

Groundwater Management Area 15 Meeting Minutes

The Groundwater Management Area 15 meeting convened on July 11, 2024, at the VFW Hall, 500 Veterans Memorial Drive, La Grange, Texas.

Members GCD Representatives Present:

1	Bee Groundwater Conservation District	
2	Calhoun County Groundwater Conservation District	Tim Andruss
3	Coastal Bend Groundwater Conservation District	
4	Coastal Plains Groundwater Conservation District	
5	Colorado County Groundwater Conservation District	Jim Brasher
6	Corpus Christi ASR Conservation District	Daisy Fuentes
7	Evergreen Underground Water Conservation District	Aarin Teague
8	Fayette County Groundwater Conservation District	Wendi Labus
9	Goliad County Groundwater Conservation District	Art Dohmann
10	Pecan Valley Groundwater Conservation District	Cindy Parma
11	Refugio Groundwater Conservation District	Tim Andruss
12	Texana Groundwater Conservation District	Tim Andruss
13	Victoria County Groundwater Conservation District	Kenneth Eller

Agenda Item 1: Call to order and welcome guests.

Mr. Andruss called the meeting to order at 9:30 AM. A quorum was present.

No action taken.

Agenda Item 2: Receive public comment.

Mr. Andruss offered to accept public comment.

Public comments were received by the representatives.

No action taken.

Agenda Item 3: Consideration of and possible action on minutes of the previous meeting.

Mr. Andruss explained that the minutes of the previous meeting were sent to the GMA 15 representatives prior to this meeting.

MOTION: Ms. Labus moved to approve the meeting minutes as drafted. Ms. Parma seconded the motion. The motion passed unanimously.

Groundwater Management Area 15

Meeting Minutes

Agenda Item 4: Consideration of and possible action on matters related to budget and financial reports of Groundwater Management Area 15.

Mr. Andruss explained on April 13, 2023, the representatives of GMA 15 established a framework for funding a project to obtain technical services for adopting a DFC during the 4th Cycle of Joint Planning with the adoption of the bylaws and a cost sharing agreement for the management area. The cost sharing agreement established the schedule of funding commitments for any member district that adopted the cost sharing agreement with a total of \$82,500.00 if all member districts of GMA 15 adopted the cost sharing agreement.

Mr. Andruss also gave an update on the payments received from each member district.

The approved cost sharing agreement included the following cost sharing schedule:

Member Districts of GMA 15	Minimum Contribution	Approved GMA 15 Cost Sharing Agreement (as of July 3, 2024)	Contributions Remitted to GMA 15 Administrator (as of July 3, 2024)
Bee GCD	\$3,750.00	Yes	Yes
Calhoun County GCD	\$7,500.00	Yes	Yes
Coastal Bend GCD	\$7,500.00	Yes	Yes
Coastal Plains GCD	\$7,500.00	Yes	Yes
Colorado County GCD	\$7,500.00	Yes	Yes
Corpus Christi ASRCD	\$3,750.00		
Evergreen UWCD	\$3,750.00	Yes	Yes
Fayette County GCD	\$3,750.00	Yes	Yes
Goliad County GCD	\$7,500.00		
Pecan Valley GCD	\$7,500.00	Yes	Yes

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Refugio GCD	\$7,500.00	Yes	Yes
Texana GCD	\$7,500.00	Yes	Yes
Victoria County GCD	\$7,500.00	Yes	Yes
Total	\$82,500.00		

VCGCD - Bank Statement - Act# 3881 - March 2024

Reporting Period Start: 3/1/24
Reporting Period Stop: 3/31/24
Beginning Balance: \$48,313.16
(1) Credit: \$6.14
(0) Debits: \$0.00
Ending Balance: \$48,319.30

VCGCD - Bank Statement - Act# 3881 - April 2024

Reporting Period Start: 4/1/24
Reporting Period Stop: 4/30/24
Beginning Balance: \$48,319.30
(3) Credit: \$5.94
(0) Debits: \$0.00
Ending Balance: \$48,325.24

VCGCD - Bank Statement - Act# 3881 - May 2024

Reporting Period Start: 5/1/24
Reporting Period Stop: 5/31/24
Beginning Balance: \$48,325.24
(4) Credit: \$22,506.97
(0) Debits: \$0.00
Ending Balance: \$70,832.21

No action taken.

Agenda Item 5: Consideration of and possible action on reports and communication from GMA 15 member districts and GMA 15 representatives to Regional Water Planning Groups.

Mr. Andruss explained on May 30, 2024, a letter was sent to Dr. Hardwick of TWDB on behalf of the members of GMA 15 as requested at the April 11, 2024 meeting

Groundwater Management Area 15

Meeting Minutes

requesting authorization of "the use of the Groundwater Availability Model of the Central Gulf Coast Aquifer System, as used during the 3rd Joint Planning Cycle, for development of proposed and adopted desired future conditions for the relevant aquifers within GMA 15 during the 4th Joint Planning Cycle."

On May 30, 2024, Dr. Hardwick responded by stating that TWDB is "willing to allow for use of the previous model if absolutely necessary" while requesting that the representatives provide "additional time to allow us to complete this work before the GMA 15 member districts definitively decide to use the previous model."

Mr. Andruss provided an update on the activities of the South Central Texas Regional Planning Group (Region L).

Mr. Dohmann provided an update regarding the contested case involving GCGCD related to uranium mining in Goliad County.

No action taken.

Agenda Item 6: Consideration of and possible action on reports from Texas Water Development Board representatives to Groundwater Management Area 15.

Ms. Ballew, Groundwater Director for TWDB, provided an update regarding the technical work underway by the modeling section to review and adjust the new groundwater availability model for GMA 15 and GMA 16.

No action taken.

Agenda Item 7: Consideration of and possible action on matters related to joint planning including technical services for GMA 15, the review of management plans and accomplishments of Groundwater Management Area 15 member districts, and the identification of the best available science to be used in the proposal and adoption of desired future conditions for GMA 15.

Topic 1 – Technical Services

Mr. Andruss explained the VCGCD has resumed its efforts to negotiate terms of an agreement with Intera for providing the proposed technical services to the GMA-15 Committee because 1) the majority of the member districts of GMA 15 have adopted the by-laws and cost-sharing agreement, 2) the majority of the member district the GMA-15 Committee have submitted their contributions to the fund for the technical services for the 4th cycle of joint planning, and 3) the TWDB agreed to allow the use of the "GAM for the central portion of the Gulf Coast Aquifer System" by GMA 15.

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Due to the funding gap between GCD contributions and Intera's proposed cost, VCGCD and Intera are examining ways to alter the scope of the project to address the funding short fall. VCGCD gave suggested revisions for consideration by Intera.

After discussing options regarding funding of the technical work to be completed for the adoption of a new desired future condition for GMA 15, the member districts that previously contributed to the GMA 15 planning fund agreed to seek authorization to contribute additional money to fully the technical services proposed by Intera.

No action taken.

Topic 2 – Management Plans of the Member District

No discussion.

No action taken.

Topic 3 – Accomplishments of the Member Districts

No discussion.

No action taken.

Topic 4 – Identification of the best available science to be used in the proposal and adoption of the desired future conditions for GMA 15

No discussion.

No action taken.

Agenda Item 8: Consideration of and possible action on matters related to development of groundwater availability model for GMA 15.

Mr. Andruss explained on June 11, 2024, Mr. Dohmann requested the placement of this agenda item on the meeting notice for July 11, 2024, during a meeting regarding aquifer monitoring approaches.

No action taken.

Agenda Item 9: Consideration of and possible action on administrative and organizational matters of Groundwater Management Area 15.

No discussion.

Groundwater Management Area 15 Meeting Minutes

No action taken.

Agenda Item 10: Consideration of and Possible action on identification and scheduling of future agenda items and meetings.

The next meeting of GMA 15 is scheduled for October 10, 2024, at 10:00 AM at EUWCD.

Agenda Item 11: Receive Public Comment.

No discussion.

No action taken.

Agenda Item 12: Adjournment.

No Discussion.

Ms. Labus moved to adjourn the meeting at 11:27 AM. Ms. Parma seconded the motion. The motion passed unanimously.

The above and foregoing minutes were considered and approved on this the _____ day of _____ a.d. _____.

Groundwater Management Area 15 Representative

ATTEST:

Groundwater Management Area 15 Representative

Groundwater Management Area 15 Meeting Minutes

The Groundwater Management Area 15 meeting convened on October 15, 2024, at the Nueces River Authority Office, 500 IH 69, Suite 805, Robstown, Texas 78380.

Members GCD Representatives Present:

1	Bee Groundwater Conservation District	Lonnie Stewart
2	Calhoun County Groundwater Conservation District	Tim Andruss
3	Coastal Bend Groundwater Conservation District	Neil Hudgins
4	Coastal Plains Groundwater Conservation District	Neil Hudgins
5	Colorado County Groundwater Conservation District	Jim Brasher
6	Corpus Christi ASR Conservation District	Maria Corona
7	Evergreen Underground Water Conservation District	Darrell Brownlow
8	Fayette County Groundwater Conservation District	Wendi Labus
9	Goliad County Groundwater Conservation District	Terrell Graham
10	Pecan Valley Groundwater Conservation District	Cindy Parma
11	Refugio Groundwater Conservation District	Carroll Borden
12	Texana Groundwater Conservation District	Tim Andruss
13	Victoria County Groundwater Conservation District	Tim Andruss

Agenda Item 1: Call to order and welcome guests.

Mr. Andruss called the meeting to order at 2:52 PM. A quorum was present.

No action taken.

Agenda Item 2: Receive public comment.

Mr. Andruss offered to accept public comment.

Public comments were received by the representatives.

No action taken.

Agenda Item 3: Consideration of and possible action on matters related to groundwater availability models for the Gulf Coast Aquifer System.

No discussion.

No action taken.

Agenda Item 4: Consideration of and possible action on matters related to joint planning and administration of Groundwater Management Area 15.

Groundwater Management Area 15

Meeting Minutes

4.1 – Technical Services

No discussion.

No action taken.

4.2 – Minutes of the Previous Meeting

No discussion.

No action taken.

4.3 – Consideration of and possible action on matters related to budget and financial reports of Groundwater Management Area 15

No discussion.

No action taken.

Agenda Item 5: Receive Public Comment

Mr. Andruss offered to accept public comment.

No public comment was given.

No action taken.

Agenda Item 12: Adjournment.

No Discussion.

Mr. Brownlow moved to adjourn the meeting after concluding all business of the groundwater management area at approximately 2:55 PM. Ms. Parma seconded the motion. The motion passed unanimously.

Groundwater Management Area 15 Meeting Minutes

The above and foregoing minutes were considered and approved on this the

_____ day of _____ a.d. _____.

Groundwater Management Area 15 Representative

ATTEST:

Groundwater Management Area 15 Representative



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Statement Date

11/30/2024

6631 1 AV 0.545
VICTORIA COUNTY GROUNDWATER
CONSERVATION DISTRICT
2805 N NAVARRO ST STE 210
VICTORIA TX 77901-3947

Account No

****3881

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received
11.5.24



STATEMENT SUMMARY

Public Fund Contractual Ckg w Int Account No ****3881

11/01/2024	Beginning Balance		\$89,881.01
	1 Deposits/Other Credits	+	\$11.05
	0 Checks/Other Debits	-	\$0.00
11/30/2024	Ending Balance	30 Days in Statement Period	\$89,892.06

DEPOSITS/OTHER CREDITS

Date	Description	Amount
11/30/2024	Accr Earning Pymt Added to Account	\$11.05

TOTAL OVERDRAFT FEES

	Total For This Period	Total Year-to-Date
Total Overdraft Fees	\$0.00	\$0.00
Total Return Item Fees	\$0.00	\$0.00

DAILY ENDING BALANCE

Date	Balance	Date	Balance
11-01	\$89,881.01	11-30	\$89,892.06

EARNINGS SUMMARY

** Below is an itemization of the Earnings paid this period. **

Interest Paid This Period	\$11.05	Annual Percentage Yield Earned	0.15 %
Interest Paid YTD	\$86.67	Days in Earnings Period	30

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102101 : 0063101



MEMBER FDIC



NYSE Symbol "PB"



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Statement Date 10/31/2024

6819 1 AV 0.545
 VICTORIA COUNTY GROUNDWATER
 CONSERVATION DISTRICT
 2805 N NAVARRO ST STE 210
 VICTORIA TX 77901-3947

Account No ****3881

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STATEMENT SUMMARY Public Fund Contractual Ckg w Int Account No ****3881

10/01/2024	Beginning Balance		\$89,869.59
	1 Deposits/Other Credits	+	\$11.42
	0 Checks/Other Debits	-	\$0.00
10/31/2024	Ending Balance	31 Days in Statement Period	\$89,881.01

DEPOSITS/OTHER CREDITS

Date	Description	Amount
10/31/2024	Accr Earning Pymt Added to Account	\$11.42

TOTAL OVERDRAFT FEES

	Total For This Period	Total Year-to-Date
Total Overdraft Fees	\$0.00	\$0.00
Total Return Item Fees	\$0.00	\$0.00

DAILY ENDING BALANCE

Date	Balance	Date	Balance
10-01	\$89,869.59	10-31	\$89,881.01

EARNINGS SUMMARY

** Below is an itemization of the Earnings paid this period. **

Interest Paid This Period	\$11.42	Annual Percentage Yield Earned	0.15 %
Interest Paid YTD	\$75.62	Days in Earnings Period	31

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MEMBER FDIC



NYSE Symbol "PB"



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Statement Date

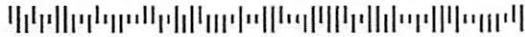
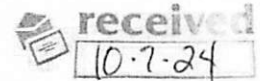
9/30/2024

6914 1 AV 0.545
 VICTORIA COUNTY GROUNDWATER
 CONSERVATION DISTRICT
 2805 N NAVARRO ST STE 210
 VICTORIA TX 77901-3947

Account No

****3881

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STATEMENT SUMMARY Public Fund Contractual Ckg w Int Account No ****3881

09/01/2024	Beginning Balance		\$79,859.16
	6 Deposits/Other Credits	+	\$10,010.43
	0 Checks/Other Debits	-	\$0.00
09/30/2024	Ending Balance	30 Days in Statement Period	\$89,869.59
	Total Enclosures		5

DEPOSITS/OTHER CREDITS

Date	Description	Amount
09/13/2024	Deposit	\$2,000.00
09/13/2024	Deposit	\$2,000.00
09/13/2024	Deposit	\$2,000.00
09/13/2024	Deposit	\$2,000.00
09/25/2024	Deposit	\$2,000.00
09/30/2024	Accr Earning Pymt Added to Account	\$10.43

TOTAL OVERDRAFT FEES

	Total For This Period	Total Year-to-Date
Total Overdraft Fees	\$0.00	\$0.00
Total Return Item Fees	\$0.00	\$0.00

DAILY ENDING BALANCE

Date	Balance	Date	Balance
09-01	\$79,859.16	09-25	\$89,859.16
09-13	\$87,859.16	09-30	\$89,869.59

EARNINGS SUMMARY

** Below is an itemization of the Earnings paid this period. **

Interest Paid This Period	\$10.43	Annual Percentage Yield Earned	0.15 %
Interest Paid YTD	\$64.20	Days in Earnings Period	30

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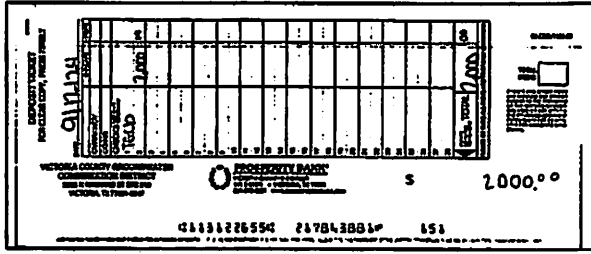
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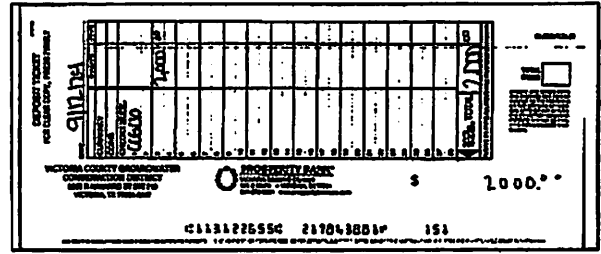
MEMBER FDIC



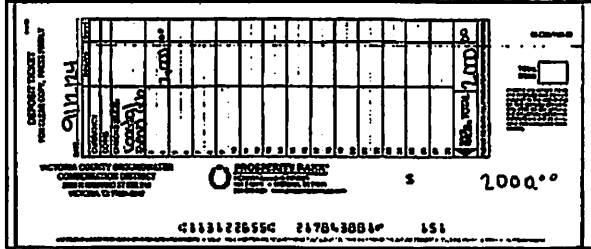
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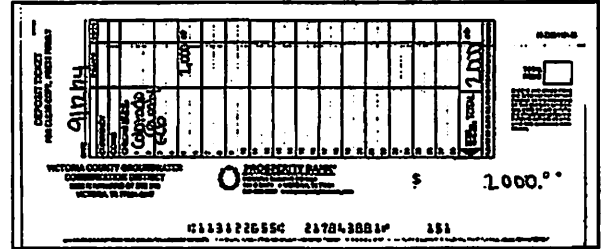
9/13/2024 \$2,000.00



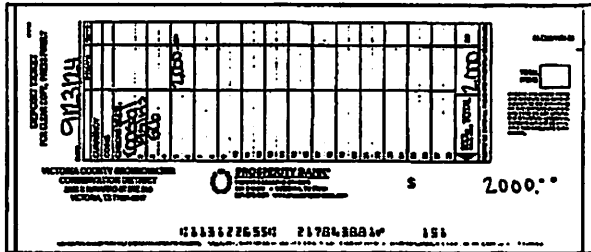
9/13/2024 \$2,000.00



9/13/2024 \$2,000.00



9/13/2024 \$2,000.00



9/25/2024 \$2,000.00

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GOLIAD COUNTY GROUNDWATER CONSERVATION DISTRICT

118 S. Market St., P.O. Box 562, Goliad, Texas 77963-0562

Telephone: (361) 645-1716

website: www.goliadcogcd.org | email: gcgcd@goliadgcd.org

Board of Directors:

President – Wilfred Korth

Vice-President – Terrell Graham

Secretary – Colt Williams

Directors – Art Dohmann, Barbara Smith, Reagan Sahadi, Tate Bammert

Resolution: 2024-01

A Resolution Regarding Goliad County Groundwater Conservation District’s Position on Groundwater Availability Modeling

The Goliad County Groundwater Conservation District (GCGCD) is a single county GCD and is within the boundary of Groundwater Management Area 15 (GMA15). GMA15 groundwater modeling is by use of the Central Gulf Coast Aquifer Groundwater Availability Model administered by the Texas Water Development Board (TWDB).

This is an update of Resolution: 2023-01

Whereas, GCGCD has been measuring groundwater levels with 60-100 unpumped monitor wells for more than 20 years; and,

Whereas, GCGCD has documented a steady average water level decline of approximately 0.7 feet per year in the Evangeline Aquifer during these 20 years; and,

Whereas, the Central Gulf Coast Aquifer GAM has never modeled anything near this decline for Goliad County; and,

Whereas, in 2007, GCGCD contracted D. B. Stephens for \$14,000.00 to do a study of why the GAM information did not trend with the GCGCD data. The primary findings were faulty recharge input for 2 years and low pumping values. This report was provided to TWDB and to GMA-15; and,

Whereas, TWDB has attempted to develop a new more accurate model for the last 8 years. At each step GCGCD and others were informed that the new model would fix and/or address large modeling discrepancies for Goliad and other counties; and,

Whereas, GCGCD has spent months working with TWDB modeling Staff providing data, analysis, and observations with the objective of having a new model, which would provide data reflecting the empirical data that GCGCD has gathered over 20 years and,

Whereas, the previous Explanatory Reports generated for GMA15 have provided documentation of the modeling issues associated with Goliad County; and,

Whereas, GCGCD contracted with Texas Tech to do a recharge study to verify there was little to no recharge in Goliad County; and,

Whereas, GCGCD spent \$16,950.00 in 2020 having LRE develop a recalibrated GAM which provided modeled data in line with the GCGCD empirical data; and,

Whereas, GCGCD has expended considerable taxpayer funds on a known inaccurate model for Goliad County as part of GMA-15 joint planning efforts.

Whereas, GCGCD has a recalibrated model which reasonably reflects actual conditions in Goliad County and can provide a reasonable projection of current and future conditions for water management guidance of the Gulf Coast aquifer and its subcomponents.

Whereas, GCGCD contracted with LRE Water to evaluate the new GAM. LRE Water's determination was that the new GAM would be of no value in management of the Gulf Coast aquifer in Goliad County.

Whereas, the new model has now been recalibrated and shows a very small drawdown from 2015 to 2080 for Goliad County.

Whereas, this small drawdown has already been exceeded as of October, 2024. Comparing Figures 5 and 6 of the attached memo verifies that the predicted drawdown of the Evangeline portion of the Gulf Coast Aquifer is around 0.7 feet per year as predicted for Goliad County by GCGCD's recalibrated GAM.

Observations

The new model prediction of 0.14 feet recharge for Evergreen UWCD from 2015 to 2080 is an absurd result. With the oil field activity in Karnes County, groundwater usage has increased a great deal. There is a lot of groundwater used to drill wells, frack wells and other industrial operations associated with the oil field. There has also been a large temporary population increase associated with the oil field. These incorrect results also impact predictions for GCGCD and other down dip districts. Comparing Figures 5 and 6 of the attached memo, the Evangeline portion of the Gulf Coast aquifer in Karnes County has dropped at least 20 feet between 2000 and 2022. Most of the oil field groundwater use takes place in the Jasper and Catahoula portion of the Gulf Coast aquifer north of Evangeline.

The predicted drawdown for Pecan Valley GCD is 7.88 feet between 2015 and 2080 by the new model is insufficient due to the same type of oil field activity as Karnes County. Comparing Figures 5 & 6 of the attached for Dewitt County, it sustained a bigger drop in water elevation in the Evangeline portion of the Gulf Coast aquifer between 2000 and 2022 than the new model

predicts for the entire Gulf Coast aquifer in Dewitt County between 2015 and 2080. This modeling error negatively impacts Goliad County.

The new model predicts a drawdown of 4.82 feet for the portion of Bee County in GMA-15 and a 23.33 feet drawdown for the portion of Bee County in GMA-16 between 2015 and 2080. The actual data as represented in Figures 5 & 6 shows no significant increase in drawdown in the GMA-16 portion of Bee County over the GMA-15 portion of Bee County.

The new model predicts 4.47 feet of drawdown for Refugio County between 2015 and 2080 for the Gulf Coast aquifer. Table 4 of the attached shows that the combined Chicot and Evangeline portions of the Gulf Coast aquifer have undergone 4.1 feet of drawdown between 2000 and 2022. The yearly average water level change between 2001 and 2022 for the combined Chicot and Evangeline is 2.3 feet of drawdown. The trend for Refugio County since 2009 has been drawdown according to Table 4 of the attached. Providing this trend continues the local variation for Refugio County between modeled and actual data could be very large.

The new model predicts 6.38 feet of drawdown between 2015 and 2080 for the Gulf Coast aquifer in Victoria County. Table 4 of the attached shows a drawdown 7.5 feet recharge (increase in water level) for the combined Chicot and Evangeline between 2000 and 2022. The yearly average water level change between 2001 and 2022 for the combined Chicot and Evangeline is 6.8 feet of recharge. This represents a large local variation between the model and actual data. The recharge or increase in water levels in Victoria County is well understood. The City of Victoria has decreased its dependence on groundwater. There appears to be less agricultural irrigation in Victoria County than historically.

Counties further away from Goliad County show a similar disparity between actual data and results predicted by the new model.

Drawdown for GMA-15 overall is significantly lower than previously predicted.

Increasing the correlation coefficient for the new model from 0.22 to 0.58 is a significant achievement. Is this a high enough correlation coefficient and therefore accurate enough model to confidently base joint planning efforts on? Why stop improvement at a correlation coefficient of 0.58 instead of 0.75 or higher?

Now, Therefore the GCGCD Board has determined that it is not appropriate to expend additional taxpayer funds on the next round of GMA-15 planning until the modeling/empirical data issues are resolved.

Now, Therefore GCGCD finds that a system such as the attached is a much more accurate and beneficial means to monitor groundwater in our district and GMA-15 than the model proposed by TWDB.

Approved the 18th day of November, 2024.

<signed>

Wilfred Korth, President

Art Dohman, Vice-President

Terrell Graham – Director & GMA-15 Representative

cc: Texas Senator Lois Kolkurst
Post Office Box 12068, Capitol Station
Austin, Texas 78711
District Address:
5606 North Navarro #300M
Victoria, Texas 77904

Representative A.J. Louderback
District 30, Room 1N.9
Austin, Texas 78768-2910
District Address:
Post Office Box 1792
Victoria, Texas 77902

Groundwater Management Area 15
Tim Andruss – GMA 15 Chair
2805 N. Navarro St., Suite 210
Victoria, TX. 77901

Aransas County Groundwater Conservation District
Bee Groundwater Conservation District
Post Office Box 682
Beeville, Texas 78104-0682

Calhoun County Groundwater Conservation District
131-A North Virginia Street
Port Lavaca, Texas 77979

Coastal Bend Groundwater Conservation District
109 East Milam
Wharton, Texas 77488

Coastal Plains Groundwater Conservation District
2200 7th Street, Suite 401
Bay City, Texas 77414

Colorado County Groundwater Conservation District
910 Milam Street
Columbus, Texas 78934

Corpus Christi ASR Conservation District
1201 Leopard Street
Corpus Christi, Texas 78401

Evergreen Underground Water Conservation District
110 Wyoming Boulevard
Pleasanton, Texas 78064

Fayette County Groundwater Conservation District
255 Svoboda Lane, Room 115
La Grange, Texas 78945

Pecan Valley Groundwater Conservation District
1009 North Esplanade Street
Cuero, Texas 77954

Refugio Groundwater Conservation District
604 commerce Street
Refugio, Texas 78377

Texana Groundwater Conservation District
411 North Wells Street
Edna, Texas 77957

Victoria County Groundwater Conservation District
2805 North Navarro Street, Suite 210
Victoria, Texas 77901

Brook Paup, TWDB Director
1700 North Congress Avenue
Austin, Texas 78701

L'Oreal Stepney, TWDB Director
1700 North Congress Avenue
Austin, Texas 78701

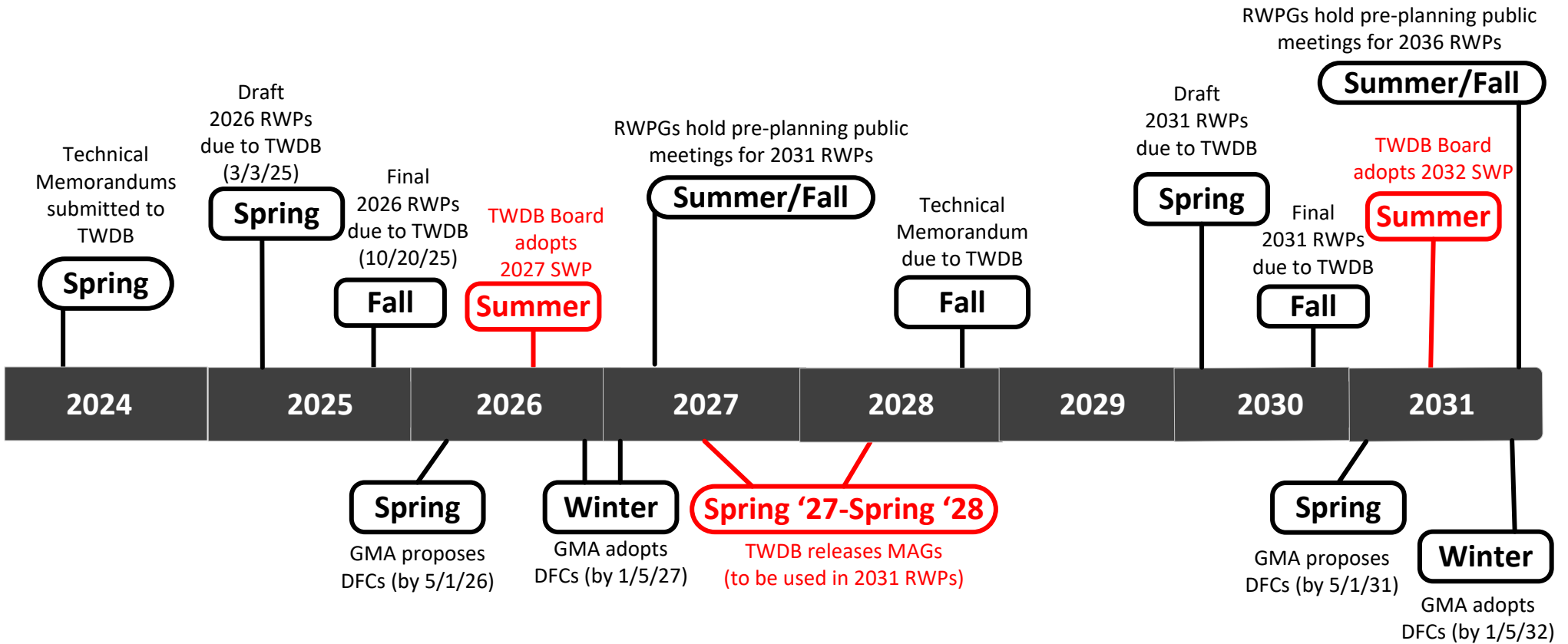
Tonya Miller, TWDB Director
1700 North Congress Avenue
Austin, Texas 78701

Daryn Hardwick
1700 North Congress Avenue
Austin, Texas 78701

file

Anticipated Regional Water Planning and Groundwater Joint Planning Timelines

Regional Water Planning Timeline



Groundwater Joint Planning Timeline

Acronyms

- DFC – desired future condition
- GMA – groundwater management area
- MAG – modeled available groundwater
- RWP – regional water plan
- RWPG – regional water planning group
- SWP – state water plan
- TWDB – Texas Water Development Board

GMA 15 Kickoff Meeting: Review of Joint Planning Process and Development & Adoption of DFCs

Groundwater Management Area 15

January 9, 2015



Agenda

- Requirements of Joint Planning and DFC Development under TWC Ch. 36
- DFC and MAGs
 - Modeling Approach for 3rd Round Joint Planning
 - Predicted by 2023 GAM and Updated GAM
 - Possible requested changes by member GCDs
- 4th Round of Joint Planning
 - Possible Activities
 - Deadlines
 - Proposed Schedule & Timeline
- Preliminary Results from Review of TWDB Updated GAM

DFC Requirements: Achieve Balance TWC 36.108(d-2)



Highest Practicable Level
of Groundwater
Production



Conservation,
Preservation, Protection,
Recharging, and
Prevention of Waste of
Groundwater, and Control
of Subsidence

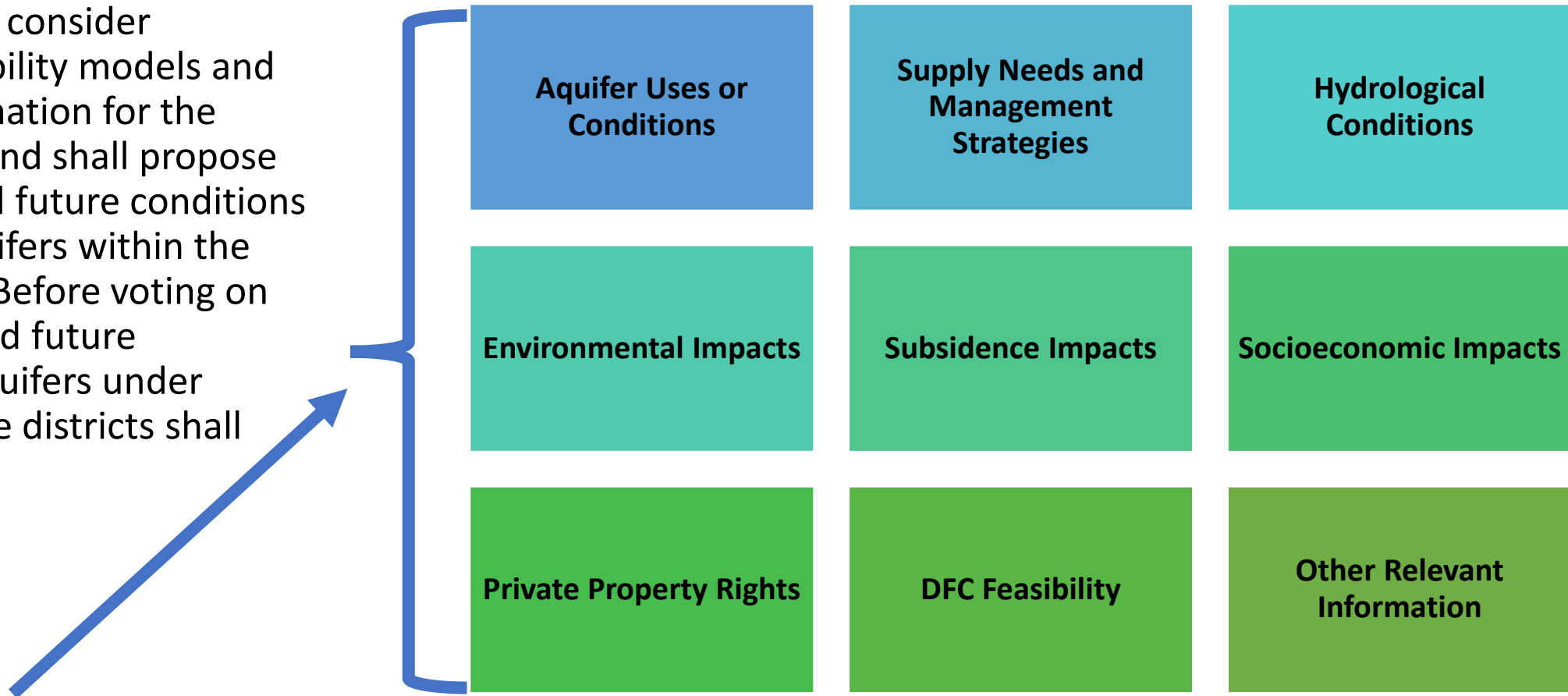
- Water Code 36.108(d-2) –
- “... The desired future conditions proposed under Subsection (d) must provide a balance between the highest practicable level of groundwater production and the conservation, preservation, protection, recharging, and prevention of waste of groundwater and control of subsidence in the management area. This subsection does not prohibit the establishment of desired future conditions that provide for the reasonable long-term management of groundwater resources consistent with the management goals under Section 36.1071(a)...”

DFC Requirements: Consider Nine Factors

Water Code 36.108(d) –

“... the districts shall consider groundwater availability models and other data or information for the management area and shall propose for adoption desired future conditions for the relevant aquifers within the management area. Before voting on the proposed desired future conditions of the aquifers under Subsection (d-2), the districts shall consider ...”

36.108(d)(1) – (9)



Current DFCs & MAGs from 3rd Round Joint Planning

- Modeling conducted based on member input
 - Multiple pumping scenarios
 - Presented as average drawdown from 01/01/2000
- Technical memorandum for each factor
- Memos were basis for explanatory report (signed 12/10/2021)

Discussion	Date
Aquifer uses/condition	10/10/2019
Water needs/strategies	01/09/2020
Hydrological conditions	06/11/2020
Environmental conditions	06/11/2020
Subsidence	06/11/2020
Socioeconomic impacts	10/08/2020
Private property	10/08/2020
DFC feasibility	10/08/2020
Other information	01/14/2021

Modeling Approach for 3rd Round Joint Planning

- GAM unchanged through calibration period ending on 12/31/1999
- Goliad County GCD expressed concerns with:
 - Recharge rates in the GAM
 - Ability of the model to reasonably simulate measured water levels
- Majority of GMA 15 members relatively few questions/concerns regarding the 2004 GAM relative to its application to joint planning
- Pumping simulation updates and results discussed in Appendix 3 of the GMA 15 2021 Explanatory Report
 - Sensitivity of GAM results to changes in recharge evaluated and documented (see April 11, 2019 technical memorandum) as part of the pumping updates
 - 2004 GAM found to be relatively insensitive to recharge for Goliad County GCD

Modeling Approach for 3rd Round Joint Planning

- Pumping updated for predictive period from 01/01/2000 through 12/31/2016 to reflect estimates of actual pumping
 - Considered redistribution of horizontal and vertical pumping amounts based on use, location, and year of well completion
 - For the amount of annual pumping, TWDB water use survey data used except where GCD specific data were provided
 - Horizontal distribution based on well locations from the GCD and TWDB databases
 - Vertical distribution matched the MAG pumping file unless otherwise directed by a District representative
- Developed a version that retained 2nd Round MAG areal distribution
 - Used a multiplier per county to raise or lower the pumping to match estimates from 2000 through 2016
 - Each layer updated independently if GCD data supported the changes
 - This version was adopted by GMA 15 for the 3rd Round Joint Planning simulations

Modeling Approach for 3rd Round Joint Planning

- Pumping for predictive period from 2017 through 2080 evaluated through 3 scenarios
 - 1: Constant pumping at target MAG
 - 2: Ramped up pumping from 2016 value to target MAG
 - 3: Adding pumping to 1 & 2 based on possible and/or theoretical well fields
- Changes to predictive pumping from 2017 through 2080 as directed by District representatives
 - Some specific location/project changes including brackish groundwater development
 - Most changes were to specified values or regional water plan needs
- Scenario “GMA15_2019_001_v1” adopted by the GMA 15 members to represent the DFC scenario

Well File: GMA15_209_001_v1

- Pumping from 2000 to 2016

- Use average recharge rates
- For the annual pumping, if GCD was available it was used, otherwise pumping based on TWDB water use data
- Areal and vertical distribution of well locations match the 2nd round MAG pumping. Pumping amount were proportionality adjusted based on production amounts by aquifer

- Pumping from 2017 to 2080

- Use average recharge rates
- Pumping from 2016 value raised to target MAG beginning in 2017 and held constant through the end of the simulation period
- Anticipated future brackish GW production added by VCGCD, CCGCD, RCGCD, and TGCD.

Current DFCs & MAGs from 3rd Round Joint Planning

County	Aquifer	Adopted DFC Average Drawdown 01/01/2000-12/31/2080	2080 MAG
Aransas	GCAS	0 feet	1,547 acre-feet
Bee	GCAS	7 feet	7,998 acre-feet
Calhoun	GCAS	5 feet	7,611 acre-feet
Colorado	Chicot/Evangeline	17 feet	71,665 acre-feet
	Jasper	25 feet	918 acre-feet
DeWitt	GCAS	17 feet	17,772 acre-feet
Fayette	GCAS	44 feet	8,590 acre-feet
Goliad	Chicot	4 feet	436 acre-feet
	Evangeline	2 feet	5,287 acre-feet
	Burkeville	7 feet	559 acre-feet
	Jasper	14 feet	690 acre-feet
Jackson	GCAS	15 feet	90,668 acre-feet
Karnes	GCAS	22 feet	22,801 acre-feet
Lavaca	GCAS	18 feet	18,941 acre-feet
Matagorda	Chicot/Evangeline	11 feet	26,218 acre-feet
Refugio	GCAS	5 feet	27,845 acre-feet
Victoria	GCAS	5 feet	118,597 acre-feet
Wharton	Chicot/Evangeline	15 feet	94,953 acre-feet

DFCs Generated from Current GAM with Differ GAMs

- 2021 DFC – Previous GAM (Chowdhury and others, 2004)
- 2023 – adopted GAM (Shi &
- Updated model – Dowlearn and Wade (being prepared)

* DFCs presented by TWDB to GMAs 15 & 16 on Oct 15, 2024



County	Aquifer	2021 DFC	2023 model	Updated model
GMA 15	Gulf Coast Aquifer System	13	0.76	4.45
Aransas	Gulf Coast Aquifer System	0	0.26	0.78
Bee	Gulf Coast Aquifer System	7	1.84	4.82
Calhoun	Gulf Coast Aquifer System	5	0.02	1.56
De Witt	Gulf Coast Aquifer System	17	3.2	7.88
Fayette	Gulf Coast Aquifer System	44	-1.34	-1.82
Jackson	Gulf Coast Aquifer System	15	0.3	4.42
Karnes	Gulf Coast Aquifer System	22	0.11	-0.14
Lavaca	Gulf Coast Aquifer System	18	2.14	4.59
Refugio	Gulf Coast Aquifer System	5	1.65	4.47
Victoria	Gulf Coast Aquifer System	5	2.41	6.38
Colorado	Chicot and Evangeline	17	-0.57	9.5
Colorado	Jasper	25	-0.91	7.35
Goliad	Chicot	4	2.41	3.76
Goliad	Evangeline	-2	2.04	3.03
Goliad	Burkeville	7	2	3.46
Goliad	Jasper	14	1.94	3.95
Matagorda	Chicot and Evangeline	11	-0.14	0.4
Wharton	Chicot and Evangeline	11	0.95	3.92

Possible Request for Changes to DFC, MAGs, and Explanatory Report

- DFCs
 - Final metric
 - Consideration of nine factors
 - Balance Test
- MAGs
 - Final values
 - TWDB Process
- Explanatory Report
 - Response to Comments
 - Documentation of Process

4th Round: Establish Assumptions and Approaches

GMA Consultant

- Guided by Contract Scope & Terms
- Suggest Metric Options
 - Pros/cons
 - Recommendations based on
 - Model limitations
 - Monitoring networks/capabilities
- Facilitate Discussions Regarding TWC Requirements
- Suggest Modeling Approach(es)
- Prepare Draft ER and Associated Files/Documents

Member Districts

- Identify emphasis on Updated GAM review
- Finalize Predictive Pumping
- Select DFC Metric(s)
- Consider 9 Factors per TWC 36.108(d)
- Set Schedule
- Propose, Adopt, and Submit DFCs by Statutory Deadlines

4th Round: Possible Activities

- Desired Future Conditions
 - Average Drawdown Metric
 - Brackish GW or Aquifer Storage and Recovery Projects
 - Possible future pumping/water supply projects
 - How to meet the TWC 16§ 36.108(d-2) “balance test”
- Considerations
 - TWC 16§ 36.108(d-2) “balance test”
 - TWC 16§ 36.108(d) “consideration of 9 factors”
 - Approach to model simulations
- Meetings
 - Frequency
 - Virtual option
- Updated GAM
 - Evaluation to Field Data
 - Evaluation of 3rd Round GAM, 2023 GAM and Updated GAM
- Explanatory report
 - Information on GMA 15 Web Page
 - Variances to 3rd Round GAM Predictions
 - Response to comments

4th Round: Establish Pumping Scenarios & Pumping Distributions

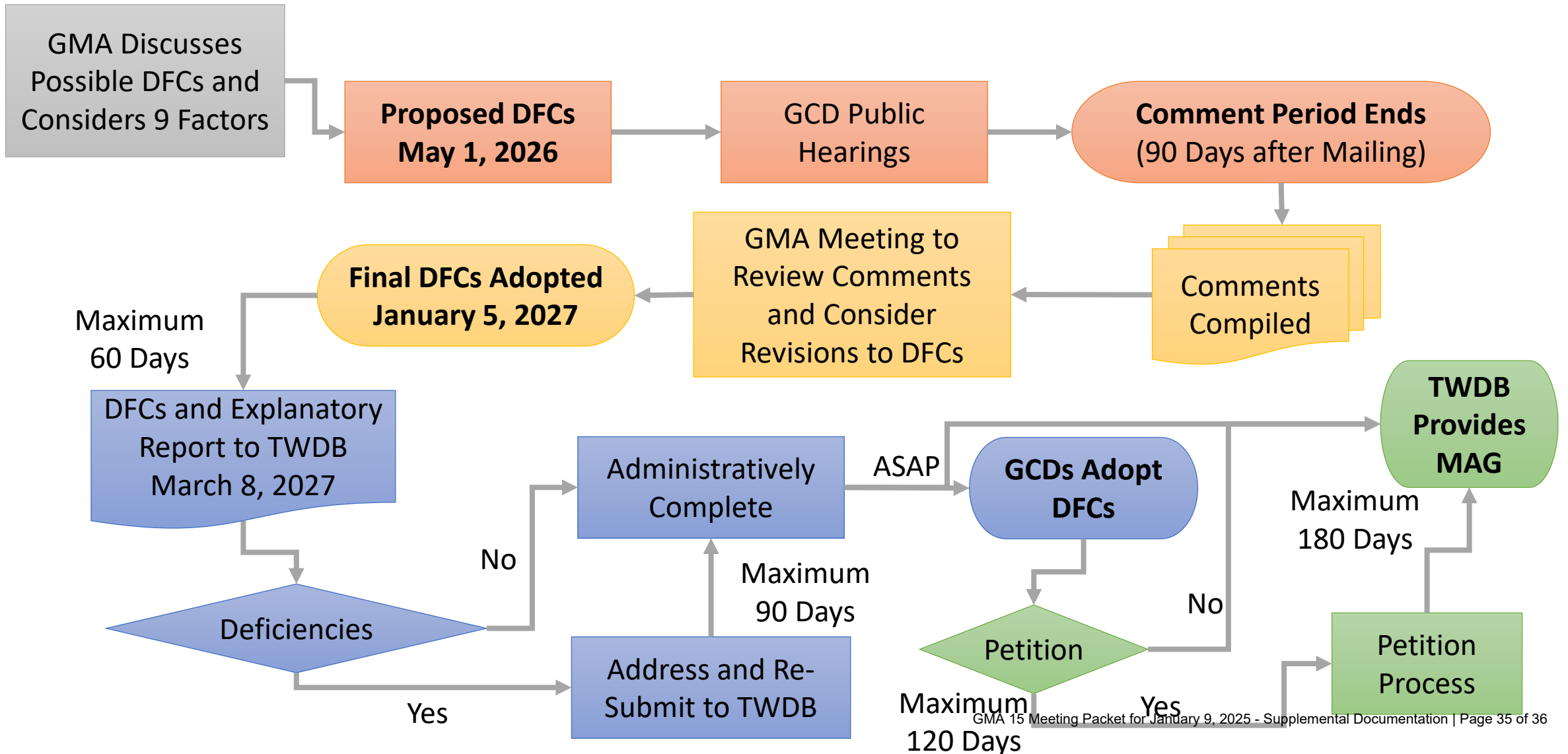
3rd Round Joint Planning

- 3 Scenarios
 - 1: Constant pumping at target MAG
 - 2: Ramped up pumping from 2016 value to target MAG
 - 3: Adding pumping to 1 & 2 based on possible and/or theoretical well fields
- 2 versions of each scenario
 - 1: Same distribution as 2nd round MAG
 - 2: Distribution based on well location revisions for 2000 through 2016
- Results presented as average drawdown from 1999 and 2016
- Adopted scenario was constant pumping at the 2nd round MAG distribution

INTERA Contract

- INTERA will work with GMA 15 to develop pumping distributions using protocols and methods that we implemented for GMA 15 during the last planning cycle.
- Model runs that involve using multiplication factors for pumping will not be considered as a new pumping file.
- To generate a new pumping file with different well locations, each GCD member will be responsible for providing a Microsoft Excel (spreadsheet) file that assigns the pumping rate and schedule to a specific node in the updated GAM.

4th Round: Joint Planning & DFC Deadlines



GMA 15 Proposed Schedule

	2025												2026												2027
Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
GCDs Discuss Management Priorities/Approaches	█																								
Review and Comment on Updated GAM		█	█	█																					
Simulations and Potential DFCs	█	█	Meet	█																					
Discuss 9 Factors					#s 1,2,3		#s 4,5,6		#s 7,8,9			Rev. All													
Draft Explanatory Report				█		█		█		█				█	█	█									
Propose DFCs																Meet	5/1								
GCD Hearings on Proposed DFCs																	█	█	█	█	█				
Review Comments and Adopt DFCs																						█	Meet		1/5
Submit to TWDB																								█	

"9 Factors"

1. Aquifer Uses or Conditions

2. Supply Needs and Management Strategies

3. Hydrological Conditions

4. Environmental Impacts

5. Subsidence Impacts

6. Socioeconomic Impacts

7. Private Property Rights

8. DFC Feasibility

9. Other Relevant Information