



*Jim Darling, *Chairman*
Rio Grande Regional Water Authority

August 31, 2023

*Sonny Hinojosa, *Vice-Chairman*
HCID #2, San Juan,

*Donald K. McGhee, *Secretary*
Hydro Systems, Inc., Harlingen

*Frank Schuster
Val Verde Vegetable Co., McAllen

*Nick Benavides
Nick Benavides, Company, Laredo

Glenn Jarvis
Attorney, McAllen

Marilyn D. Gilbert, MBA
Brownsville PUB

Tomas Rodriguez
Public, Laredo

Carlos Garza, P.E.
AEC Engineering, LLC., Edinburg

Joe Rathmell
Zapata County Judge

Jaime Flores
Arroyo Colorado Partnership, Weslaco

Dale Murden
Texas Citrus Mutual, Mission

Neal Wilkins, Ph.D.
East Foundation

Jorge Flores
Eagle Pass Water Works

David L. Fuentes
Hidalgo County Commissioner

Tom McLemore
Harlingen Irrigation District

Debbie Farmer
Wintergarden GCD, GMA 13

Robert Latham
Magic Valley Generating Station

Steven Sanchez
North Alamo Water Supply Corp

Louie Pena
Brush Country GCD, Falfurrias

*Executive Committee

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

**Subject: Submittal of hydrologic variance checklists by the Rio Grande
Regional Water Planning Group (Region M)**

Dear Mr. Walker:

The Rio Grande Regional Water Planning Group (RGRWPG) approved hydrologic assumptions and needed hydrologic variances for submittal to the TWDB at the August 2, 2023, RGRWPG meeting. The RGRWPG's hydrologic variance checklists for the Rio Grande Basin and the Nueces-Rio Grande Basin are attached for your consideration.

We appreciate your consideration of this request. Should you have any questions regarding this submittal, please contact our Consultant, Jaime Burke, via phone at (512) 271-4472 or via email at burkej@bv.com. If further evaluation is necessary, the RGRWPG would welcome the TWDB's support in this effort.

Very Truly Yours,


James Darling, Chairman
Rio Grande Regional Water Planning Group

Enclosures: Hydrologic Variance Checklists for Rio Grande and Nueces-Rio Grande (PDF)

C: Mr. Kevin Smith, TWDB (electronically)
Mr. Manuel Cruz, LRGVDC (electronically)

Stewards of water resources from Amistad to the Gulf

Administrative Agent: Lower Rio Grande Valley Development Council, Manuel Cruz, Executive Director
301 W Railroad - Weslaco, Texas 78596
Telephone: 956-682-3481 Fax: 956-631-4670 Website: riograndewaterplan.org

Surface Water Hydrologic Variance Request Checklist

Texas Water Development Board (TWDB) rules¹ require that regional water planning groups (RWPG) use most current Water Availability Models (WAM) from the Texas Commission on Environmental Quality (TCEQ) and assume full utilization of existing water rights and no return flows for surface water supply analysis. Additionally, evaluation of existing stored surface water available during Drought of Record conditions must be based on Firm Yield using anticipated sedimentation rates. However, the TWDB rules also allow, and **we encourage**, RWPGs to use more representative, water availability modeling assumptions; better site-specific information; or justified operational procedures other than Firm Yield with written approval (via a Hydrologic Variance) from the Executive Administrator in order to better represent and therefore prepare for expected drought conditions.

RWPGs must use this checklist, which is intended to save time and reduce effort, to request a Hydrologic Variance for estimating the availability of surface water sources. For Questions 4 – 10, please indicate whether the requested variance is for determining Existing Supply, Strategy Supply, or both. Please complete a separate checklist for each river basin in which variances are being requested.

Water Planning Region: M

1. Which major river basin does the request apply to? Please specify if the request only applies part of the basin or only to certain reservoirs.

Nueces-Rio Grande Coastal Basin

2. Please give a brief, bulleted, description of the requested hydrologic variances including how the alternative availability assumptions vary from rule requirements, how the modifications will affect the associated annual availability volume(s) in the regional water plan, and why the variance is necessary or provides a better basis for planning. You must provide more-detailed descriptions in the subsequent checklist questions. Attach any available documentation supporting the request.
 - Updated water rights data as of July 2023 will be incorporated into the WAM, as available.
 - a. This variance provides more up-to-date data for the model.
 - When modeling the Delta Region Water Management Strategy using the Nueces-Rio Grande Coastal Basin WAM, the priority dates for the three reservoirs will be modified to reflect one or more reservoirs as senior, and the others as more junior, with respect to one another.
 - a. This variance allowed for better analysis of how the reservoirs could be operated to obtain the most storage.
 - Source water available for a reuse water management strategy will be determined based on the estimated amount of water returned to a utility's WWTPs for each decade, less the amount of reuse water already being utilized as existing supply.

¹ 31 Texas Administrative Code (TAC) §§ 357.10(14) and 357.32(c)

- a. The amount of water returned to a utility's WWTP will be estimated at 50% of the utility's projected water demands, adjusted for water conservation and drought management strategies, unless site-specific information is available.
 - i. Direct Reuse does not require WAM modeling, since there are no return flows
 - ii. Indirect Reuse would be entered as a return flow to assess downstream availability

3. Was this request submitted in a previous planning cycle? If yes, please indicate which cycle and note how it is different, if at all, from the previous request?

Yes

This was included as part of an Amendment to the 2021 Region M Plan submitted in 2022.

4. Are you requesting to extend the period of record beyond the current applicable WAM hydrologic period? If yes, please describe the proposed methodology. Indicate whether you believe there is a new drought of record in the basin.

No

Choose an item.

Click or tap here to enter text.

5. Are you requesting to use a reservoir safe yield? If yes, please describe in detail how the safe yield would be calculated and defined, which reservoir(s) it would apply to, and why the modification is needed or preferable for drought planning purposes.

No

Choose an item.

Click or tap here to enter text.

6. Are you requesting to use a reservoir yield other than firm yield or safe yield? If yes, please describe, in a bulleted list, each modification requested including how the alternative yield was calculated, which reservoir(s) it applies to, and why the modification is needed or preferable for drought planning purposes. Examples of alternative reservoir yield analyses may include using an alternative reservoir level, conditional reliability, or other special reservoir operations.

No

Choose an item.

Click or tap here to enter text.

7. Are you requesting to use a different model (such as a RiverWare or Excel-based models) than RUN 3 of the applicable TCEQ WAM? If yes, please describe the model being considered including how it incorporates water rights and prior appropriation and how it is more conservative than RUN 3 of the applicable TCEQ WAM.

No

Choose an item.

Click or tap here to enter text.

8. Are you requesting to use a modified TCEQ WAM? If yes, please describe in a bulleted list all modifications in detail including all specific changes to the WAM and whether the modified WAM is more conservative than the TCEQ WAM RUN 3. Examples of WAM modifications may include adding subordination agreements, contracts, updated water rights, modified spring flows, updated lake evaporation, updated sedimentation², system or reservoir operations, or special operational procedures into the WAM.

Yes

Existing and Strategy Supply

- Updated water rights data as of July 2023 will be incorporated into the WAM, as available.
 - a. This variance provides more up-to-date data for the model.
- When modeling the Delta Region Water Management Strategy using the Nueces-Rio Grande Coastal Basin WAM, the priority dates for the three reservoirs will be modified to reflect one or more reservoirs as senior, and the others as more junior, with respect to one another. (Strategy only)
 - a. This variance allowed for better analysis of how the reservoirs could be operated to obtain the most storage.
- Source water available for a reuse water management strategy will be determined based on the estimated amount of water returned to a utility's WWTPs for each decade, less the amount of reuse water already being utilized as existing supply. (Strategy only)
 - a. The amount of water returned to a utility's WWTP will be estimated at 50% of the utility's projected water demands, adjusted for water conservation and drought management strategies, unless site-specific information is available.
 - i. Direct Reuse does not require WAM modeling, since there are no return flows
 - ii. Indirect Reuse would be entered as a return flow to assess downstream availability
- Because there are no major reservoirs in this basin, no sedimentation will be incorporated.

² Updating anticipated sedimentation rates does not require a hydrologic variance under 31 TAC § 357.10(14). The Technical Memorandum will require providing details regarding the sedimentation methodology utilized. Please consider providing that information with this request.

9. Are you requesting to include return flows in the modeling? If yes, are you doing so to model an indirect reuse water management strategy (WMS)? Please provide complete details regarding the proposed methodology for determining reuse WMS availability.

Yes

Strategy Supply

- Source water available for a reuse water management strategy will be determined based on the estimated amount of water returned to a utility's WWTPs for each decade, less the amount of reuse water already being utilized as existing supply.
 - a. The amount of water returned to a utility's WWTP will be estimated at 50% of the utility's projected water demands, adjusted for water conservation and drought management strategies, unless site-specific information is available.
 - i. Direct Reuse does not require WAM modeling, since there are no return flows
 - ii. Indirect Reuse would be entered as a return flow to assess downstream availability

10. Are any of the requested Hydrologic Variances also planned to be used by another region for the same basin? If yes, please indicate the other Region. Please indicate if unknown.

No

Click or tap here to enter text.

11. Please describe any other variance requests not captured on this checklist or add any other information regarding the variance requests on this checklist.

Click or tap here to enter text.

Surface Water Hydrologic Variance Request Checklist

Texas Water Development Board (TWDB) rules¹ require that regional water planning groups (RWPG) use most current Water Availability Models (WAM) from the Texas Commission on Environmental Quality (TCEQ) and assume full utilization of existing water rights and no return flows for surface water supply analysis. Additionally, evaluation of existing stored surface water available during Drought of Record conditions must be based on Firm Yield using anticipated sedimentation rates. However, the TWDB rules also allow, and **we encourage**, RWPGs to use more representative, water availability modeling assumptions; better site-specific information; or justified operational procedures other than Firm Yield with written approval (via a Hydrologic Variance) from the Executive Administrator in order to better represent and therefore prepare for expected drought conditions.

RWPGs must use this checklist, which is intended to save time and reduce effort, to request a Hydrologic Variance for estimating the availability of surface water sources. For Questions 4 – 10, please indicate whether the requested variance is for determining Existing Supply, Strategy Supply, or both. Please complete a separate checklist for each river basin in which variances are being requested.

Water Planning Region: M

1. Which major river basin does the request apply to? Please specify if the request only applies part of the basin or only to certain reservoirs.

Rio-Grande Basin

2. Please give a brief, bulleted, description of the requested hydrologic variances including how the alternative availability assumptions vary from rule requirements, how the modifications will affect the associated annual availability volume(s) in the regional water plan, and why the variance is necessary or provides a better basis for planning. You must provide more-detailed descriptions in the subsequent checklist questions. Attach any available documentation supporting the request.
 - Updated water rights data as of July 2023 will be incorporated into the WAM, as available.
 - a. This variance provides more up-to-date data for the model.
 - The Rio Grande WAM will be run to be consistent with Region E with respect to the following:
 - a. Irrigation demand patterns above Fort Quitman will be modified so that diversions only occur March through October, which is consistent with the operations of the Rio Grande Project. This demand pattern change does not have a discernible impact on the firm yield of the Amistad-Falcon system in Region M.
 - b. Modeling the San Solomon Springs (within Region E) to be cut off from the rest of the basin (impact to Region F). This should not have a discernible impact on the firm yield of the Amistad-Falcon system in Region M.

¹ 31 Texas Administrative Code (TAC) §§ 357.10(14) and 357.32(c)

- Source water available for a reuse water management strategy will be determined based on the estimated amount of water returned to a utility's WWTPs for each decade, less the amount of reuse water already being utilized as existing supply.
 - a. The amount of water returned to a utility's WWTP will be estimated at 50% of the utility's projected water demands, adjusted for water conservation and drought management strategies, unless site-specific information is available.

- i. Direct Reuse does not require WAM modeling, since there are no return flows
 - ii. Indirect Reuse would be entered as a return flow to assess downstream availability

3. Was this request submitted in a previous planning cycle? If yes, please indicate which cycle and note how it is different, if at all, from the previous request?

Yes

These variances were requested last cycle, with the exception of the San Solomon Springs cut off variance. Region E let us know about that variance this cycle, and we thought we should include it as well for consistency.

4. Are you requesting to extend the period of record beyond the current applicable WAM hydrologic period? If yes, please describe the proposed methodology. Indicate whether you believe there is a new drought of record in the basin.

No

Choose an item.

Click or tap here to enter text.

5. Are you requesting to use a reservoir safe yield? If yes, please describe in detail how the safe yield would be calculated and defined, which reservoir(s) it would apply to, and why the modification is needed or preferable for drought planning purposes.

No

Choose an item.

Click or tap here to enter text.

6. Are you requesting to use a reservoir yield other than firm yield or safe yield? If yes, please describe, in a bulleted list, each modification requested including how the alternative yield was calculated, which reservoir(s) it applies to, and why the modification is needed or preferable for drought planning purposes. Examples of alternative reservoir yield analyses may include using an alternative reservoir level, conditional reliability, or other special reservoir operations.

No

Choose an item.

Click or tap here to enter text.

7. Are you requesting to use a different model (such as a RiverWare or Excel-based models) than RUN 3 of the applicable TCEQ WAM? If yes, please describe the model being considered including how it incorporates water rights and prior appropriation and how it is more conservative than RUN 3 of the applicable TCEQ WAM.

No

Choose an item.

Click or tap here to enter text.

8. Are you requesting to use a modified TCEQ WAM? If yes, please describe in a bulleted list all modifications in detail including all specific changes to the WAM and whether the modified WAM is more conservative than the TCEQ WAM RUN 3. Examples of WAM modifications may include adding subordination agreements, contracts, updated water rights, modified spring flows, updated lake evaporation, updated sedimentation², system or reservoir operations, or special operational procedures into the WAM.

Yes

Existing and Strategy Supply

- Sedimentation will be incorporated for major reservoirs for 2030 and 2080, based on IBWC data, and the decades in between will be interpolated.
- Updated water rights data as of July 2023 will be incorporated into the Rio Grande WAM, as available.
- The Rio Grande WAM will be run to be consistent with Region E with respect to the following:
 - a. Irrigation demand patterns above Fort Quitman will be modified so that diversions only occur March through October, which is consistent with the operations of the Rio Grande Project. This demand pattern change does not have a discernible impact on the firm yield of the Amistad-Falcon system in Region M.
 - b. Modeling the San Solomon Springs (within Region E) to be cut off from the rest of the basin (impact to Region F). This should not have a discernible impact on the firm yield of the Amistad-Falcon system in Region M.
- Source water available for a reuse water management strategy will be determined based on the estimated amount of water returned to a utility's WWTPs for each decade, less the amount of reuse water already being utilized as existing supply.

² Updating anticipated sedimentation rates does not require a hydrologic variance under 31 TAC § 357.10(14). The Technical Memorandum will require providing details regarding the sedimentation methodology utilized. Please consider providing that information with this request.

- a. The amount of water returned to a utility's WWTP will be estimated at 50% of the utility's projected water demands, adjusted for water conservation and drought management strategies, unless site-specific information is available.

- i. Direct Reuse does not require WAM modeling, since there are no return flows
- ii. Indirect Reuse would be entered as a return flow to assess downstream availability

9. Are you requesting to include return flows in the modeling? If yes, are you doing so to model an indirect reuse water management strategy (WMS)? Please provide complete details regarding the proposed methodology for determining reuse WMS availability.

Yes

Strategy Supply

- a. The amount of water returned to a utility's WWTP will be estimated at 50% of the utility's projected water demands, adjusted for water conservation and drought management strategies, unless site-specific information is available.

- i. Direct Reuse does not require WAM modeling, since there are no return flows
- ii. Indirect Reuse would be entered as a return flow to assess downstream availability

10. Are any of the requested Hydrologic Variances also planned to be used by another region for the same basin? If yes, please indicate the other Region. Please indicate if unknown.

Yes

Region E, as described above.

11. Please describe any other variance requests not captured on this checklist or add any other information regarding the variance requests on this checklist.

[Click or tap here to enter text.](#)