

GAM Run 06-29 Clarification Memo

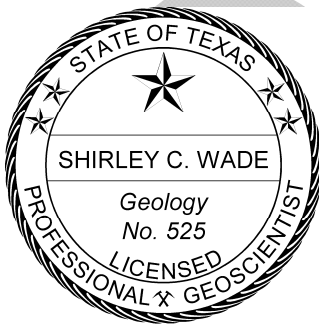
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Texas Water Development Board
Groundwater Availability Modeling Section
(512) 936-0883
July 20, 2009

SUMMARY:

Average drawdowns for each county in the study area for the baseline GAM Run, GAM Run 06-29 were requested by the members of Groundwater Management Area 13. This Clarification Memo addresses the request.

Table 1 presents the average drawdowns for GAM Run 06-29 for each aquifer layer and county in the model area. Drawdowns for GAM Runs 08-41 (high pumping scenario), 08-42 (low pumping scenario), and 08-43 (medium pumping scenario) are also listed for comparison. The pumpage amounts for each of the scenarios are listed by county and aquifer in Table 2. It should be noted that dry cells are not included in the calculations of average water level changes and drawdowns may include portions of the aquifer where the water quality is not considered fresh. Also, note that drawdowns in the Sparta and Queen City Layers in McMullen, La Salle, Webb, Dimmit, Zavala, and Frio counties include areas west of the Frio River although this area is not considered part of those aquifers.



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Table 1. Average water level changes in feet by county and aquifer for baseline (base), low, medium (med) and high pumpage scenarios. Negative values indicate an average lowering of water levels between 1999 and 2060 while a positive value indicates an increase in water levels since 1999. Dashes (--) indicate this aquifer (layer) is not modeled in the county indicated.

County Run	Sparta				Queen City				Carrizo			
	base	low	med	high	base	low	med	high	base	low	med	high
Atascosa	-8	-7	-13	-20	-11	-9	-18	-30	-63	-50	-80	-111
Bastrop	13	13	12	11	6	4	2	-1	0	-22	-31	-41
Bee	-10	-12	-18	-25	-19	-22	-34	-47	-37	-44	-71	-102
Bexar	--	--	--	--	--	--	--	--	-46	-49	-64	-77
Caldwell	--	--	--	--	2	1	-2	-6	-3	-39	-56	-74
DeWitt	9	-4	-10	-16	9	-14	-25	-36	0	-36	-54	-73
Dimmit	2	2	2	2	3	4	3	3	3	18	2	-6
Fayette	3	-2	-6	-13	2	-5	-10	-18	-1	-20	-29	-40
Frio	-5	-3	-6	-7	4	8	3	-2	-89	-37	-72	-101
Gonzales	2	-7	-13	-22	3	-14	-25	-39	-5	-58	-82	-110
Guadalupe	--	--	--	--	14	11	10	8	-2	-51	-64	-73
Karnes	-5	-13	-20	-29	-11	-25	-38	-54	-26	-58	-88	-120
La Salle	-9	-5	-9	-12	-14	-7	-14	-20	-31	-6	-29	-47
Lavaca	8	2	-1	-5	8	-2	-8	-14	4	-12	-20	-29
Live Oak	-24	-24	-30	-39	-33	-33	-44	-59	-38	-38	-64	-95
Maverick	--	--	--	--	--	--	--	--	7	8	7	6
McMullen	-22	-18	-27	-38	-28	-22	-35	-50	-36	-25	-48	-74
Medina	--	--	--	--	--	--	--	--	-38	-29	-34	-38
Uvalde	--	--	--	--	--	--	--	--	0	-1	-169	-290
Webb	6	7	6	5	9	10	9	8	2	5	1	-2
Wilson	-5	-7	-11	-15	-4	-10	-20	-30	-25	-60	-89	-120
Zavala	7	7	7	7	11	13	11	11	-32	0	-38	-54

Table 1 continued.

		Upper Wilcox				Middle Wilcox				Lower Wilcox			
County	Run	base	low	med	high	base	low	med	high	base	low	med	high
		Atascosa	-63	-49	-80	-111	-43	-47	-70	-93	-18	-54	-81
Bastrop	0	-21	-31	-41	3	-8	-18	-32	3	-9	-19	-30	
Bee	-36	-43	-67	-94	-8	-14	-24	-35	16	-2	-13	-24	
Bexar	-34	-37	-48	-61	-16	-30	-38	-45	-8	-52	-70	-88	
Caldwell	-2	-39	-55	-74	-2	-35	-64	-102	6	-35	-68	-105	
DeWitt	3	-30	-46	-64	18	3	-9	-25	25	-12	-45	-80	
Dimmit	3	18	2	-6	9	23	7	0	7	19	4	-3	
Fayette	-1	-20	-29	-40	-1	-19	-38	-68	1	-17	-34	-52	
Frio	-89	-35	-71	-100	-75	-34	-68	-96	-54	-50	-87	-120	
Gonzales	-5	-58	-82	-110	5	-42	-92	-163	12	-42	-93	-147	
Guadalupe	0	-48	-62	-70	-5	-18	-30	-45	1	-20	-38	-57	
Karnes	-24	-56	-85	-115	-2	-29	-50	-74	15	-22	-47	-73	
La Salle	-31	-5	-29	-47	-8	5	-9	-20	3	8	-7	-18	
Lavaca	7	-8	-16	-24	16	7	-3	-16	11	-10	-31	-53	
Live Oak	-38	-37	-62	-92	-6	-9	-19	-30	15	2	-6	-16	
Maverick	11	12	10	10	11	11	10	12	3	3	2	10	
McMullen	-36	-24	-46	-72	-5	-4	-13	-25	9	4	-4	-13	
Medina	-38	-28	-34	-38	-33	-26	-33	-39	-36	-36	-53	-73	
Uvalde	5	-2	-3	-4	-12	-12	-9	-8	-32	-28	-31	-33	
Webb	1	5	1	-3	0	2	0	-2	1	3	1	-1	
Wilson	-24	-59	-89	-119	-13	-45	-71	-102	2	-56	-89	-122	
Zavala	-31	2	-37	-53	-23	6	-29	-43	-20	3	-26	-39	

Table 2. Baseline (base), low, medium (med), and high pumpage used in the model scenarios. Pumpage totals are in acre-feet per year. Please note that Lavaca, Fayette, and Bastrop counties are only partially contained within the active part of the model and pumpage for these counties does not represent full county use.

County Run	Sparta				Queen City				Carrizo			
	base	low	med	high	base	low	med	high	base	low	med	high
Atascosa	517	517	750	1,000	964	1,000	3,000	6,000	52,419	40,000	50,000	60,000
Bastrop	7	--	--	--	88	--	--	--	100	100	100	100
Bee	--	--	--	--	--	--	--	--	19	19	19	19
Bexar	--	--	--	--	--	--	--	--	3,513	7,513	7,513	7,513
Caldwell	--	--	--	--	132	10	30	50	279	6,209	8,209	10,209
DeWitt	--	--	--	--	--	--	--	--	1	1	1	1
Dimmit	--	--	--	--	--	--	--	--	2,917	2,188	3,282	3,646
Fayette	66	--	66	--	12	--	12	--	2	2	2	2
Frio	87	90	750	1,000	66	100	3,000	6,000	99,802	80,000	90,000	100,000
Gonzales	552	1,268	2,268	4,268	240	2,120	5,120	10,120	2,538	32,271	42,271	52,271
Guadalupe	--	--	--	--	--	--	--	--	1,224	10,584	11,624	12,664
Karnes	--	--	--	--	--	--	--	--	471	471	471	471
La Salle	1,316	987	1,481	1,645	2	1	2	3	5,684	4,263	6,395	7,105
Lavaca	--	--	--	--	--	--	--	--	1	1	1	1
Live Oak	--	--	--	--	--	--	--	--	85	85	85	85
Maverick	--	--	--	--	--	--	--	--	596	596	596	596
McMullen	0	50	100	200	0	100	150	300	119	800	1,600	3,200
Medina	--	--	--	--	--	--	--	--	1,477	--	--	--
Uvalde	--	--	--	--	--	--	--	--	358	1,250	1,875	2,500
Webb	--	--	--	--	--	--	--	--	896	896	896	896
Wilson	504	500	750	1,000	170	100	3,000	6,000	15,986	25,000	35,000	45,000
Zavala	--	--	--	--	--	--	--	--	34,731	26,048	39,072	43,414

	Upper Wilcox				Middle Wilcox				Lower Wilcox			
County	base	low	med	high	base	low	med	high	base	low	med	high
Run												
Atascosa	36	--	--	--	598	--	--	--	1,956	3,333	4,444	5,556
Bastrop	60	60	60	60	309	309	309	309	221	221	221	221
Bee	19	19	19	19	19	19	19	19	19	19	19	19
Bexar	--	--	--	--	6,633	6,633	6,633	6,633	6,725	12,836	14,873	16,910
Caldwell	--	--	--	--	1,169	10,000	15,000	20,000	2,186	10,000	15,000	20,000
DeWitt	--	--	--	--	--	--	--	--	--	--	--	--
Dimmit	1,321	991	1,486	1,651	189	142	213	236	50	38	56	63
Fayette	--	--	--	--	--	--	--	--	--	--	--	--
Frio	6,049	--	--	--	4,089	--	--	--	64	5,000	7,500	10,000
Gonzales	1	1	1	1	66	4,053	10,053	20,053	--	10,000	20,000	30,000
Guadalupe	--	--	--	--	3,240	3,240	3,240	3,240	1,608	1,608	1,608	1,608
Karnes	--	--	--	--	--	--	--	--	--	--	--	--
La Salle	2,602	1,952	2,927	3,253	--	--	--	--	--	--	--	--
Lavaca	--	--	--	--	--	--	--	--	--	--	--	--
Live Oak	--	--	--	--	--	--	--	--	--	--	--	--
Maverick	276	276	276	276	856	856	856	856	1,570	1,570	1,570	1,570
McMullen	0	50	100	250	0	50	100	250	--	50	100	250
Medina	31	--	--	--	980	--	--	--	2,520	3,500	5,500	7,500
Uvalde	0	3,750	5,600	8,000	120	--	--	--	118	--	--	--
Webb	13	13	13	13	6	6	6	6	1	1	1	1
Wilson	40	--	--	--	772	--	--	--	578	6,556	8,907	11,259
Zavala	8,629	6,472	9,708	10,786	4,901	3,676	5,514	6,126	502	377	565	628