5W	2N-4W	2N-3W	2N-2W	ZNEW	2N-1E-2	N-2E 2N-	<b>₹</b>
						2N-6W	±1.05	-0.63	-0.67	-202	₫-0.54 <u></u>		-0.91 -3.6	0.000
										1N-2W	1 <u>N-1W</u>			
Geologic Area 3							1N-5W -0:09	+0.19	1N-3W -0.42		-0 31	<sup>9</sup> -0:40 <sup>2</sup> ,	N-2E 1N-	3E 1N-4E
		Geol	ogic A	rea 2			(	Quantity S	ub-Area 8		•			

C









