

# Regional Water Planning Group - Area B

in cooperation with the Texas Water Development Board



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January 10, 2018

Mr. Jeff Walker  
Executive Administrator  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711-3231

**Re: Hydrologic Variance Requests for Water Availability Determination of Current Surface Water Supplies in the Region B**

Dear Mr. Walker:

Surface water supplies in Region B are obtained from the Red River Basin and Trinity River Basin. A small portion of the region lies in the Brazos River Basin, but there is little surface water supplied to Region B from this river basin. The major surface water supplies in Region B include the Wichita System (Lakes Arrowhead and Kickapoo) and the Lake Kemp-Diversion system in the Red River Basin and Lake Amon Carter in the Trinity River Basin. Water users in Region B also receive water from Greenbelt Reservoir in the Panhandle Region and smaller in-region lakes (e.g., Lakes Nocona and Olney-Cooper).

In accordance with regional planning rules and guidelines, surface water supplies must be determined using the latest version of the TCEQ Water Availability Models (WAMs) with full authorization unless a hydrologic variance is granted by the TWDB. Regional planning rules also require the use and reporting of the firm yield for all surface water reservoirs.

The TCEQ-approved WAMs for the Red River and Trinity River Basins, with modifications, have been used for determining the available surface water supplies for the region for previously developed water plans. The period of record for the hydrology for the TCEQ-approved Red WAM is 1948 to 1998 and the period of record for the hydrology for the TCEQ-approved Trinity WAM is 1940 to 1996. However, these modifications alone do not capture the recent drought conditions and the record low inflows experienced throughout the region.

Considering the limited hydrologic record for the Red River WAM, the Region B Planning Group respectfully requests the following hydrologic variance requests. For consistency with adjoining regions, Region B intends to use the modified version of the Trinity River WAM developed for Region C to assess surface water supplies in the Trinity River Basin. As intended by Senate Bill 1, the assessment of surface water availability in Region B will be conducted to accurately reflect water supplies that are available for use.

#### ***Safe Yield***

Region B requests the use of safe yield or other defined reliable supply (risk assessment or minimum reserve capacity) for the allocation and distribution of surface water supplies from reservoirs within the region. Safe yield is the amount of water that can be used during the critical drought while leaving a one-year supply available at the end of the critical drought. Safe yield is consistent with the current operations of many surface water sources in the region and previous regional water planning. In accordance with the TWDB planning rules, firm yields will also be determined and reported in the plan.

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### **Red River Basin**

During the 2016 round of planning, yield analyses were conducted for reservoirs in the Red River Basin in Region B using reservoir-specific operation models with hydrology from the Red River WAM through 1998 and calculated inflows from 1999 to 2013. After this analysis was completed, drought conditions and record low inflows persisted in the region into 2015, impacting the reliable supply from these sources. By June 2015, most of the area lakes refilled or nearly filled, signaling the end of the drought of record. Considering this, it is proposed to extend the hydrology for Region B water supply reservoirs in the Red River Basin through 2015. The reservoir-specific operation models will be used to determine the firm and safe yields of these sources.

### **City of Wichita Falls Supplies**

During the drought from 2011-2015, Wichita Falls' water sources were significantly impacted. Operations and treatment became much more difficult as the capacities of the lakes continued to decline. To maintain operations and treatability of these supplies, it is requested that the reliable supplies for Lakes Arrowhead, Kickapoo, and Kemp-Diversion system be calculated maintaining a 20 percent reserve capacity. This provides a reasonable estimate of the minimum useable quantity of water available to the City of Wichita Falls. The reservoir operation models discussed above (extended hydrology through 2015) will be used to assess the reliable supplies of these sources.

### **City of Olney Supplies**

The City of Olney experienced similar drought conditions as the City of Wichita Falls which impacted their system of Lakes Olney and Cooper. It is requested that supplies be calculated using a reservoir operation model with hydrology from the Red River WAM through 1998 and calculated inflows from 1999 to 2015 developed for their Long-Range Water Supply Study.

### **Greenbelt Reservoir**

For Greenbelt Reservoir, it is requested to use the supplies developed by the Panhandle Water Planning Group.

Run of the river water rights will be evaluated using the TCEQ-approved Red River WAM.

### **Trinity River Basin**

Supplies from Lake Amon Carter and run of the river water rights will be evaluated using the Trinity River WAM modified by Region C.

Please contact Ms. Simone Kiel of Freese and Nichols, Inc. at (817) 735-7446 if you have any questions regarding our request.

Sincerely,

**REGIONAL WATER PLANNING GROUP – AREA B**



Russell Schreiber  
Chair