Subject: Groundwater Management Area 12 - DFC Package Clarification Request

Date: Thursday, April 21, 2022 at 12:12:04 PM Central Daylight Time

From: Natalie Ballew

To: WLM Gary Westbrook

CC: Jean Perez, Jevon Harding

Hi Gary,

We are currently reviewing the GMA 12 desired future condition (DFC) package for completeness. Part of the review involves verifying that the submitted model files result in the desired future conditions. See below for items we need to address before calculating modeled available groundwater. Please review and respond to the list below by Thursday, May 5, 2022. We'd be happy to set up a meeting with our modelers and your consultant team if any of these items require more explanation.

Thanks!
Natalie

Carrizo-Wilcox, Queen City, and Sparta aquifers

1) Our analysis does not achieve the DFC for the Calvert Bluff Aquifer in Williamson County. There is only one active model cell for this aquifer in Williamson County and the cell goes dry around 2065 in the DFC predictive model. We suggest declaring the Calvert Bluff Aquifer as non-relevant in Williamson County. Please consider declaring the Calvert Bluff Aquifer non-relevant in Williamson County or provide additional information for our DFC analysis.
2) Please confirm that the DFCs for the Carrizo-Wilcox are calculated using a cell count averaging method, rather than an area-weighted averaging method.
   a. If a cell count averaging method is used, the current DFC error tolerance of 10% is good enough to make all DFCs compliant with our calculation, except the Calvert Bluff Aquifer in Williamson County (See Note #1 above).
   b. If an area-weighted averaging method is used, we recommend clarifying a tolerance of 11% for the GMA-wide Simsboro Aquifer DFC in order to be compliant with our calculation.

Yegua-Jackson Aquifer

1) Please confirm that the reference time period for the Yegua-Jackson Aquifer DFCs only goes to the end of December 2069 (stress period 99), even though the predictive model goes to December 2070 (stress period 100).
2) Since there are no monthly stress periods, please confirm that the baseline year of "January 2010" refers to the end of 2009/beginning of January 2010 (stress period 39), rather than the end of 2010 (stress period 40).
3) Our analysis results in a 1-foot difference in the GMA-wide DFC for the Yegua-Jackson Aquifer. We recommend clarifying a tolerance of 1 foot for the GMA-wide Yegua-Jackson DFC in order to be compliant with the TWDB-calculated value.

Brazos River Alluvium Aquifer

1) Please confirm that the reference time period for the Brazos River Alluvium Aquifer DFCs only goes to the end of December 2069 (stress period 484), even though the predictive model goes to the end of 2070 (stress period 485).
2) Since there are no monthly stress periods in 2013, please confirm that the Brazos Valley GCD baseline of "January 2013" refers to the end of 2012/beginning of January 2013 (stress period 427), rather than the end of 2013 (stress period 428).
3) Since there are monthly stress periods in 2010, please clarify whether the Post Oak Savannah GCD baseline of "January 2010" refers to the end of 2009/beginning of January 2010 (stress period 391) or the end of January 2010 (stress period 392).
4) For Brazos Valley GCD, please clarify how average percent saturation was defined by GMA 12. Is the average of only the final stress period (2069) or the average over the entire period from 2013 through 2069?
5) The drawdown values calculated using the official TWDB grid shapefile and TWDB methodology are not compliant with the provided GMA 12 county-specific DFCs in the Brazos River Alluvium Aquifer. We

recommend adopting the tolerances listed below in order to be compliant with the TWDB methodology. Alternatively, please provide the detailed methodology and zoned grid shapefile used to define the GMA 12 county-specific DFCs in the Brazos River Alluvium Aquifer, as these are not provided in the explanatory report or accompanying files:

a. For Brazos Valley GCD, we suggest replacing the current tolerance of "1 foot or 5 percent (whichever was greater)" with "10% of total well depth" as the error tolerance for the DFC evaluation of the percent saturation. This will make the DFC compliant with our calculation regardless how the percent saturation is calculated (see Note #4 above).
b. For Post Oak Savannah GCD, we suggest replacing the current tolerance of "1 foot or 5 percent (whichever was greater)" with "3 feet or 10 percent (whichever is greater)" as the error tolerance for the DFC evaluation of the decrease in average saturated thickness. This modification will make the DFC compliant with our calculation regardless of which baseline year is used (see Note #3 above).

Natalie Ballew, P.G.
Manager, Groundwater Technical Assistance
Email: natalie.ballew@twdb.texas.gov
Phone: 512-463-2779
Cell: 972-467-2412

Texas Water Development Board
1700 N. Congress Ave.
Austin, Texas 78711-3231