GMA 12

TWDB Clarifications and Assumptions Update

by

GMA 12 Consultant Team

September 20, 2017

TWDB Request

- On July 25 and September 11 the TWDB sent request for clarifications and assumptions for each of the three GAMs being used to calculate MAGs
- Six items for Carrizo-Wilcox / Queen City / Sparta
- Six items for Yegua-Jackson
- Five items for Brazos River Alluvium

Items 1 and 2

- Calculated drawdowns for the Simsboro and Hooper Aquifers were greater than specified variances for Lost Pines GCD
- Calculated drawdowns for the Carrizo and Sparta Aquifers were greater than the specified variances for Fayette County GCD

Lost Pines GCD

- Calculated drawdowns for Simsboro and Hooper exceeded specified variances of 5% (Simsboro) and 10% (Hooper)
- Required a reduction in pumpage in PS-10 to get LPGCD drawdowns within the specified variances
- New pumpage file is called PS-12
- No pumpage outside of LPGCD was changed
- Calculated drawdowns in other GCDs all remained within stated variances

Approved DFCs

GCD / County	Sparta	QC	Carrizo	Calvert	Simsboro	Hooper
Brazos Valley GCD	12	12	61	125	295	207
Fayette County GCD	47	64	110	--	--	--
Lost Pines GCD	5	15	62	100	240	165
Mid-East Texas GCD	5	2	80	90	138	125
ND Falls	--	--	--	--	-2	27
ND Limestone	--	--	--	11	50	50
ND Navarro	--	--	--	-1	3	3
ND Williamson	--	--	--	-11	47	69
Post Oak Savannah GCD	28	30	67	149	318	205

DFCs are in feet of drawdown from 2000 to 2069

TWDB Calculated Drawdowns

GCD / County	Sparta	QC	Carrizo	Calvert	Simsboro	Hooper
Brazos Valley GCD	12.5	12.5	60.5	125.6	295.9	208.5
Fayette County GCD	56.4	70.3	122.2	164.1	275.9	282.3
Lost Pines GCD	4.4	16.2	68.3	110.2	257.0	184.6
Mid-East Texas GCD	0.5	-3.2	80.6	89.9	138.2	125.6
ND Falls	--	--	--	--	-1.7	27.5
ND Limestone	--	--	--	11.1	50.6	53.2
ND Navarro	--	--	--	-0.8	3.3	2.7
ND Williamson	--	--	--	-11.0	47.0	68.7
Post Oak Savannah GCD	28.6	29.9	66.6	149.6	324.7	208.2

DFCs are in feet of drawdown from 2000 to 2069

Differences for LPGCD

- Simsboro DFC = 240 feet
- Simsboro drawdown = 257.0 feet
- Difference = 17 feet or 7.1%

- Hooper DFC = 165 feet
- Hooper drawdown = 184.6 feet
- Difference = 19.6 feet or 11.9%

Solution for LPGCD

- Pumpage in Simsboro and Hooper was reduced in order to reduce drawdowns so that they fell within specified variances
- Simsboro pumpage was reduced by 12% in the last decade of the simulation
- Hooper pumpage was reduced by 50% for the entire predictive portion of the simulation

Differences with PS-12 for LPGCD

- Simsboro DFC = 240 feet
- Simsboro drawdown = 250.7 feet
- Difference = 10.7 feet or 4.5%

- Hooper DFC = 165 feet
- Hooper drawdown = 181.1 feet
- Difference = 16.1 feet or 9.8%

LPGCD Summary

- Pumpage in LPGCD had to be reduced to meet stated variances
- Well file was sent to TWDB to confirm that the results all fell within stated variances
- MAGs for the Simsboro and Hooper will be reduced for the LPGCD

Fayette County GCD

- Calculated drawdowns for Sparta and Carrizo exceeded specified variance of 10%
- Reason for discrepancy was that the TWDB calculated drawdowns for these aquifers only within GMA 12
- Clarification in Attachment B of the DFC resolution will correct this issue

The Sparta, Queen City, and Carrizo aquifers are present and used in all GCDs within GMA 12. Therefore, all GCDs submitted DFCs for these aquifers. The Calvert Bluff, Simsboro, and Hooper aquifers are present in all GCDs but not used in Fayette County. Therefore, GMA 12 declared these aquifers not relevant for Fayette County, and Fayette County GCD did not submit a DFC for these aquifers. For the purpose of establishing DFCs, the Groundwater Availability Model (GAM) for the Queen City and Sparta Aquifers (Kelley and others, 2004) was used to determine the compatibility and physical possibility of the DFCs proposed by each GCD. Note that this GAM also includes the Carrizo-Wilcox Aquifer. The DFCs proposed by each GCD for these six aquifers are provided in Table 2-1, as well as the DFC adopted by GMA 12 as a whole. The DFC is based on the average drawdown from January 2000 through December 2069. Note that the DFCs for Fayette County GCD in the Sparta, Queen City, and Carrizo aquifers are for all of Fayette County, and not just the portion of Fayette County within GMA 12. This is because GMA 15 has declared these aquifers not relevant for Fayette County, and all joint groundwater planning for these aquifers is done through GMA 12.

GCD or County	Average Aquifer Drawdown (ft) measured from January 2000 through December 2069					
	Sparta	Queen City	Carrizo	Calvert Bluff	Simsboro	Hooper
Brazos Valley GCD	12	12	61	125	295	207
Fayette County GCD	47*	64*	110*	--	--	--
Lost Pines GCD	5	15	62	100	240	165
Mid-East Texas GCD	5	2	80	90	138	125
Post Oak Savannah GCD	28	30	67	149	318	205
Falls County	--	--	--	--	-2	27
Limestone County	--	--	--	11	50	50
Navarro County	--	--	--	-1	3	3
Williamson County	--	--	--	-11	47	69
GMA-12	*16*	*16*	*75*	*114*	*228*	*168*

* Fayette County GCD DFCs are for all of Fayette County.

DFCs are in feet of drawdown from 2000 to 2069

FCGCD Summary

- Clarification was made to allow FCGCD drawdowns to fall within stated variances
- TWDB required that this clarification be made in the DFC resolution

Remaining Items

- Remaining 15 items are clarifications