



# Panhandle Water News

JULY 2014

## Points of Interest

12th Annual PGCD Scholarship Winners

Explanation of 5 Year AVG Change Maps and Charts

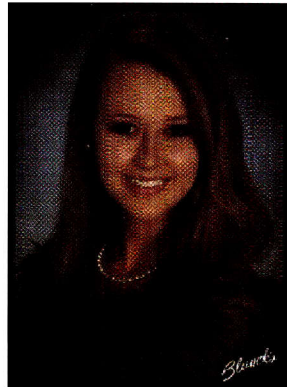
Jodie Detten's 2014 Scholarship Winner Essay

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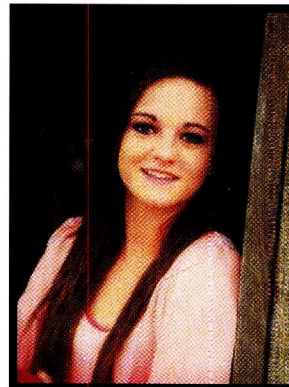
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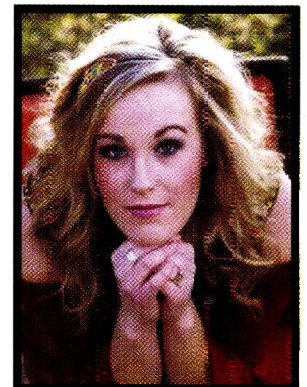
## 12th Annual PGCD Scholarship Winners



Jodie Detten  
1st Place Winner, \$4,000  
Panhandle High School



Megan Ruthardt  
2nd Place Winner, \$3,000  
Groom High School



Lauren Little  
3rd Place Winner, \$2,000  
Claude High School

In 2002, Panhandle Groundwater Conservation District (PGCD) established a scholarship program for graduating seniors throughout the district. The applicants are required to write a 500-1,000 word essay on a topic chosen by PGCD and to enroll as a full-time student at the college of their choice the fall semester immediately following selection. Also, they are to maintain at least a 2.5 college GPA. A committee of three board members, the general manager and a staff member select the winners. The student awarded first place receives a \$4,000 scholarship, second place is awarded \$3,000, and third place \$2,000. The scholarships are paid out over four years.

PGCD's essay topic this year was "House Bill 1025 authorizes a onetime investment of

\$2 Billion from the Rainy Day Fund to fund water projects through two funds the 83rd Texas Legislature created with House Bill 4, State Water Implementation Fund for Texas (SWIFT) and State Water Implementation Revenue Fund for Texas (SWIRFT). What is the best use of these funds and why?" PGCD received 15 essays from students throughout the District, and is proud to announce Jodie Detten, Megan Ruthardt, and Lauren Little as the top three winners of the scholarships.

Jodie Detten, daughter of Jeff and Peggy Detten, was awarded first place. She graduated fourth out of her class at Panhandle High School with a 3.875 GPA and plans to major in Dental Hygiene at West Texas A&M University in the fall.

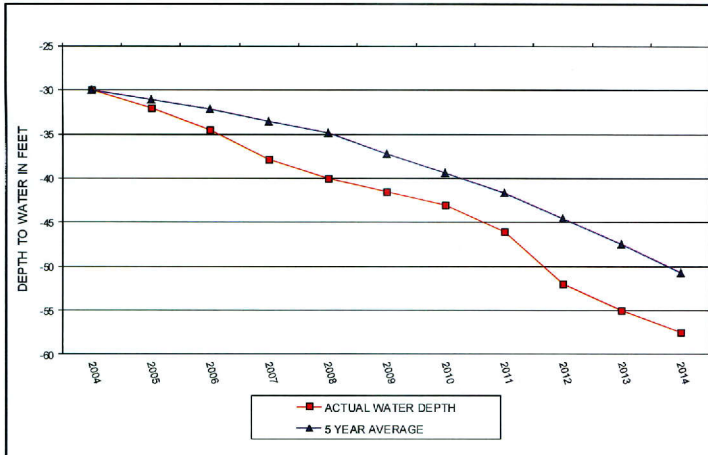
Megan Ruthardt, daughter of Brice and Jeannie Ruthardt, was awarded second place. Megan graduated second out of her class at Groom High School with a 4.0 GPA. She also will be attending West Texas A&M University in the fall and majoring in Physical Therapy.

The third place scholarship winner was Lauren Little, daughter of Jess and Donna Little. She graduated first out of her class at Claude High School with a 3.92 GPA and plans to major in Pre-Vet at Tarleton State University in the fall.

PGCD wants to thank all of the applicants and congratulate this year's scholarship winners. We thoroughly enjoyed each essay and your viewpoint on the topic. We wish you all luck on your future endeavors.



## Explanation of 5 Year AVG Change Maps and Charts



Year	Depth	Static Change	5 Year AVG	5 Year AVG Change
2004	-30.00	-1.80	-30.00	
2005	-32.00	-2.00	-31.00	-1.00
2006	-34.56	-2.56	-32.19	-1.19
2007	-37.80	-3.24	-33.59	-1.40
2008	-40.00	-2.20	-34.87	-1.28
2009	-41.50	-1.50	-37.17	-2.30
2010	-43.00	-1.50	-39.37	-2.20
2011	-46.00	-3.00	-41.66	-2.29
2012	-52.00	-6.00	-44.50	-2.84
2013	-55.00	-3.00	<b>-47.50</b>	-3.00
2014	-57.50	-2.50	<b>-50.70</b>	<b>-3.20</b>

This is how the five year average change is calculated using the sample hydrograph above. The 2013 five year average **-47.50** in red was calculated by summing the 2009-2013 depth to water measurements. This sum was then divided by five to get a five year average of **-47.50** in 2013. The 2014 five year average **-50.57** in blue was calculated by summing the 2010-2014 depth to water measurements. This sum was divided by five to get a five year average of **-50.57** in 2014. The five year average change for 2014 was calculated by subtracting the 2013 five year average **-47.50** from the 2014 five year average **-50.57** to reach a value of **-3.00** in green, which is the value used to contour the maps. If you would like to see a trend analysis for your well, or on an individual well in your area as shown above, please contact the District office at 806-883-2501.

The contour maps in this newsletter show the average change in water level, in feet, of the aquifers in the District. The contour maps were drawn using the difference of the five year averages of 2009-2013 and 2010-2014. All five year average values were calculated using a hydrograph (example shown above). Negative and positive values are portrayed on the maps.

Triangles on the map indicate wells that have some information, but were not used in contouring because they do not have enough information to calculate a five year average. The Dockum and Whitehorse Aquifer maps show only well locations. The charts show the depth to water measurements for 2004, 2013 and 2014, actual differences of the annual and 10 year measurements, and the five year average change, where available for each well.

## Jodie Detten's 2014 Scholarship Winner Essay

Jigsaw puzzles have long been a source of entertainment, as well as frustration. While all the pieces may be there before us, it is up to us to make the intricate pieces fit together, creating a masterpiece of which we can be proud. With recently passed legislation, the Texas Water Development Board has such a puzzle before them now.

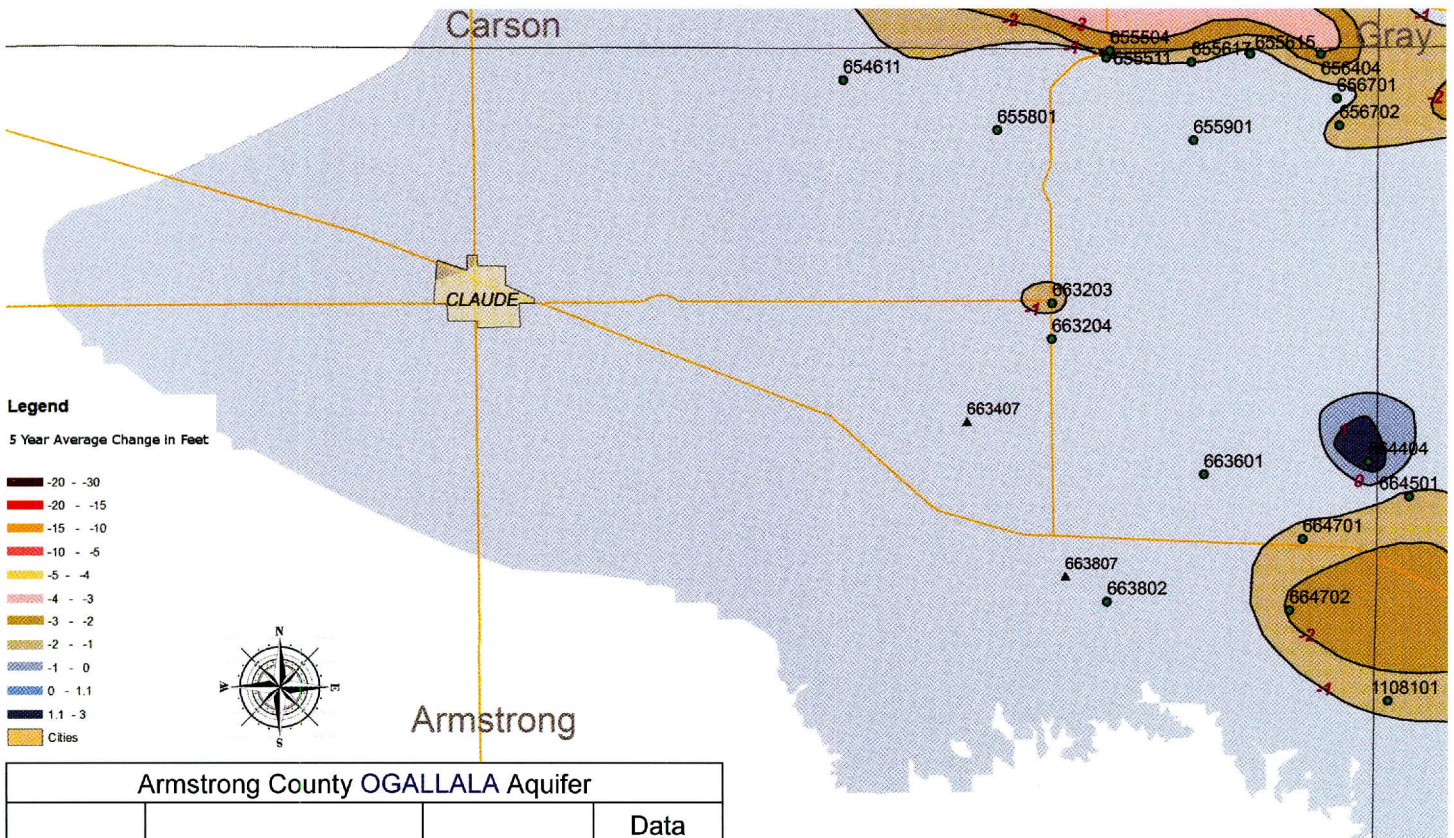
According to the Texas Water Development Board website, Senate Joint Resolution 1 was voter approved in November 2013. This constitutional amendment allowed for the creation of the SWIFT (State Water Implementation Fund for Texas) and SWIRFT (State Water Implementation Revenue Fund of Texas) funds to be overseen by the TWDB. This legislation endorses the transfer of \$2 billion from the Texas Economic Stabilization Fund (the Rainy Day Fund) to the newly created SWIFT, which will be utilized in water projects across the state.

This \$2 billion fund is intended to protect the availability of adequate water supply for the state of Texas for the next fifty years. The SWIFT Frequently Asked Questions published by the Texas Water Development Board explains that the purpose of the SWIFT is to allow "for more cost-effective water projects" by offering "reduced interest rates, longer repayment terms, and deferred repayment periods of interest and principal." Among the many possibilities of the use of this fund according to Proposition 6 Fact Sheet: Creation of Funds to Assist in Priority Projects in the State Water Plan compiled by Dana Porter, Ph. D, P.E., Associate Professor and Extension Agricultural Engineering Specialist, "examples include loans to local governments for water supply projects or water quality projects (wastewater treatment, municipal solid waste management and nonpoint source pollution control); flood control projects, and agricultural water conservation projects."

The Texas Water Development Board now has the daunting task of prioritizing the many potential projects. According to the TWDB website, projects which are included in the state water plan have been ranked on two levels: at the regional level, of which there are 16 groups, and at the state level. It also states that "at least 20 percent of SWIFT funds must be used for conservation and reuse projects," *Essay Continued on Page 19*



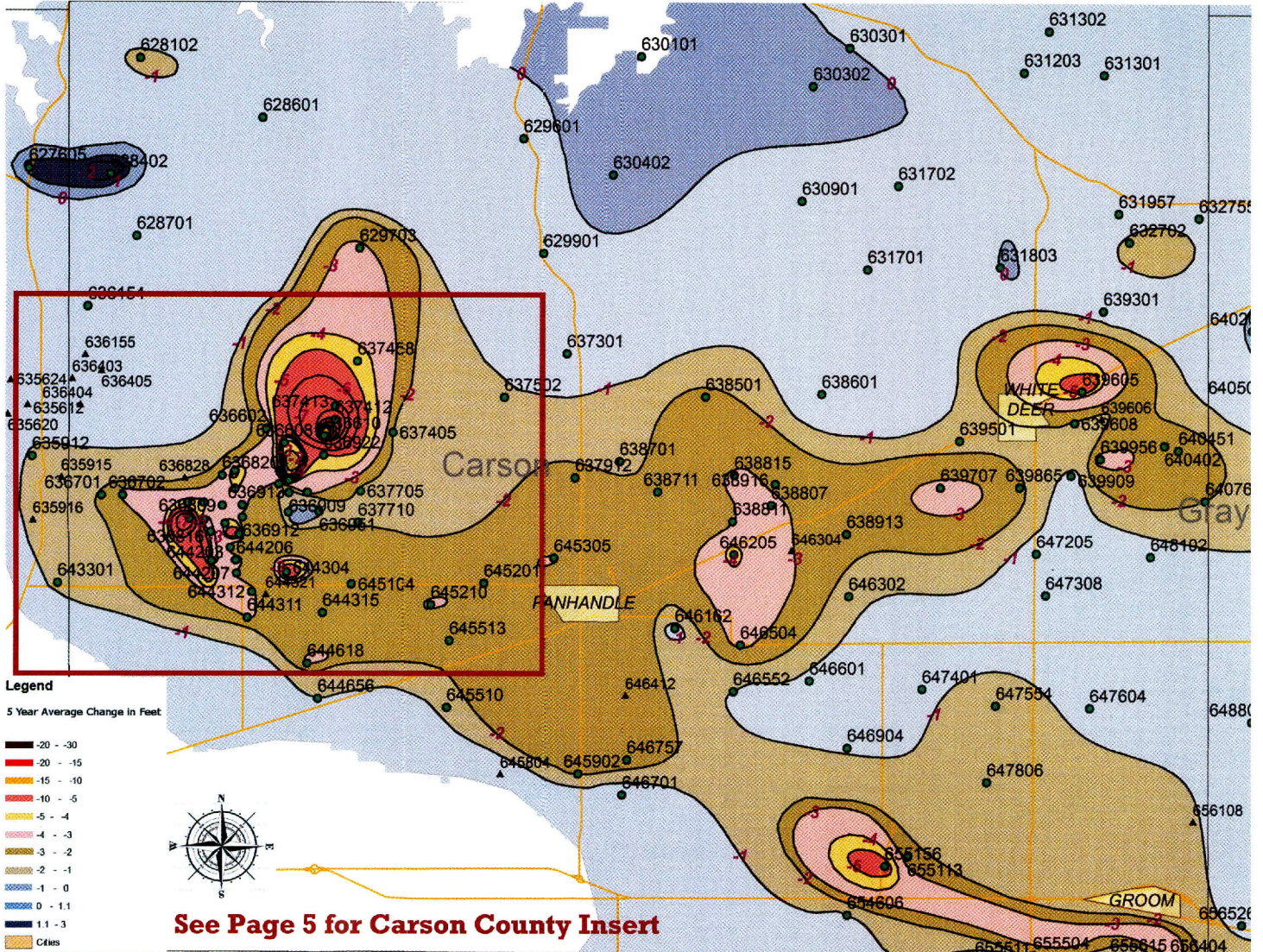
# Northeast Armstrong County OGALLALA Aquifer 5 Year Average Change



Armstrong County OGALLALA Aquifer						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
654611	-313.3	-316.2	-318.4	-5.1	-2.2	-0.60
655504		-355.7	-361.7	-361.7	-5.9	-2.09
655511	-350.8		-349.1	1.7		0.58
655615	-353.2	-359.0	-361.1	-7.9	-2.1	-0.50
655617	-350.6	-363.8	-361.6	-11.0	2.2	-1.02
655801	-136.8	-137.7	-137.4	-0.6	0.3	-0.14
655901	-243.5	-248.4	-248.5	-5.0	-0.1	-0.56
656404	-345.9	-354.9	-357.9	-12.0	-3.0	-3.00
656701		-352.6	-352.2		0.4	-0.34
656702	-333.6	-338.1	-340.9	-7.3	-2.8	-1.42
663203	-168.6	-174.1	-177.4	-8.8	-3.3	-1.22
663204	-166.8	-170.7	-171.8	-5.0	-1.1	-0.82
663407			-197.1			
663601	-92.8	-94.2	-95.6	-2.8	-1.4	-0.47
663802	-197.8	-202.5	-202.8	-5.0	-0.3	-0.72
663807			-191.2			
664404	-112.8	-119.5	-121.0	-8.2	-1.5	0.86
664701	-128.0	-144.4	-145.3	-17.3	-0.9	-1.34
664702	-141.8	-154.1	-156.0	-14.2	-1.9	-2.20

Carson County OGALLALA Aquifer						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
628102	-203.7	-213.4	-212.1	-8.4	1.3	-1.42
628402	-194.5		-194.6	-0.1		2.22
628601	-62.2	-68.1	-67.7	-5.5	0.4	-0.58
628701	-250.9	-255.6	-256.2	-5.3	-0.6	-0.48
629601	-49.4	-52.1	-54.5	-5.1	-2.4	-0.32
629703	-281.1	-291.5	-292.2	-11.1	-0.7	-3.17
629901	-82.5	-84.5	-83.3	-0.8	1.2	-0.34
630101		-29.9	-30.1		-0.2	0.06
630301	-150.7	-151.8	-151.3	-0.6	0.5	-0.04
630302	-225.3	-228.9	-226.3	-1.0	2.6	0.52
630402	-118.8	-120.0	-120.1	-1.3	-0.1	0.34
630901	-333.3		-335.9	-2.6		-0.72
631203	-298.5	-299.3	-300.0	-1.5	-0.7	-0.14
631301	-122.6	-124.0	-123.8	-1.2	0.2	-0.14
631302			-249.0			-0.33
631701			-393.5			-0.78
631702	-277.6		-279.7	-2.1		-0.35

# Carson County OGALLALA Aquifer 5 Year Average Change

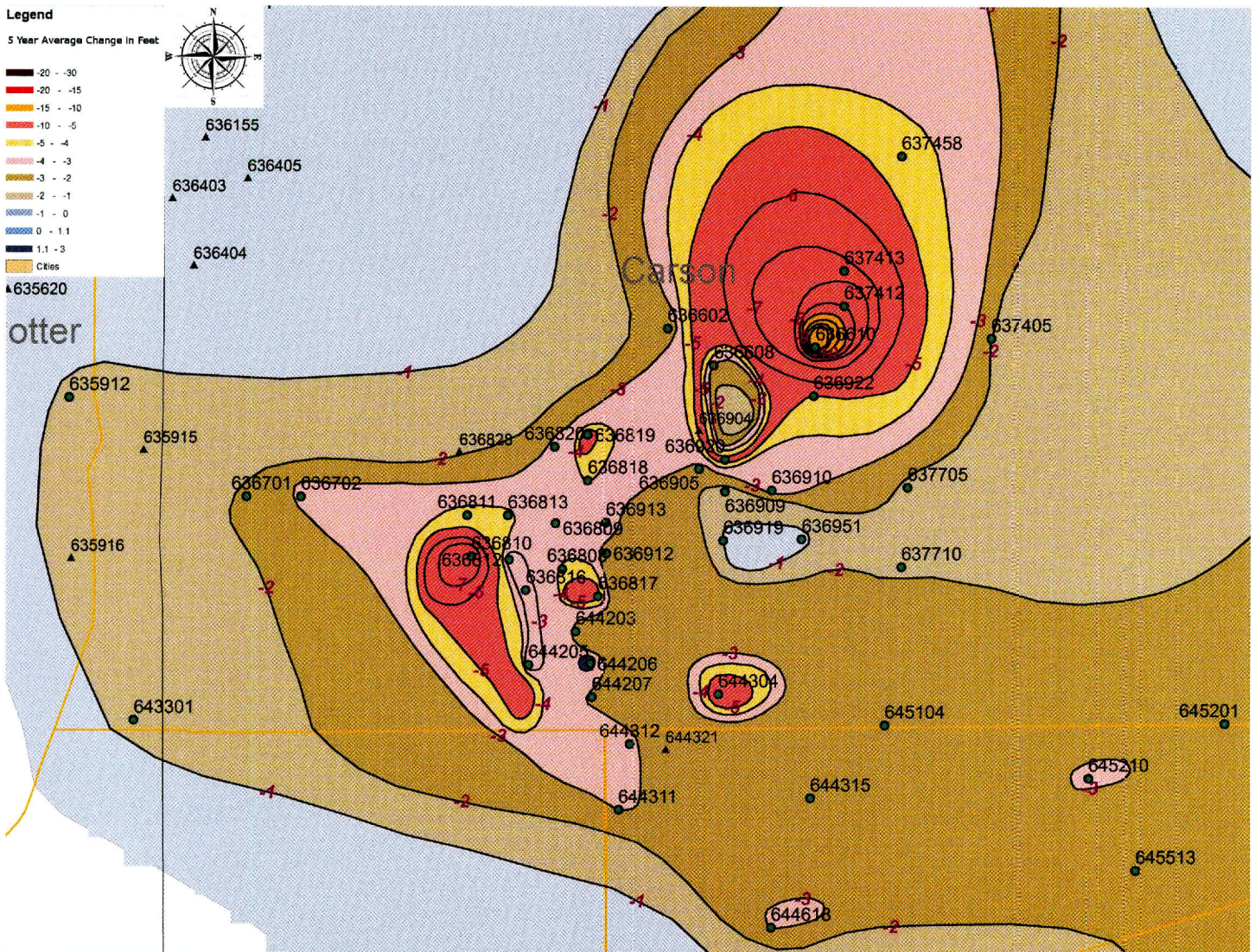


Carson County OGALLALA Aquifer Continued							
Well Number	Depth to Water, in feet			Water Level Difference			Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference	
631803	-395.0		-394.5	0.5		0.05	
631957	-328.1	-329.6	-328.9	-0.8	0.7	-0.06	
632702	-401.5	-408.5	-409.3	-7.8	-0.8	-1.54	
632755			-381.1			-0.78	
636154	-617.3	-320.8	-324.5	292.8	-3.7	-0.94	
636155		-367.3	-374.3		-6.9		
636403		-355.8	-355.8		0.0		
636404		-385.0	-392.0		-6.9		
636405		-413.0	-421.2		-8.2		
636602		-502.0	-505.2		-3.2	-2.77	
636608	-499.6	-519.9	-1040.8	-541.2	-520.9	-5.38	

Carson County OGALLALA Aquifer Continued							
Well Number	Depth to Water, in feet			Water Level Difference			Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference	
636610		-487.0	-486.9		0.1	-13.38	
636701	-468.0	-478.0	-485.8	-17.8	-7.8	-2.36	
636702		-465.0	-476.5		-11.5	-3.70	
636808		-553.0	-548.8		4.2	-4.17	
636809	-513.0	-529.0	-524.5	-11.6	4.5	0.10	
636810	-548.0	-563.0	-587.2	-39.2	-24.2	-7.83	
636811	-524.0	-557.0	-564.4	-40.4	-7.4	-4.47	
636812	-535.7	-544.0	-564.2	-28.4	-20.2	-3.54	
636813		-554.0	-559.0		-5.0	-4.80	
636816	-536.0	-561.0	-570.0	-34.1	-9.0	-3.61	
636817	-534.0	-558.0	-573.8	-39.8	-15.8	-4.95	



# Carson County Insert OGALLALA Aquifer 5 Year Average Change



Carson County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
636818		-529.0	-533.8		-4.8	-4.00
636819		-529.0	-532.4		-3.4	-5.09
636820		-544.0	-551.4		-7.4	-3.68
636828			-544.4			
636904			-326.4			
636905		-562.0	-555.0		7.0	-2.60
636909	-492.3	-547.0	-544.4	-52.1	2.6	-1.47
636910	-471.0	-501.0	-510.7	-39.7	-9.7	-3.13
636912	-529.0	-548.0	-538.8	-9.8	9.2	-2.76
636913	-510.0	-539.0	-518.3	-8.3	20.7	3.15
636919	-508.6	-522.8	-522.5	-13.9	0.3	-0.98

Carson County OGALLALA Aquifer Ccntinued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
636920	-523.0	-525.0	-498.0	25.1	27.1	5.81
636922	-455.0	-495.0	-494.7	-39.7	0.3	-4.95
636951		-485.6	-486.6		-1.0	-3.47
637301	-271.5	-280.5	-280.0	-8.5	0.5	-3.43
637405	-440.4	-450.5	-453.6	-13.2	-3.1	-1.96
637412			-500.7			-8.92
637413		-476.0	-485.5	-485.5	-9.5	-7.62
637458	-432.1		-449.8	-17.7		-4.63
637502		-315.8	-317.2		-1.4	-1.30
637705	-458.3	-470.8	-472.3	-14.0	-1.5	-1.70
637710	-431.6	-445.2	-446.7	-15.1	-1.5	-1.76



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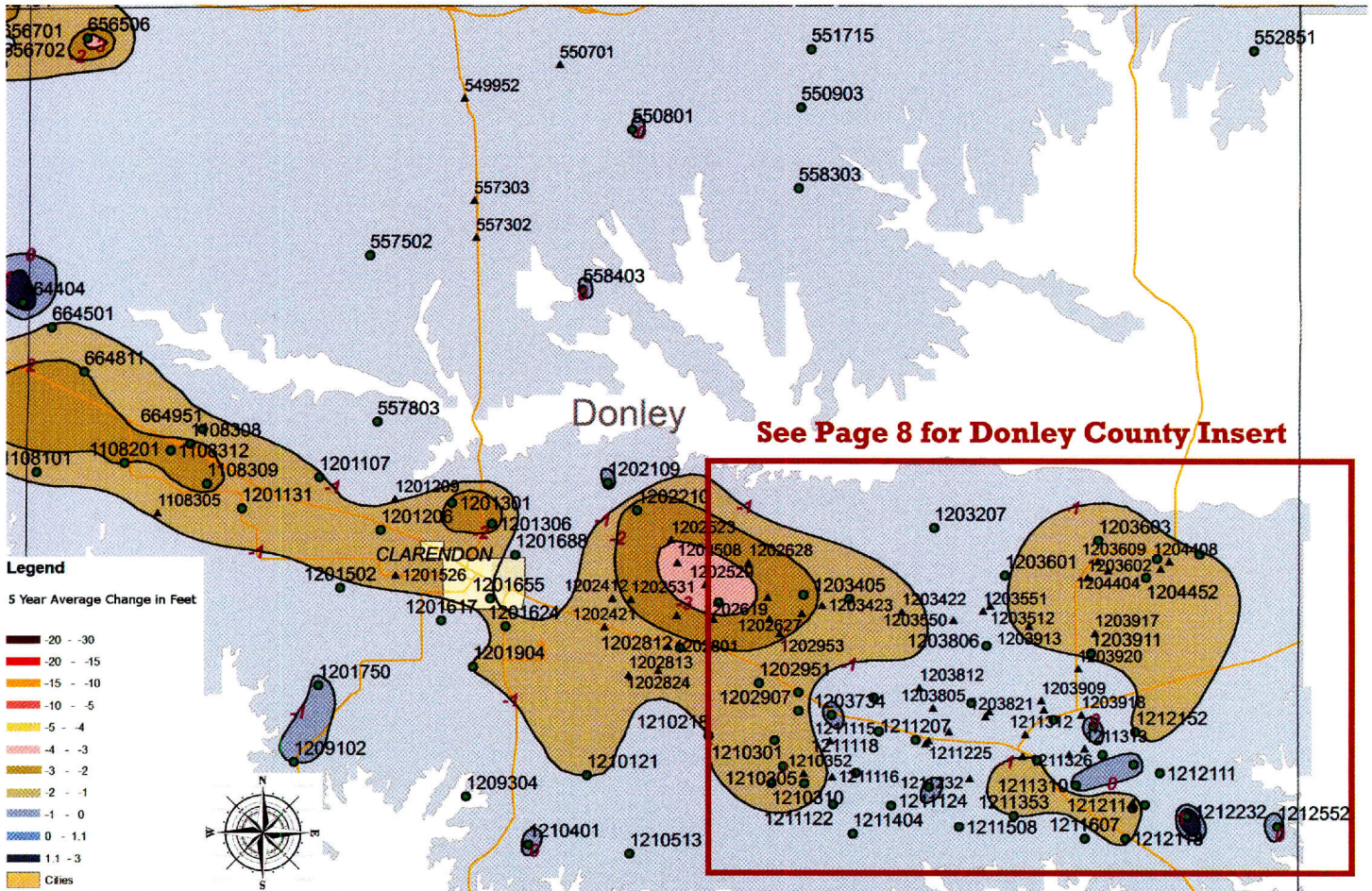
Carson County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
637912	-402.6	-416.4	-418.7	-16.1	-2.3	-2.32
638501	-383.5	-393.5	-392.3	-8.8	1.2	-2.30
638601		-375.8	-376.4		-0.6	-0.54
638701	-414.8	-422.8	-435.5	-20.7	-12.7	-1.74
638711	-425.9	-436.2	-435.6	-9.7	0.6	-2.14
638807	-404.5	-422.1	-432.4	-27.9	-10.3	-3.44
638811	-427.7	-433.0	-447.6	-19.9	-14.6	-3.00
638815	-418.8	-426.2	-436.7	-17.9	-10.5	-3.40
638913	-402.6	-417.4	-426.7	-24.1	-9.3	-2.42
638916	-408.1	-418.3	-428.2	-20.1	-9.9	-2.86
639301	-397.7	-397.9	-397.9	-0.2	0.0	-0.10
639501	-369.4	-378.4	-379.8	-10.4	-1.4	-1.32
639605		-293.8	-296.5		-2.7	-5.73
639606			-353.8			
639608		-358.4	-359.2		-0.8	-1.24
639707	-382.8	-395.6	-397.8	-15.0	-2.2	-3.50
639865	-396.2		-407.7	-11.5		-2.68
639909	-353.4		-357.1	-3.7		-0.74
639956		-381.4	-383.6	-383.6	-2.2	-3.60
640402			-389.0			-2.48
640451			-393.8			-2.65
640765		-352.7	-346.9		5.8	-2.02
644203		-552.0	-550.0		2.0	-2.80
644205	-525.2	-552.0	-551.7	-26.4	0.3	-3.53
644206	-534.1		-512.3	21.8		4.73
644207		-528.0	-537.6		-9.6	-2.71
644304	-506.0	-523.0	-534.4	-28.4	-11.4	-5.29
644311	-485.5	-500.3	-508.0	-22.5	-7.7	-3.00
644312	-501.3		-521.2	-19.9		-3.10
644315	-445.3	-463.6	-464.6	-19.3	-1.0	-2.10
644321		-519.2	-518.3		0.9	
644618		-457.1	-459.0		-1.9	-3.00
644656	-434.8	-441.3	-442.2	-7.4	-0.9	-1.04
645104	-421.1	-439.2	-442.5	-21.4	-3.3	-2.56
645201	-428.4	-436.7	-440.5	-12.1	-3.8	-2.54
645210	-434.6	-453.2	-457.2	-22.6	-4.0	-3.12
645305	-431.8	-444.4	-451.2	-19.4	-6.7	-3.07
645510	-423.2	-433.3	-452.0	-28.8	-18.7	-1.70
645513	-435.7	-448.1	-452.0	-16.3	-3.9	-2.32
645804			-347.8			
645902	-392.2	-406.1	-405.2	-13.0	0.9	-2.00

Carson County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
646162	-375.4	-383.5	-384.1	-8.7	-0.6	-0.82
646205	-419.8	-435.4	-441.3	-21.5	-5.9	-4.98
646302	-371.8	-381.7	-382.4	-10.6	-0.7	-1.26
646304		-429.9	-428.6		1.3	
646412		-415.9	-420.2		-4.3	
646504	-382.1		-397.7	-15.6		-3.13
646552	-354.5		-359.4	-4.9		-0.97
646601		-376.0	-376.1		-0.1	-0.58
646701	-364.8	-368.4	-369.0	-4.2	-0.6	-0.24
646757	-374.4	-389.4	-394.0	-19.6	-4.6	-2.90
646904	-362.6	-367.2	-368.0	-5.4	-0.8	-0.74
647205	-378.3	-380.9	-381.5	-3.2	-0.6	-0.26
647308	-298.3	-295.0	-299.7	-1.4	-4.7	-0.36
647401	-352.7	-351.9	-353.7	-1.0	-1.8	-0.80
647554		-311.7	-313.5		-1.8	-1.42
647604	-317.5	-322.9	-323.6	-6.1	-0.7	-0.68
647806	-353.0	-363.8	-366.6	-13.6	-2.8	-1.62
648102	-352.0	-356.0	-355.8	-3.8	0.2	-0.38
654606		-382.0	-384.4		-2.4	-1.01
655113		-388.2	-390.9		-2.7	-2.72
655156	-373.0		-392.3	-19.3		-5.75
656108			-312.7			

Donley County OGALLALA Aquifer						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
549952		-251.4	-252.2		-0.8	
550701	-112.9	-112.9	-113.1	-0.2	-0.2	
550801	-105.3	-104.8	-104.7	0.6	0.1	0.04
550903	-116.5	-108.3	-107.7	8.8	0.6	-0.10
551715	-112.1	-113.2	-113.7	-1.6	-0.5	-0.50
552851	-120.4	-121.5	-121.2	-0.8	0.3	-0.10
557302		-116.4	-116.4		0.0	
557303		-168.1	-168.5		-0.4	
557502	-96.6	-97.5	-97.3	-0.7	0.2	-0.08
557803	-87.4	-89.9	-88.9	-1.5	1.0	-0.28
558303	-33.9	-42.6	-43.4	-9.5	-0.8	-0.42
558403	-141.1	-135.1	-134.8	6.3	0.3	0.60



# Donley County OGALLALA Aquifer 5 Year Average Change

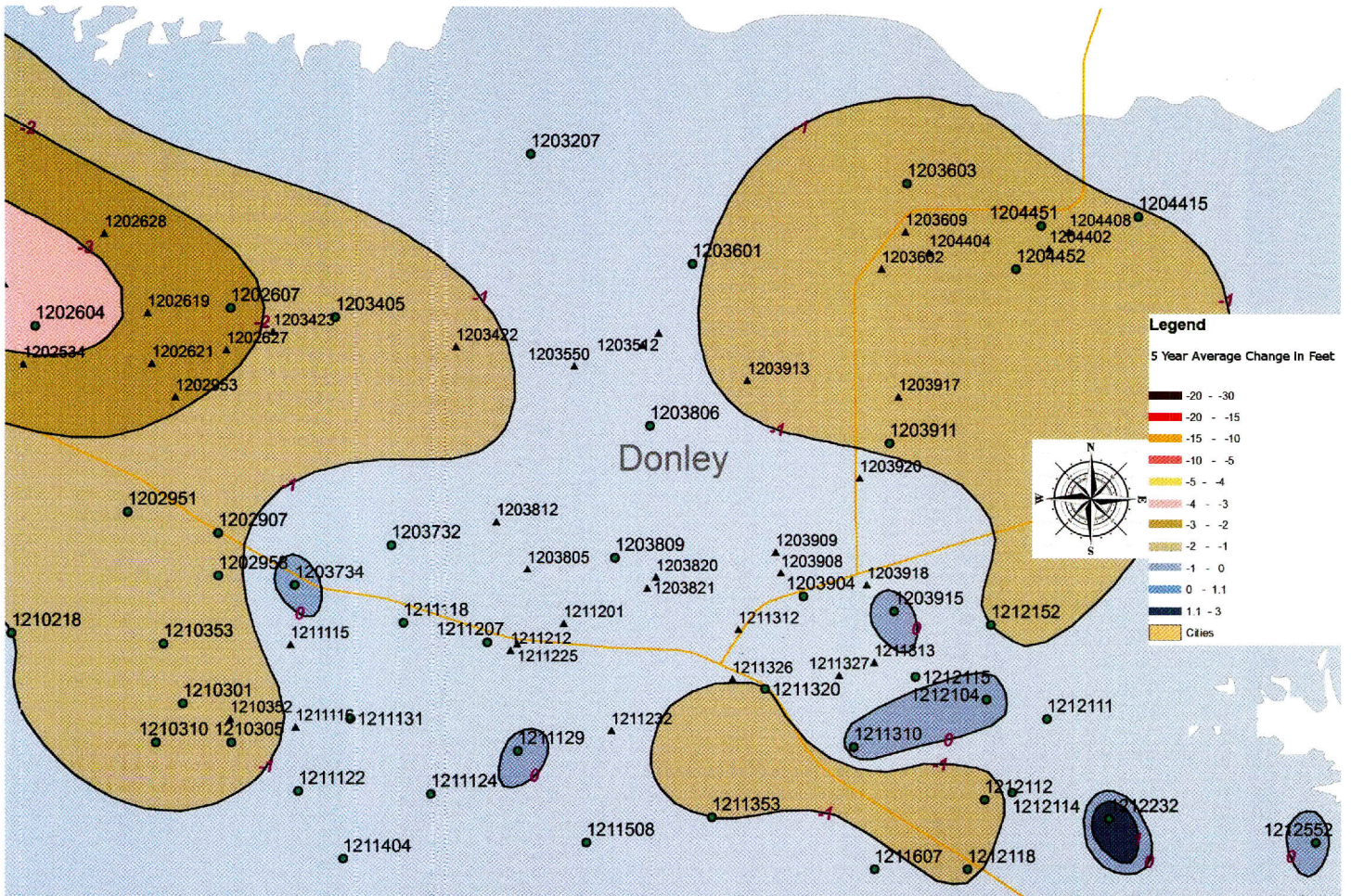


Donley County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
656506	-353.1	-343.4	-344.6	8.5	-1.2	-2.96
664501	-114.5	-122.6	-124.4	-9.9	-1.8	-1.50
664811	-96.3	-108.2	-110.0	-13.7	-1.8	-1.98
664951	-63.0	-70.4	-73.3	-10.3	-2.9	-1.64
1108101	-94.6	-100.6	-103.9	-9.3	-3.3	-1.60
1108201	-130.3	-128.1	-130.6	-0.3	-2.5	-2.00
1108305		-103.5	-105.3		-1.8	
1108308	-66.1	-79.7	-81.6	-15.5	-1.9	-2.10
1108309	-71.6	-87.9	-89.9	-18.3	-2.0	-2.44
1108312	-70.2	-86.5	-88.4	-18.2	-1.9	-2.08
1201107		-50.3	-52.4		-2.1	-1.08
1201131	-57.3	-60.0	-60.7	-3.4	-0.7	-1.56
1201206		-73.0	-74.3		-1.3	-1.60
1201209		-49.6	-50.8		-1.2	
1201301	-39.2	-60.5	-50.8	-11.6	9.7	-2.66

Donley County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
1201306	-46.3	-69.2	-69.6	-23.3	-0.4	-2.58
1201502	-137.9	-133.5	-133.4	4.5	0.1	-0.90
1201526		-105.4	-107.3		-1.9	
1201617	-116.5	-116.5	-117.0	-0.5	-0.5	-0.40
1201624	-98.9	-105.2	-105.5	-6.6	-0.3	-1.10
1201655	-53.9	-60.9	-59.2	-5.3	1.7	-1.28
1201688		-51.8	-48.9		2.9	-0.14
1201750	-106.7		-109.8	-3.1		-0.40
1201904	-141.4	-146.2	-145.8	-4.4	0.4	-0.96
1202109		-204.4	-103.8		100.6	0.75
1202210	-62.9	-75.9	-79.2	-16.3	-3.3	-2.22
1202412			-86.1			
1202421		-32.4	-33.5		-1.1	
1202508		-94.6	-98.3		-3.7	
1202513		-82.3	-86.0		-3.7	



# Donley County Insert OGALLALA Aquifer 5 Year Average Change



Donley County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
1202523		-91.6	-97.3		-5.7	
1202529		-85.4	-90.2		-4.8	
1202531		-69.3	-71.9		-2.6	
1202534		-69.4	-72.6		-3.2	
1202604	-59.2	-76.8	-80.6	-21.4	-3.8	-3.60
1202607	-79.3	-83.6	-86.4	-7.1	-2.8	-2.36
1202619		-84.0	-87.1		-3.1	
1202621		-62.2	-65.5		-3.3	
1202627		-85.4	-88.1		-2.7	
1202628		-55.3	-57.2		-1.9	
1202801		-40.6	-43.6		-3.0	
1202812	-19.2	-33.7	-35.9	-16.7	-2.2	-1.64
1202813		-84.2	-84.2		0.0	
1202824			-89.5		-89.5	
1202907	-12.6	-15.8	-17.6	-5.0	-1.8	-1.32

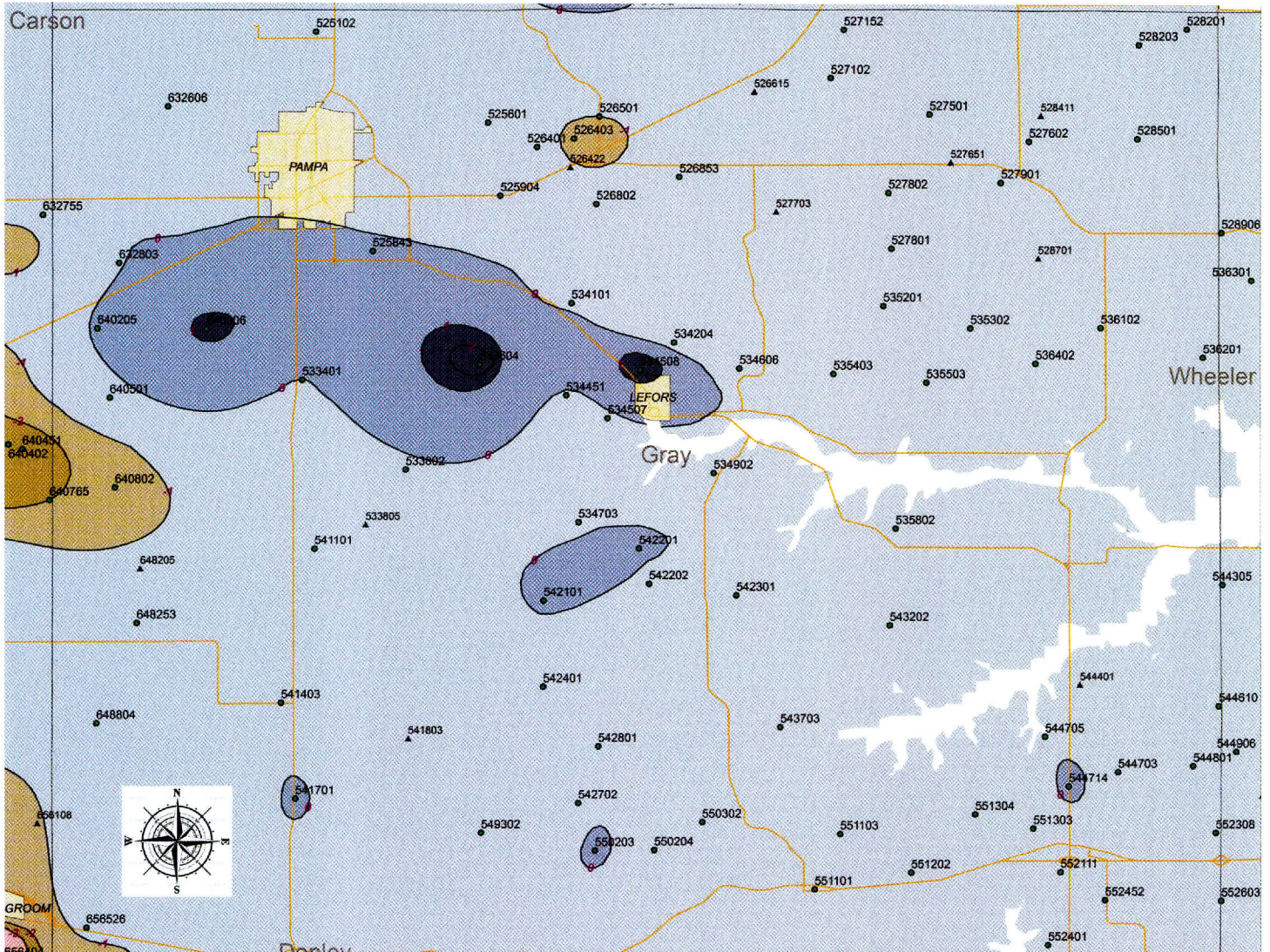
Donley County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
1202951		-21.8	-23.8		-2.0	-1.57
1202953		-56.0	-59.3		-3.3	
1202958		-16.4	-18.2		-1.8	-1.72
1203207	-80.8	-82.3	-82.6	-1.8	-0.3	-0.52
1203405	-67.7	-74.7	-77.8	-10.1	-3.1	-1.62
1203422		-43.9	-45.8		-1.9	
1203423		-95.1	-96.8		-1.7	
1203512		-111.8	-112.9		-1.1	
1203550		-97.2	-97.2		0.0	
1203551		-113.7	-115.1		-1.4	
1203601	-94.6	-98.2	-101.1	-6.5	-2.9	-0.92
1203602		-117.2	-118.6		-1.4	
1203603		-93.7	-95.8		-2.1	-1.56
1203609		-120.0	-123.1		-3.1	
1203732		-59.2	-59.7		-0.5	-0.66







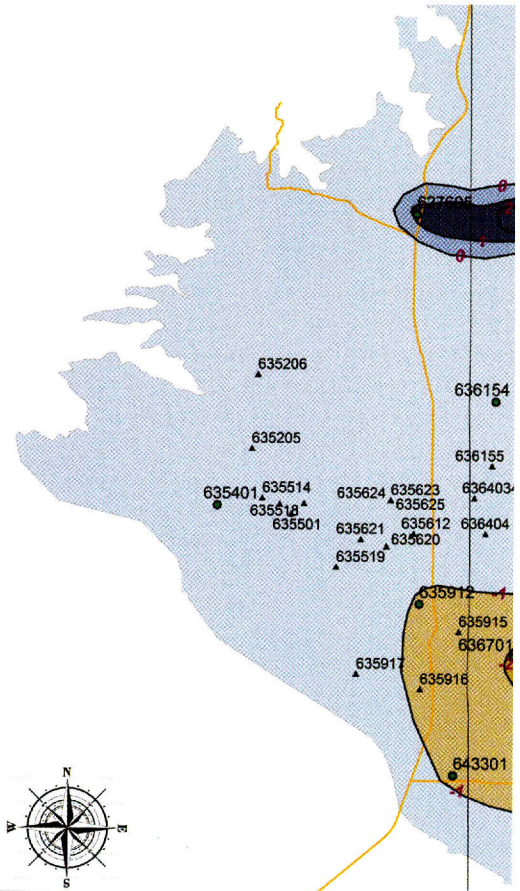
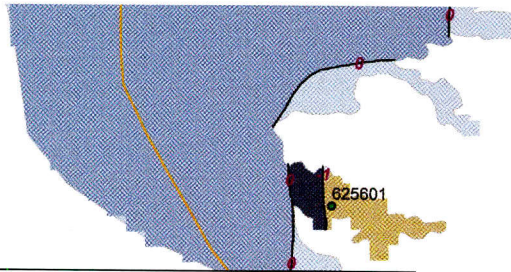
# Gray County OGALLALA Aquifer 5 Year Average Change



Gray County OGALLALA Aquifer Continued							Gray County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference		2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
527152		-344.8	-345.6		-0.8	-0.32	528701			-112.5			
527501	-349.2	-351.6	-351.8	-2.6	-0.2	-0.52	533401	-347.5	-350.1	-351.4	-3.9	-1.3	-0.04
527602	-332	-332.7	-333.1	-1.1	-0.4	-0.24	533604	-78.6	-78.7	-78.4	0.2	0.3	2.65
527651		-345.5	-690.6		-345		533802	-205.4	-211.3	-211.1	-5.7	0.2	-0.32
527703			-372				533805		-345.9	-343.6		2.3	
527801	-136.1	-136.8	-134.9	1.2	1.9	-0.48	534101	-140.7	-142.3	-142.5	-1.8	-0.2	-0.22
527802	-338.2	-341.5	-342.6	-4.4	-1.1	-0.72	534204	-194.4	-196.4	-195.4	-1	1	-0.08
527901	-339.4	-340.9	-341.3	-1.9	-0.4	-0.14	534451	-109.4	-111	-111.2	-1.8	-0.2	-0.42
528201	-345.7	-351	-349.9	-4.2	1.1	-0.6	534507	-34.2	-37.2	-35.7	-1.5	1.5	-0.18
528203	-339.7	-343.4	-344.7	-5	-1.3	-0.72	534508	-59.4	-59.9	-56.8	2.6	3.1	1.5
528411			-331.2				534606	-71.6	-75.2	-74.8	-3.2	0.4	-0.26
528501	-283.6	-284.5	-285.4	-1.8	-0.9	-0.36	534703	-75.1	-76.3	-76	-0.9	0.3	-0.16

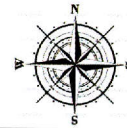
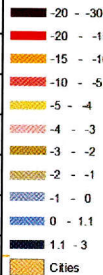


## Potter County OGALLALA Aquifer 5 Year Average Change



Legend

5 Year Average Change in Feet



Potter County OGALLALA Aquifer						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
625601		-257.5	-248.3		9.2	-1.90
627605	-111.0	-117.6	-117.1	-6.1	0.5	1.72
635205		-211.0	-213.3		-2.3	
635206		-223.7	-225.3		-1.6	
635401	-281.3	-286.1	-285.2	-3.9	0.9	-0.18
635501		-293.3	-293.2		0.1	
635514		-317.3	-317.3		0.0	
635518		-335.0	-325.7		9.2	
635519		-278.0	-280.2		-2.2	
635612		-396.9	-353.0		43.9	
635620		-327.1	-336.3		-9.2	
635621		-363.2	-349.4		13.8	
635623		-234.2	-239.4		-5.2	
635624		-237.4	-247.1		-9.7	
635625		-241.4	-254.4		-13.0	
635912		-346.5	-348.1		-1.6	-1.44
635915		-412.4	-410.1		2.3	
635916		-407.4	-413.2		-5.8	
635917		-277.6	-281.1		-3.5	
643301	-488.2	-492.9	-495.7	-7.5	-2.8	-1.74

Gray County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
534902	-72.9	-73	-73.8	-0.9	-0.8	-0.68
535201	-133.6	-122.3	-130.4	3.2	-8.1	-0.1
535302	-15.6	-17.7	-17.1	-1.5	0.6	-0.16
535403	-123.7	-127	-126.6	-2.9	0.4	-0.24
535503	-76		-77.6	-1.6		-0.4
535802	-118.2	-118.9	-119.1	-0.9	-0.2	-0.12

Gray County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
536102	-164.4	-166.7	-166.9	-2.5	-0.2	-0.24
536201	-147.9	-150.7	-151.2	-3.3	-0.5	-0.24
536402	-8.8	-9.5	-9.3	-0.5	0.2	-0.1
541101	-370.3	-372.4	-372.5	-2.2	-0.1	-0.48
541403	-296.8	-293.7	-293.8	3	-0.1	-0.06
541701	-263.9	-263.5	-263.8	0.1	-0.3	0.34
541803			-264.2			
542101	-262.6	-263.7	-263.9	-1.3	-0.2	0.66
542201	-134.5		-132.2	2.3		0.85
542202	-262	-261.3	-262.5	-0.5	-1.2	-0.12
542301	-141.1	-139.5	-140.2	0.9	-0.7	-0.12
542401	-199.5	-201.8	-202.4	-2.9	-0.6	-0.46
542702	-145.7	-146.8	-146.7	-1	0.1	-0.36
542801	-82.1	-83.7	-82.7	-0.6	1	-0.32
543202	-112.5	-112.3	-112.3	0.2	0	0
543703	-16.3	-17	-16.1	0.2	0.9	-0.24
544401			-63			

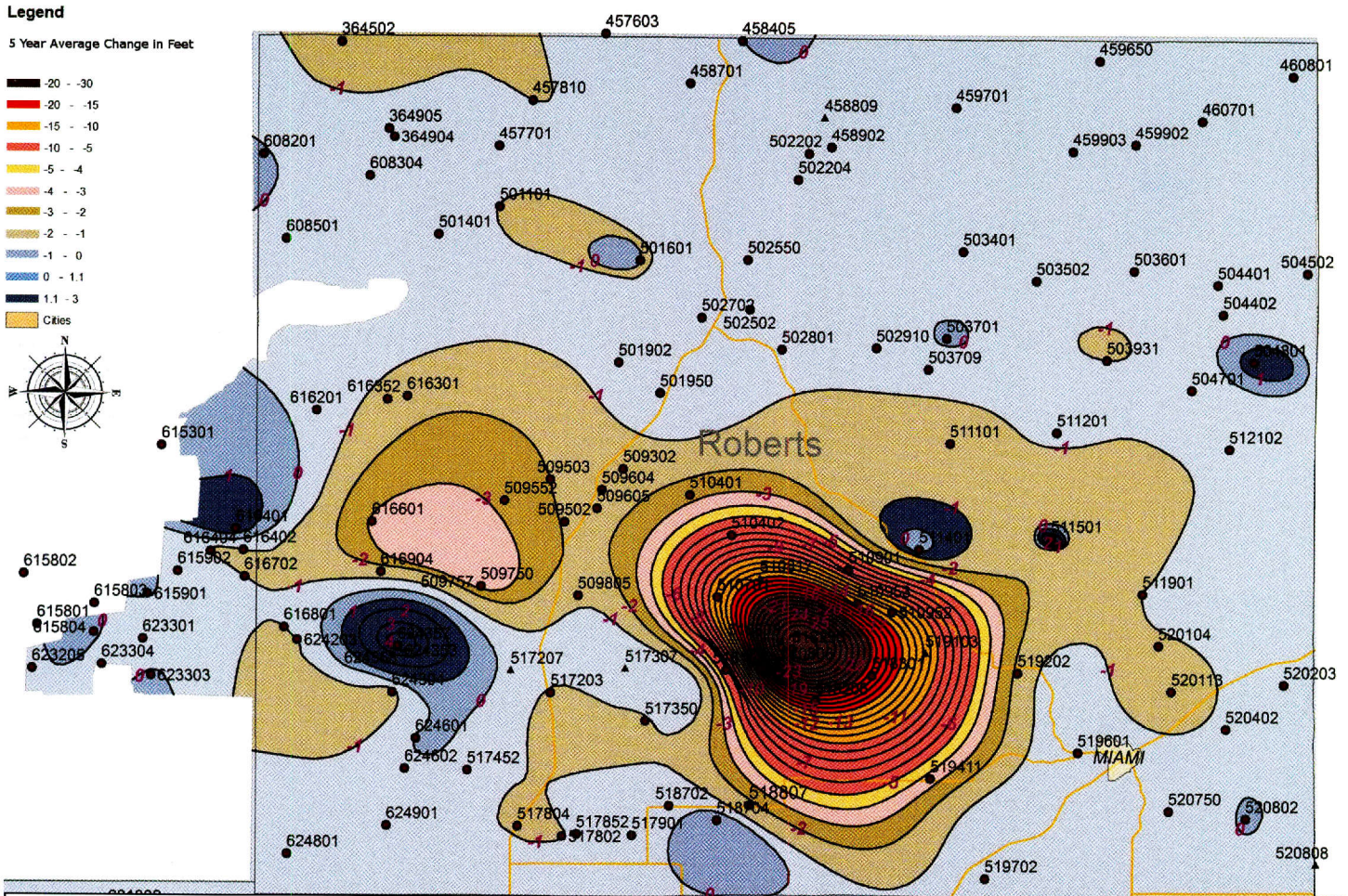


# Panhandle Water News

Gray County OGALLALA Aquifer Continued							Hutchinson County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference		2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
544610	-182.3	-184.5	-186.8	-4.5	-2.3	-0.7	615902		-25.5	-25.7		-0.2	-0.12
544703	-125.2	-128.3	-128.8	-3.6	-0.5	-0.36	616401	-290.8		-289.0	1.8		1.26
544705	-62.9	-64.3	-64.9	-2	-0.6	-0.16	616402	-267.2		-271.1	-3.9		-1.02
544714		-111.9	-113		-1.1	0.12	616404	-98.4	-105.5	-104.8	-6.4	0.7	-1.00
544801	-110.9	-112.1	-112.6	-1.7	-0.5	-0.32	616702	-237.1	-241.8	-243.0	-5.9	-1.2	-0.96
549302			-197.2			-0.4	623205	-154.6	-154.7	-155.3	-0.7	-0.6	-0.10
550203	-65.5	-55	-58.3	7.2	-3.3	0.18	623301	-115.6	-115.8	-115.4	0.2	0.4	-0.18
550204	-48.6	-53.5	-50.4	-1.8	3.1	-0.44	623303	-116.0		-97.7	18.3		0.16
550302		-87.1	-87.7		-0.6	-0.16	623304	-190.8	-187.9	-190.8	0.0	-2.9	-0.42
551101	-213.6	-214.3	-215	-1.4	-0.7	-0.7	Roberts County OGALLALA Aquifer						
551103	-134.4	-137	-137.1	-2.7	-0.1	-0.48	Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
551202	-188.9	-192.4	-193.7	-4.8	-1.3	-0.68		2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
551303	-106.3	-110.5	-111	-4.7	-0.5	-0.72	364502						
551304		-78.7	-75.4		3.3	-0.52	364904	-110.1	-115.9	-115	-4.9	0.9	-0.38
552111	-104.3	-111.2	-110	-5.7	1.2	-0.6	364905		-98.9	-98.5		0.4	-0.52
552308	-100.6	-103.9	-105	-4.4	-1.1	-0.82	457603		-406	-405.3		0.7	-0.72
552401		-73.9	-74.4	-74.4	-0.5	-0.46	457701	-22.6	-27.1	-27.3	-4.7	-0.2	-0.46
552452	-105.9	-110.2	-110.3	-4.4	-0.1	-0.6	457810		-258	-259.9		-1.9	-1
552603		-23.1	-22		1.1	-0.32	458405	-339.9	-344.1	-344.2	-4.3	-0.1	-0.04
632606	-364.1	-365.7	-365.7	-1.6	0	-0.15	458701	-93.1	-98.5	-92.6	0.5	5.9	-0.52
632803	-394.3	-395.6	-395.6	-1.3	0	-0.14	458809			-161.4			
640205	-387.1	-388.8	-389.2	-2.1	-0.4	0.18	458902	-117.1	-118.2	-119.6	-2.5	-1.4	-0.32
640306	-402.8	-399.4	-397.2	5.6	2.2	1.54	459650	-270.7		-292.9	-22.2		-0.52
640501	-371.5	-375.4	-375.7	-4.2	-0.3	-0.42	459701	-53.9	-56.2	-56.4	-2.5	-0.2	-0.24
640802	-361	-369.4	-371.1	-10.1	-1.7	-1.48	459902	-47.5	-48.5	-48.6	-1.1	-0.1	-0.24
648205			-378.8				459903	-40.5	-41.7	-41.7	-1.2	0	-0.16
648253	-355.9	-358.4	-359.1	-3.2	-0.7	-0.48	460701	-97.3	-97.9	-98.1	-0.8	-0.2	-0.2
648804		-289.8	-289.3		0.5	-0.68	460801	-186.8	-187.5	-187.5	-0.7	0	-0.02
656526		-304.4	-303.5		0.9	-0.17	501101	-54.3	-57.8	-60	-5.7	-2.2	-0.96
Hutchinson County OGALLALA Aquifer							501401		-53.7	-52.8		0.9	-0.12
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	501601		-86.5	-86		0.5	0.05
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference	501902		-205	-205.6		-0.6	-0.7
615301	-115.0	-118.4	-116.0	-1.0	2.4	-0.11	501950	-128.1	-129.9	-129.8	-1.7	0.1	-0.26
615801		-180.1	-181.7		-1.6	0.10	502202	-68.1	-70.2	-70.5	-2.4	-0.3	-0.28
615802			-165.7			2.18	502204		-13.4	-13.2		0.2	-0.24
615803	-78.3	-78.8	-78.8	-0.5	0.0	-0.36	502502	-107.8	-108.4	-108.2	-0.4	0.2	-0.08
615804	-111.0	-109.8	-109.6	1.4	0.2	0.20	502550	-100	-101.4	-101.7	-1.7	-0.3	-0.22
615901	-73.3	-74.3	-73.3	0.0	1.0	0.16							



# Hutchinson and Roberts County OGALLALA Aquifer 5 Year Average Change



Roberts County OGALLALA Aquifer Continued							Roberts County OGALLALA Aquifer Continued								
Well Number	Depth to Water, in feet			Water Level Difference			Data Used to Make Maps	Well Number	Depth to Water, in feet			Water Level Difference			Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference			2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference	
502702	-55.9	-60.2	-60.7	-4.8	-0.5	-0.62	509502	-286.1	-305	-306.6	-20.5	-1.6	-1.84		
502801	-7.5	-7.9	-8.3	-0.8	-0.4	-0.4	509503		-268.8	-271.4		-2.6	-1.96		
502910		-167.7	-168.2		-0.5	-0.3	509552	-86.3	-118.2	-120.8	-34.5	-2.6	-2.88		
503401	-99.4	-100.4	-100.6	-1.2	-0.2	-0.16	509604	-181.6	-192	-193.9	-12.3	-1.9	-1.54		
503502	-30.5	-30	-30.8	-0.3	-0.8	-0.04	509605	-231.7	-244.9	-246.2	-14.5	-1.3	-1.68		
503601	-85.4	-86.9	-86.3	-0.9	0.6	-0.16	509750	-402.7	-458.5	-460.3	-57.6	-1.8	-3.14		
503701	-86.2	-86.4	-86.2	0	0.2	0.08	509757	-399.6	-458.5	-460.3	-60.7	-1.8	-3.06		
503709		-277.8	-278.4		-0.6	-0.56	509805	-308	-318.8	-320.2	-12.2	-1.4	-1.08		
503931		-50.9	-51.6		-0.7	-0.98	510401	-147.6	-159.9	-163.2	-15.6	-3.3	-2.56		
504401	-99.3	-100.5	-100.7	-1.4	-0.2	-0.24	510402	-250.5	-280.1	-287.6	-37.1	-7.5	-6.9		
504402	-166.5	-168.7	-168.7	-2.2	0	-0.14	510701		-357.5	-359.4		-1.9	-12.94		
504502	-115.6	-116.9	-117	-1.4	-0.1	-0.18	510806		-465.3	-471.4		-6.1			
504701	-324.1	-322.9	-322.3	1.8	0.6	-0.12	510808		-417.8	-423.7		-5.9			
504801		-169.2	-167.1		2.1	1.56	510817			-206.6					
509302	-181.1	-186.9	-189.5	-8.4	-2.6	-1.56	510901	-155.8	-186.9	-192.6	-36.8	-5.7	-7.32		



# Panhandle Water News

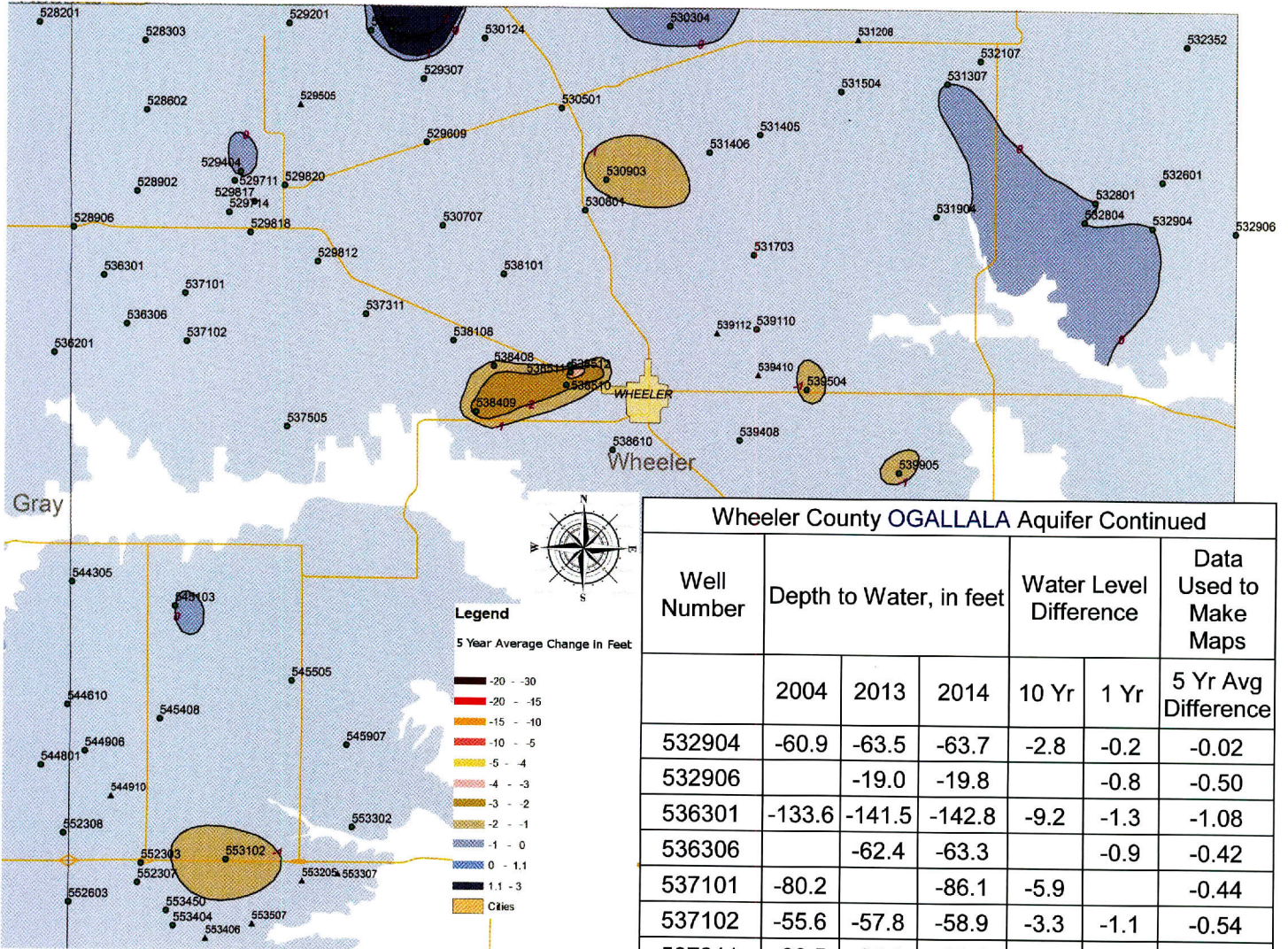
Roberts County OGALLALA Aquifer Continued							Roberts County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference		2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
510952	-344.7	-411	-412.6	-67.9	-1.6	-13.5	616601	-226.8	-269.7	-271.2	-44.4	-1.5	-3.18
510953	-184.6	-250.3	-256.9	-72.3	-6.6	-14.4	616801	-215.2	-222	-223.3	-8.1	-1.3	-1.04
511101	-285.5	-290.6	-293.1	-7.6	-2.5	-1.42	616904	-264.7	-322	-326.5	-61.8	-4.5	-1.86
511201	-292.8	-294.4	-297.1	-4.3	-2.7	-0.8	624203	-241.3	-248.4	-249.3	-8	-0.9	-1.04
511401		-327.8	-327.2		0.6	0.22	624304	-285.4	-305.5	-306.9	-21.5	-1.4	-1.42
511501	-306.5	-316.5	-318.1	-11.6	-1.6	-2.18	624353	-333.3		-349	-15.8		5.46
511901	-272.5	-278.9	-279.2	-6.7	-0.3	-1	624357	-314.6	-365.9	-349.3	-34.7	16.6	4.18
512102		-281.6	-281.5		0.1	-0.52	624358	-301.7	-336.8	-338.3	-36.6	-1.5	
517203	-321.7	-327.4	-329.6	-7.9	-2.2	-1.18	624601	-201.8	-208.7	-207.6	-5.8	1.1	0.42
517207		-197.4	-196.8		0.6		624602	-323.9	-327.2	-328.6	-4.7	-1.4	-0.2
517307		-126.7	-129.3		-2.6		624801	-111.1	-112.4	-112.5	-1.4	-0.1	-0.18
517350	-340.3	-345.3	-347.4	-7.1	-2.1	-1.18	624901	-355.2	-358.1	-358.7	-3.5	-0.6	-0.72
517452	-358.4	-360.3	-361.5	-3.1	-1.2	-0.62							
517802		-406.3	-408.1		-1.8	-1.16							
517804	-399.2	-406.6	-405.1	-5.9	1.5	-1.2							
517852	-406.1	-410.5	-410.3	-4.2	0.2	-0.7							
517901	-394.4	-395.2	-396.2	-1.8	-1	-0.38							
518101	-322.1	-343.7	-349.5	-27.4	-5.8	-5.8							
518206		-458.6	-462.3		-3.7	-17.6							
518250	-334.1	-486.7	-495.9	-162	-9.2	-32.34							
518301	-358		-451	-93		-18.58							
518702	-387.5	-391.5	-392.2	-4.7	-0.7	-0.42							
518704	-383	-388.6	-384	-1	4.6	0.06							
518807		-373.4	-374	-374	-0.6								
519103			-428.7										
519202	-361.3		-366.6	-5.3		-1.35							
519411		-360.3	-364		-3.7	-3.32							
519601	-117.8	-118.6	-118.5	-0.7	0.1	-0.36							
519702	-259.5	-261.3	-261.7	-2.2	-0.4	-0.32							
520104	-141.3	-149.8	-146.8	-5.5	3	-1.1							
520113		-72.4	-73.2		-0.8	-1.54							
520203	-112	-112.5	-112.7	-0.7	-0.2	-0.18							
520402	-286.5	-295.7	-296.2	-9.7	-0.5	-0.76							
520750	-291.8	-292.5	-295.3	-3.5	-2.8	-0.28							
520802	-243.2	-243.9	-244	-0.8	-0.1	-0.04							
520808		-315.3	-316.4		-1.1								
608201	-173	-177.3	-176.6	-3.6	0.7	0.12							
608304		-82.3	-82.1		0.2	-0.46							
608501	-62.8	-65.4	-65.1	-2.3	0.3	-0.1							
616201	-143.4	-145.6	-146	-2.6	-0.4	-0.42							
616301	-178.5	-184.9	-186.5	-8	-1.6	-1.54							
616352	-180.2	-186.9	-187.2	-7	-0.3	-1.3							

Wheeler County OGALLALA Aquifer						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
528303	-297.6	-298.0	-298.1	-0.5	-0.1	-0.16
528602	-108.2	-115.9	-117.4	-9.2	-1.5	-0.72
528902	-29.0	-38.8	-38.2	-9.2	0.6	-0.51
528906	-167.3	-173.8	-174.4	-7.1	-0.6	-0.90
529201	-142.7	-140.7	-141.2	1.5	-0.5	-0.08
529301	-123.6	-123.6	-120.2	3.4	3.4	0.24
529302	-110.8	-107.4	-104.8	6.0	2.6	2.00
529307	-120.4	-120.2	-121.6	-1.2	-1.4	-0.30
529404	-65.4	-72.0	-62.9	2.5	9.1	0.90
529505			-149.8			
529609	-57.5	-59.1	-59.2	-1.7	-0.1	-0.20
529711		-70.7	-71.2		-0.5	-0.86
529714	-4.4	-9.8	-10.3	-5.9	-0.5	-0.86
529812	-24.3	-24.3	-24.7	-0.4	-0.4	-0.50
529817	-68.6	-72.9	-73.0	-4.4	-0.1	-0.78
529818	-61.8	-56.9	-57.4	4.4	-0.5	-0.68
529820		-77.3	-77.6		-0.3	-0.62
530124		-28.3	-26.6		1.7	-0.30
530304	-87.9	-90.5	-89.5	-1.6	1.0	0.14
530501	-107.1	-108.9	-109.1	-2.0	-0.2	-0.20
530707	-9.8	-14.8	-14.7	-4.9	0.1	-0.26
530801	-65.1	-68.3	-68.1	-3.0	0.2	-0.40
530903	-76.6	-83.4	-84.3	-7.7	-0.9	-1.50



# Wheeler County OGALLALA Aquifer 5 Year Average Change



Wheeler County OGALLALA Aquifer Continued

Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
532904	-60.9	-63.5	-63.7	-2.8	-0.2	-0.02
532906		-19.0	-19.8		-0.8	-0.50
536301	-133.6	-141.5	-142.8	-9.2	-1.3	-1.08
536306		-62.4	-63.3		-0.9	-0.42
537101	-80.2		-86.1	-5.9		-0.44
537102	-55.6	-57.8	-58.9	-3.3	-1.1	-0.54
537311	-22.5	-25.2	-26.1	-3.6	-0.9	-0.08
537505	-59.0	-63.9	-63.9	-4.9	0.0	-0.24
538101	-5.7	-7.7	-7.3	-1.6	0.4	-0.40
538108		-128.3	-129.5		-1.2	-0.80
538408	-89.3	-94.1	-96.7	-7.4	-2.6	-1.16
538409	-80.4		-91.7	-11.3		-2.80
538510	-30.4	-41.3	-44.8	-14.4	-3.5	-2.42
538511		-46.5	-45.9		0.6	-0.64
538512		-53.0	-113.7		-60.7	-3.12
538610	-61.9	-66.7	-69.6	-7.7	-2.9	-0.66
539110		-75.6	-75.6		0.0	-0.20
539112		-39.5	-40.0		-0.5	
539408	-7.5	-8.3	-8.1	-0.6	0.2	-0.82
539410		-29.1	-30.3		-1.2	
539504	-43.7	-47.0	-48.9	-5.2	-1.9	-1.20
539905	-37.4	-40.5	-41.6	-4.2	-1.1	-1.34
544305	-84.8	-87.6	-87.8	-3.0	-0.2	-0.28
544906	-107.0	-108.0	-108.3	-1.3	-0.3	-0.22
544910		-92.4	-92.9		-0.5	

Wheeler County OGALLALA Aquifer

Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
531208		-154.6	-154.6		0.0	
531307	-50.3	-53.4	-53.4	-3.1	0.0	0.00
531405	-14.4	-16.2	-14.8	-0.4	1.4	-0.20
531406	-79.4	-85.0	-84.0	-4.6	1.0	-0.65
531504	-33.2	-38.1	-37.7	-4.5	0.4	-0.40
531703	-94.4	-102.6	-103.5	-9.1	-0.9	-0.74
531904		-80.7	-80.1		0.6	-0.14
532107	-50.5	-54.1	-54.3	-3.8	-0.2	-0.22
532352	-103.7	-97.4	-96.4	7.3	1.0	-0.60
532601	-64.3	-69.0	-71.6	-7.3	-2.6	-0.60
532801	-0.2	-0.7	-0.8	-0.6	-0.1	0.02
532804	-16.6	-17.2	-16.8	-0.2	0.4	-0.02



# Panhandle Water News

Wheeler County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2004	2013	2014	10 Yr	1 Yr	5 Yr Avg Difference
545103	-7.3	-6.7	-6.8	0.5	-0.1	-0.02
545408	-106.1	-107.7	-108.1	-2.0	-0.4	-0.16
545505	-98.5	-103.1	-104.1	-5.6	-1.0	-0.32
545907	-44.1	-50.4	-49.0	-4.9	1.4	-0.68
552303	-41.3	-44.2	-45.6	-4.3	-1.4	-0.58
552307	-72.7	-76.0	-78.0	-5.3	-2.0	-0.38
553102	-59.5	-69.4	-71.8	-12.3	-2.4	-1.82
553205		-31.0	-32.2		-1.2	
553302	-22.2	-25.8	-26.5	-4.3	-0.7	-0.64
553307		-40.5	-41.3		-0.8	
553404	-7.9	-10.4	-10.7	-2.8	-0.3	-0.48
553406		-9.9	-10.4		-0.5	
553450	-38.7	-40.9	-42.4	-3.7	-1.5	-0.54
553507		-40.0	-41.0		-1.0	

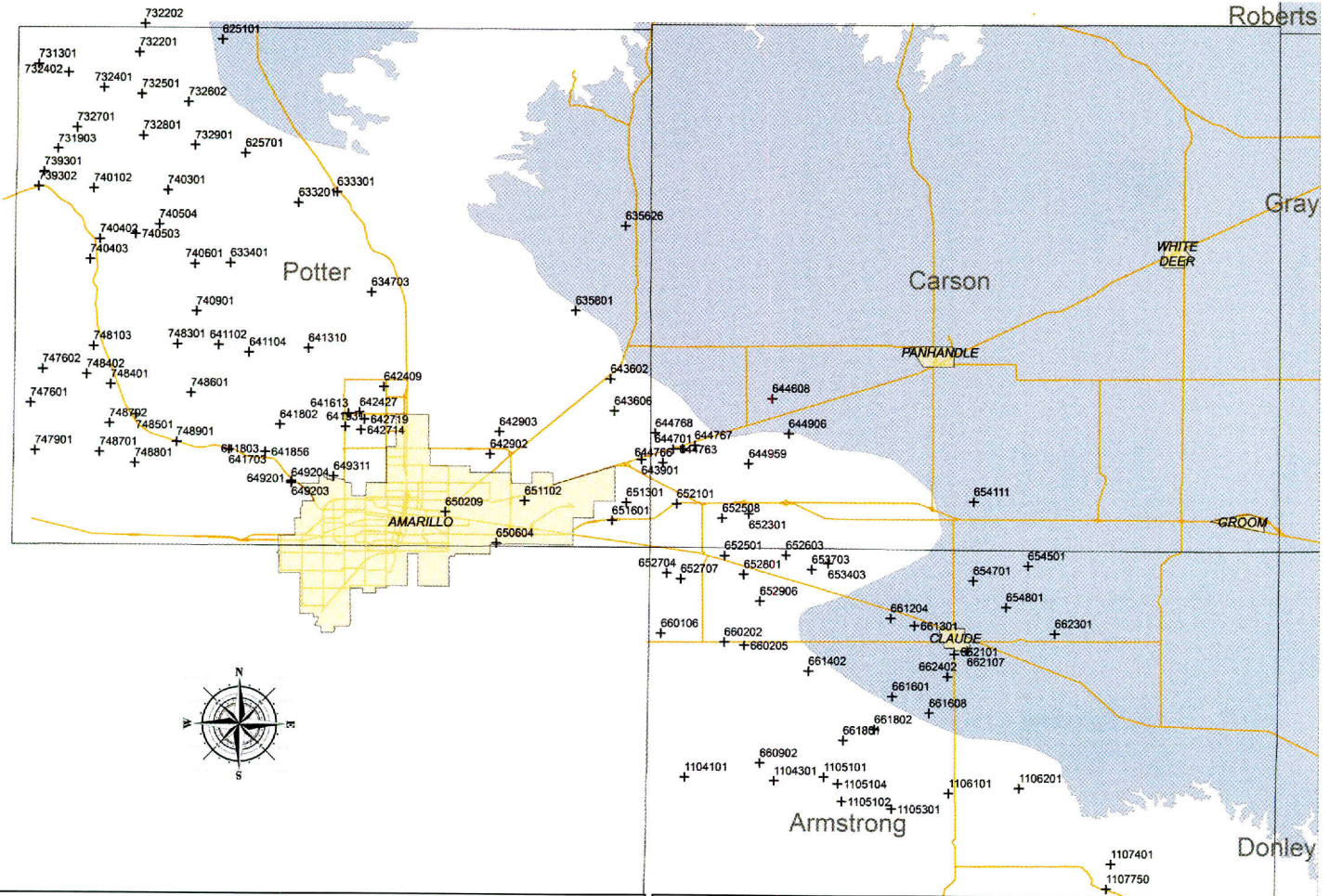
Armstrong, Carson and Potter Counties DOCKUM Aquifer Continued					
Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
642902	-223.6	-228.6	-225.5	-1.9	-3.1
642903		-140.8	-145.0		4.2
643602	-320.4	-391.8	-320.6	-0.2	-71.2
643606		-266.3	-266.2		-0.1
643901		-210.0	-205.6		-4.4
644608	-429.3		-468.3	-39.0	
644701	-251.4	-248.5	-249.1	2.3	0.6
644763		-228.6	-231.9		3.3
644766	-227.0	-220.6	-223.5	3.5	2.9
644767	-265.8	-262.0	-262.3	3.5	0.3
644768	-271.4	-268.0	-266.2	5.2	-1.8
644906	-348.9	-350.0	-349.7	-0.8	-0.3
644959	-220.6	-220.9	-220.6	0.0	-0.3
649201	-121.4		-129.1	-7.7	
649203		-105.3	-124.0		18.7
649204			-142.9		
649311	-55.7	-56.1	-57.8	-2.1	1.7
650209	-232.6	-205.5	-201.7	30.9	-3.8
650604	-201.5	-198.2	-198.1	3.4	-0.1
651102	-175.8	-172.5	-171.9	3.9	-0.6
651301	-210.9	-208.2	-208.8	2.1	0.6
651601	-196.1	-192.6	-193.1	3.0	0.5
652101		-191.7	-192.1		0.4
652301		-199.1	-199.7		0.6
652501	-202.0	-201.9	-201.3	0.7	-0.6
652508		-202.1	-201.5		-0.6
652603	-168.2	-171.0	-171.6	-3.4	0.6
652704		-175.9	-176.3		0.4
652707	-218.8	-223.6	-227.1	-8.3	3.5
652801	-172.5	-175.1	-175.7	-3.2	0.6
652906	-116.3	-126.1	-129.8	-13.5	3.7
653403	-181.4	-181.9	-182.2	-0.8	0.3
653703	-182.1	-186.2	-187.5	-5.4	1.3
654111			-344.6		
654501	-254.1	-252.2	-252.4	1.7	0.2
654701	-253.0	-253.6	-252.2	0.8	-1.4
654801	-293.0	-297.0	-292.6	0.4	-4.4
660106	-211.8	-210.0	-210.0	1.8	0.0
660202		-163.1	-163.6		0.5
660205		-164.6	-163.6		-1.0
660902		-211.2	-211.4		0.2
661204	-166.7	-165.8	-163.9	2.8	-1.9

Armstrong, Carson and Potter Counties DOCKUM Aquifer					
Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
625101			-262.1		
625701	-153.4	-155.7	-154.4	-1.0	-1.3
633201	-84.9	-87.2	-89.3	-4.4	2.1
633301	-65.3	-68.4	-71.4	-6.1	3.0
633401	-65.5	-78.0	-75.5	-10.0	-2.5
634703	-87.6	-88.3	-87.3	0.3	-1.0
635626			-326.3		
635801	-133.5	-129.6	-130.1	3.4	0.5
641102	-103.1	-102.5	-101.9	1.2	-0.6
641104	-139.1	-142.7	-143.0	-3.9	0.3
641310	-44.6	-45.3	-41.8	2.8	-3.5
641613	-97.0	-104.9	-112.9	-15.9	8.0
641703	-307.2	-306.7	-309.1	-1.9	2.4
641802	-101.1	-106.5	-104.9	-3.8	-1.6
641803		-138.0	-142.5		4.5
641856			-142.9		
641931	-62.9	-72.5	-71.3	-8.4	-1.2
642409	-65.0	-70.6	-71.7	-6.7	1.1
642427			-166.9		
642714	-82.5	-80.1	-85.6	-3.1	5.5
642719	-128.0	-134.1	-138.7	-10.7	4.6





# Armstrong, Carson and Potter Counties **DOCKUM** Aquifer Well Locations

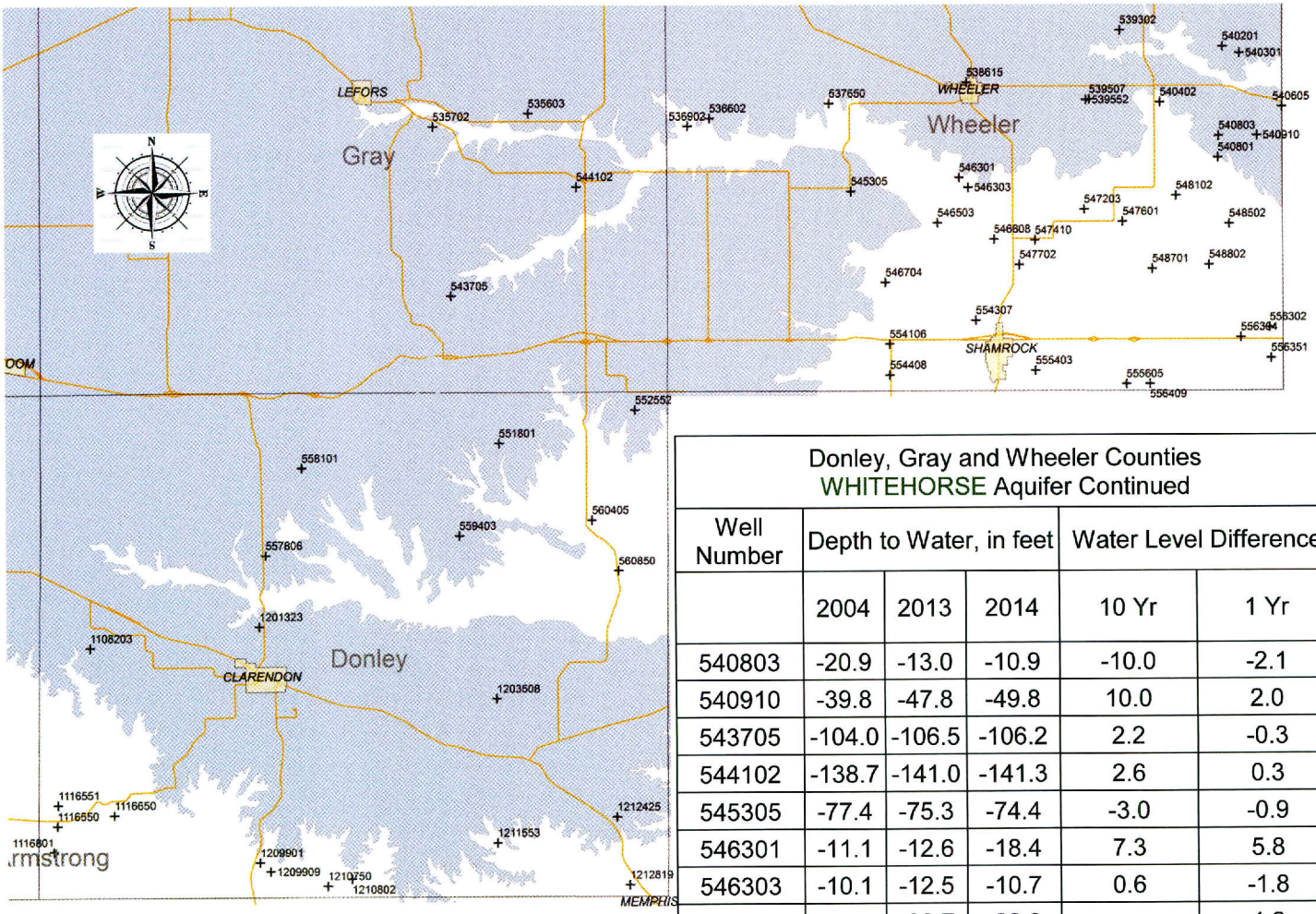


Armstrong, Carson and Potter Counties <b>DOCKUM</b> Aquifer Continued					
Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
661301	-158.5	-157.0	-158.0	0.5	1.0
661402		-183.5	-182.5		-1.0
661601	-169.2	-172.0	-170.1	-0.9	-1.9
661608	-167.4	-167.7	-162.1	5.3	-5.6
661801	-163.6		-161.7	1.9	
661802		-156.0	-156.8		0.8
662101	-214.3	-210.1	-209.2	5.1	-0.9
662107		-187.5	-186.5		-1.0
662301	-285.6	-284.4	-284.6	1.0	0.2
662402	-147.0	-149.1	-148.9	-1.9	-0.2
731301	-21.4	-25.4	-27.2	-5.8	1.8
731903	-23.4	-26.4	-25.8	-2.4	-0.6
732201		-162.1	-166.6		4.5
732202		-65.4	-66.4		1.0
732401	-29.9	-29.8	-30.2	-0.3	0.4

Armstrong, Carson and Potter Counties <b>DOCKUM</b> Aquifer Continued					
Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
732402	-17.7	-10.9	-17.6	0.1	6.7
732501	-60.6	-61.2	-62.0	-1.4	0.8
732602	-40.9	-39.9	-40.5	0.4	0.6
732701	-48.1		-40.4	7.7	
732801	-132.2	-133.6	-133.1	-0.9	-0.5
732901		-171.3	-171.7		0.4
739301	-4.8	-5.5	-5.9	-1.1	0.4
739302		-132.0	-130.4		-1.6
740102	-28.7	-27.2	-28.0	0.7	0.8
740301	-164.9	-165.5	-163.7	1.2	-1.8
740402	-85.5	-86.2	-86.3	-0.8	0.1
740403	-62.4	-59.8	-59.4	3.0	-0.4
740503	-31.4	-32.3	-32.4	-1.0	0.1
740504	-26.0	-27.0	-26.8	-0.8	-0.2
740601	-71.6	-82.3	-70.5	1.1	-11.8



# Donley, Gray and Wheeler Counties WHITEHORSE Aquifer Well Locations



Donley, Gray and Wheeler Counties WHITEHORSE Aquifer Continued					
Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
540803	-20.9	-13.0	-10.9	-10.0	-2.1
540910	-39.8	-47.8	-49.8	10.0	2.0
543705	-104.0	-106.5	-106.2	2.2	-0.3
544102	-138.7	-141.0	-141.3	2.6	0.3
545305	-77.4	-75.3	-74.4	-3.0	-0.9
546301	-11.1	-12.6	-18.4	7.3	5.8
546303	-10.1	-12.5	-10.7	0.6	-1.8
546503		-38.7	-39.9		1.2
546608	-24.8		-52.4	27.6	
546704	-98.2		-110.6	12.4	
547203	-27.6	-32.4	-30.3	2.7	-2.1
547410	-27.6	-23.2	-21.5	-6.1	-1.7
547601	-51.1	-53.0	-53.9	2.8	0.9
547702	-47.2	-39.5	-38.4	-8.8	-1.1
548102	-46.9	-46.0	-45.6	-1.3	-0.4
548502	-32.7	-38.1	-40.2	7.5	2.1
548701	-11.5	-26.8	-31.1	19.6	4.3
548802		-43.7	-44.5		0.8
551801		-93.7	-93.5		-0.2
552552	-91.1	-97.6	-92.3	1.2	-5.3
554106	-55.1	-58.5	-60.3	5.2	1.8
554307	-46.1		-54.9	8.8	
554408	-83.1	-88.7	-87.9	4.8	-0.8
555403	-79.6		-80.8	1.2	
555605	-85.3	-89.9	-91.6	6.3	1.7
556302	-7.1	-11.4	-12.5	5.4	1.1
556304		-37.4	-34.4		-3.0

Donley, Gray and Wheeler Counties WHITEHORSE Aquifer					
Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
535603	-80.1	-80.2	-76.5	-3.6	-3.7
535702	-24.6	-22.4	-21.8	-2.8	-0.6
536602	-38.2	-24.1	-30.6	-7.6	6.5
536902	-38.4	-10.9	-11.6	-26.8	0.7
537650	-7.9	-14.0	-14.2	6.3	0.2
538615		-39.4	-40.0		0.6
539302	-51.3	-51.2	-51.3	0.0	0.1
539507		-32.8	-34.1		1.3
539552	-26.0	-30.8	-32.2	6.2	1.4
540201	-5.9	-8.7	-9.3	3.4	0.6
540301	-47.2	-39.9	-40.7	-6.5	0.8
540402	-27.6	-41.2	-39.7	12.1	-1.5
540605	-44.4	-44.2	-45.7	1.3	1.5
540801		-20.7	-21.5		0.8



## Armstrong, Carson and Potter Counties DOCKUM Aquifer Continued

Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
740901	-128.2	-130.7	-131.3	-3.1	0.6
747601		-40.2	-42.4		2.2
747602	-93.1	-84.1	-83.9	9.2	-0.2
747901	-113.2	-122.7	-121.5	-8.3	-1.2
748103	-41.7	-40.4	-40.8	0.9	0.4
748301	-83.7	-73.8	-71.7	12.0	-2.1
748401	-44.5	-48.8	-47.4	-2.9	-1.4
748402	-26.3	-31.4	-30.5	-4.2	-0.9
748501	-61.1	-40.5	-36.6	24.5	-3.9
748601		-125.3	-122.4		-2.9
748701	-91.1	-82.0	-82.4	8.7	0.4
748702	-52.2	-45.1	-48.7	3.5	3.6
748801	-43.5	-42.9	-43.3	0.2	0.4
748901		-78.3	-74.7		-3.6
1104101	-201.0	-200.7	-197.6	3.4	-3.1
1104301	-303.0	-301.1	-301.9	1.1	0.8
1105101	-184.2	-182.6	-183.3	0.9	0.7
1105102	-160.9	-161.8	-162.8	-1.9	1.0
1105104	-174.6	-174.2	-174.3	0.3	0.1
1105301	-159.5		-157.9	1.6	
1106101	-175.9	-173.9	-173.8	2.1	-0.1
1106201	-160.4	-160.0	-160.1	0.3	0.1
1107401	-115.7	-120.1	-121.1	-5.4	1.0
1107750		-123.0	-123.2		0.2

### *Essay Continued from Page 1*

and at least 10 percent must go to projects serving rural communities and Texas farmers.” In an article of the Amarillo Globe News written by Kevin Welch, it was stated that “more than 90 percent of groundwater used in the region goes to agriculture.” With this in mind, it only makes sense to place emphasis on aiding farmers in conservation practices and efficient use of groundwater. It is also in the best interest of the state’s economy to support agricultural water needs as this sector generates considerable revenue for the state. The 2007 Census of Agriculture State Profile indicates that the “market value of agricultural products sold” for the year of 2007 totaled over \$21 billion in the state of Texas. In my correspondence with Dr. Dana Porter, she stated that in our region, “agricultural producers are already using low pressure center pivot irrigation (over 75% of the irrigated acres), and subsurface drip irrigation acreage has been increasing rapidly.” She also noted that in other areas, surface

irrigation is still widely used, indicating that the potential for increased efficiency varies based on current management strategies.

Conservation is an essential piece of the puzzle, not only for agriculture, but across the state. With the onset of drought conditions over much of the state during recent years, water supply has been severely stressed, bringing its concern to the forefront for people of all walks of life. Conservation efforts in urban areas will also contribute to water efficiency. Educating the public at large will be essential in facing this water crisis. With lakes and rivers drying up and the depletion of the Ogallala Aquifer, many are wondering just how long the surface water and groundwater of Texas will last.

An example of the dire water situation in Texas is right in our own backyard. According to the website for the Canadian River Municipal Water Authority, Sanford Dam, Located about 40 miles north of Amarillo, was finished in 1965, creating Lake Meredith “as a source of municipal and industrial water.” Since 1968, approximately 72,000 acre-feet of lake water has been supplied annually to 11 cities via the 322-mile aqueduct system. Unfortunately, due to lack of rainfall, water levels of the lake dropped so severely that a well-field for pumping groundwater was needed to supplement the supply.

Although it is noted that conservation is largely a more cost-effective strategy, another piece of the puzzle is urgent need for infrastructure enhancements in certain areas of the state and I believe ensuring safe, clean drinking water for the people of Texas must be a top priority. Jourdan Bell, Assistant Professor and Extension Agronomist with Texas A&M AgriLife Extension Service stated that “The population of the state of Texas is projected to increase by 15 million people by 2040. In order to meet the increasing water demand, we will have to become more conscious about our water use as well as expand the state’s infrastructure to accommodate a larger population.” According to Dr. Dana Porter, “Many old municipal water systems have problems with leaks, frequent water main breaks, and other issues. Some cities populations and water demands have outgrown their water infrastructure capacities. They need both conservation and infrastructure. Infrastructure without conservation will only temporarily meet water needs; conservation can make that infrastructure meet the needs longer.”

Jigsaw puzzles can be frustrating. The TWDB has an enormous puzzle with innumerable facets before them in choosing which water projects deserve priority consideration. Having grown up on a farm, I must admit my bias toward the agricultural side of the water issue; so much of the success of agriculture is dependent upon water. But the health and well-being of the people of our great state is of utmost importance and we must make all the pieces of this puzzle fit together in order to ensure clean water for all.

**DISTRICT OFFICE**  
 201 W. Third St, PO Box 637  
 White Deer, TX 79097  
 Phone: 806/883-2501  
 FAX: 806/883-2162  
 Web Page: [www.pgcd.us](http://www.pgcd.us)

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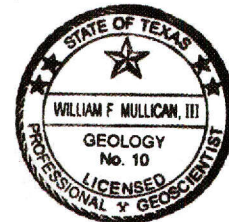
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Donley, Gray and Wheeler Counties WHITEHORSE Aquifer Continued					
Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
556351	-60.2	-65.4	-67.5	7.3	2.1
556409	-49.8	-55	-56.9	7.1	1.9
557806		-45.7	-47.2		1.5
558101	-107.6	-108.9	-110.5	2.9	1.6
559403		-72.8	-73.7		0.9
560405	-57.8	-30.3	-44.5	-13.3	14.2
560850			-110		
1108203	-37.2	-50.6	-52.5	15.3	1.9
1116550	-119.7	-120.7	-119.1	-0.6	-1.6
1116551	-126.1	-134.7	-134.6	8.5	-0.1
1116650	-6.4	-7.6	-6.9	0.5	-0.7
1116801	-51.1	-51.2	-49.8	-1.3	-1.4
1201323		-132.1	-134.5		2.4
1203508		-96.2	-86.4		-9.8
1209901	-50.2	-66	-55.1	4.9	-10.9
1209909	-156.1	-156.3	-156.4	0.3	0.1
1210750	-69.6	-57.2	-54.8	-14.8	-2.4

Donley, Gray and Wheeler Counties WHITEHORSE Aquifer Continued					
Well Number	Depth to Water, in feet			Water Level Difference	
	2004	2013	2014	10 Yr	1 Yr
1210802	-104.7	-107.3	-122.5	17.8	15.2
1211553	-24.3	-26	-27	2.7	1
1212425		-35.7	-37.7		2
1212819		-32	-33.5		1.5



*W. F. Mullican III*

The groundwater-related technical information (*text, maps, and hydrographs*) appearing in this newsletter was reviewed and approved by Professional Geoscientist William F. Mullican III.