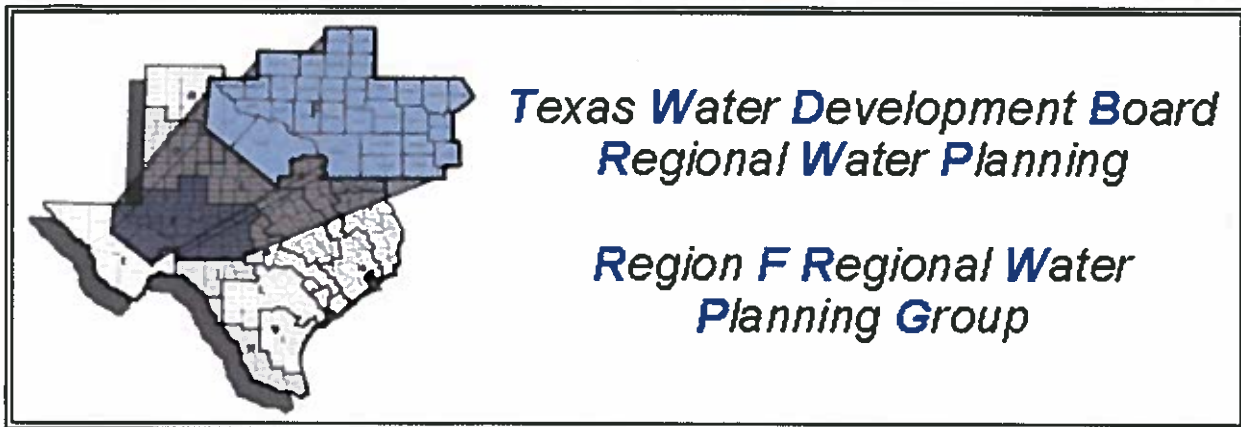


APPENDIX B
Hydrologic Variance Request and Approval for Surface Water



December 1, 2017

Jeff Walker
Executive Administrator
Texas Water Development Board
1700 North Congress
Austin, Texas 78711-3231

Re: Hydrologic Variance Requests for Water Availability Determination of Current Surface Water Supplies in Region F

Dear Mr. Walker:

Region F is one of the largest regions in the state, encompassing 32 counties in west Texas. Surface water supplies are obtained from the upper Colorado River Basin and Pecos River Basin, which is a tributary of the Rio Grande River Basin. A small portion of the region lies in the Brazos River Basin but there is little to no surface water supplied to Region F from this river basin.

In accordance with regional planning rules and guidelines, Region F intends to use the Full Authorization Run (Run 3) of the TCEQ-approved WAMs to determine surface water availability in the region. However, to more accurately reflect the current conditions and operations of the region, the following modifications to WAM Run 3 are requested.

Safe Yield

Region F requests the use of safe yield for the allocation and distribution of surface water supplies from all reservoirs within the region. Safe yield is the amount of water that can be used during the critical drought while leaving a minimum one-year supply in reserve. Safe yield is consistent with the current operations of surface water 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.

Colorado WAM

Per the TCEQ website, as of November 2017, the TCEQ is still updating the WAM files for the Colorado basin and the files are unavailable. As part of the 2016 planning cycle, Region F obtained an advanced copy of the Colorado WAM with hydrology extended to 2013 from the TCEQ. This is still the most up to date and accurate version of the WAM available. There were no hydrologic variances beyond reservoir storage capacities and safe yield applied to this model. Therefore, Region F proposes to retain the surface water supplies from the 2016 Plan for the 2021 Plan. Region F does not request any hydrologic variances for the Colorado WAM besides the use of safe yield as mentioned above.

Rio Grande WAM

The Rio Grande WAM is used to evaluate surface water supplies in the Pecos sub-basin that extends into Region F. The yield for Lake Balmorhea is assumed to be the minimum annual supply from the springs that feed the reservoir. The Rio Grande WAM does not include these springs in its naturalized flows. Since there will not be any changes to the WAMs from the 2016 Region F Water Plan, currently available supplies adopted for the 2016 plan are proposed to be retained for the 2021 plan.

Brazos WAM

The Brazos basin is largely located in Region G however, some areas extend into Region F. Region F proposes to adopt the version of the Brazos WAM (including any hydrologic variances) that Region G requests and is approved to use.

Please call me if you have any questions regarding our request.

Sincerely,



John Grant
Region F Chairman

February 9, 2018

Mr. John Grant
General Manager
Colorado River Municipal Water District
400 E. 24th Street
Big Spring, TX 79720

RE: Region F Regional Water Planning Group (RWPG) request for approval to modify existing surface water availability hydrologic assumptions for development of the 2021 Region F Regional Water Plan (RWP)

Dear Mr. Grant:

The Texas Water Development Board (TWDB) has reviewed your request dated December 1, 2017 for approval of alternative water supply assumptions to be used in determining existing surface water availability. This letter confirms that the TWDB approves:

1. Use of one-year safe yield for all reservoirs within the region.
2. Use of the updated Water Availability Model (WAM) for the Colorado Basin with extended hydrology through 2013 that was approved for Region F to use in the 2016 Region F RWP, revised as necessary to incorporate hydrologic updates in the Texas Commission on Environmental Quality (TCEQ) WAM for the Colorado Basin, released on February 1, 2018.
3. Use of minimum annual supply from spring flow to estimate water availability for Lake Balmorhea (Rio Grande Basin).
4. Use of water availability estimates from the Brazos WAM developed by Region G, for the portion of the Brazos Basin within Region F, as approved by the TWDB.

The RWPG also requests to retain surface water supplies from the 2016 RWP for the 2021 RWP for yields from the Colorado and Rio Grande WAMs. This approach is acceptable if the supplies meet evaluation criteria for the fifth cycle of regional water planning as outlined in the contract Exhibit C, *General Guidelines for Fifth Cycle of Regional Water Plan Development*, including consideration of existing water rights, contract agreements, and infrastructure constraints.

Although the TWDB approves the use of a one-year safe yield for developing estimates of current water supplies, firm yield for each reservoir must still be reported to TWDB in the online planning database and plan documents.

Mr. John Grant
February 9, 2018
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For the purpose of evaluating potentially feasible water management strategies, the TCEQ WAM Run 3 is to be used.

While the TWDB authorizes these modifications to evaluate existing water supplies for development of the 2021 Region F RWP, it is the responsibility of the RWPG to ensure that the resulting estimates of water availability are reasonable for drought planning purposes and will reflect conditions expected in the event of actual drought conditions; and in all other regards will be evaluated in accordance with the contract Exhibit C, *General Guidelines for Fifth Cycle of Regional Water Plan Development*.

If you have any questions, please do not hesitate to contact Tom Barnett, project manager for Region F, at 512-463-4209 or via email at thomas.barnett@twdb.texas.gov.

Sincerely,

A handwritten signature in blue ink that reads "Edna Pacheco for Jeff Walker". The signature is written in a cursive style.

Jeff Walker
Executive Administrator

c w/o enc: Mr. Kevin Krueger, Colorado River Municipal Water District
Ms. Simone Kiel, Freese & Nichols, Inc.
Mr. David Dunn, HDR, Inc.
Mr. Tom Barnett, Water Use, Projections, & Planning

Hydrologic Variance Request for the Rio Grande WAM and Lake Balmorhea
Region F
January 19, 2018

In our review of the Rio Grande WAM for Region F, we identified two issues with the modeling of water rights associated with San Solomon Springs, Griffin Springs and Lake Balmorhea:

- *Water rights located at the springs did not have access to spring flows.* In the Rio Grande WAM, San Solomon and Griffin Springs are aggregated together, with the flows from the springs entered as “flow adjustments”. Several water rights associated with these springs are located at the control point where the spring flow is added to the naturalized flows. Because of the way these were modeled in the WAM, the flow adjustments were not being added at the control point where the spring flows entered the system – they were only being added to downstream flows. As a result, the water rights at the springs, which according to their water rights can make use of flows from these springs, never had access to these flows.
- *Calls on spring flows by water rights on the Pecos River.* Availability of spring flow was being impacted by several large diversions on the main stem of the Pecos River associated with the Red Bluff Irrigation District. In the WAM, these are modeled as run-of-the-river diversions that are backed up by releases from Red Bluff Reservoir. In actual operation, these water rights are dependent on releases from Red Bluff Reservoir and do not use or make calls on spring flow from San Solomon or Griffin Springs. Also, it is likely that a priority call on spring flow would be considered a futile call since almost all of the water would be lost before it reached the Red Bluff Irrigation District diversions.

For the 2021 Region F Water Plan, it is requested to make the following changes to the Rio Grande WAM to address the above concerns:

- Modify the option used to apply flows from the flow adjustment file so that water rights located at the springs have access to the flows. This is a correction to an error in the WAM.
- Modify the WAM to direct excess flows (flows not diverted directly from the creek) to Lake Balmorhea for storage in accordance with the Lake Balmorhea water right. The storage would then be modeled as backup for the run of river diversions.
- Model the Toyah Creek watershed to reflect actual operations and address potential futile calls.

Region F proposes to determine the firm and safe yields of Lake Balmorhea and Red Bluff Reservoir and the reliable supply for run-of-river rights using the modified Rio Grande WAM.