WRITTEN RESPONSE TO NOTICE TO RECEIVE WRITTEN COMMENTS ON PROCESS FOLLOWED BY GMA 12 IN ADOPTION OF DFCs

DOES THE AMOUNT OF OVERPERMITTING ESTABLISH THE DFC – OR DOES THE DFC CONTROL THE AMOUNT OF PERMITTING?

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CENTRAL TEXAS AQUIFERS COALITION – BASED IN MILAM COUNTY

DOES THE AMOUNT OF OVERPERMITTING ESTABLISH THE DFC – OR DOES THE DFC CONTROL THE AMOUNT OF PERMITTING?

Submitted by Dr. Curtis Chubb, Central Texas Aquifers Coalition based in Milam County

GMA 12 has a more important question to consider than how to establish the Desired Future Condition (DFC) – that question is 'What is the purpose of the DFC?' Without a clearly-defined purpose, it is impossible to establish a DFC – much less develop a plan so that the DFC is not achieved until 50 years after its adoption date.

The problem is that over the last five years, GMA 12's *writings* have assigned the following PURPOSE A to DFCs - while their *actions* have assigned the following PURPOSE B to DFCs:

PURPOSE A: The DFC is the goal of a 50-year management plan that protects our aquifers. This purpose is supported by the following writings from GMA 12 DFC Explanatory Reports:

> **2021**: "*The adoption of DFCs by GCDs, pursuant to the requirements and procedures set forth in Texas Water Code Chapter 36, is an important policy-making function. DFCs are planning goals that state the desired conditions of the groundwater resources in the future in order to promote better long-term management of those resources*."
>
> **2016**: "*DFCs are essentially planning goals that could be reached, but should not be exceeded*" … and DFCs "*may serve to sustain or enhance economic growth due to assurances provided by diversified water portfolios*."

NOTE: The Texas Administrative Code states that the specified time for establishing a DFC extends through at least the current planning period for the development of regional water plans – and that period is 50 years.

PURPOSE B: The purpose of the DFC is to serve as a vehicle to fulfill a series of legislated steps that must be completed every five years – but otherwise the DFC and especially its attendant Modeled Available Groundwater (MAG) will be largely sidelined. This purpose is supported by GMA 12's actions/inactions over the last five years.

In the following pages, I discuss how GMA 12 can achieve **PURPOSE A** and transform DFCs into actual "*goals of a 50-year **proactive** management plan*" - and also review examples of how DFCs and MAGs were not used to advance the goals of a 50-year management plan. [1]

[1] I will provide examples based primarily on my observations of Post Oak GCD since that is the GCD I have studied for the last 18 years. I am not well-acquainted with the other GMA 12 GCDs' operations.

THE IMPORTANCE OF USING DFCs AND MAGs **PROACTIVELY**:

I could not find any evidence that GMA 12 fulfills the joint planning requirements that involve reviews of GCDs' management plans to determine if they will achieve the DFCs. [2]

In 2014, the Lloyd Gosselink law firm provided the following summary of how they thought GCD management plans should implement MAGs to achieve DFCs:

> *"Each GCD's rules and permitting programs are also designed to achieve these DFCs, and take into consideration the MAGs. The GCDs use the MAGs that TWDB derives from DFCs of local aquifers as an annual **"benchmark"** upon which to balance between groundwater production and preventing unsustainable aquifer depletion on a local level. The amount of water already permitted in a GCD may exceed a MAG, in which case the GCD is responsible for ensuring that actual production does not impair the relevant DFCs. If actual production does exceed the MAG in a particular year, the GCD will then have to ensure that there is no impending threat of impairment to the DFC by adjusting production and permit decisions accordingly in the following years."*

If GMA 12 wants to use DFCs as long-term management goals, they should consider including the above '*MAGs as annual benchmarks*' policy in each GCD's Rules. Figure 1 illustrates the benefit of annually adjusting the pumping to approximate MAGs in order to ensure that the DFCs are not breached before their target dates.

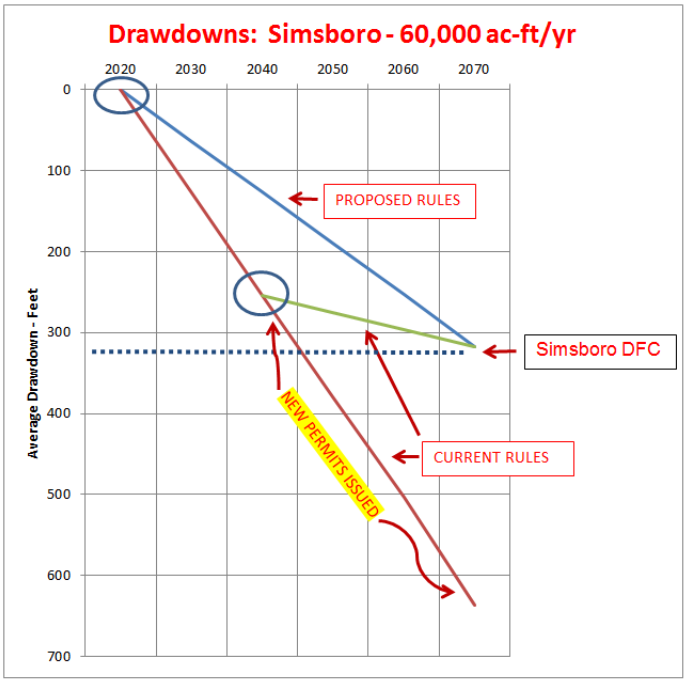

FIGURE 1: The BLUE LINE displays the advantage of rules that require the annual adjustment of pumping that exceeds the MAGs; the advantage = the DFC is reached at its target date. The RED LINE is the drawdown caused by Simsboro pumping exceeding the MAG – the RED Line continues downward even after the circled cutback trigger is reached because Post Oak will use its "approve all permits at all times" policy to approve new pumping permits that will compensate for the amount cutback – this cycle could go on forever since Post Oak does not cutback the total amount being pumped.

[2] Texas Water Code 36.108 (b – c)

The adoption of the '*MAGs as annual benchmarks'* policy would mark a novel PROACTIVE direction for DFC management. At present, Post Oak rules represent a REACTIVE policy since they require us to sit idly by and watch water levels in our wells drop while waiting for a cutback trigger to be reached. In Figure 1, the cutback trigger is reached in 2045 although its activation would have been predicted fifteen years earlier. The activation of the cutback trigger would have been prevented by adopting the PROACTIVE '*MAGs as annual benchmarks'* policy.

THE STATE OF TEXAS CONSIDERS **MAGs** AS IMPORTANT AND RELEVANT BENCHMARKS:

To understand the importance of MAGs to the State of Texas, one only has to consider the monies and staff time expended by the Texas Water Development Board to translate the GMA 12 DFCs to MAGs for each GCD, each aquifer, each county, and every ten-year period (See Appendix 1). My point is: DFCs and MAGs are considered important parameters in the State of Texas' groundwater regulatory framework.

The implementation of an effective groundwater management policy based on DFCs and MAGs requires the cooperation of all five GCDs. This full-cooperation aspect may prove to be troublesome to accomplish since Post Oak has broadcast through the general manager's public statements since 2008 that Post Oak will ignore the MAGs and "*manage to the DFCs.*" I have read that the "m*anage to the DFCs*" policy depends on using pumping cutbacks to correct overpermitting and the corollary overpumping. The stark fallacy in the "*manage to the DFCs*" policy for Post Oak is that cutbacks in permitted pumping will be negated when they approve requests for new pumping permits to compensate for any cutback in production. Figure 1 illustrates this series of actions which does not prevent the exceedance of DFCs before their target dates.

The Post Oak's general manager's public statements about ignoring MAGs have been translated into Board-approved action since pumping permits exceed the MAGs for five of Post Oak's aquifers. For example, the following 2020/2021 data document that both the permitted and pumped amounts of Simsboro groundwater dwarf the MAG:

- 103,364 acre-feet/year (*Permitted Simsboro)*
- 60,000 acre-feet/year (*Pumped Simsboro*)
- 38,470 acre-feet/year (***MAG*** *Simsboro/* based on 318-foot drawdown DFC)

NOTES OF INTEREST AND CONCERN ABOUT THE ABOVE NUMBERS:

1) The current Post Oak Simsboro DFC (318-foot drawdown) is the highest DFC drawdown of all 98 GCDs according to Dr. Robert Mace (*Five Gallons in a Ten Gallons Hat*/Nov 2021). For comparison, the Texas State Capitol is 303 feet high.

2) The Texas Water Development Board calculated that pumping the Simsboro MAG of 38,470 acre-feet/year would cause an **average** Simsboro drawdown of 318 feet over 50 years (*the Simsboro DFC*) Just imagine what the Simsboro's drawdown will be when the total amount of already permitted 103,364 acre-feet/year of Simsboro is pumped out of the ground. There are no legislated penalties for GCDs exceeding the DFCs and/or MAGs – GCDs are expected to observe a self-enforcement policy.

The unanswered question is: How can GMA 12 define the purpose of a DFC when Post Oak and perhaps other GCDs apparently do not abide by the following two sections of the Texas Water Code identified as ***PERMITS BASED ON THE MAG***?

Texas Water Code 36.1132***:***

- Section (a): A GCD, to the extent possible, shall issue permits up to the point that the *total volume of exempt and permitted groundwater production* will achieve an applicable DFC.

  NOTE: The total volume of exempt and permitted groundwater production that will achieve an applicable DFC included in the above law is the **MAG**.

- Section (b-1): "In issuing permits, the district shall manage total groundwater production on a long-term basis to achieve an applicable DFC **and consider: (1) the MAG determined by the executive administrator"**

I was unable to find any documentation that GMA 12 has addressed the problem of a GCD ignoring the MAGs when permitting. One of the primary goals of requiring "joint planning" is to maximize the protection of the aquifers within the boundaries of GMA 12 by requiring GCDs to work together. "Joint planning" can only succeed if there is a group consensus not only to obey the State of Texas laws but that member-GCDs enforce those laws.

AT PRESENT, DFCs ARE NOT ALLOWED TO PROTECT OUR AQUIFERS:

On the surface it appears that GMA 12 is very serious about the DFC adoption process. For example, just to adopt the 2021 DFCs, GMA 12 held 21 group meetings attended by hydrologists, attorneys, GCDs' staff (who knows how many GCD meetings were dedicated to DFC adoption?), organized five public hearings, prepared reports and presentations, and developed/refined GAMs.

Yet when it came down to the end, it appears that the final adopted DFCs primarily evolved from the entry of pumping data into computer models.

The most distressing aspect of this DFC adoption process is that the reverse engineering used pumping amounts that incorporated pumping made available by overpermitting, i.e., *exceeding the MAGs*. This doesn't make sense. In essence, GMA 12 is using the amount of overpermitting to establish DFCs while the Texas Water Code emphasizes the DFC's role in limiting pumping to conserve and protect the aquifers.

The above actions of GMA 12 only correlate with PURPOSE B as presented on Page 1 of this discussion; they do not correspond with the DFC being a 50-year management goal. These actions render the legislated purpose of DFCs as invalid since instead of the pumping being targeted to achieve the DFCs, the amount of overpumping is now being used to determine the new DFCs. This has to be addressed by the Legislature.

Figure 2 can be used to illustrate how the entire DFC process has been compromised. Let's focus on the Carrizo. It is easy to see that the Carrizo was predicted to exceed its DFC around 2020 – a stunning 40 years before its target date. But the newly adopted Carrizo DFC of a 146-foot drawdown solves that problem: Post Oak can use the 10% allowance to set the Carrizo DFC at 161-foot drawdown which according to the predicted drawdowns in Figure 2 will not be exceeded up to 2070. This GMA 12 decision will eventually prevent access to the Carrizo in the shallow parts of the aquifer located in Milam County.

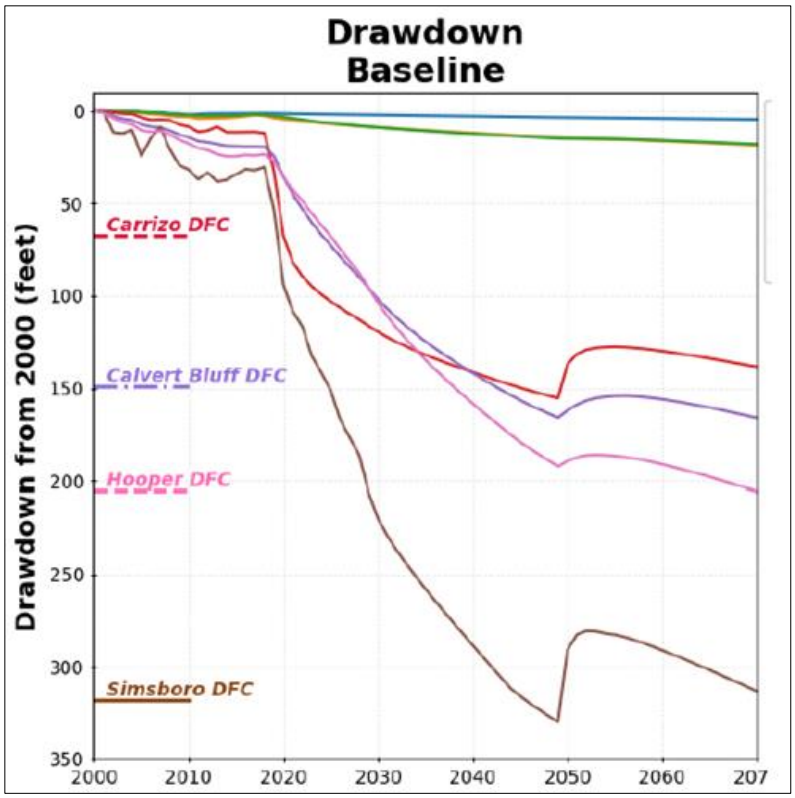

Figure 2: Aquifer drawdowns in response to the onset of Vista Ridge pumping in April 2020. The DFCs for four aquifers are on the Y-axis. (NOTE: The graph was prepared by Post Oak's hydrologist in October 2019. Disregard the blips in drawdowns occurring at 2050 – they were added for invalid reasons.)

The Carrizo DFC story does not fulfill the goal of a DFC being a long-term management goal. Instead, it reflects a policy of resetting the DFCs every five years to compensate for overpermitting.

PRACTICABLE:

And the newest golden rule that GMA 12 members repeat ad nauseum is "*the DFC must provide a balance beween the highest practicable level of groundwater production*" and conservation etc. Yet no one defines the word "practicable" – it is not defined in the Texas Water Code and some dictionaries define it as: "*capable of being done*."

While the GMA 12 people appear to think this phrase incorporating "practicable" means that it has to be some level of maximum pumping of the aquifers – there is nothing that supports that conclusion. For example, I define the "*highest practicable level of groundwater production*" as being equal to RECHARGE.

CONCLUDING COMMENTS:

The answers to the question posed in this report's title are:

- The DFC SHOULD control the amount of permitting if the Texas Water Code is honored – but it appears that is not the case. *This is a situation that GMA 12 as an organization should address immediately.*
- The amount of overpermitting should not be used to establish the DFC – but it appears that is not the case. *This is a situation that GMA 12 needs to address by defining the purpose of the DFC.*

Illogically, the State requires GCDs to establish DFCs and then trusts the same GCDs to enforce rules to achieve the DFCs. The GCDs don't even have to notify anyone when the DFCs are exceeded. Although the Texas Water Code dedicates 3,000 words to the discussion of DFCs – there is nothing about how to ensure the important goals requiring DFCs and MAGs are achieved.

GMA12 must make a clear statement of the DFC's purpose and then require member-GCDs to enforce the rules to achieve that DFC purpose. Without the achievement of both these requirements, both our aquifers and our counties' futures will be threatened.

The large boulder in the above photograph represents Milam County's future. The small rock upon which the large boulder balances represents the ability to economically access groundwater.

A CLARIFICATION CONCERNING POST OAK'S PROTESTATIONS ABOUT THE DFC PROCESS:

One of Post Oak's expressed concerns focused on the adopted DFC's effects on the number of wells that went dry (*See Director Wise's letter*). This is an invalid and fallacious argument since there are no laws requiring the use of DFCs to curtail groundwater production. In fact, Post Oak already preempts the DFCs by their use of PDLs in the shallow areas of the aquifers. Many GCDs do not use DFC-linked triggers for the curtailment of groundwater production.

APPENDIX 1 – MAGS DETERMINED BY TWDB AND BASED ON THE 2016 DFC:

Groundwater Management Area 12 – Modeled Available Groundwater

Groundwater Conservation District	County	Aquifer	Modeled Available Groundwater							TWDB Report
			2010	2020	2030	2040	2050	2060	2069	
Brazos Valley GCD	Brazos	Hooper	0	0	0	0	0	0	0	GR 17-030 MAG
Brazos Valley GCD	Robertson	Hooper	836	1,446	1,884	1,942	2,000	2,000	2,000	GR 17-030 MAG
Fayette County GCD	Fayette	Hooper	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Lost Pines GCD	Bastrop	Hooper	357	651	781	953	1,176	1,179	1,139	GR 17-030 MAG
Lost Pines GCD	Lee	Hooper	17	62	76	95	119	117	116	GR 17-030 MAG
Mid-East Texas GCD	Freestone	Hooper	3,006	4,341	4,578	4,814	5,051	5,288	5,501	GR 17-030 MAG
Mid-East Texas GCD	Leon	Hooper	0	0	0	0	0	0	0	GR 17-030 MAG
Mid-East Texas GCD	Madison	Hooper	0	0	0	0	0	0	0	GR 17-030 MAG
Post Oak Savannah GCD	Burleson	Hooper	19	1,085	1,515	1,623	1,623	1,623	1,623	GR 17-030 MAG
Post Oak Savannah GCD	Milam	Hooper	5,366	1,874	2,623	2,811	2,811	2,800	2,800	GR 17-030 MAG
No District-County	Falls	Hooper	726	727	734	741	749	749	749	GR 17-030 MAG
No District-County	Limestone	Hooper	1,488	1,382	1,410	1,444	1,496	1,496	1,414	GR 17-030 MAG
No District-County	Navarro	Hooper	16	11	11	11	11	11	11	GR 17-030 MAG
No District-County	Williamson	Hooper	5	5	5	5	5	5	5	GR 17-030 MAG
Brazos Valley GCD	Brazos	Simsboro	35,086	41,115	44,120	45,681	50,208	53,404	53,404	GR 17-030 MAG
Brazos Valley GCD	Robertson	Simsboro	37,236	41,673	42,061	42,468	42,794	42,794	42,794	GR 17-030 MAG
Fayette County GCD	Fayette	Simsboro	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Lost Pines GCD	Bastrop	Simsboro	8,508	14,253	15,673	16,311	17,334	15,947	16,279	GR 17-030 MAG
Lost Pines GCD	Lee	Simsboro	1,860	17,993	17,221	17,031	17,179	14,896	14,024	GR 17-030 MAG
Mid-East Texas GCD	Freestone	Simsboro	1,254	3,582	3,589	3,585	3,552	3,550	3,550	GR 17-030 MAG
Mid-East Texas GCD	Leon	Simsboro	263	3,359	3,457	3,538	3,617	3,623	3,623	GR 17-030 MAG
Mid-East Texas GCD	Madison	Simsboro	0	0	0	0	0	0	0	GR 17-030 MAG
Post Oak Savannah GCD	Burleson	Simsboro	627	17,687	21,616	25,103	28,858	30,409	30,409	GR 17-030 MAG
Post Oak Savannah GCD	Milam	Simsboro	10,702	20,783	16,284	14,940	17,171	18,094	18,094	GR 17-030 MAG
No District-County	Falls	Simsboro	139	140	141	143	146	146	146	GR 17-030 MAG
No District-County	Limestone	Simsboro	9,801	9,753	9,850	9,992	10,235	10,235	10,235	GR 17-030 MAG
No District-County	Navarro	Simsboro	6	4	4	4	4	4	4	GR 17-030 MAG
No District-County	Williamson	Simsboro	2	2	2	2	2	2	2	GR 17-030 MAG
Brazos Valley GCD	Brazos	Calvert Bluff	0	0	0	0	0	0	0	GR 17-030 MAG
Brazos Valley GCD	Robertson	Calvert Bluff	776	1,764	1,757	1,758	1,757	1,757	1,757	GR 17-030 MAG

Groundwater Management Area 12 – Modeled Available Groundwater

Groundwater Conservation District	County	Aquifer	Modeled Available Groundwater							TWDB Report
			2010	2020	2030	2040	2050	2060	2069	
Fayette County GCD	Fayette	Calvert Bluff	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Lost Pines GCD	Bastrop	Calvert Bluff	1,534	2,063	2,462	2,970	3,613	3,774	3,873	GR 17-030 MAG
Lost Pines GCD	Lee	Calvert Bluff	50	161	169	211	296	209	111	GR 17-030 MAG
Mid-East Texas GCD	Freestone	Calvert Bluff	878	754	734	728	714	714	714	GR 17-030 MAG
Mid-East Texas GCD	Leon	Calvert Bluff	2,817	2,819	2,953	3,065	3,189	3,201	3,201	GR 17-030 MAG
Mid-East Texas GCD	Madison	Calvert Bluff	4	0	0	0	0	0	0	GR 17-030 MAG
Post Oak Savannah GCD	Burleson	Calvert Bluff	0	87	87	87	87	87	87	GR 17-030 MAG
Post Oak Savannah GCD	Milam	Calvert Bluff	1,713	949	949	949	949	949	949	GR 17-030 MAG
No District-County	Limestone	Calvert Bluff	248	218	223	228	235	235	235	GR 17-030 MAG
No District-County	Navarro	Calvert Bluff	0	0	0	0	0	0	0	GR 17-030 MAG
No District-County	Williamson	Calvert Bluff	1	2	2	2	3	2	1	GR 17-030 MAG
Brazos Valley GCD	Brazos	Carrizo	1,196	3,717	3,724	3,737	3,761	3,763	3,763	GR 17-030 MAG
Brazos Valley GCD	Robertson	Carrizo	887	1,707	1,698	1,713	1,730	1,731	1,731	GR 17-030 MAG
Lost Pines GCD	Bastrop	Carrizo	2,408	4,692	5,308	6,042	7,929	8,205	8,295	GR 17-030 MAG
Lost Pines GCD	Lee	Carrizo	2,089	2,926	3,050	3,221	3,871	3,847	3,757	GR 17-030 MAG
Mid-East Texas GCD	Freestone	Carrizo	44	369	366	357	347	346	346	GR 17-030 MAG
Mid-East Texas GCD	Leon	Carrizo	694	8,108	8,051	8,110	8,193	8,200	8,200	GR 17-030 MAG
Mid-East Texas GCD	Madison	Carrizo	1,478	2,861	2,770	2,656	2,554	2,543	2,543	GR 17-030 MAG
Post Oak Savannah GCD	Burleson	Carrizo	647	4,383	4,821	5,698	5,917	6,575	6,575	GR 17-030 MAG
Post Oak Savannah GCD	Milam	Carrizo	23	322	355	419	435	484	484	GR 17-030 MAG
Brazos Valley GCD	Brazos	Queen City	541	836	883	887	891	891	891	GR 17-030 MAG
Brazos Valley GCD	Robertson	Queen City	0	368	309	309	309	309	309	GR 17-030 MAG
Fayette County GCD[2]	Fayette	Queen City	268	2,708	2,708	2,708	2,708	2,708	2,708	GR 17-030 MAG
Lost Pines GCD	Bastrop	Queen City	192	558	541	523	505	486	467	GR 17-030 MAG
Lost Pines GCD	Lee	Queen City	394	757	774	792	810	829	848	GR 17-030 MAG
Mid-East Texas GCD	Freestone	Queen City	0	0	0	0	0	0	0	GR 17-030 MAG
Mid-East Texas GCD	Leon	Queen City	624	594	594	594	594	594	594	GR 17-030 MAG
Mid-East Texas GCD	Madison	Queen City	148	380	380	380	380	380	380	GR 17-030 MAG
Post Oak Savannah GCD	Burleson	Queen City	685	416	447	447	447	447	447	GR 17-030 MAG
Post Oak Savannah GCD	Milam	Queen City	20	53	56	56	56	56	56	GR 17-030 MAG

Groundwater Management Area 12 – Modeled Available Groundwater

Groundwater Conservation District	County	Aquifer	Modeled Available Groundwater							TWDB Report
			2010	2020	2030	2040	2050	2060	2069	
Brazos Valley GCD	Brazos	Sparta	3,745	5,404	6,505	7,507	8,509	8,509	8,509	GR 17-030 MAG
Brazos Valley GCD	Robertson	Sparta	16	510	510	510	510	510	510	GR 17-030 MAG
Fayette County GCD[2]	Fayette	Sparta	1,176	2,831	2,825	2,803	2,794	2,802	2,802	GR 17-030 MAG
Lost Pines GCD	Bastrop	Sparta	81	907	904	902	898	896	895	GR 17-030 MAG
Lost Pines GCD	Lee	Sparta	218	1,483	1,487	1,490	1,492	1,495	1,498	GR 17-030 MAG
Mid-East Texas GCD	Leon	Sparta	86	21	21	21	21	21	21	GR 17-030 MAG
Mid-East Texas GCD	Madison	Sparta	1,401	3,320	3,322	3,322	3,322	3,322	3,322	GR 17-030 MAG
Post Oak Savannah GCD	Burleson	Sparta	988	2,246	4,042	5,613	6,735	6,735	6,735	GR 17-030 MAG
Brazos Valley GCD	Brazos	Jackson	4,411	4,404	4,402	4,402	4,402	4,402	4,402	GR 17-030 MAG
Brazos Valley GCD	Brazos	Yegua	2,452	2,452	2,452	2,452	2,452	2,452	2,452	GR 17-030 MAG
Fayette County GCD[2]	Fayette	Yegua-Jackson	9,262	9,262	9,262	9,262	9,262	9,261	9,261	GR 17-030 MAG
Lost Pines GCD	Bastrop	Yegua-Jackson	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Lost Pines GCD	Lee	Yegua-Jackson	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Mid-East Texas GCD	Leon	Yegua-Jackson	0	0	0	0	0	0	0	GR 17-030 MAG
Mid-East Texas GCD	Madison	Yegua-Jackson	809	809	809	809	809	809	809	GR 17-030 MAG
Post Oak Savannah GCD	Burleson	Yegua-Jackson	14,544	14,544	12,576	12,564	12,478	12,326	10,200	GR 17-030 MAG
Brazos Valley GCD	Brazos	Brazos River Alluvium	122,785	81,581	80,311	80,081	79,976	79,913	79,872	GR 17-030 MAG
Brazos Valley GCD	Robertson	Brazos River Alluvium	66,608	61,161	57,959	57,633	57,544	57,503	57,480	GR 17-030 MAG
Post Oak Savannah GCD	Burleson	Brazos River Alluvium	28,515	28,472	28,418	28,414	28,414	28,414	28,413	GR 17-030 MAG
Post Oak Savannah GCD	Milam	Brazos River Alluvium	50,626	47,818	47,785	47,779	47,775	47,773	47,771	GR 17-030 MAG
No District-County	Falls	Brazos River Alluvium	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Totals										
Brazos Valley GCD Total		Hooper	836	1,447	1,884	1,942	2,000	2,000	2,000	GR 17-030 MAG
Brazos Valley GCD Total		Simsboro	72,322	82,788	86,182	88,149	93,002	96,198	96,198	GR 17-030 MAG
Brazos Valley GCD Total		Calvert Bluff	776	1,764	1,757	1,758	1,757	1,757	1,757	GR 17-030 MAG
Brazos Valley GCD Total		Carrizo	2,083	5,425	5,422	5,450	5,491	5,494	5,494	GR 17-030 MAG

Groundwater Management Area 12 – Modeled Available Groundwater

Groundwater Conservation District	County	Aquifer	Modeled Available Groundwater							TWDB Report
			2010	2020	2030	2040	2050	2060	2069	
Brazos Valley GCD Total		Queen City	541	1,204	1,192	1,196	1,200	1,200	1,200	GR 17-030 MAG
Brazos Valley GCD Total		Sparta	3,760	5,914	7,015	8,017	9,019	9,019	9,019	GR 17-030 MAG
Brazos Valley GCD Total		Yegua-Jackson	6,863	6,856	6,854	6,854	6,854	6,854	6,854	GR 17-030 MAG
Brazos Valley GCD Total		Brazos River Alluvium	189,393	142,742	138,270	137,714	137,520	137,416	137,351	GR 17-030 MAG
Fayette County GCD Total[2]		Hooper	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Fayette County GCD Total[2]		Simsboro	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Fayette County GCD Total[2]		Calvert Bluff	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Fayette County GCD Total[2]		Carrizo	37	5,474	5,474	5,474	5,474	5,474	5,474	GR 17-030 MAG
Fayette County GCD Total[2]		Queen City	268	2,708	2,708	2,708	2,708	2,708	2,708	GR 17-030 MAG
Fayette County GCD Total[2]		Sparta	1,176	2,831	2,825	2,803	2,794	2,802	2,802	GR 17-030 MAG
Fayette County GCD Total[2]		Yegua-Jackson	9,262	9,262	9,262	9,262	9,262	9,261	9,261	GR 17-030 MAG
Lost Pines GCD Total		Hooper	374	713	857	1,048	1,295	1,296	1,255	GR 17-030 MAG
Lost Pines GCD Total		Simsboro	10,368	32,246	32,895	33,342	34,513	30,843	30,304	GR 17-030 MAG
Lost Pines GCD Total		Calvert Bluff	1,584	2,224	2,631	3,181	3,909	3,983	3,984	GR 17-030 MAG
Lost Pines GCD Total		Carrizo	4,496	7,618	8,358	9,263	11,800	12,052	12,052	GR 17-030 MAG
Lost Pines GCD Total		Queen City	587	1,315	1,315	1,315	1,315	1,315	1,315	GR 17-030 MAG
Lost Pines GCD Total		Sparta	299	2,390	2,391	2,391	2,391	2,391	2,392	GR 17-030 MAG
Lost Pines GCD Total		Yegua-Jackson	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
Mid-East Texas GCD Total		Hooper	3,006	4,341	4,578	4,814	5,051	5,288	5,501	GR 17-030 MAG
Mid-East Texas GCD Total		Simsboro	1,517	6,941	7,046	7,124	7,169	7,173	7,173	GR 17-030 MAG
Mid-East Texas GCD Total		Calvert Bluff	3,698	3,573	3,687	3,793	3,903	3,915	3,915	GR 17-030 MAG
Mid-East Texas GCD Total		Carrizo	2,216	11,339	11,187	11,123	11,095	11,090	11,090	GR 17-030 MAG
Mid-East Texas GCD Total		Queen City	772	974	974	974	974	974	974	GR 17-030 MAG
Mid-East Texas GCD Total		Sparta	1,487	3,341	3,343	3,343	3,343	3,343	3,343	GR 17-030 MAG
Mid-East Texas GCD Total		Yegua-Jackson	809	809	809	809	809	809	809	GR 17-030 MAG
Post Oak Savannah GCD Total		Hooper	5,385	2,960	4,139	4,433	4,433	4,422	4,422	GR 17-030 MAG
Post Oak Savannah GCD Total		Simsboro	11,329	38,470	37,900	40,042	46,028	48,503	48,503	GR 17-030 MAG
Post Oak Savannah GCD Total		Calvert Bluff	1,713	1,036	1,036	1,036	1,036	1,036	1,036	GR 17-030 MAG
Post Oak Savannah GCD Total		Carrizo	670	4,705	5,176	6,117	6,352	7,058	7,058	GR 17-030 MAG
Post Oak Savannah GCD Total		Queen City	705	469	504	504	504	504	504	GR 17-030 MAG

Groundwater Management Area 12 – Modeled Available Groundwater

Groundwater Conservation District	County	Aquifer	Modeled Available Groundwater							TWDB Report
			2010	2020	2030	2040	2050	2060	2069	
Post Oak Savannah GCD Total		Sparta	988	2,246	4,042	5,613	6,735	6,735	6,735	GR 17-030 MAG
Post Oak Savannah GCD Total		Yegua-Jackson	14,544	14,544	12,576	12,564	12,478	12,326	10,200	GR 17-030 MAG
Post Oak Savannah GCD Total		Brazos River Alluvium	79,142	76,290	76,203	76,193	76,189	76,186	76,185	GR 17-030 MAG
No District-County Total		Hooper	2,235	2,125	2,160	2,201	2,261	2,261	2,178	GR 17-030 MAG
No District-County Total		Simsboro	9,948	9,899	9,997	10,141	10,387	10,387	10,387	GR 17-030 MAG
No District-County Total		Calvert Bluff	248	220	225	230	237	237	236	GR 17-030 MAG
No District-County Total		Brazos River Alluvium	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	GR 17-030 MAG
GMA 12 Total		**Hooper**	**11,836**	**11,586**	**13,617**	**14,439**	**15,040**	**15,267**	**15,357**	**GR 17-030 MAG**
GMA 12 Total		**Simsboro**	**105,484**	**170,343**	**174,020**	**178,799**	**191,099**	**193,104**	**192,565**	**GR 17-030 MAG**
GMA 12 Total		**Calvert Bluff**	**8,020**	**8,817**	**9,336**	**9,998**	**10,842**	**10,927**	**10,927**	**GR 17-030 MAG**
GMA 12 Total		**Carrizo**	**9,502**	**34,560**	**35,616**	**37,427**	**40,211**	**41,167**	**41,167**	**GR 17-030 MAG**
GMA 12 Total		**Queen City**	**2,873**	**6,669**	**6,693**	**6,696**	**6,700**	**6,701**	**6,700**	**GR 17-030 MAG**
GMA 12 Total		**Sparta**	**7,709**	**16,721**	**19,616**	**22,167**	**24,282**	**24,291**	**24,292**	**GR 17-030 MAG**
GMA 12 Total		**Yegua-Jackson**	**31,478**	**31,471**	**29,501**	**29,489**	**29,403**	**29,250**	**27,124**	**GR 17-030 MAG**
GMA 12 Total		**Brazos River Alluvium**	**268,535**	**219,032**	**214,473**	**213,907**	**213,709**	**213,602**	**213,536**	**GR 17-030 MAG**

Individual estimates are rounded any may not always sum up to the totals displayed.

[1]NULL values indicate portions of aquifers that were declared not relevant for the purposes of joint groundwater planning. For additional information, see TWDB Report GR 17-030 MAG.

[2]Modeled available groundwater values for Fayette County GCD include both the GMA 12 and GMA 15 portions of the district.