



# Panhandle Water News

JULY 2019

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## 86<sup>th</sup> Texas Legislative Summary

The Texas 86<sup>th</sup> Legislature Regular Session gaveled out on May 27, 2019. It was touted to be an amiable session, experiencing many bipartisan successes. Overall, this session seemed focused on tax reform and education. While water issues seemed to be dominated by duties of the Texas Water Development Board to address flooding concerns and brackish groundwater issues.

The Texas House of Representative refers most groundwater bills to the House Committee on Natural Resources, chaired by Representative Lyle Larson of San Antonio. Representative Four Price of Amarillo is also a strong force on this committee. In the Senate, water bills are sent to the Committee on Water and Rural Affairs, which is chaired by Senator Charles Perry of Lubbock. For any bill to become law, it must pass by both the House and Senate, and final action is taken by the Governor.

General Manager CE Williams spent most of his time providing testimony to both water-related committees. Williams also spent countless hours personally visiting with many House and Senate members to voice the District's position on any relevant bills.

*Below is a summary of bills relevant to the District signed into law by Governor Greg Abbott last month:*

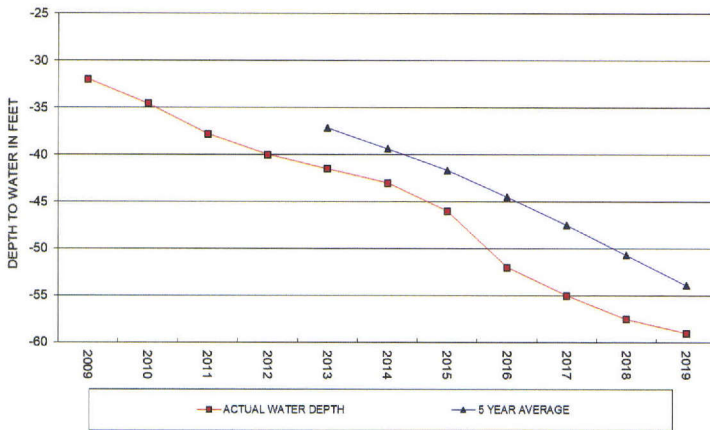
- **SB 2:** Relating to ad valorem taxation. *Effective 1-1-2020 (Certain sections with separate effective dates.)*
- **SB 7:** Relating to flood planning, mitigation and infrastructure projects. *Effective 6-13-2019*
- **SB 8:** Relating to state and regional flood planning. *Effective 6-10-2019*
- **HB 807:** Relating to the state and regional water planning process. *Effective 6-10-2019*
- **HB 1066:** Relating to extensions on an expired permit for the transfer of groundwater from a groundwater conservation district. *Effective 9-1-2019*
- **HB 1311:** Relating to the continuation and functions of the Texas Board of Professional Geoscientists. *Effective 9-1-2019*
- **HB 2840:** Relating to the right of a member of the public to address the governing body of a political subdivision at an open meeting of the body. *Effective 9-1-2019*







## Explanation of 5 Year AVG Change Maps and Charts



Year	Depth	Static Change	5 Year AVG	5 Year AVG Change
2009	-32.0			
2010	-34.6	-2.6		
2011	-37.8	-3.2		
2012	-40.0	-2.2		
2013	-41.5	-1.5	-37.2	
2014	-43.0	-1.5	-39.4	-2.2
2015	-46.0	-3.0	-41.7	-2.3
2016	-52.0	-6.0	-44.5	-2.8
2017	-55.0	-3.0	-47.5	-3.0
2018	-57.5	-2.5	-50.7	-3.2
2019	-59.0	-1.5	-53.9	-3.2

This is how the five year average change is calculated using the sample hydrograph above. The 2018 five-year average **-50.70** in red was calculated by summing the 2014-2018 depth to water measurements. This sum was then divided by five to get a five-year average of **-50.70** in 2018. The 2019 five-year average **-53.90** in blue was calculated by summing the 2015-2019 depth to water measurements. This sum was divided by five to get a five-year average of **-53.90** in 2019. The five year average change for 2019 was calculated by subtracting the 2018 five year average **-50.70** from the 2019 five year average **-53.90** to reach a value of **-3.20** 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.

## Ogallala Aquifer Water Level Measurements

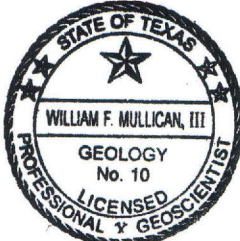
Panhandle Groundwater Conservation District takes measurements on a network of 800+ wells throughout the District each year to determine yearly aquifer changes in water levels.

The measurements are taken not only to determine the water level in the aquifer, but also to collect data, provide information for future planning and to determine IRS depletion allowances.

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 2014-2018 and 2015-2019. All five year average values were calculated using a hydrograph (example shown to the left).

The Dockum and Whitehorse Aquifer maps show only well locations. The charts throughout this newsletter show the depth to water measurements for 2009, 2018 and 2019, differences of the annual and 10 year measurements, and the five year average change, where available for each well.

Depth to water level measurements shown in this publication were taken from November 2018 to February 2019. The measurements are taken during these winter months when demands for irrigation are lower so that a more representative static water level can be obtained. Every effort is made to capture this measurement when levels have recovered or stabilized.



William F. Mullican  
Jun 27 / 2019

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

## Operating Permit Appointments

PGCD is accepting appointments for Operating Permits. To setup an appointment call Julie Bennett at 806-883-2501. Appointments generally take about an hour to complete the process. According to District Rule 4.2, all Operating Permits must be applied for by December 31, 2019.

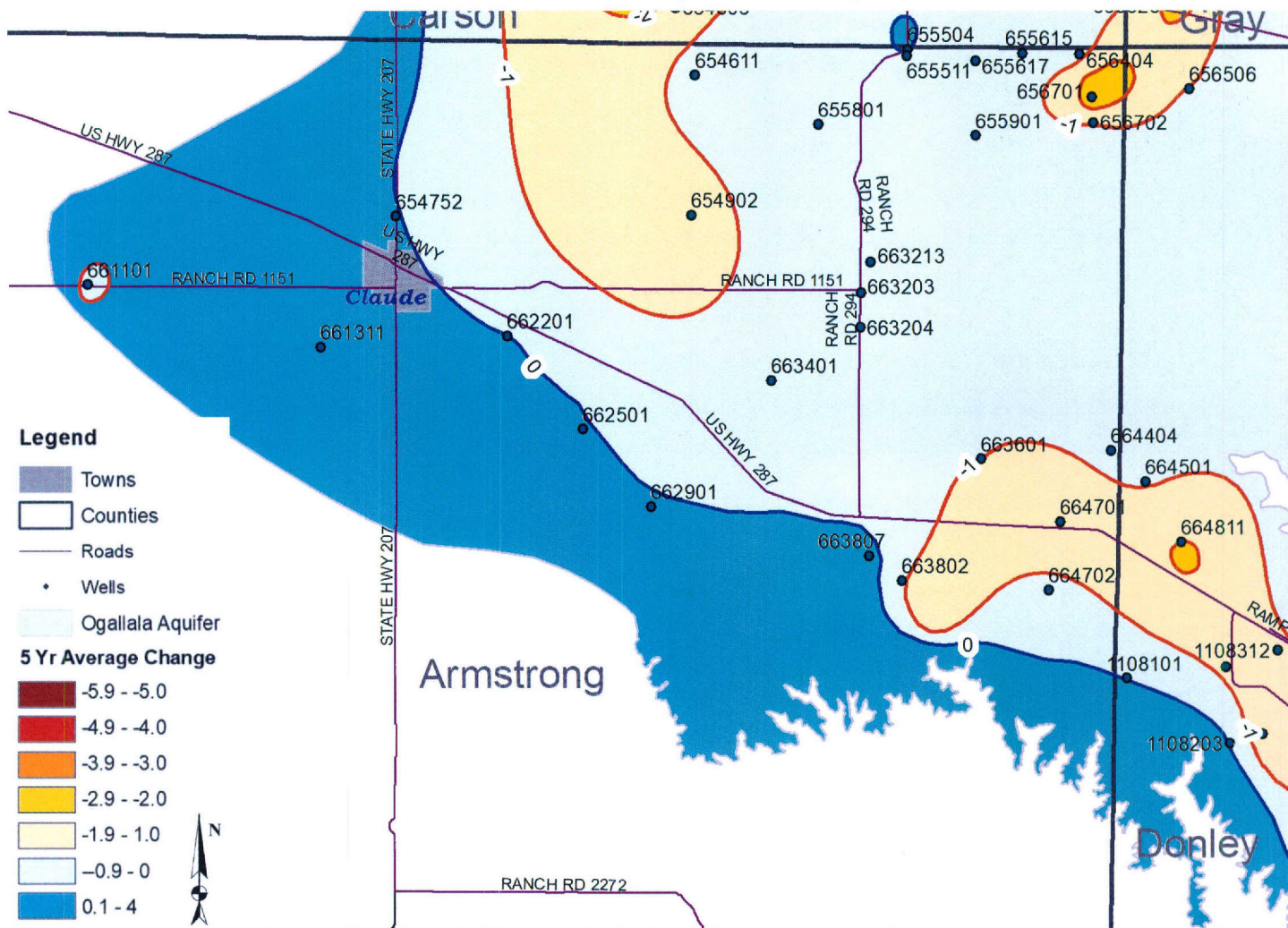
At their June 2019 meeting, District Board of Directors stated they are committed to revisiting District Rules once all Operating Permits are complete. During the permit process, Operators will verify their contiguous acreage. Contiguous acreage will help guide the Board in making their decision regarding future Rule changes or amendments.

For an Operating Permit to be granted, all wells producing more than 35 GPM, must have an approved metering method. Currently, the District has a 50/50 cost-share program for traditional flow meters. **This program expires September 30, 2019.** A copy of District Meter Standards can be found at [www.pgcd.us/metering](http://www.pgcd.us/metering)





# Northeast Armstrong County OGALLALA Aquifer 5 Year Average Change



**Legend**

- Towns
  - Counties
  - Roads
  - Wells
  - Ogallala Aquifer
- 5 Yr Average Change**
- 5.9 - -5.0
  - 4.9 - -4.0
  - 3.9 - -3.0
  - 2.9 - -2.0
  - 1.9 - -1.0
  - 0.9 - 0
  - 0.1 - 4

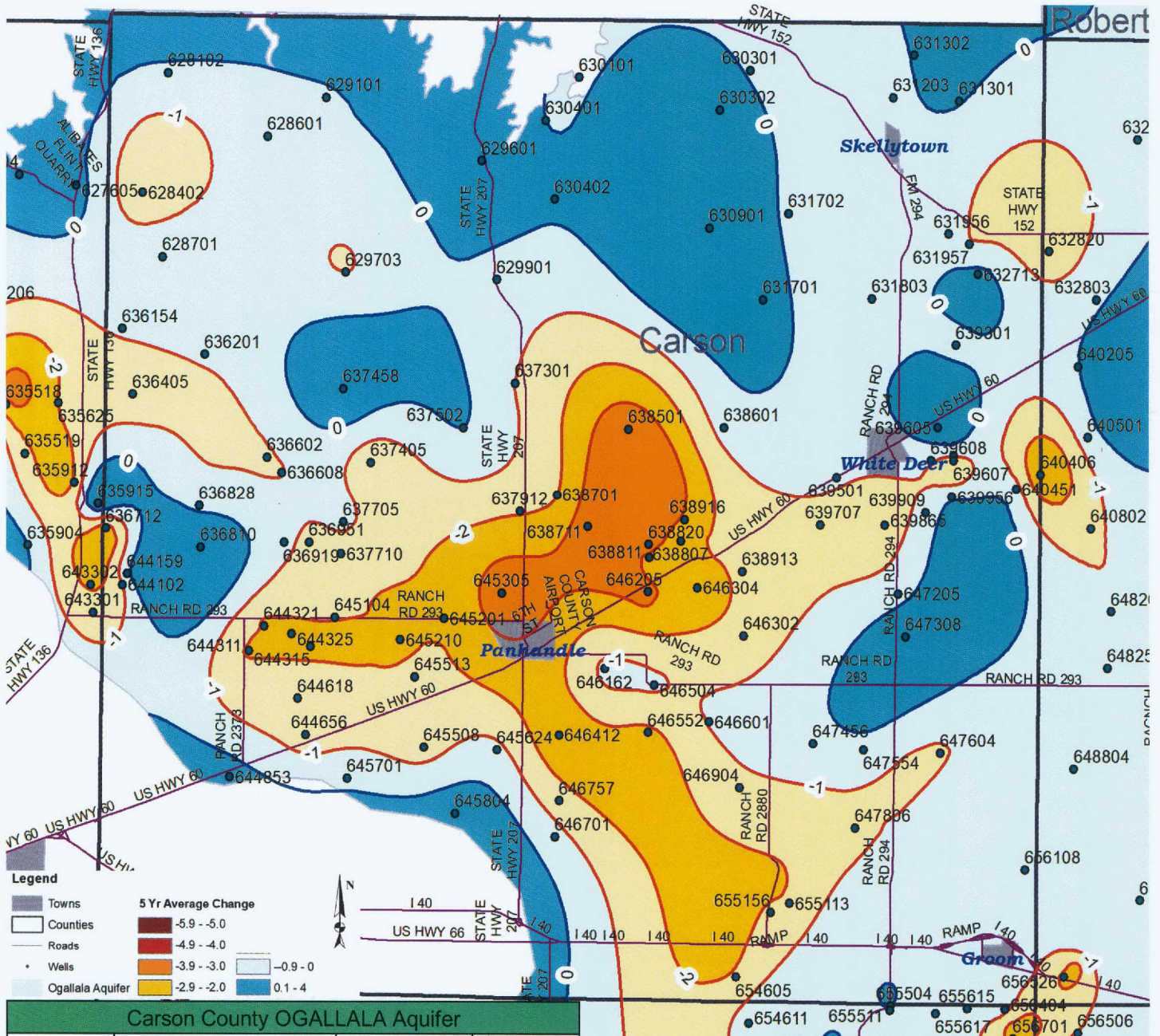


Armstrong County OGALLALA Aquifer							Armstrong County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr			2009	2018	2019	10 Yr	1 Yr	
654611	-315.4	-320.1	-320.8	-5.4	-0.7	-0.5	662201	-185.6	-187.0	-186.7	-1.1	0.3	0.0
654752	-184.7	-184.2	-184.1	0.6	0.1	0.0	662501	-184.4	-182.4	-182.2	2.2	0.2	0.7
654902			-318.4			-1.8	662901		-217.8	-217.9		-0.1	0.2
655504	-351.2	-359.5	-356.7	-5.5	2.8	0.0	663203		-175.5	-178.0		-2.5	-0.1
655511	-352.0	-352.2	-353.7	-1.7	-1.5	-0.9	663204		-174.9	-175.9		-1.0	-0.8
655615	-358.6	-361.4	-363.0	-4.4	-1.6	-0.4	663213		-162.5	-163.8		-1.3	-0.4
655617	-356.5	-362.7	-363.4	-6.9	-0.7	-0.4	663401	-194.3	-197.7	-197.9	-3.6	-0.2	-0.2
655801		-141.2					663601		-99.6	-100.7		-1.1	-1.0
655901	-245.7	-250.1	-251.9	-6.2	-1.8	-0.7	663802	-199.2	-207.2	-207.4	-8.2	-0.2	-0.9
656404	-342.9	-359.4	-361.3	-18.4	-1.9	-0.7	663807		-188.3	-189.3		-1.0	0.5
656701		-361.3	-362.7		-1.4	-2.6	664404	-125.3		-123.4	1.9		-0.6
656702	-333.8	-343.7	-346.3	-12.5	-2.6	-1.1	664701			-152.2			-1.7
661101	-151.5	-154.0	-154.9	-3.4	-0.9	-0.1	664702	-145.0	-157.7	-159.5	-14.5	-1.8	-0.7
661311	-175.3	-192.2	-196.4	-21.1	-4.2	0.1							





# Carson County OGALLALA Aquifer 5 Year Average Change



Carson County OGALLALA Aquifer							
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	5 Yr Avg Difference
	2009	2018	2019	10 Yr	1 Yr		
628102	-206.4	-213.7	-214.5	-8.1	-0.8	-0.5	
628402	-203.5	-205.4	-202.9	0.6	2.5	-1.7	
628601	-64.8	-68.8	-70.0	-5.2	-1.2	-0.5	
628701	-253.8	-258.0	-257.2	-3.4	0.8	-0.2	
629101	-55.7	-55.8	-57.5	-1.8	-1.7	-0.3	
629601	-52.9	-50.2	-50.2	2.7	0.0	0.9	
629703	-282.7	-296.7	-297.2	-14.5	-0.5	-1.0	
629901	-81.6	-84.1	-84.9	-3.3	-0.8	-0.3	
630101	-30.4	-29.7	-30.4	0.0	-0.7	-0.1	
630301	-151.1	-151.8	-151.7	-0.6	0.1	-0.1	
630302	-228.9	-226.7	-226.0	2.9	0.7	0.7	
630401	-203.7	-202.0					
630402	-121.8	-119.9	-119.5	2.3	0.4	0.1	
630901	-333.0	-326.8	-325.9	7.1	0.9	2.0	
631203	-299.3	-300.0	-300.7	-1.4	-0.7	-0.1	
631301	-123.1	-123.4	-123.6	-0.5	-0.2	0.0	
631302		-248.4	-248.9		-0.5	0.0	
631701	-390.3	-391.2	-391.0	-0.7	0.2	0.5	
631702	-278.3	-281.2	-281.0	-2.7	0.2	-0.3	

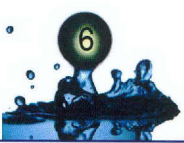


# Panhandle Water News

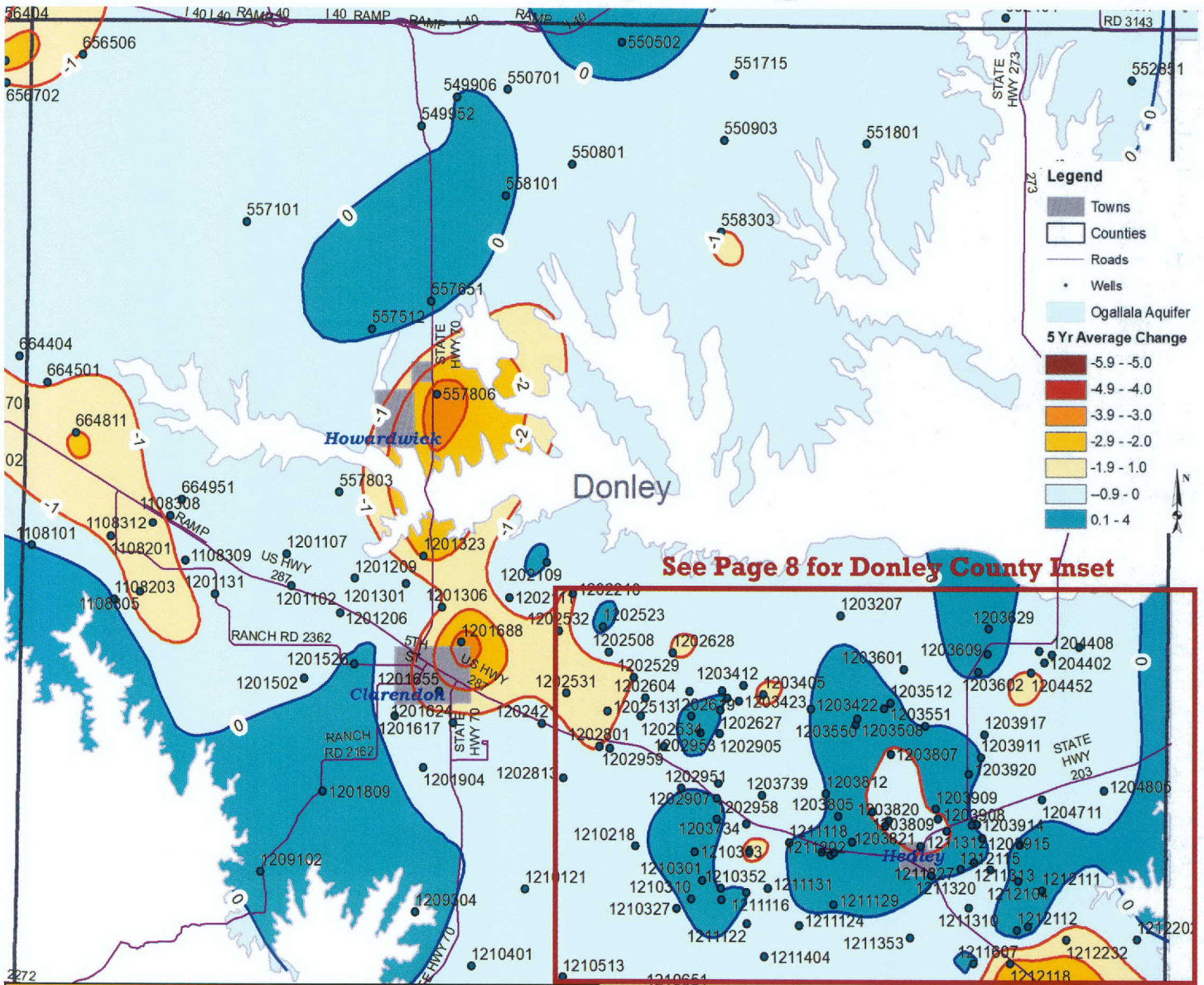


Carson County OGALLALA Aquifer Continued							Carson County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference		2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
631803	-394.7	-395.5	-397.8	-3.1	-2.3	-0.7	640451		-397.1	-396.9		0.2	-0.6
631956	-225.7	-226.8	-227.3	-1.6	-0.5	-0.2	644102		-494.4	-501.5		-7.1	-1.1
631957	-328.6	-331.7	-333.5	-4.9	-1.8	-0.9	644159			-495.7			-0.2
632713		-406.8	-407.9		-1.1	0.3	644311	-493.0	-515.8	-518.9	-25.9	-3.1	-2.2
636154	-319.8	-327.8	-328.8	-9.0	-1.0	-0.9	644315	-454.1	-472.0	-476.6	-22.5	-4.6	-2.4
636201	-359.8	-368.6	-369.1	-9.3	-0.5	-0.9	644321			-528.8			-2.1
636405		-427.3	-428.8		-1.5	-1.5	644325		-500.9	-503.8		-2.9	-2.5
636602	-491.3	-506.6	-510.5	-19.2	-3.9	-1.1	644618		-460.9	-467.1		-6.2	-1.6
636608	-508.8	-522.0	-526.0	-17.2	-4.0	-1.0	644656	-437.0	-447.2	-447.8	-10.8	-0.6	-1.4
636712		-427.4	-431.3		-3.9	-2.4	644853	-302.1		-298.9	3.2		0.5
636810	-548.0		-580.2	-32.2		1.4	645104	-429.7	-449.1	-451.8	-22.1	-2.7	-1.9
636828			-545.7			-0.3	645201	-427.8	-445.7	-450.8	-23.0	-5.1	-2.1
636919	-517.6	-520.9	-525.6	-8.0	-4.7	-0.6	645210	-441.6	-465.1	-468.2	-26.6	-3.1	-2.2
636951		-487.9	-493.2		-5.3	-1.3	645305	-435.8	-457.5	-461.6	-25.8	-4.1	-3.5
637301		-283.9	-284.8		-0.9	-1.0	645508			-441.0			-1.4
637405	-443.8	-457.6	-461.6	-17.8	-4.0	-1.6	645513	-440.4	-456.5	-460.9	-20.5	-4.4	-1.8
637458		-438.8	-444.4		-5.6	1.1	645624		-429.7	-431.5		-1.8	-0.8
637502	-310.7	-320.5					645701	-388.5	-391.8	-392.1	-3.6	-0.3	-0.3
637705	-463.8	-476.5	-476.1	-12.3	0.4	-0.8	645804	-325.8	-331.0	-333.3	-7.5	-2.3	0.8
637710	-437.9	-450.8	-455.1	-17.2	-4.3	-1.7	646162	-380.0	-387.2	-388.3	-8.3	-1.1	-0.8
637912	-407.1	-423.7	-428.3	-21.2	-4.6	-1.9	646205	-424.9	-450.1	-454.8	-29.9	-4.7	-3.2
638501	-380.8	-404.6	-410.6	-29.8	-6.0	-3.7	646302	-376.1	-386.8	-388.7	-12.6	-1.9	-1.6
638601	-373.7	-376.9	-379.7	-6.0	-2.8	-0.7	646304		-436.9	-440.7		-3.8	-2.4
638701	-416.1	-429.9	-434.6	-18.5	-4.7	-2.0	646412		-429.5	-433.3		-3.8	-2.6
638711	-424.8	-447.4	-453.4	-28.6	-6.0	-3.6	646504	-385.2	-399.1	-402.1	-16.9	-3.0	-0.9
638807	-415.2	-441.8	-443.1	-27.9	-1.3	-2.1	646552	-355.5	-374.2	-370.5	-15.0	3.7	-2.2
638811	-432.6	-457.1	-461.9	-29.3	-4.8	-2.9	646601	-373.2	-378.9	-380.9	-7.7	-2.0	-1.0
638820		-454.6	-459.4		-4.8	-3.7	646701		-371.8	-372.2		-0.4	-0.6
638913	-414.5	-432.4	-435.9	-21.4	-3.5	-1.8	646757	-379.5	-398.3	-401.6	-22.1	-3.3	-1.5
638916	-413.9	-440.1	-442.3	-28.4	-2.2	-2.8	646904	-364.3	-371.9	-374.4	-10.1	-2.5	-1.3
639301	-397.4	-398.9	-398.8	-1.4	0.1	-0.2	647205	-380.2	-382.6	-383.3	-3.1	-0.7	-0.4
639501	-373.2	-382.4	-384.2	-11.0	-1.8	-0.9	647308	-297.9	-298.0	-295.6	2.3	2.4	0.8
639605	-284.6	-288.6	-287.6	-3.0	1.0	0.7	647456		-350.9	-352.7		-1.8	-0.3
639606		-357.3	-357.6		-0.3	-0.9	647554	-306.4	-311.0	-314.7	-8.3	-3.7	-0.2
639607		-376.1	-377.9		-1.8	-1.6	647604	-320.2	-326.9	-329.3	-9.1	-2.4	-1.1
639608		-362.1	-363.4		-1.3	-0.8	647806	-358.5	-370.1	-373.7	-15.2	-3.6	-1.4
639707	-387.3	-401.8	-403.9	-16.6	-2.1	-1.2	654605		-387.6	-390.1		-2.5	-1.9
639865	-394.3	-411.6	-414.7	-20.4	-3.1	-1.4	655113	-377.3		-398.4	-21.1		-1.9
639909	-353.4	-360.1	-360.3	-6.9	-0.2	-0.6	655156	-369.3	-399.5	-401.8	-32.5	-2.3	-1.9
639956	-365.6	-386.6	-384.1	-18.5	2.5	-0.1	656108			-315.3			-0.5
640406		-402.4	-404.1		-1.7	-2.8							





# Donley County OGALLALA Aquifer 5 Year Average Change



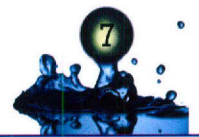
Donley County OGALLALA Aquifer

Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr	
549906	-204.8	-205.5	-205.9	-1.1	-0.4	0.0
549952		-255.6	-254.1		1.5	-0.4
550502		-124.8	-124.9		-0.1	0.2
550701		-114.3	-113.4		0.9	-0.1
550801	-104.9	-104.6	-105.8	-0.9	-1.2	-0.4
550903	-107.2	-109.8	-109.8	-2.6	0.0	-0.4
551715	-111.8	-114.2	-114.2	-2.4	0.0	-0.2
551801	-91.3	-94.8	-95.2	-3.9	-0.4	-0.3
552851	-120.7	-123.9	-121.8	-1.1	2.1	-0.1
557101		-116.8	-117.2		-0.4	-0.6

	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
557512	-40.4	-41.3	-42.4	-2.0	-1.1	2.2
557651		-91.0	-91.0		0.0	1.0
557803	-87.5	-92.0	-90.2	-2.7	1.8	-0.3
557806		-60.7	-63.7		-3.0	-3.3
558101		-109.8	-110.2		-0.4	0.1
558303	-41.3	-44.8	-45.8	-4.5	-1.0	-1.0
656506	-329.8	-344.6	-349.3	-19.5	-4.7	-0.9
664501	-116.9	-127.2	-128.9	-12.0	-1.7	-0.9
664811	-100.1	-116.8	-120.2	-20.1	-3.4	-2.0
664951	-65.1	-73.1	-74.0	-8.9	-0.9	-0.1
1108101	-95.9	-103.5	-104.4	-8.5	-0.9	0.0
1108201	-120.6	-135.2	-136.6	-16.0	-1.4	-1.2



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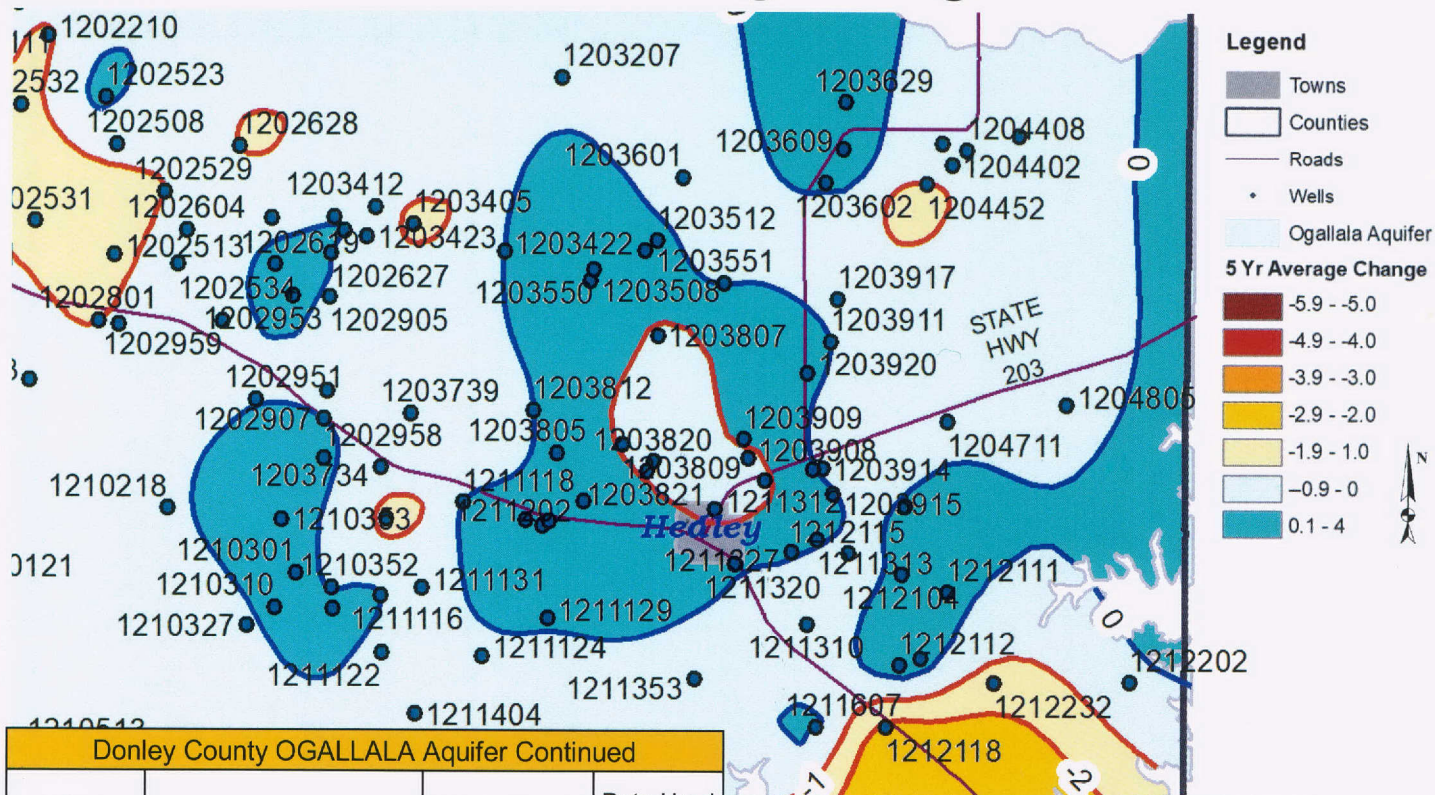


Donley County OGALLALA Aquifer Continued							Donley County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference		2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
1108203	-42.9	-56.1	-58.6	-15.7	-2.5		1202905		-74.4	-76.8		-2.4	-0.3
1108305		-111.3	-113.1		-1.8	-1.6	1202907	-11.0	-15.8	-17.5	-6.5	-1.7	0.0
1108308	-71.1	-84.1	-85.9	-14.8	-1.8	-0.9	1202931	-38.6	-42.9	-44.7	-6.1	-1.8	-0.6
1108309	-77.7	-91.9	-93.8	-16.1	-1.9	-0.8	1202951		-22.3	-24.2		-1.9	-0.1
1108312	-78.0	-92.1	-94.6	-16.6	-2.5	-1.2	1202953		-54.6	-56.9		-2.3	0.5
1201102	-34.2	-41.9	-43.3	-9.1	-1.4	-0.5	1202958		-16.0	-10.4		5.6	1.6
1201107		-52.2	-53.3		-1.1	-0.2	1202959		-61.8	-65.2		-3.4	-0.5
1201131	-52.9	-62.8	-64.3	-11.4	-1.5	-0.7	1203207	-80.0	-83.8	-83.5	-3.5	0.3	-0.2
1201206	-66.3	-75.1	-77.0	-10.7	-1.9	-0.5	1203405	-69.7	-81.9	-84.0	-14.3	-2.1	-1.2
1201209		-50.0	-51.4		-1.4	-0.1	1203412		-88.7	-89.5		-0.8	-0.7
1201301	-47.0	-58.8	-61.7	-14.7	-2.9	-0.3	1203422		-44.2	-45.8		-1.6	0.0
1201306	-56.7	-73.0	-74.6	-17.9	-1.6	-1.0	1203423		-98.1	-101.1		-3.0	-0.9
1201323		-144.8	-144.6		0.2	-2.1	1203508		-80.1	-79.4		0.7	1.4
1201502	-128.9	-134.6	-135.2	-6.3	-0.6	-0.4	1203512		-111.6	-111.9		-0.3	0.2
1201526		-106.0	-106.6		-0.6	0.1	1203550		-91.7	-91.0		0.7	1.2
1201617	-115.0	-118.3	-119.4	-4.4	-1.1	-0.5	1203551		-113.4	-113.8		-0.4	0.3
1201624	-100.0	-108.0	-108.7	-8.7	-0.7	-0.6	1203601	-96.5	-103.0	-103.8	-7.3	-0.8	-0.5
1201655	-52.8	-65.7	-67.1	-14.3	-1.4	-1.6	1203602		-116.6	-118.1		-1.5	0.1
1201688		-59.4	-62.4		-3.0	-3.4	1203609		-121.4	-122.2		-0.8	0.7
1201809		-213.4	-213.0		0.4	2.0	1203629		-95.8	-95.9		-0.1	0.6
1201904	-141.0	-147.8	-148.3	-7.3	-0.5	-0.5	1203734		-37.1	-35.9		1.2	-0.4
1202109		-101.3	-103.7		-2.4	0.0	1203739		-27.0	-27.7		-0.7	-0.8
1202111		-116.7	-118.6		-1.9	-0.6	1203805		-70.0	-70.9		-0.9	1.0
1202210	-68.1	-82.4	-84.6	-16.5	-2.2	-1.1	1203807		-125.8	-126.4		-0.6	-0.2
1202421		-32.4	-34.9		-2.5	-0.3	1203809		-61.1	-61.9		-0.8	-0.4
1202508		-98.8	-101.8		-3.0	-0.7	1203812		-83.2				0.6
1202513		-87.6	-91.6		-4.0	-1.1	1203820		-75.3	-75.5		-0.2	-0.8
1202523		-93.5	-95.9		-2.4	0.3	1203821		-65.8	-65.8			-0.5
1202529		-91.4	-95.2		-3.8	-1.0	1203904	-66.5	-69.4	-70.4	-3.9	-1.0	-0.2
1202531		-76.4	-80.6		-4.2	-1.7	1203908		-81.4	-82.3		-0.9	-0.2
1202532		-78.0	-81.3		-3.3	-1.2	1203909		-87.9	-90.5		-2.6	0.1
1202534		-73.0	-76.4		-3.4	-0.8	1203911		-51.8	-53.2		-1.4	0.0
1202604	-62.6	-80.3	-83.2	-20.6	-2.9	-0.5	1203913		-102.3	-103.5		-1.2	0.0
1202607	-74.6	-85.9	-88.2	-13.6	-2.3	-0.4	1203914		-102.2	-104.1		-1.9	-0.5
1202619		-85.8	-88.2		-2.4	-0.2	1203915		-86.7	-88.0		-1.3	0.1
1202621		-61.1	-64.5		-3.4	0.2	1203917		-50.0	-51.4		-1.4	-0.3
1202627		-85.3	-88.1		-2.8	0.0	1203918		-80.8	-79.3		1.5	0.4
1202628		-61.1	-62.0		-0.9	-1.0	1203920			-50.5			0.3
1202653		-86.3	-89.3		-3.0	0.0	1204402		-121.3	-125.0		-3.7	-0.3
1202801		-45.6	-48.8		-3.2	-1.0	1204408		-122.5	-125.4		-2.9	-0.2
1202812	-27.7	-38.2	-40.3	-12.6	-2.1	-0.9	1204415		-103.3	-104.9		-1.6	-0.2
1202813		-85.3	-86.1		-0.8	-0.4	1204451		-133.7	-136.4		-2.7	-0.6





## Donley County Inset OGALLALA Aquifer 5 Year Average Change



Donley County OGALLALA Aquifer Continued

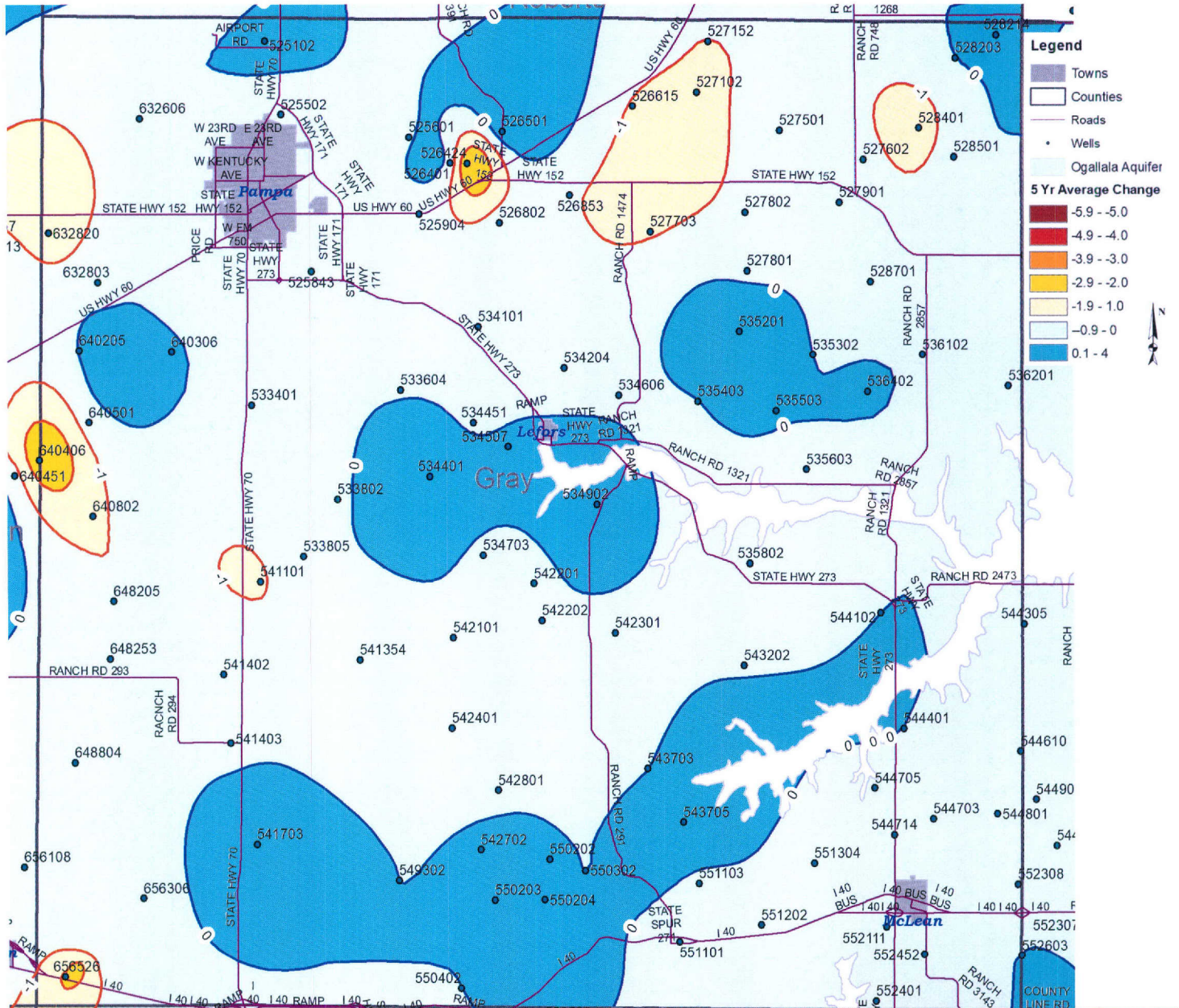
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr	
						5 Yr Avg Difference
1204452		-138.9	-141.5		-2.6	-1.0
1204711			-44.1			-0.3
1204805	-25.0	-37.1	-37.3	-12.3	-0.2	-0.2
1209102	-99.1	-101.4	-101.3	-2.2	0.1	0.3
1209304	-22.9	-25.1	-26.5	-3.6	-1.4	0.2
1210121		-135.1	-134.0		1.1	-0.2
1210218	-60.8	-65.7	-66.5	-5.7	-0.8	-0.2
1210301	-14.4	-19.5	-20.4	-6.0	-0.9	0.5
1210305	-38.7	-43.9	-45.4	-6.7	-1.5	0.3
1210310	-28.0	-32.3	-33.8	-5.8	-1.5	0.5
1210327		-43.0	-46.1		-3.1	-0.3
1210352		-40.6				
1210353	-20.1		-25.9	-5.8		0.9
1210401	-117.2	-113.1	-113.5	3.7	-0.4	-0.1
1210513		-117.0	-117.6		-0.6	-0.1
1210651		-67.7	-68.6		-0.9	-0.5
1211116		-117.6	-117.2		0.4	0.0
1211118		-105.5				
1211122		-115.2	-115.3		-0.1	-0.3
1211124		-187.8	-188.1		-0.3	-0.4
1211129		-165.6	-165.6		0.0	0.3

	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
1211131		-82.1	-82.3		-0.2	-0.6
1211137		-113.5	-113.4		0.1	-1.3
1211202		-53.1	-54.6		-1.5	2.4
1211207	-109.7	-112.3	-107.9	1.8	4.4	0.6
1211212		-86.4	-84.8		1.6	1.9
1211225		-74.2	-69.9		4.3	0.4
1211310	-75.6	-73.6	-77.7	-2.1	-4.1	-0.9
1211312		-61.4	-63.1		-1.7	-0.2
1211313		-151.3	-156.3		-5.0	0.1
1211320		-86.0	-87.8		-1.8	0.1
1211327		-121.9	-124.8		-2.9	0.1
1211353	-103.9	-110.5	-111.5	-7.6	-1.0	-0.5
1211404	-194.2	-198.7	-199.4	-5.2	-0.7	-0.5
1211607		-136.8	-136.6		0.2	0.0
1212104	-128.8	-125.8	-127.6	1.2	-1.8	0.1
1212111		-60.9	-62.1		-1.2	0.2
1212112		-86.4	-86.7		-0.3	0.6
1212114		-90.4	-88.1		2.3	0.4
1212115		-124.8	-128.4		-3.6	-0.2
1212118		-89.7	-90.0		-0.3	-2.3
1212152		-96.2	-98.4		-2.2	0.2
1212202		-86.9	-86.3		0.6	-0.3
1212232		-107.6	-107.7		-0.1	-1.4





# Gray County OGALLALA Aquifer 5 Year Average Change



Gray County OGALLALA Aquifer      Gray County OGALLALA Aquifer Continued

Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr	
525102		-390.8	-392.4		-1.6	0.3
525502	-350.6	-353.4	-354.7	-4.1	-1.3	-0.4
525601	-370.2	-372.0	-372.3	-2.1	-0.3	-0.1
525843		-378.4	-378.3		0.1	-0.1
525904	-366.2	-371.3	-371.8	-5.6	-0.5	-0.4
526401	-372.6	-377.7	-377.9	-5.3	-0.2	-0.4
526424			-380.9			-2.8

Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr	
526501	-367.4	-371.5	-369.4	-2.0	2.1	0.6
526615		-380.4	-382.6		-2.2	-1.1
526802	-355.9	-359.2	-359.9	-4.0	-0.7	-0.4
526853	-365.2	-369.2	-371.3	-6.1	-2.1	-0.9
527102	-361.2	-368.7	-370.4	-9.2	-1.7	-1.1
527152		-349.1	-350.7		-1.6	-1.0
527501	-349.2		-354.6	-5.4		-0.7

Gray Co. Wells Continued on Next Page

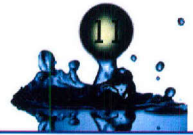




# Panhandle Water News

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
	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference		2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
527602	-331.9	-333.8	-336.0	-4.1	-2.2	-0.6	542401	-200.1	-203.2	-203.2	-3.1	0.0	-0.2
527703			-377.3			-1.1	542702	-144.9	-146.0	-146.1	-1.2	-0.1	0.1
527801	-132.5	-136.2	-136.6	-4.1	-0.4	-0.3	542801	-81.1	-82.8	-83.2	-2.1	-0.4	-0.1
527802	-339.0	-346.1	-346.6	-7.6	-0.5	-0.8	543202	-112.3	-112.6	-112.7	-0.4	-0.1	-0.1
527901		-342.5	-342.6		-0.1	-0.3	543703	-14.9	-16.2	-16.3	-1.4	-0.1	0.0
528203	-341.1	-343.8	-344.7	-3.6	-0.9	0.0	543705	-104.8		-107.5	-2.7		2.0
528214		-349.6	-350.0		-0.4	0.0	544102	-140.1	-141.4	-141.3	-1.2	0.1	0.0
528401	-329.1	-335.9	-337.1	-8.0	-1.2	-1.5	544401			-63.2			0.0
528501	-283.6	-286.6	-287.3	-3.7	-0.7	-0.4	544610	-183.3	-187.4	-187.5	-4.2	-0.1	-0.1
528701			-114.9			-0.5	544703	-127.0	-132.1	-131.1	-4.1	1.0	-0.6
533401	-351.2	-351.5	-353.0	-1.8	-1.5	-0.3	544705	-64.1	-65.3	-65.7	-1.6	-0.4	-0.2
533604	-86.7	-78.6	-79.2	7.5	-0.6	-0.1	544714		-114.3	-114.7		-0.4	-0.3
533802	-209.5	-211.8	-211.9	-2.4	-0.1	-0.2	544801	-111.0	-114.3	-114.9	-3.9	-0.6	-0.5
533805			-344.9			-0.3	549302		-197.1	-197.2		-0.1	0.0
534101	-141.4	-143.4	-143.5	-2.1	-0.1	-0.2	550202	-28.5	-24.1	-24.5	4.0	-0.4	0.2
534204	-195.0	-196.1	-196.6	-1.6	-0.5	-0.3	550203	-59.2		-57.0	2.2		0.3
534401	-121.8	-123.1	-120.4	1.4	2.7	0.8	550204	-48.2	-48.5	-49.1	-0.9	-0.6	0.3
534451	-109.1	-111.3	-111.8	-2.7	-0.5	-0.1	550302	-87.0	-87.5	-87.8	-0.8	-0.3	0.0
534507	-34.8		-35.1	-0.3		0.2	550402	-145.2	-145.2	-145.6	-0.4	-0.4	0.0
534606	-73.5	-74.7	-75.4	-1.9	-0.7	-0.1	551101	-212.9	-216.2	-216.5	-3.6	-0.3	-0.3
534703	-75.2	-76.5	-76.8	-1.6	-0.3	-0.2	551103	-134.7	-138.0	-139.4	-4.7	-1.4	-0.5
534902	-70.4	-70.9	-71.7	-1.3	-0.8	0.4	551202			-195.7			-0.4
535201	-129.9	-121.9	-123.4	6.5	-1.5	1.4	551304	-72.8	-77.5	-78.9	-6.1	-1.4	-0.7
535302	-16.3	-17.1	-17.3	-1.0	-0.2	0.0	552111	-107.0	-110.7	-111.4	-4.4	-0.7	-0.3
535403	-125.4	-126.8	-126.7	-1.3	0.1	0.0	552308	-100.9	-106.0	-106.4	-5.5	-0.4	-0.3
535503	-76.0	-76.7	-76.7	-0.7	0.0	0.2	552401	-72.0	-74.1	-74.5	-2.5	-0.4	-0.1
535603	-80.3	-79.8	-77.9	2.4	1.9	-0.3	552452	-107.3	-111.9	-113.1	-5.8	-1.2	-0.6
535802	-118.5	-120.1	-120.1	-1.6	0.0	-0.2	552603	-20.4	-20.4	-21.9	-1.5	-1.5	0.0
536102	-165.7	-167.7	-167.9	-2.2	-0.2	-0.2	632606		-365.7	-366.5		-0.8	-0.2
536201	-150.0	-152.8	-152.7	-2.7	0.1	-0.3	632803	-394.9	-396.0	-396.5	-1.6	-0.5	-0.2
536402	-8.8	-9.1	-8.2	0.6	0.9	0.2	632820		-369.5	-369.6		-0.1	-1.5
541101	-370.1	-377.1	-377.9	-7.8	-0.8	-1.1	640205	-390.1	-389.3	-389.3	0.8	0.0	0.0
541354		-360.8	-363.3		-2.5	-0.8	640306	-404.9	-392.8	-392.2	12.7	0.6	1.0
541402		-320.1	-319.6		0.5	-0.1	640501	-373.6	-377.9	-378.0	-4.4	-0.1	-0.5
541403	-293.3	-294.1	-296.7	-3.4	-2.6	-0.2	640802	-363.7	-375.6	-377.0	-13.3	-1.4	-1.2
541703		-260.4	-260.6		-0.2	0.8	648205			-382.4			-0.9
542101	-267.2	-264.6	-264.5	2.7	0.1	-0.1	648253	-356.7	-360.0	-361.4	-4.7	-1.4	-0.5
542201	-135.6	-133.3	-132.9	2.7	0.4	-0.2	648804		-290.5	-291.8		-1.3	-0.5
542202	-261.9	-262.9	-263.0	-1.1	-0.1	-0.1	656306	-283.8	-289.5	-290.5	-6.7	-1.0	-0.6
542301	-139.6	-140.1	-141.3	-1.7	-1.2	-0.2	656526		-313.8	-313.9		-0.1	-2.1

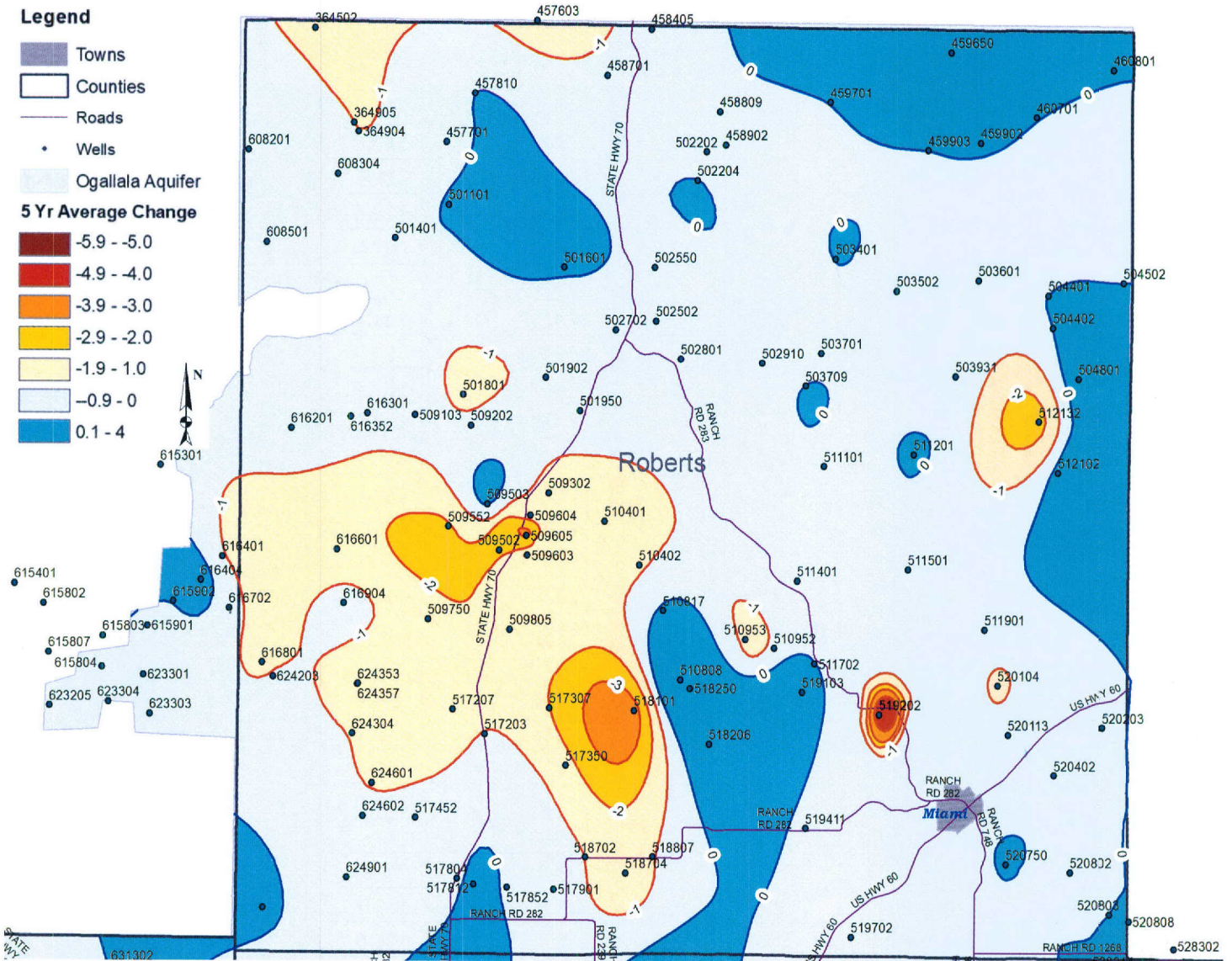




# Hutchinson and Roberts County OGALLALA Aquifer 5 Year Average Change

**Legend**

- Towns
- Counties
- Roads
- Wells
- Ogallala Aquifer
- 5 Yr Average Change**
- 5.9 - -5.0
- 4.9 - -4.0
- 3.9 - -3.0
- 2.9 - -2.0
- 1.9 - -1.0
- 0.9 - 0
- 0.1 - 4



Hutchinson County OGALLALA Aquifer

Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps 5 Yr Avg Difference
	2009	2018	2019	10 Yr	1 Yr	
528302	-299.1	-299.0	-299.4	-0.3	-0.4	0.0
615301		-114.9	-115.7		-0.8	0.1
615401		-134.0	-133.5		0.5	0.5
615802		-162.0	-152.7		9.3	3.3
615803	-77.0	-80.4				
615804	-110.6	-111.7	-111.9	-1.3	-0.2	-0.5
615807			-146.6			-0.2
615901	-74.1	-74.7	-74.8	-0.7	-0.1	-0.3

Hutchinson County OGALLALA Aquifer Continued

Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps 5 Yr Avg Difference
	2009	2018	2019	10 Yr	1 Yr	
615902	-25.1	-25.2	-25.5	-0.4	-0.3	0.0
616401		-290.7	-293.4		-2.7	-0.9
616404	-99.8	-101.9	-102.4	-2.6	-0.5	0.5
616702	-238.2	-245.3	-246.1	-7.9	-0.8	-0.6
623205	-154.8	-157.6	-158.0	-3.2	-0.4	-0.5
623301	-114.5	-116.6	-116.8	-2.3	-0.2	-0.3
623303		-97.9	-98.0		-0.1	-0.1
623304	-188.7	-191.0	-191.2	-2.5	-0.2	-0.1

*Roberts Co. Wells Continued on Next Page*

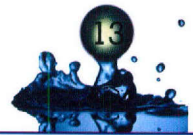




# Panhandle Water News

Roberts County OGALLALA Aquifer							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
	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference		2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
364502	-447.3	-457.4	-459.1	-11.8	-1.7	-1.0	509502	-297.4	-316.2	-318.6	-21.2	-2.4	-2.4
364904	-113.1	-119.1	-120.0	-6.9	-0.9	-1.0	509503	-261.6	-279.8				
364905		-102.3	-103.5		-1.2	-1.0	509552	-106.4	-129.0	-132.0	-25.6	-3.0	-2.2
457603		-411.4	-412.7		-1.3	-1.5	509603		-216.6	-218.3		-1.7	-1.0
457701	-25.0	-29.0	-29.7	-4.7	-0.7	-0.5	509604	-186.2	-201.5	-203.6	-17.4	-2.1	-1.9
457810	-254.9	-260.7					509605	-237.8	-257.0	-259.7	-21.9	-2.7	-3.4
458405	-344.0	-346.3	-346.9	-2.9	-0.6	-0.5	509750	-444.6	-464.2	-467.4	-22.8	-3.2	-1.3
458701	-90.0	-95.4	-96.2	-6.2	-0.8	-0.7	509805	-314.8	-327.3	-328.2	-13.4	-0.9	-1.6
458809			-161.9			-0.1	510401	-150.4	-170.7	-171.7	-21.3	-1.0	-1.7
458902	-118.0	-120.0	-120.6	-2.6	-0.6	-0.2	510402	-253.1	-291.5	-293.3	-40.2	-1.8	-1.1
459650	-290.3	-276.6	-273.1	17.2	3.5	2.5	510808		-415.0	-411.9		3.0	2.4
459701	-55.2	-56.4	-56.3	-1.1	0.1	0.0	510817		-205.9	-205.8		0.2	0.2
459902	-47.4	-48.3	-47.7	-0.3	0.6	0.2	510952	-345.1	-419.3	-416.9	-71.8	2.4	-0.9
459903	-40.9	-41.5	-41.7	-0.8	-0.2	0.0	510953	-184.9	-265.3	-265.4	-80.5	-0.2	-1.7
460701	-97.1	-98.2	-97.9	-0.8	0.3	0.0	511101	-286.0	-294.3	-294.2	-8.2	0.1	-0.2
460801	-187.4	-187.0	-186.8	0.6	0.2	0.1	511201	-293.1	-283.4	-296.8	-3.7	-13.4	0.1
501101	-55.2	-59.0	-59.5	-4.3	-0.5	0.1	511401	-328.3	-328.9	-329.1	-0.8	-0.2	-0.4
501401	-52.2	-54.7	-55.3	-3.1	-0.6	-0.5	511501	-307.2	-322.4	-322.0	-14.8	0.4	-0.8
501601		-83.1	-83.2		-0.1	0.6	511702	-398.4	-460.3	-456.2	-57.8	4.1	0.1
501801	-214.1	-239.8	-242.6	-28.5	-2.8	-1.2	511901	-274.2	-283.6	-283.3	-9.1	0.3	-0.8
501902	-202.8	-208.8	-209.7	-6.9	-0.9	-0.8	512102		-278.0	-280.6		-2.6	0.2
501950	-128.5	-131.4	-131.9	-3.4	-0.5	-0.4	512132			-329.5			-2.4
502202	-69.1	-70.9	-71.1	-2.0	-0.2	-0.1	517203	-323.7	-333.1	-334.4	-10.7	-1.3	-1.0
502204		-12.7	-13.0		-0.3	0.0	517207		-205.3	-205.8		-0.5	-1.8
502502	-107.8	-108.6	-108.5	-0.7	0.1	-0.1	517307		-137.5	-139.2		-1.7	-2.0
502550	-100.6	-102.2	-102.6	-2.0	-0.4	-0.2	517350	-341.5	-354.5	-355.6	-14.1	-1.1	-1.6
502702	-57.6	-61.2	-61.3	-3.7	-0.1	-0.1	517452	-358.4	-363.9	-364.0	-5.6	-0.1	-0.6
502801	-6.3	-8.4	-8.6	-2.3	-0.2	-0.1	517804	-399.1	-406.3	-407.9	-8.8	-1.6	-0.6
502910		-168.4	-168.5		-0.1	-0.1	517812		-402.6	-404.8		-2.2	0.8
503401	-99.8	-100.7	-100.6	-0.8	0.1	0.0	517852	-406.8	-410.7	-411.9	-5.1	-1.2	-0.3
503502	-30.6	-32.2	-32.5	-1.9	-0.3	-0.3	517901	-394.3	-397.7	-399.0	-4.7	-1.3	-0.6
503601	-85.5	-86.6	-87.2	-1.7	-0.6	-0.2	518101	-327.9	-364.1	-366.7	-38.8	-2.6	-3.4
503701	-86.6	-87.0	-87.0	-0.4	0.0	-0.2	518206		-460.8	-456.1		4.7	1.1
503709		-279.1					518250	-334.8	-472.6	-485.3	-150.5	-12.7	2.1
503931		-51.7	-51.9		-0.2	-0.1	518702		-394.7	-397.2		-2.5	-1.0
504401	-99.5	-100.9	-100.9	-1.4	0.0	0.0	518704	-384.3	-388.5	-389.2	-4.9	-0.7	-1.7
504402	-168.0	-168.7	-168.8	-0.8	-0.1	0.0	518807		-377.5	-379.4		-1.9	-1.1
504502	-116.1	-117.0	-117.0	-0.9	0.0	0.0	519103		-434.2	-421.6		12.6	1.4
504801	-174.9	-164.2	-162.8	12.1	1.4	0.9	519202	-361.2		-389.3	-28.1		-4.5
509103			-55.5			-0.5	519411		-369.5	-366.1		3.4	-0.4
509202			-269.8			-0.8	519702	-260.1	-264.3	-265.1	-5.0	-0.8	-0.7
509302		-195.6	-197.0		-1.4	-1.5	520104	-141.3	-153.0	-152.6	-11.3	0.4	-1.2





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
	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference		2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
520113		-75.4	-74.1		1.3	-0.2	616352	-180.7	-188.0	-189.2	-8.5	-1.2	-0.4
520203	-111.8	-113.5	-113.4	-1.6	0.1	-0.1	616601	-255.3	-278.9	-280.5	-25.2	-1.6	-1.9
520402	-292.4	-297.3	-297.1	-4.7	0.2	-0.2	616801	-218.1	-228.0	-229.2	-11.1	-1.2	-1.2
520750	-293.9	-293.4	-293.4	0.5	0.0	0.4	616904	-317.2	-327.8	-329.7	-12.5	-1.9	-0.6
520802	-243.8	-245.8	-245.6	-1.8	0.2	-0.3	624203	-244.1	-253.0	-254.0	-9.9	-1.0	-0.9
520803			-327.5			0.0	624304	-299.8	-311.4	-312.2	-12.4	-0.8	-1.1
520808		-316.2	-316.1		0.1	0.1	624353	-376.3	-352.4	-357.4	18.9	-5.0	-1.7
608201	-177.2	-179.9	-180.4	-3.2	-0.5	-0.8	624357	-370.2	-352.2	-357.1	13.1	-4.9	-1.6
608304		-85.2	-85.9		-0.7	-0.8	624601	-209.7	-212.8	-213.2	-3.5	-0.4	-1.1
608501	-64.6	-67.1	-67.4	-2.8	-0.3	-0.5	624602	-327.6	-330.5	-330.5	-2.9	0.0	-0.4
616201	-143.9	-147.4	-147.3	-3.4	0.1	-0.3	624801	-111.6	-111.7	-112.1	-0.5	-0.4	0.1
616301	-178.8	-187.8	-188.8	-10.0	-1.0	-0.6	624901	-355.1	-360.5	-360.2	-5.1	0.3	-0.3

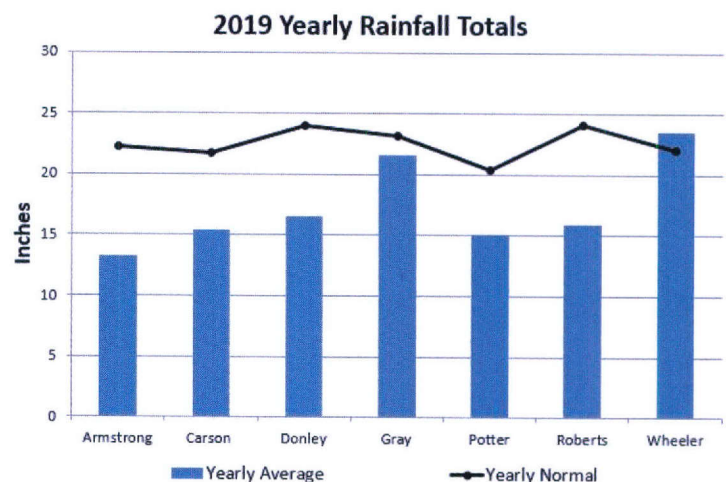
## Precipitation Enhancement Update

Panhandle Groundwater Conservation District (PGCD) kicked off its nineteenth year of the Precipitation Enhancement Program on April 1. Unlike recent year's past, this season started with a drought free District according to the U.S. Drought Monitor. The current drought monitor as of July 9 reflects the same. This could be attributed to an El Niño Advisory that was reported in the February Climate Prediction Center report and is still in effect as of their July 11 report. During El Niño, the Pacific jet stream is extended and amplifies the storm track across the southern United States. This allows for wetter and cooler conditions across much of the southern United States which has been reflected in the Texas Panhandle.

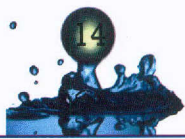
The 2019 Yearly Rainfall Totals chart shows the amount of rainfall in inches that has been received across the District's counties through June 2019. Wheeler County has received their normal total rainfall for the year with Gray County close to the total normal. The rest of the district counties have received over half their normal rainfall for the year. Temperatures have also reflected below normal and according to the National Weather Service, in Amarillo the normal temperatures have been below normal in March by 2°F, May by 3.2°F and June by 1.7°F. In the next few months a transition from the weak El Niño is expected to neutral conditions which is likely to continue through the Northern Hemisphere during the fall and winter.

The recap of the 2018 Precipitation Enhancement Program shows it concluded with 26 total seeding days which was above the average of 22 days per season. The first flight occurred on April 30, 2018 and the last flight occurred on August 28, 2018. The season ended with a total of 28 seeding flights, 11 reconnaissance flights, 518 glaciogenic flares burned and 2 hyroscopic flares.

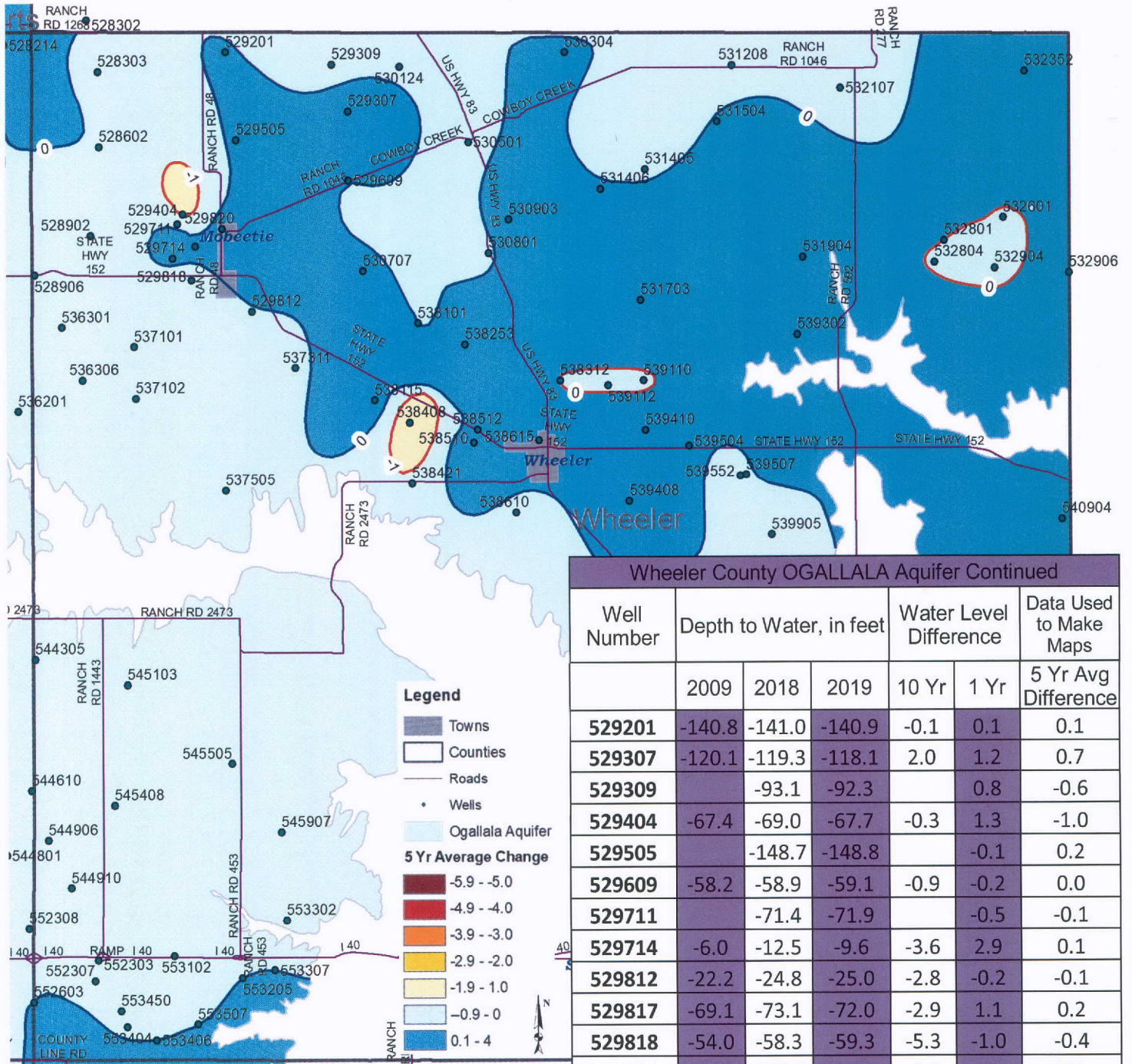
Yearly rainfall totals for 2018 varied across the District. The western counties including Potter, Armstrong and Carson all remained below the normal rainfall while the central and eastern counties including Donley Gray, Roberts and Wheeler were at or above normal rainfall for the year. The 2018 year end assessment done by Dr. Arquimedes Ruiz, Texas Tech University Professor and from Active Influence and Scientific Management, showed that on average the program produced an additional 2.39 inches of rainfall per acre. The cost of the 2018 program was \$174,312.43. Factoring in the cost of the crops, plus the additional amount of rainfall produced the cost of the program was \$0.043 per acre.







# 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
	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
529201	-140.8	-141.0	-140.9	-0.1	0.1	0.1
529307	-120.1	-119.3	-118.1	2.0	1.2	0.7
529309		-93.1	-92.3		0.8	-0.6
529404	-67.4	-69.0	-67.7	-0.3	1.3	-1.0
529505		-148.7	-148.8		-0.1	0.2
529609	-58.2	-58.9	-59.1	-0.9	-0.2	0.0
529711		-71.4	-71.9		-0.5	-0.1
529714	-6.0	-12.5	-9.6	-3.6	2.9	0.1
529812	-22.2	-24.8	-25.0	-2.8	-0.2	-0.1
529817	-69.1	-73.1	-72.0	-2.9	1.1	0.2
529818	-54.0	-58.3	-59.3	-5.3	-1.0	-0.4
529820	-74.5	-77.0	-75.8	-1.3	1.2	0.4
530124		-26.9	-27.7		-0.8	-0.2
530304	-90.2	-86.5	-88.7	1.5	-2.2	0.2
530501	-108.1	-109.7	-110.0	-1.9	-0.3	-0.2
530707	-13.4	-14.0	-14.1	-0.7	-0.1	0.1
530801	-66.1	-68.4	-68.6	-2.5	-0.2	-0.1
530903	-77.6		-81.0	-3.4		0.4
531208		-155.1	-155.5		-0.4	-0.2
531405		-15.2	-15.9		-0.7	-0.2
531406	-81.4	-83.1	-83.3	-1.9	-0.2	0.1

Wheeler County OGALLALA Aquifer

Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
528303	-297.3	-297.4	-298.7	-1.4	-1.3	-0.1
528602	-113.8	-117.8	-117.8	-4.0	0.0	-0.1
528902		-41.0	-41.4		-0.4	-0.6
528906	-169.9	-178.0	-178.8	-8.9	-0.8	-0.9





Wheeler County OGALLALA Aquifer Continued							Wheeler 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
	2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference		2009	2018	2019	10 Yr	1 Yr	5 Yr Avg Difference
531504	-35.7	-37.5	-37.5	-1.8	0.0	0.0	539112		-46.4	-41.3		5.1	-0.2
531703	-99.8	-100.1	-90.1	9.7	10.0	2.7	539302	-51.0	-49.5	-49.4	1.6	0.1	0.4
531904		-78.2	-78.2		0.0	0.4	539408	-4.0	-5.8	-5.2	-1.2	0.6	0.6
532107	-53.2	-54.5	-55.0	-1.8	-0.5	-0.1	539410		-28.6	-29.1		-0.5	0.2
532352	-93.4	-96.7	-95.2	-1.8	1.5	0.3	539504	-42.9	-46.2	-48.1	-5.2	-1.9	0.2
532601	-68.6	-72.7	-72.1	-3.5	0.6	-0.1	539507		-33.6	-34.4		-0.8	-0.1
532801	-0.9	-0.7	-1.0	-0.1	-0.3	0.0	539552	-26.0	-31.9	-32.9	-6.9	-1.0	-0.1
532804	-16.7	-17.3	-17.2	-0.5	0.1	-0.1	539905	-34.9	-39.6	-42.4	-7.5	-2.8	-0.2
532904	-63.6	-65.0	-65.2	-1.6	-0.2	-0.3	540904		-91.7	-91.4		0.3	0.9
532906		-18.1	-18.4		-0.3	0.3	544305	-86.4	-88.6	-88.9	-2.5	-0.3	-0.2
536301	-137.4	-146.5	-147.2	-9.8	-0.7	-0.9	544906	-107.2	-110.6	-111.0	-3.8	-0.4	-0.5
536306		-65.9	-66.2		-0.3	-0.6	544910		-94.9	-95.2		-0.3	-0.5
537101	-83.9	-88.9	-89.4	-5.5	-0.5	-0.7	545103	-6.7	-7.6	-6.8	-0.1	0.8	0.0
537102	-56.2	-60.1	-60.5	-4.3	-0.4	-0.3	545408	-116.4	-109.6	-110.2	6.2	-0.6	-0.4
537311	-25.7	-27.4	-27.6	-1.9	-0.2	-0.3	545505	-102.5	-106.7	-107.2	-4.7	-0.5	-0.6
537505	-62.7	-64.3	-64.2	-1.5	0.1	-0.1	545907	-45.6	-51.5	-50.0	-4.4	1.5	-0.3
538101	-5.3	-7.4	-7.5	-2.2	-0.1	0.0	552303	-42.7	-46.8	-48.0	-5.3	-1.2	-0.5
538115			-138.2			0.7	552307	-76.1	-78.3	-79.1	-3.0	-0.8	-0.2
538253	-97.7	-99.2	-99.3	-1.6	-0.1	0.5	553102	-62.7	-71.8	-73.7	-11.0	-1.9	-0.4
538312		-60.3	-60.6		-0.3	0.0	553205		-31.5	-32.2		-0.7	0.0
538408	-90.9	-103.9	-105.3	-14.4	-1.4	-1.7	553302	-23.3	-27.0	-28.5	-5.2	-1.5	-0.4
538421			-102.2			-0.8	553307		-41.1	-41.3		-0.2	0.0
538510	-32.7	-40.8	-40.6	-7.9	0.2	0.8	553404	-8.3	-9.6	-11.0	-2.7	-1.4	-0.1
538512		-54.3	-52.1		2.2	0.2	553406		-8.9	-10.5		-1.6	0.0
538610	-66.3	-70.4	-71.3	-5.0	-0.9	-0.3	553450	-39.7	-42.0	-43.1	-3.4	-1.1	-0.1
538615		-37.7	-38.0		-0.3	0.4	553507		-40.2	-41.2		-1.0	0.0
539110		-76.2	-76.1		0.1	-0.1							

## PGCD Welcomes New Employees

The District is proud to announce the addition of two new employees in recent months, Katie Hodges and Kelly Lane. Katie is the Business Administrator at the District and handles the financials. Katie is originally from Panhandle and now lives in White Deer with her family.

Kelly Lane is a Field Technician who also helps out in the office wherever he is needed. Kelly lives in Panhandle.

In addition to our two new employees, the District is fortunate to have an intern this summer. Grace Kuehler, a Texas Tech student, has been a great asset to the District assisting with field and office work. Grace is an Agriculture Economics major, who is also from Panhandle.



From Left to Right: Kelly Lane, Grace Kuehler and Katie Hodges.





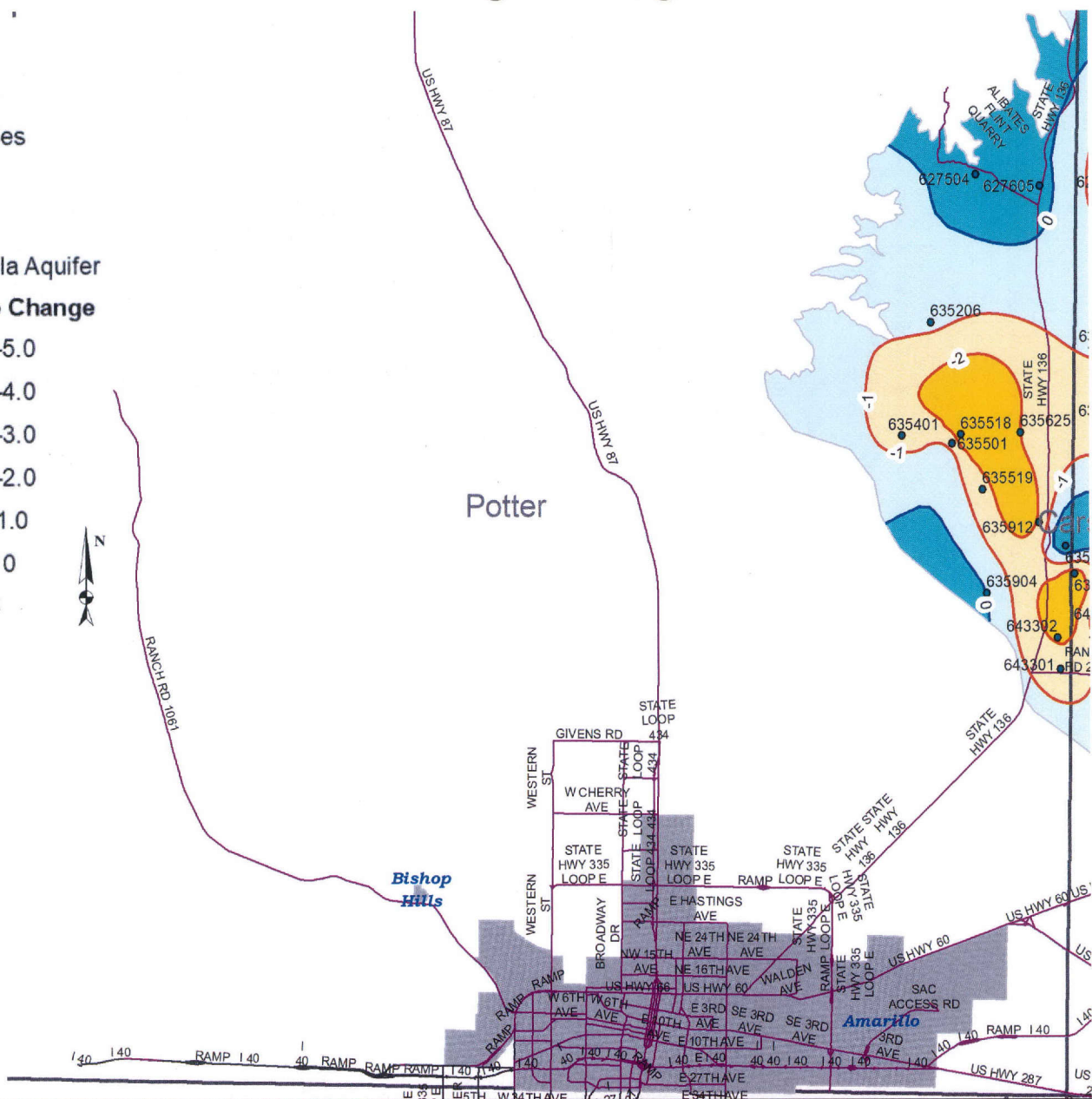
# Potter County OGALLALA Aquifer 5 Year Average Change

### Legend

- Towns
- Counties
- Roads
- Wells
- Ogallala Aquifer

### 5 Yr Average Change

- 5.9 - -5.0
- 4.9 - -4.0
- 3.9 - -3.0
- 2.9 - -2.0
- 1.9 - -1.0
- 0.9 - 0
- 0.1 - 4

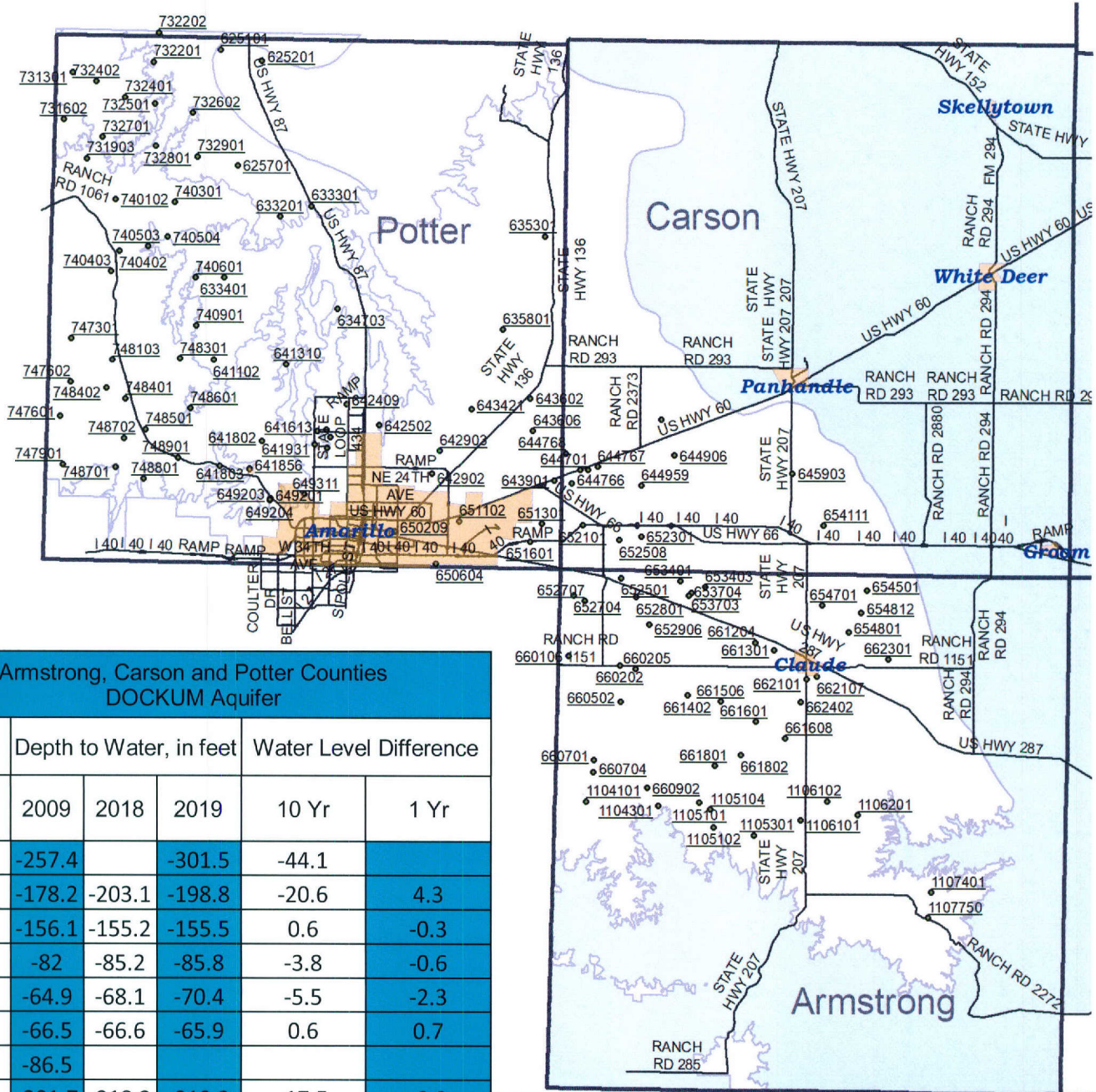


Potter County OGALLALA Aquifer							Potter County OGALLALA Aquifer Continued						
Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps	Well Number	Depth to Water, in feet			Water Level Difference		Data Used to Make Maps
	2009	2018	2019	10 Yr	1 Yr			2009	2018	2019	10 Yr	1 Yr	
627504	-28.0	-31.1	-30.9	-2.9	0.2	0.1	635625		-249.4	-251.3		-1.9	-2.0
627605	-125.7	-115.7	-115.6	10.1	0.1	0.3	635904		-260.1				0.0
635206		-229.0	-229.6		-0.6	-0.8	635912		-356.4	-357.8		-1.3	-1.9
635401	-284.3	-292.9	-293.9	-9.6	-1.0	-1.7	635915			-405.5			0.9
635501	-313.3	-328.9	-330.8	-17.5	-1.9	-1.3	643301	-487.0	-501.3	-503.5	-16.5	-2.2	-1.6
635518			-339.6			-2.8	643302	-475.1		-496.3	-21.2		-2.1
635519		-286.7	-288.4		-1.7	-1.7							





# Armstrong, Carson and Potter Counties DOCKUM Aquifer Well Locations



Armstrong, Carson and Potter Counties  
DOCKUM Aquifer

Well Number	Depth to Water, in feet			Water Level Difference	
	2009	2018	2019	10 Yr	1 Yr
625101	-257.4		-301.5	-44.1	
625201	-178.2	-203.1	-198.8	-20.6	4.3
625701	-156.1	-155.2	-155.5	0.6	-0.3
633201	-82	-85.2	-85.8	-3.8	-0.6
633301	-64.9	-68.1	-70.4	-5.5	-2.3
633401	-66.5	-66.6	-65.9	0.6	0.7
634703	-86.5				
635301	-301.7	-318.3	-319.2	-17.5	-0.9
635801	-134.3	-132.6	-131	3.3	1.6
641102	-103.1	-98.8			
641310	-38.2	-32.0	-36.9	1.3	-4.9
641613	-100.5	-98.9	-102.7	-2.2	-3.8
641703	-305.5	-301.2	-301.7	3.8	-0.5
641802	-98.9	-93.8	-94.2	4.7	-0.4
641803	-130.2				
641856		-128.8	-130.0		-1.2
641931	-62.7	-60.8	-64.4	-1.7	-3.6
642409	-67.3	-72.3	-72.7	-5.4	-0.4

Armstrong, Carson and Potter Counties  
DOCKUM Aquifer Continued

Well Number	Depth to Water, in feet			Water Level Difference	
	2009	2018	2019	10 Yr	1 Yr
642427		-152.6	-155.4		-2.8
642502	-77.6	-79.6	-79.9	-2.3	-0.3
642714	-84.5	-83.5	-85.6	-1.1	-2.1
642719	-138.5	-132.4	-135.1	3.4	-2.7
642902	-224.8	-230.5	-227.7	-2.9	2.8

*Dockum Wells Continued on Next Page*





# Panhandle Water News

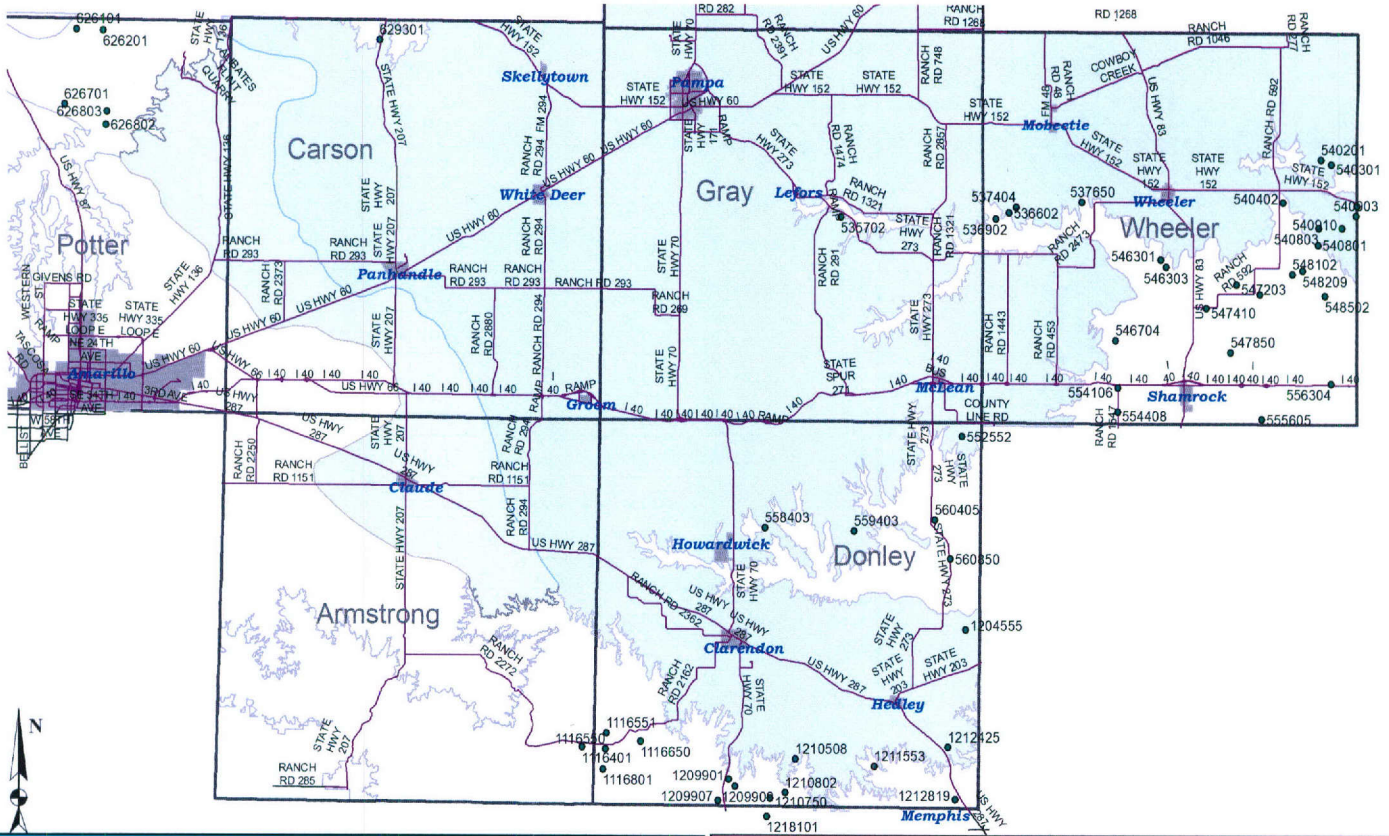
Armstrong, Carson and Potter Counties DOCKUM Aquifer Continued						Armstrong, Carson and Potter Counties DOCKUM Aquifer Continued					
Well Number	Depth to Water, in feet			Water Level Difference		Well Number	Depth to Water, in feet			Water Level Difference	
	2009	2018	2019	10 Yr	1 Yr		2009	2018	2019	10 Yr	1 Yr
642903		-142.3				660205		-163.5	-163.5		0.0
643421		-178.3	-178.3		0.0	660502	-151.9	-152.1	-151.9	0.0	0.2
643602	-319.4	-317.6	-317.3	2.1	0.3	660701	-185.1				
643606	-268.5	-267.4	-264.1	4.4	3.3	660704		-190.9			
643901	-208.6	-203.5	-203.0	5.6	0.5	660902	-211.3	-211.8	-212.6	-1.3	-0.8
644608	-429.1	-471.0	-474.9	-45.8	-3.9	661204	-165.5	-164.8	-164.5	1.0	0.3
644701	-250.1	-247.5	-246.9	3.2	0.6	661301	-157.8	-156.6	-156.1	1.7	0.5
644763	-237.3	-232.7	-232.3	5.0	0.4	661402			-185.7		
644766	-229.7	-224.7	-224.6	5.1	0.1	661506		-162.5	-162.5		0.0
644767	-263.9	-259.1	-259.3	4.6	-0.2	661601	-171.0	-171.7	-171.8	-0.8	-0.1
644768	-269.2	-264.7	-263.8	5.4	0.9	661608	-161.9	-167.2	-168.4	-6.5	-1.2
644906	-349.7	-350.4	-350.5	-0.8	-0.1	661801	-162.6	-162.1	-162.2	0.4	-0.1
644959	-221.3	-219.9	-219.5	1.8	0.4	661802	-155.6	-156.8	-156.7	-1.1	0.1
645903		-410.1	-413.6		-3.5	662101	-224.5	-207.1	-208.6	15.9	-1.5
649201	-113.8					662107		-184.9	-187.6		-2.7
649203	-104.0	-103.9	-104.2	-0.2	-0.3	662301	-284.4	-285.1	-284.7	-0.3	0.4
649204	-121.9	-120.6	-121.5	0.4	-0.9	662402	-146.5	-151.1	-151.1	-4.6	0.0
649311	-60.0	-53.9	-53.7	6.3	0.2	731301	-19.4				
650209	-205.1	-195.5	-194.4	10.7	1.1	731602	-191.3	-145.9	-147.1	44.2	-1.2
650604	-198.8	-195.8	-195.6	3.2	0.2	731903	-23.4	-22.4	-24.5	-1.1	-2.1
651102	-174.6	-169.2	-168.7	5.9	0.5	732201		-165	-165.8		-0.8
651301	-208.7	-207.2	-207.1	1.6	0.1	732202		-64.9	-65.8		-0.9
651601	-193.4	-191.6	-191.6	1.8	0.0	732401	-38.8	-30.7	-31.1	7.7	-0.4
652101	-191.4	-192.6	-192.6	-1.2	0.0	732402	-3.3		-16.6	-13.3	
652301	-199.6	-199.0	-199.0	0.6	0.0	732501		-61.0	-60.9		0.1
652501	-200.2	-201.2	-201.3	-1.1	-0.1	732602	-39.5	-37.2	-38.1	1.4	-0.9
652508	-202.7	-201.7	-201.8	0.9	-0.1	732701		-24.7	-30.2		-5.5
652704		-174.8	-176.9		-2.1	732801	-132.1	-134.5	-135.0	-2.9	-0.5
652707	-221.6	-223.5	-226.2	-4.6	-2.7	732901	-166.7	-171.9	-172.4	-5.7	-0.5
652801	-172.3	-176.3	-176.2	-3.9	0.1	740102		-25.8	-26.0		-0.2
652906	-118.6	-126.3				740301		-166.3	-166.4		-0.1
653401			-167.13			740402	-85.7	-86.9	-86.9	-1.2	0.0
653403	-182.0	-181.3	-181.3	0.7	0.0	740403	-61.0	-60.8	-59.6	1.4	1.2
653703	-183.3	-180.6	-180.2	3.1	0.4	740503	-30.2	-31.1	-31.3	-1.1	-0.2
653704	-181.5					740504	-25.1	-25.9	-27.8	-2.7	-1.9
654111		-344.2	-343.6		0.6	740601	-73.1	-72.6	-75.2	-2.1	-2.6
654501	-251.8					740901	-127.3	-134	-133.1	-5.8	0.9
654701	-252.3	-252.0	-252.3	0.0	-0.3	747301	-41.1				
654801	-292.0	-292.2	-291.7	0.3	0.5	747601	-41.8	-36.3	-40.8	1.0	-4.5
654812		-255.6	-255.4		0.2	747602	-85.8	-77.6	-77.3	8.5	0.3
660106	-211.8	-208.1	-208.5	3.3	-0.4	747901	-119.3	-115.2	-117.2	2.1	-2.0
660202		-163.7	-162.9		0.8	748103	-40.0	-40.4	-40.5	-0.5	-0.1

*Dockum Wells Continued on Next Page*





# Armstrong, Carson, Donley, Gray, Potter and Wheeler Counties WHITEHORSE Aquifer Well Locations



Armstrong, Carson and Potter Counties DOCKUM Aquifer Continued					
	2009	2018	2019	10 Yr	1 Yr
748301	-70.1	-67.1	-75.1	-5.0	-8.0
748401	-45.1	-45.3	-45.9	-0.8	-0.6
748402	-27.4	-24.8	-24.4	3.0	0.4
748501	-29.9	-28.4	-36.9	-7.0	-8.5
748601	-139.6	-135	-134.7	4.9	0.3
748701	-82.8		-82.5	0.3	
748702	-48.5	-45.5	-45.8	2.7	-0.3
748801	-41.9	-44.3	-43.6	-1.7	0.7
748901	-75.2	-73.9	-77.1	-1.9	-3.2
1104101	-201.9	-201.8	-203	-1.1	-1.2
1104301	-302.0	-300.3	-299.8	2.2	0.5
1105101	-183.6		-183.1	0.5	
1105102	-160.7				
1105104	-174.4		-173.8	0.6	
1105301	-157.0		-157.1	-0.1	
1106101	-173.3	-173.3	-173.2	0.1	0.1
1106102	-160.9				
1106201	-159.3	-160.3	-160.1	-0.8	0.2
1107401			-122.0		
1107750			-122.8		

Armstrong, Carson, Donley, Gray, Potter and Wheeler Counties WHITEHORSE Aquifer					
Well	Depth to Water, in feet			Water Level Difference	
	2009	2018	2019	10 Yr	1 Yr
535702	-21.1	-22.5	-22.8	-1.7	-0.3
536602	-35.7				
536902		-9.5	-11.6		-2.1
537404		-57.5	-58.2		-0.7
537650	-10.1	-12.1	-14.2	-4.1	-2.1
540201	-5.0	-7.2	-8.7	-3.7	-1.5
540301	-35.9	-35.8	-38.8	-2.9	-3.0
540402	-39.7	-38.3	-41.2	-1.5	-2.9
540605	-42.7	-44.9	-43.7	-1.0	1.2
540801	-18.2	-18.4	-19.4	-1.2	-1
540803	-6.2	-6.1	-6.1	0.1	0.0
540903	-58.0				
540910		-48.3	-47.7		0.6
546301	-12.7	-18.7	-20.6	-7.9	-1.9
546303	-9.3	-11.3	-11.6	-2.3	-0.3
546704	-103.6	-105.9	-109.2	-5.6	-3.3
547203		-29.0	-32.9		-3.9
547410	-23.3	-24.4	-25.9	-2.6	-1.5
547601	-50.9	-53.9	-54.9	-4.0	-1.0



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Armstrong, Carson, Donley, Gray, Potter and Wheeler Counties WHITEHORSE Aquifer Continued						Armstrong, Carson, Donley, Gray, Potter and Wheeler Counties WHITEHORSE Aquifer Continued					
Well Number	Depth to Water, in feet			Water Level Difference		Well Number	Depth to Water, in feet			Water Level Difference	
	2009	2018	2019	10 Yr	1 Yr		2009	2018	2019	10 Yr	1 Yr
547850	-96.2	-208.3	-101.7	-5.5	106.6	629301	-181.3	-181.6	-181.0	0.3	0.6
548102	-52.7					1116401	-65.8				
548209		-33.1	-34.8		-1.7	1116550	-122.1	-119.4	-118.8	3.3	0.6
548502	-36.6	-36.3	-38.5	-1.9	-2.2	1116551	-124.5	-135.5	-128.3	-3.8	7.2
552552	-288.9	-100.1	-100.2	188.7	-0.1	1116650	-5.6	-13.9	-18.6	-13	-4.7
554106	-55.1	-59.2	-60.2	-5.07	-1	1116801	-47.5	-46.7	-47.4	0.1	-0.7
554408	-85.6	-90.5	-88.5	-2.9	2	1204527			-30.2		
555605	-81.4	-87.5	-91.9	-10.5	-4.4	1204555	-4.2				
556304		-30.4	-33.4		-3	1209901	-65.6	-57.8	-59.5	6.1	-1.7
558403	-137.8	-129.3	-128.3	9.5	1	1209907	-66.7	-30.7	-29.5	37.2	1.2
559403		-75.0	-76.6		-1.6	1209909		-154.4	-154.9		-0.5
560405	-47.6	-42.9	-29.7	17.9	13.2	1210508	-25.6				
560850	-124.0	-103.9				1210750		-48.6	-49.1		-0.5
626101		-32.2	-32.4		-0.2	1210802	-129.7	-121.2	-130.3	-0.6	-9.1
626201		-246.7	-195.9		50.8	1211553	-23.1	-22.7	-23.1	0.0	-0.4
626701	-43.4	-39.8	-39.8	3.6	0.0	1212425	-125.9	-34.6	-35.7	90.2	-1.1
626802		-50.0	-45.3		4.7	1212819		-32.2	-33.3		-1.1
626803	-37.2	-41.8	-42.2	-5.0	-0.4	1218101		-24.6	-23.9		0.7