

Groundwater Management Plan

Pecos County

Prepared by:

**Middle Pecos
Groundwater Conservation District
Fort Stockton, Texas**

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General Manager

July 16, 2020 (Final Approved Plan)

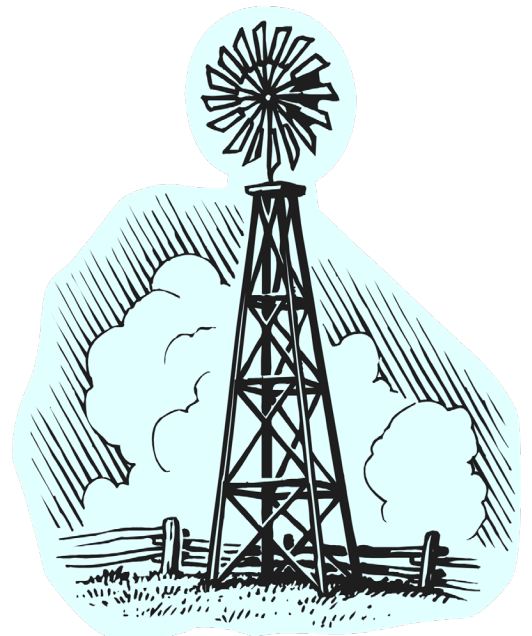


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Middle Pecos Groundwater Conservation District Groundwater Management Plan

July 16, 2020 (Final Approved Plan)

1.0 District Mission

The Middle Pecos Groundwater Conservation District (the District) is committed to manage and protect the groundwater resources of The District. The District was created to help maintain a sustainable, adequate, reliable, cost effective and high-quality source of groundwater to promote the vitality, economy, and environment of the District. The District will work with and for the citizens of the District and cooperate with other local, regional, and State agencies involved in the study and management of groundwater resources.

2.0 Purpose of Management Plan

In 1997 the 75th Texas Legislature established a statewide comprehensive regional water planning initiative with the enactment of Senate Bill 1 (SB1). Among the provisions of SB1 were amendments to Chapter 36 of the Texas Water Code requiring groundwater conservation districts to develop a groundwater management plan that shall be submitted to the Texas Water Development Board (TWDB) for approval. The groundwater management plan was specified to contain estimates on the availability of groundwater in the district, details of how the district would manage groundwater, and management goals for the district. In 2001 the 77th Texas Legislature further clarified the water planning and management provisions of SB1 with the enactment of Senate Bill 2 (SB2).

The requirements of the Chapter 36 Texas Water Code provisions for groundwater management plan development are specified in 31 Texas Administrative Code Chapter 356 of the TWDB Rules. This plan fulfills all requirements for groundwater management plans in SB1, SB2, Chapter 36 Texas Water Code, and TWDB rules.

3.0 Time Period of Management Plan

This plan shall be in effect for a period of five years from the date of approval by TWDB, unless a new or amended management plan is adopted by the District Board of Directors and approved by TWDB. The management plan will be readopted with or without changes by the District Board and submitted to TWDB for approval at least every five years.

4.0 Middle Pecos Groundwater Conservation District

The District was created in 1999. The creation of the District is recorded in Chapter 1331 of the Acts of the 76th Texas Legislature (SB 1911). This act enabled the District to function in a limited capacity until the creation of the District was fully validated in the 77th Legislature. The validation

of the District is recorded in Chapter 1299 of the Acts of the 77th Texas Legislature (HB 1258). The District was confirmed by local election held in Pecos County on November 5, 2002.

The District boundaries are coterminous with the boundaries of Pecos County, Texas. The District is bounded by Reeves, Ward, Crane, Crockett, Terrell, Brewster, and Jeff Davis counties. As of the plan date, groundwater conservation districts (GCDs) that bound the District are in Reeves, Jeff Davis, Brewster, and Crockett Counties. The GCDs neighboring the District are Brewster County GCD, Jeff Davis County Underground Water Conservation District (UWCD), Terrell County GCD, and Crockett County GCD.

Most of the District is in Groundwater Management Area (GMA) 7, with the northern part of the District in GMA 3. Chapter 36 of the Texas Water Code authorizes the District to co-ordinate its management of groundwater with other GCDs in both GMA 7 and GMA 3. GMA 3 consists of Middle Pecos GCD and Reeves County GCD. The other GCDs that are located in GMA 7 are: Crockett County GCD, Santa Rita UWCD (Reagan), Irion County Water Conservation District (WCD), Glasscock GCD, Sterling County UWCD, Lone Wolf GCD (Mitchell), Terrell GCD, Wes-Tex GCD (Nolan), Coke County UWCD, Lipan-Kickapoo WCD (Tom Green, Concho, and Runnels), Hickory UWCD No. 1 (McCulloch, San Saba, and Mason), Menard County UWD, Hill Country UWCD (Gillespie), Kimble County GCD, Plateau Underground Water Conservation and Supply District (Schleicher), Sutton County UWCD, Real-Edwards Conservation and Reclamation District, Uvalde County UWCD, and Kinney County GCD.

The District Board of Directors is composed of eleven members elected to staggered four-year terms. Two directors are elected from each of the four county precincts, one director is elected at-large, one director is elected from the City of Iraan and one director is elected from the City of Fort Stockton. The Board of Directors holds regular meetings, at least quarterly. Meetings of the Board of Directors are public meetings noticed and held in accordance with public meeting requirements.

4.1 Authority of the District

The District derives its authority to manage groundwater use within the District by virtue of the powers granted and authorized in the District enabling act HB 1258 of the 77th Texas Legislature. The District, acting under authority of the enabling legislation, assumes all the rights and responsibilities of a groundwater conservation district specified in Chapter 36 of the Texas Water Code. The District has developed rules specifying the bounds of due process governing District actions.

4.2 Groundwater Resources of the District

There are six sources of groundwater recognized by TWDB in the District. Two of these sources; the Edwards-Trinity (Plateau) Aquifer and the Pecos Valley Aquifer are classified as major aquifers by TWDB. (Fig. 3) The other four sources of groundwater; the Rustler Aquifer, the Dockum Aquifer, the Igneous Aquifer and the Capitan Reef Complex Aquifer are classified as minor aquifers by TWDB. A major aquifer produces large amounts of water over larger areas and

a minor aquifer produces minor amounts of water over large areas or large amounts of water over small areas.

The groundwater sources in the District may produce both fresh and moderately saline (brackish) water. The geologic origins of the groundwater sources of the District cover a broad range of geologic time. Listed in ascending order by geologic age, these sources and their ages are: Rustler Formation and Capitan Reef Complex (Permian), Dockum aquifer (Triassic), Edwards-Trinity (Plateau) aquifer (Cretaceous), and Pecos Valley (Quaternary). The geologic age of the various sources of groundwater in the District and the geologic history of Pecos County have a bearing on the structure of the groundwater sources of the District and their relationships.

4.3 Management Zones

The District has established groundwater management zones in the principal areas of irrigation (or other groundwater demand) and pertinent surrounding areas of Pecos County, as described below:

- 1) The Leon-Belding Irrigation Area and the vicinity of the City of Fort Stockton to include the outlets of Comanche Springs.
- 2) The Bakersfield Irrigation Area.
- 3) The Coyanosa Irrigation Area.

A map that shows the boundaries of the management zones is presented in Figure 1. The District recognizes that groundwater use in the areas of principal groundwater demand in the District has the potential to result in localized aquifer draw down sufficient to possibly impair the DFCs of the aquifer in District as a whole (within each GMA). Please note that the management zone map is an updated version as compared to the current rules. An update to the rules to implement these management zone changes is expected in the next several weeks.

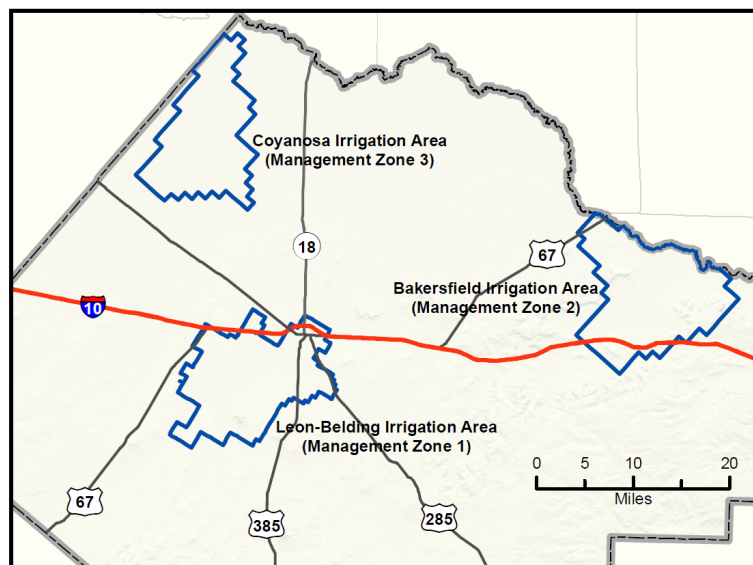


Figure 1. Groundwater Management Zones in MPGCD

5.0 Technical Information Required by Texas Administrative Code

The information in this section is provided pursuant to statutes and rules as summarized in the TWDB Groundwater Conservation District Management Plan Checklist, effective December 6, 2012. The information is organized according to the order in the checklist.

5.1 Estimate of the Modeled Available Groundwater in the District

Modeled available groundwater is defined in TWC §36.001 as “the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108.” The District is within the boundaries of two Groundwater Management Areas (GMAs): GMA 3 and GMA 7.

The Texas Water Development Board website has summaries of desired future conditions and modeled available groundwater estimates for each Groundwater Management Area, including tabulations for each groundwater conservation district in GMAs 3 and 7. These summaries are available at:

<http://www.twdb.texas.gov/groundwater/dfc/2016jointplanning.asp>

The desired future conditions for Middle Pecos Groundwater Conservation District are presented in Table 1. The modeled available groundwater estimates for Middle Pecos Groundwater Conservation District are presented in Table 2.

Table 1. Summary of Desired Future Conditions for MPGCD

Aquifer	Groundwater Management Area	Desired Future Condition (DFC)	Date DFC Adopted
Capitan Reef Complex	3	Total net drawdown not to exceed 4 feet in Pecos County (Middle Pecos GCD) in 2070 as compared with aquifer levels in 2006	10/20/2016
Capitan Reef Complex	7	Total net drawdown of the Capitan Reef Aquifer not to exceed 56 feet in Pecos County (Middle Pecos GCD) in 2070 as compared with 2006 aquifer levels.	3/23/2017
Dockum	3	Total net drawdown not to exceed 52 feet in 2070, as compared with aquifer levels in 2012	10/20/2016
Dockum	7	Total net drawdown of the Dockum Aquifer not to exceed 52 feet in Pecos County (Middle Pecos GCD) in 2070, as compared with 2012 aquifer levels.	9/22/2016
Edwards-Trinity (Plateau) and Pecos Valley	3	Total net drawdown not to exceed 14 feet in 2070, as compared with aquifer levels in 2010	10/20/2016, revised on 12/13/2017
Edwards-Trinity (Plateau) and Pecos Valley	7	Average drawdown not to exceed 14 feet of drawdown from 2010 to 2070	3/22/2018
Rustler	3	Total net drawdown not to exceed 69 feet in 2070, as compared with aquifer levels in 2009	10/20/2016
Rustler	7	Total net drawdown of the Rustler Aquifer in Pecos County (Middle Pecos GCD) in 2070 not to exceed 94 feet as compared with 2009 aquifer levels	9/22/2016

Table 2. Summary of Modeled Available Groundwater for MPGCD

Aquifer	Groundwater Management Area	Modeled Available Groundwater (AF/yr)						TWDB Report
		2020	2030	2040	2050	2060	2070	
Capitan Reef Complex	3	4	4	4	4	4	4	GR 16-027 MAG
Capitan Reef Complex	7	26,164	26,164	26,164	26,164	26,164	26,164	GR 16-026 MAG v.2.
Dockum	3	6,142	6,142	6,142	6,142	6,142	6,142	GR 16-027 MAG
Dockum	7	2,022	2,022	2,022	2,022	2,022	2,022	GR 16-026 MAG v.2.
Edwards-Trinity (Plateau) and Pecos Valley	3	122,899	122,899	122,899	122,899	122,899	122,899	GR 16-027 MAG
Edwards-Trinity (Plateau) and Pecos Valley	7	117,309	117,309	117,309	117,309	117,309	117,309	GR 16-026 MAG v.2.
Rustler	3	3	3	3	3	3	3	GR 16-027 MAG
Rustler	7	7,040	7,040	7,040	7,040	7,040	7,040	GR 16-026 MAG v.2.

5.2 Estimate of the Amount of Groundwater Being Used within the District on an Annual Basis

Please refer to Appendix A: Estimated Historical Water Use and 2017 State Water Plan Datasets: Middle Pecos Groundwater Conservation District.

5.3 Estimate of the Annual Amount of Recharge from Precipitation

Please refer to Appendix B: GAM Run 19-021: Middle Pecos Groundwater Conservation District Management Plan, dated February 18, 2020.

5.4 Estimate of the Annual Volume of Water That Discharges to Springs and Surface Water Bodies

Please refer to Appendix B: GAM Run 19-021: Middle Pecos Groundwater Conservation District Management Plan, dated February 18, 2020.

5.5 Estimate of the Annual Volume of flow into the District, out of the District, and between Aquifers

Please refer to Appendix B: GAM Run 19-021: Middle Pecos Groundwater Conservation District Management Plan, dated February 18, 2020.

5.6 Estimate of the Projected Surface Water Supply within the District

Please refer to Appendix A: Estimated Historical Water Use and 2017 State Water Plan Datasets: Middle Pecos Groundwater Conservation District.

5.7 Estimate of the Projected Total Demand for Water within the District

Please refer to Appendix A: Estimated Historical Water Use and 2017 State Water Plan Datasets: Middle Pecos Groundwater Conservation District.

5.8 Water Supply Needs

Please refer to Appendix A: Estimated Historical Water Use and 2017 State Water Plan Datasets: Middle Pecos Groundwater Conservation District. There are no water supply needs for the District.

5.9 Water Management Strategies

Please refer to Appendix A: Estimated Historical Water Use and 2017 State Water Plan Datasets: Middle Pecos Groundwater Conservation District.

Page 7 of Appendix A includes five specific water conservation strategies (i.e. demand reduction strategies), one weather modification strategy that will yield additional 264 AF/yr of supply, and one groundwater development project that would yield an additional 250 AF/yr of supply for Pecos County WCID #1.

These specific water management strategies were considered and included in the overall preparation of this management plan.

5.10 How the District Will Manage Groundwater Supplies

The Texas Legislature established that groundwater conservation districts are the preferred method of groundwater management in Section 36.0015 of the Texas Water Code. The District will cooperate with the other Groundwater Conservation Districts in the Groundwater Management Areas which Pecos County is located.

The District will manage the supply of groundwater within the District to conserve the resource while seeking to maintain the economic viability of all resource user groups, public and private. The District seeks to manage the groundwater resources of the District as practicably as possible in a sustainable manner through the development of the Desired Future Conditions of Aquifers within the District.

The District will protect the existing and historical use of groundwater that occurred in the District prior to the effective date of the rules establishing the claims process. To obtain a historic use permit, an existing or historic user had to prove the maximum annual amount of groundwater that the user put towards a beneficial use during an existing and historic use period established in the District rules. The protection extended to historic use permit holders is achieved by imposing more restrictive permit conditions on new permit applications. In extending this protection to historic use permit holders the District established limitations that:

- a) Apply to all subsequent new applications for the permitted use of groundwater and applications for the increased use of groundwater by holders of historic user permits regardless of the type or location of use
- b) Bear a reasonable relationship to the District's management plan
- c) Are reasonably necessary to protect existing use and maintain established Desired Future Conditions of aquifers, aquifer subdivisions or management established by the District.

In consideration of the economic and cultural activities occurring within the District, the District will identify and engage in such activities and practices, that if implemented may result in the conservation of groundwater in the District. The District will manage groundwater resources through rules developed and implemented in accordance with Chapter 36 of the Texas Water Code and the provisions of the District Enabling Act recorded in Chapter 1299 of the Acts of the 77th Texas Legislature (HB 1258).

The District will require that any well that is constructed as an exempt well under activities regulated by the Texas Railroad Commission (TRC) and later converted to another use not

regulated by the TRC will be required to seek a permit for the use of groundwater in the District if the converted use of the well is otherwise not exempted from permitting under the Texas Water Code or Rules of the District.

In each Management Zone, the District seeks to avoid impairment of the adopted DFCs for the District as a whole (within the portions of the District in each of GMAs 3 and 7) by establishing benchmarks of sustainable groundwater use over time in the District Rules. The assessment of the change in average draw-down values over time will be indexed to year 2010 water levels to be consistent with the adopted DFCs of the Edwards-Trinity (Plateau) and Pecos Valley aquifers. By managing the change in aquifer water levels over time in the management zones, the District can provide for the sustainability of the aquifers and avoid impairment of the aquifer DFCs established by the GMAs.

An example of this management activity is when special permit conditions were adopted in Management Zone 1. The thresholds were established based on avoiding groundwater elevations dropping below historic minima. This will be accomplished by routine monitoring of groundwater elevations in 11 wells and requiring non-historic use pumping reductions if certain thresholds are exceeded (i.e. groundwater elevations drop below the threshold value set for each well). When developing the thresholds, a comparison was made to evaluate the consistency with the adopted desired future condition. Figure 2 shows the results of the comparison.

Please note that the blue data points represent the groundwater elevation where pumping cutbacks begin for each well. The red dots represent the groundwater elevation where a shut-down in non-historic groundwater pumping would be required, thus providing an opportunity for groundwater elevation recovery. The black line represents one-to-one line between the DFC depth to water at each well and the threshold depth to water in each well. The data points generally fall just above or just below the black line demonstrating that the thresholds are consistent with the DFC.

The District may employ technical resources at its disposal, as needed, to evaluate the resources available within the District and to determine the effectiveness of regulatory or conservation measures. In consideration of individual, localized or District-wide conditions the District may allow the production in a management zone to exceed the sustainable amount for a period considered necessary by the District. The exercise of this discretion by the District shall not be construed as limiting the authority of the District in any other matter. A public or private user may appeal to the Board for discretion in enforcement of the provisions of a reduction in the permitted use of groundwater on grounds of adverse economic hardship or unique local conditions. The exercise of said discretion by the Board shall not be construed as limiting the power of the Board.

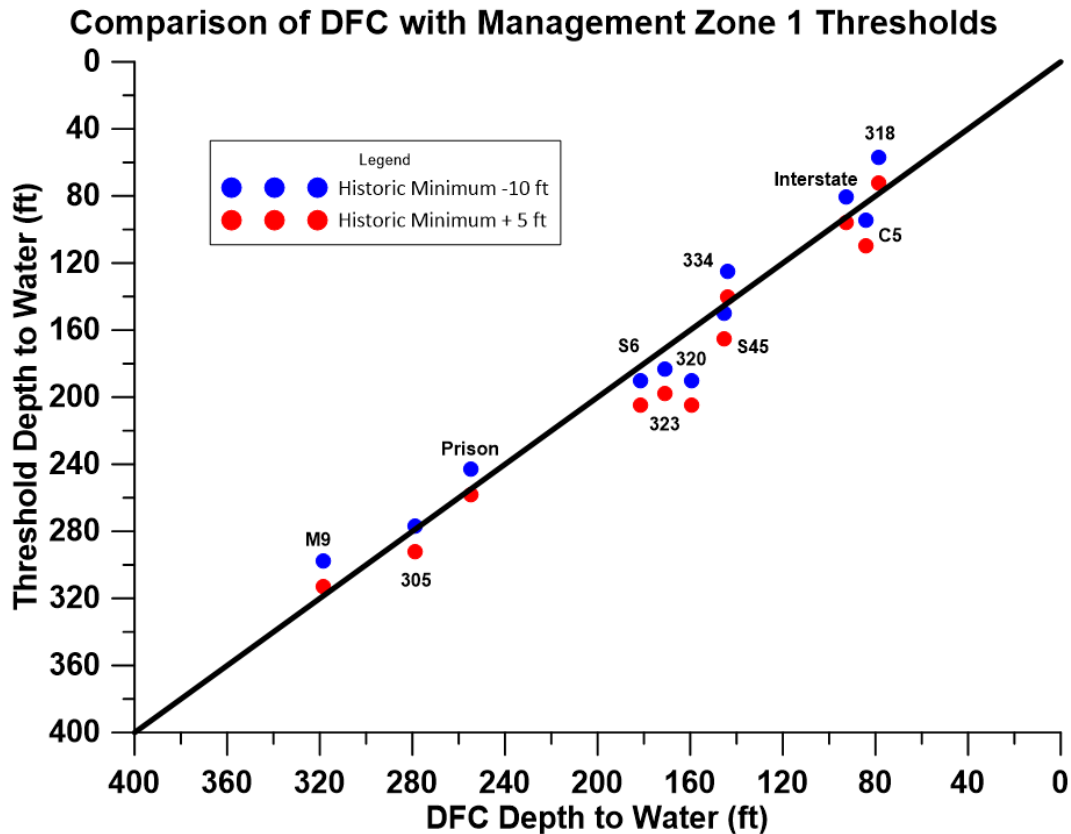


Figure 2. Comparison of DFC with Management Zone 1 Thresholds

5.11 Actions, Procedures, Performance, and Avoidance Necessary to Effectuate the Management Plan

The District will implement the goals and provisions of this Management Plan and will utilize the objectives of this Management Plan as a guideline in its decision-making to be consistent with the provisions of this plan.

The District has adopted rules, in accordance with Chapter 36 of the Texas Water Code, that implement the Management Plan. The current version of the rules is dated June 19, 2018, and is attached as Appendix C. The rules are also available at:

<https://www.middlepecosgcd.org/pdf/rules/2018/MPGCD%20Rules%20adopted%20June%202019%202018.pdf? t=1536326104>

All rules will be followed and enforced. The District will amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code and to ensure the best management of the groundwater within the District. The development and enforcement of the rules of the District will be based on the best scientific and technical evidence available to the District. If, at

any point, it appears the District will not be able to achieve the adopted Desired Future Conditions the Board of Directors will amend the rules as necessary to ensure the Desired Future Conditions will be achieved.

The District may deny a well construction permit or limit groundwater withdrawals in accordance with the guidelines stated in the rules of the District. In making a determination to deny a permit or reduce the amount of groundwater withdrawals authorized in an existing permit, the District will weigh the public benefit in managing the aquifer to be derived from the denial of a groundwater withdrawal permit or the reduction of the amount of authorized groundwater withdrawals against the individual hardship imposed by the permit denial or authorization reduction.

The relevant factors to be considered in deciding to deny a permit or limit groundwater withdrawals may include:

- The rules of the District
- The distribution of groundwater resources in the aquifers or aquifer subdivisions of the District or any management zones established by the District
- The economic hardship resulting from grant or denial of a permit or the terms prescribed by the permit

In pursuit of the District's mission of protecting the resource, the District may require reduction of groundwater withdrawals. To achieve this purpose, the District may, at the Board's discretion amend or revoke any permits after notice and hearing. The determination to seek the amendment, reduction, or revocation of a permit by the District will be based on aquifer conditions observed by the District. The District will, when necessary, enforce the terms and conditions of permits and the rules of the District by enjoining the permit holder in a court of competent jurisdiction as provided for in Texas Water Code Chapter 36.102.

The District will establish rules for the proportional reduction of the permitted use of groundwater in the District that will recognize the following priorities of use:

- Exempt users with consideration to livestock and domestic use
- Holders of historic use of groundwater permits
- Holders of non-historic groundwater use permits

The General Manager of the District will prepare and submit an annual report (Annual Report) to the District Board of Directors. The Annual Report will include an update on the District's performance in achieving the management goals contained in this plan. The general manager will present the Annual Report to the Board of Directors within one hundred twenty (120) days following the completion of the District's Fiscal Year, currently the District fiscal year ends on September 30 of each calendar year. A copy of the annual audit of District financial records will be included in the Annual Report. The District will maintain a copy of the Annual Report on file for public inspection at the District offices, upon adoption by the Board of Directors.

5.12 Evidence that the Plan was Adopted after Notice and Hearing

The notice for the public hearing was posted with the Pecos County Clerk on June 29, 2020, and the management plan was posted on the District's website on June 30, 2020. The public hearing was held at the Middle Pecos Groundwater Conservation District during the regular Board meeting on July 14, 2020. There were no comments during the public hearing. The Board approved the plan on July 14, 2020 after the close of the public hearing.

Please refer to Appendix D for copies of the notice, agenda, and Board resolution for the public hearing.

5.13 Evidence that District Coordinated with Regional Surface Water Management Entities Following Notice and Hearing

Please refer to Appendix E.

5.14 Site-Specific Information

Not Applicable

6.0 Management Goals

6.1 Providing for the Most Efficient Use of Groundwater in the District

Objective – Each year, the District will require all new exempt or permitted wells that are constructed within the boundaries of the District to be registered with the District in accordance with the District rules.

Performance Standard – Each Year the number of exempt and permitted wells registered by the District for the year will be incorporated into the Annual Report submitted to the Board of Directors of the District.

6.2 Controlling and Preventing the Waste of Groundwater in the District

Objective – Each year, the District will provide information to the public on eliminating and reducing wasteful practices in the use of groundwater either by a page on groundwater waste reduction or a link to information on groundwater waste reduction on the District's website or by providing an article on eliminating and reducing wasteful practices to a newspaper of general circulation in the District for potential publication.

Performance Standard – Submit an article annually regarding the elimination of wasteful practices to a local publication for distribution in Pecos County. A copy of the information provided on groundwater waste reduction will be included in the District’s Annual Report to be given to the District Board of Directors.

6.3. Controlling and Preventing Subsidence

The subsidence tool developed by the Texas Water Development Board was used to assess the potential for subsidence in the five aquifers in the District using the default values provided. The tool can be accessed at:

<http://www.twdb.texas.gov/groundwater/models/research/subsidence/subsidence.asp>

The tool provides a numeric total weighted risk factor that ranges from 0 (low risk) to 10 (high risk). The results of applying the default values from the tool yield the following scores:

- Capitan Reef Complex Aquifer: 2.66
- Dockum Aquifer: 3.75
- Edwards-Trinity (Plateau) Aquifer: 2.97
- Pecos Valley Aquifer: 5.78
- Rustler Aquifer: 3.59

Based on applying the tool, this management goal is not applicable to the District due to the low risk of subsidence in Pecos County.

6.4. Addressing Conjunctive Surface Water Management Issues

Objective – Each year, the District will participate in the regional planning process by being represented at the Region F Regional Water Planning Group meetings.

Performance Standard – The attendance of a District representative to at least 50 percent of the Region F Regional Water Planning Group meetings will be noted in the Annual Report presented to the District Board of Directors.

6.5 Addressing Natural Resource Issues That Affect the Use and Availability of Groundwater and which are Impacted by the Use of Groundwater

Objective – Each year the District will monitor the discharge of Comanche and related springs or acquire the monitoring data on spring discharge developed by others.

Performance Standard – Each year, a summary of the collected or gathered spring data will be included in the Annual Report submitted to the District Board of Directors.

Objective - By attending GMA 3 and GMA 7 meetings, there is the opportunity to participate in discussions, planning and education concerning the interrelationship of groundwater with other natural resource issues. The MPGCD designated representative will attend 50% of the GMA 3 and GMA 7 meetings annually.

Performance Standard - The minutes for all attended meetings of GMA 3 and GMA 7 will be maintained in the District for a period of three (3) years from their accepted date. A report of all attended meetings will be given to the Board at the regular meeting.

6.6 Addressing Drought Conditions

Objective – Each month, the District will download available drought information, for the District, from available websites on the internet such as (last accessed on June 4, 2020):

<https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?TX>

Performance Standard – Quarterly, the District will assess the status of drought in the District and prepare a briefing for the Board of Directors. The downloaded maps, reports, and information will be included with copies of the quarterly briefing in the District Annual Report to the Board of Directors.

6.7 Addressing Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, and Brush Control Where Cost Effective

6.7.1 Addressing Conservation

Objective – The District will submit an article annually, regarding water conservation for publication to at least one newspaper of general circulation in Pecos County.

Performance Standard – A copy of the article submitted by the District for publication to a newspaper of general circulation in Pecos County regarding water conservation will be included in the Annual Report to the Board of Directors.

6.7.2 Recharge Enhancement

This management goal is not applicable to the District due to lack of available surface water of acceptable quality and cost effectiveness.

6.7.3 Rainwater Harvesting

Objective – The District will post an article or a link to an article annually, regarding rainwater harvesting on the District website www.middlepecosgcd.org

Performance Standard – A copy of the article posted on the District website regarding rainwater harvesting will be included in the Annual Report to the Board of Directors.

6.7.4 Precipitation Enhancement

This management goal is not applicable to the District because of the generally low annual precipitation, and is considered not cost effective at this time.

6.7.5 Brush Control

This management goal is not applicable to the District because the objective is not cost effective due to the sparse nature of the vegetation in the District and the fact that much of the recharge to the District's aquifers are outside the boundaries of the District.

6.8 Addressing the Desired Future Conditions

Objective – The desired future conditions for the Captain Reef Complex, Dockum, Edwards-Trinity (Plateau), Pecos Valley Alluvium, and Rustler aquifers were adopted after the review of results from Groundwater Availability Model simulations. The model results include cell-by-cell estimates of groundwater elevations and drawdown for each year of the predictive period (through 2070). To assess the desired future condition in the District, these model results are compared annually to groundwater monitoring data that are available from the TWDB groundwater database.

Performance Standard – Each year, the District will download groundwater data from Pecos County from the Texas Water Development Board groundwater database. The comparison of model results will be on a well-by-well basis for data that are available. The data downloaded from the database will be compared to model results each year and presented at a regular Board meeting in the form of tables and graphs as appropriate. These comparisons will be supplemented by data and information related to drought conditions and permitted pumping data. An example of the analysis completed in 2020 is provided in Appendix F.

Appendix A

Estimated Historical Water Use and 2017 State Water Plan Datasets: Middle Pecos Groundwater Conservation District

Estimated Historical Water Use And 2017 State Water Plan Datasets:

Middle Pecos Groundwater Conservation District

by Stephen Allen
Texas Water Development Board
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Groundwater Technical Assistance Section
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(512) 463-7317
April 14, 2020

GROUNDWATER MANAGEMENT PLAN DATA:

This package of water data reports (part 1 of a 2-part package of information) is being provided to groundwater conservation districts to help them meet the requirements for approval of their five-year groundwater management plan. Each report in the package addresses a specific numbered requirement in the Texas Water Development Board's groundwater management plan checklist. The checklist can be viewed and downloaded from this web address:

<http://www.twdb.texas.gov/groundwater/docs/GCD/GMPChecklist0113.pdf>

The five reports included in this part are:

1. Estimated Historical Water Use (checklist item 2)
from the TWDB Historical Water Use Survey (WUS)
2. Projected Surface Water Supplies (checklist item 6)
3. Projected Water Demands (checklist item 7)
4. Projected Water Supply Needs (checklist item 8)
5. Projected Water Management Strategies (checklist item 9)
from the 2017 Texas State Water Plan (SWP)

Part 2 of the 2-part package is the groundwater availability model (GAM) report for the District (checklist items 3 through 5). The District should have received, or will receive, this report from the Groundwater Availability Modeling Section. Questions about the GAM can be directed to Dr. Shirley Wade, shirley.wade@twdb.texas.gov, (512) 936-0883.

DISCLAIMER:

The data presented in this report represents the most up-to-date WUS and 2017 SWP data available as of 4/14/2020. Although it does not happen frequently, either of these datasets are subject to change pending the availability of more accurate WUS data or an amendment to the 2017 SWP. District personnel must review these datasets and correct any discrepancies in order to ensure approval of their groundwater management plan.

The WUS dataset can be verified at this web address:

<http://www.twdb.texas.gov/waterplanning/waterusesurvey/estimates/>

The 2017 SWP dataset can be verified by contacting Sabrina Anderson (sabrina.anderson@twdb.texas.gov or 512-936-0886).

For additional questions regarding this data, please contact Stephen Allen (stephen.allen@twdb.texas.gov or 512-463-7317).

Estimated Historical Water Use

TWDB Historical Water Use Survey (WUS) Data

Groundwater and surface water historical use estimates are currently unavailable for calendar year 2018. TWDB staff anticipates the calculation and posting of these estimates at a later date.

PECOS COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2017	GW	5,268	88	1,003	0	137,334	531	144,224
	SW	0	0	0	0	3,146	28	3,174
2016	GW	5,217	221	247	0	147,893	599	154,177
	SW	0	0	0	0	3,910	32	3,942
2015	GW	5,294	142	189	0	151,876	595	158,096
	SW	0	0	0	0	2,972	31	3,003
2014	GW	5,173	133	89	0	159,501	643	165,539
	SW	0	0	0	0	0	34	34
2013	GW	5,635	137	52	0	139,488	601	145,913
	SW	0	0	0	0	0	32	32
2012	GW	4,174	252	5	0	110,247	619	115,297
	SW	0	0	0	0	0	33	33
2011	GW	6,421	244	2	0	125,090	694	132,451
	SW	0	0	0	0	55,000	37	55,037
2010	GW	4,771	247	182	0	122,675	703	128,578
	SW	0	0	57	0	3,358	37	3,452
2009	GW	4,902	211	263	0	90,845	714	96,935
	SW	0	0	81	0	1,345	38	1,464
2008	GW	5,229	239	342	0	56,914	774	63,498
	SW	0	0	105	0	0	41	146
2007	GW	4,565	231	5	0	54,562	688	60,051
	SW	0	0	0	0	3,348	37	3,385
2006	GW	4,649	184	5	0	61,906	886	67,630
	SW	0	0	0	0	7,150	47	7,197
2005	GW	4,406	195	5	0	41,404	792	46,802
	SW	0	0	0	0	5,199	42	5,241
2004	GW	4,361	178	5	0	42,478	746	47,768
	SW	0	0	0	0	191	39	230
2003	GW	4,818	142	6	0	37,644	743	43,353
	SW	0	0	0	0	0	39	39
2002	GW	4,334	142	7	0	61,255	867	66,605
	SW	0	0	0	0	1,250	46	1,296

Projected Surface Water Supplies

TWDB 2017 State Water Plan Data

PECOS COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
F	IRRIGATION, PECOS	RIO GRANDE	RED BLUFF LAKE/RESERVOIR	1,558	1,559	1,560	1,561	1,562	1,563
F	IRRIGATION, PECOS	RIO GRANDE	RIO GRANDE RUN-OF-RIVER	4,444	4,444	4,444	4,444	4,444	4,444
F	LIVESTOCK, PECOS	RIO GRANDE	RIO GRANDE LIVESTOCK LOCAL SUPPLY	52	52	52	52	52	52
Sum of Projected Surface Water Supplies (acre-feet)				6,054	6,055	6,056	6,057	6,058	6,059

Projected Water Demands

TWDB 2017 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

PECOS COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
F	COUNTY-OTHER, PECOS	RIO GRANDE	415	427	453	478	501	522
F	FORT STOCKTON	RIO GRANDE	4,910	5,230	5,548	5,853	6,138	6,398
F	IRAAN	RIO GRANDE	459	486	513	541	567	591
F	IRRIGATION, PECOS	RIO GRANDE	126,023	126,023	126,023	126,023	126,023	126,023
F	LIVESTOCK, PECOS	RIO GRANDE	932	932	932	932	932	932
F	MANUFACTURING, PECOS	RIO GRANDE	103	103	103	103	103	103
F	MINING, PECOS	RIO GRANDE	690	1,068	1,072	861	672	524
F	PECOS COUNTY WCID #1	RIO GRANDE	439	456	475	496	519	540
Sum of Projected Water Demands (acre-feet)			133,971	134,725	135,119	135,287	135,455	135,633

Projected Water Supply Needs

TWDB 2017 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

PECOS COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
F	COUNTY-OTHER, PECOS	RIO GRANDE	0	0	0	0	0	0
F	FORT STOCKTON	RIO GRANDE	0	0	0	0	0	0
F	IRAAN	RIO GRANDE	0	0	0	0	0	0
F	IRRIGATION, PECOS	RIO GRANDE	5	6	7	8	9	10
F	LIVESTOCK, PECOS	RIO GRANDE	0	0	0	0	0	0
F	MANUFACTURING, PECOS	RIO GRANDE	0	0	0	0	0	0
F	MINING, PECOS	RIO GRANDE	0	0	0	0	0	0
F	PECOS COUNTY WCID #1	RIO GRANDE	0	0	0	0	0	0
Sum of Projected Water Supply Needs (acre-feet)			0	0	0	0	0	0

Projected Water Management Strategies

TWDB 2017 State Water Plan Data

PECOS COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
FORT STOCKTON, RIO GRANDE (F)							
MUNICIPAL CONSERVATION - FORT STOCKTON	DEMAND REDUCTION [PECOS]	50	53	57	60	63	66
		50	53	57	60	63	66
IRAAN, RIO GRANDE (F)							
MUNICIPAL CONSERVATION - IRAAN	DEMAND REDUCTION [PECOS]	7	8	8	9	9	10
		7	8	8	9	9	10
IRRIGATION, PECOS, RIO GRANDE (F)							
IRRIGATION CONSERVATION - PECOS COUNTY	DEMAND REDUCTION [PECOS]	6,301	12,602	18,903	18,903	18,903	18,903
WEATHER MODIFICATION	WEATHER MODIFICATION [ATMOSPHERE]	264	264	264	264	264	264
		6,565	12,866	19,167	19,167	19,167	19,167
MINING, PECOS, RIO GRANDE (F)							
MINING CONSERVATION - PECOS COUNTY	DEMAND REDUCTION [PECOS]	48	75	75	60	47	37
		48	75	75	60	47	37
PECOS COUNTY WCID #1, RIO GRANDE (F)							
DEVELOP ADDITIONAL EDWARDS-TRINITY PLATEAU AQUIFER SUPPLIES - PECOS COUNTY WCID #1	EDWARDS-TRINITY-PLATEAU AQUIFER [PECOS]	250	250	250	250	250	250
MUNICIPAL CONSERVATION - PECOS WCID	DEMAND REDUCTION [PECOS]	19	20	22	23	24	25
		269	270	272	273	274	275
Sum of Projected Water Management Strategies (acre-feet)		6,939	13,272	19,579	19,569	19,560	19,555

Appendix B

GAM Run 19-021: Middle Pecos Groundwater Conservation District Management Plan

Mr. Ty Edwards, General Manager

February 18, 2020

Page 2

hydraulically connected units. In addition, GAM Run 19-021 includes results from the Groundwater Availability Model for the Capitan Reef Complex Aquifer and the Groundwater Availability Model for the High Plains Aquifer System to analyze the Dockum Aquifer. For your convenience, an electronic version of the GAM Run 19-021 report is available to download at <http://www.twdb.texas.gov/groundwater/docs/GAMruns/GR19-021.pdf>.

The groundwater management plan for the Middle Pecos Groundwater Conservation District should be adopted by the district on or before June 17, 2020 and submitted to the Executive Administrator of the TWDB on or before July 17, 2020. The current management plan for the Middle Pecos Groundwater Conservation District expires on September 15, 2020.

If you have any further questions or concerns about the model run, please feel free to contact Grayson Dowlearn of our Groundwater staff at (512) 475-1552 or Grayson.Dowlearn@twdb.texas.gov, or Cindy Ridgeway of our Groundwater staff at (512) 936-2386 or Cindy.Ridgeway@twdb.texas.gov.

Sincerely,



Jeff Walker
Executive Administrator

Enclosures

c w/o enc.: Cindy Ridgeway, P.G., Groundwater
Stephen Allen, P.G., Groundwater
Grayson Dowlearn, Groundwater

GAM RUN 19-021: MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

By Grayson Dowlearn
Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Department
(512) 475-1552
February 18, 2020



Cynthia K. Ridgeway

Cynthia K. Ridgeway is the manager of the Groundwater Availability Modeling Department and is responsible for the oversight of work performed by Grayson Dowlearn under her direct supervision. The seal appearing on this document was authorized by Cynthia K. Ridgeway, P.G. 471 on February 18, 2020.

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GAM RUN 19-021: MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

By Grayson Dowlearn
Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Department
(512) 475-1552
February 18, 2020

EXECUTIVE SUMMARY:

Texas State Water Code, Section 36.1071, Subsection (h) (Texas Water Code, 2011), states that, in developing its groundwater management plan, a groundwater conservation district shall use groundwater availability modeling information provided by the Executive Administrator of the Texas Water Development Board (TWDB) in conjunction with any available site-specific information provided by the district for review and comment to the Executive Administrator.

The TWDB provides data and information to the Middle Pecos Groundwater Conservation District in two parts. Part 1 is the Estimated Historical Water Use/State Water Plan dataset report, which will be provided to you separately by the TWDB Groundwater Technical Assistance Department. Please direct questions about the water data report to Mr. Stephen Allen at 512-463-7317 or stephen.allen@twdb.texas.gov. Part 2 is the required groundwater availability modeling information and this information includes:

1. the annual amount of recharge from precipitation, if any, to the groundwater resources within the district;
2. for each aquifer within the district, the annual volume of water that discharges from the aquifer to springs and any surface-water bodies, including lakes, streams, and rivers; and
3. the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The groundwater management plan for the Middle Pecos Groundwater Conservation District should be adopted by the district on or before June 17, 2020 and submitted to the executive administrator of the TWDB on or before July 17, 2020. The current management plan for the Middle Pecos Groundwater Conservation District expires on September 15, 2020.

We used four groundwater availability models to estimate the management plan information for the aquifers within the Middle Pecos Groundwater Conservation District. Information for the Pecos Valley and Edwards-Trinity (Plateau) aquifers is from version 1.01 of the groundwater availability model for the Edwards-Trinity (Plateau) and Pecos Valley aquifers (Anaya and Jones, 2009). Information for the Dockum Aquifer is from version 1.01 of the groundwater availability model for the High Plains aquifer system (Deeds and Jigmond, 2015 and Deeds and Hamlin, 2015). Information for the Rustler Aquifer is from version 1.01 of the groundwater availability model for the Rustler Aquifer (Ewing and others, 2012). Information for the Capitan Reef Complex Aquifer is from version 1.01 of the groundwater availability model for the Capitan Reef Complex Aquifer (Jones, 2016). While a small portion of the Igneous Aquifer underlies the district at the western tip of Pecos County, the model for the Igneous Aquifer does not extend into Pecos County. For more information concerning this aquifer, please contact Mr. Stephen Allen at 512-463-7317 or stephen.allen@twdb.texas.gov.

This report replaces the results of GAM Run 14-010 (Jones, 2014), as the approach used for analyzing model results has been since refined to more accurately delineate flows between hydraulically connected units and official aquifer boundaries. In addition, this analysis includes results from the groundwater availability model for the Capitan Reef Complex Aquifer and the groundwater availability model for the High Plains Aquifer System, both of which were released since the publication of GAM Run 14-010. Tables 1, 2, 3, 4, and 5 summarize the groundwater availability model data required by statute and Figures 1, 2, 3, 4, and 5 show the area of the models from which the values in the tables were extracted. If, after review of the figures, the Middle Pecos Groundwater Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the TWDB at your earliest convenience.

METHODS:

In accordance with the provisions of the Texas State Water Code, Section 36.1071, Subsection (h), the groundwater availability models mentioned above were used to estimate information for the Middle Pecos Groundwater Conservation District management plan. Water budgets were extracted for the Edwards-Trinity (Plateau) and Pecos Valley aquifers (1981-2000), Dockum Aquifer (1980-2012), Rustler Aquifer (1980-2008), and

Capitan Reef Complex Aquifer (1980-2005). We used ZONEBUDGET Version 3.01 (Harbaugh, 2009) to extract water budgets from the model results. The average annual water budget values for recharge, surface-water outflow, inflow to the district, outflow from the district, and the flow between aquifers within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

Capitan Reef Complex Aquifer

- We used version 1.01 of the groundwater availability model for the Capitan Reef Complex Aquifer. See Jones (2016) for assumptions and limitations of the groundwater availability model.
- The model has five active layers representing the Edwards-Trinity (Plateau) and Pecos Valley aquifers (Layer 1); Dockum Aquifer and Dewey Lake Formation (Layer 2); Rustler Aquifer (Layer 3); Artesia Group, Salado Formation, and Castile Formation (Layer 4); and Capitan Reef Complex Aquifer, Delaware Basin, and San Andres Formation (Layer 5).
- While the model for the Capitan Reef Complex Aquifer includes the Pecos Valley, Edwards-Trinity (Plateau), Dockum, and Rustler aquifers, the focus of the model run was to extract information for the Capitan Reef Complex Aquifer. Thus, model Layer 5 was used for the management plan analysis.
- Water budget terms were averaged for the period 1980 through 2005 (stress periods 50 through 75).
- The model was run with MODFLOW-2005 (Harbaugh, 2005).

Rustler Aquifer

- We used version 1.01 of the groundwater availability model for the Rustler Aquifer. See Ewing and others (2012) for assumptions and limitations of the groundwater availability model.
- The model has two active layers representing the Dewey Lake Formation and Dockum Aquifer (Layer 1) and the Rustler Aquifer (Layer 2). While the model for the Rustler Aquifer includes the Dockum Aquifer, the focus of the model run was to extract information for the Rustler Aquifer. Therefore, model Layer 2 was used for the management plan analysis.

- Water budget terms were averaged for the period 1980 through 2008 (stress periods 63 through 91).
- The model was run with MODFLOW-2000 (Harbaugh and Others, 2000).

Dockum Aquifer

- We used version 1.01 of the groundwater availability model for the High Plains Aquifer System. See Deeds and Jigmond (2015) for assumptions and limitations of the model for the High Plains Aquifer System.
- The groundwater availability model for the High Plains Aquifer System contains four layers representing the Ogallala Aquifer and the Pecos Valley Aquifer (Layer 1); the Rita Blanca Aquifer, the Edwards-Trinity (High Plains) Aquifer, and the Edwards-Trinity (Plateau) Aquifer (Layer 2); the upper Dockum Group (Layer 3); and the lower Dockum Group (Layer 4). Layers 3 and 4, representing the Dockum Aquifer, were analyzed together. While the Pecos Valley and Edwards-Trinity (Plateau) aquifers are included in this model, they were not the focus of the model. Therefore, we used version 1.01 of the groundwater availability model for the Edwards-Trinity (Plateau) and Pecos Valley aquifers for analyzing these aquifers.
- Water budget terms were averaged for the period 1980 through 2012 (stress periods 52 through 84).
- The model was run with MODFLOW-NWT (Niswonger and others, 2011).

Edwards-Trinity (Plateau) and Pecos Valley Aquifers

- We used version 1.01 of the groundwater availability model for the Edwards-Trinity (Plateau) and Pecos Valley aquifers. See Anaya and Jones (2009) for assumptions and limitations of the groundwater availability model for the Edwards-Trinity (Plateau) and Pecos Valley aquifers.
- The model for the Edwards-Trinity (Plateau) and Pecos Valley aquifers includes two active layers representing the Pecos Valley Aquifer and the Edwards Group and equivalent limestone hydrostratigraphic units (Layer 1) and the undifferentiated Trinity Group hydrostratigraphic units (Layer 2) in the district.
- A portion of the area underlying the district represents both the Pecos Valley and Edwards-Trinity (Plateau) aquifers within Layer 1 of the model. We assumed certain model cells are assigned to the Pecos Valley Aquifer and the remaining cells are assigned to the Edwards-Trinity (Plateau) Aquifer where this condition exists.

- Water budget terms were averaged for the period 1981 through 1999 (stress periods 2 through 21).
- The model was run with MODFLOW-96 (Harbaugh and McDonald, 1996).

RESULTS:

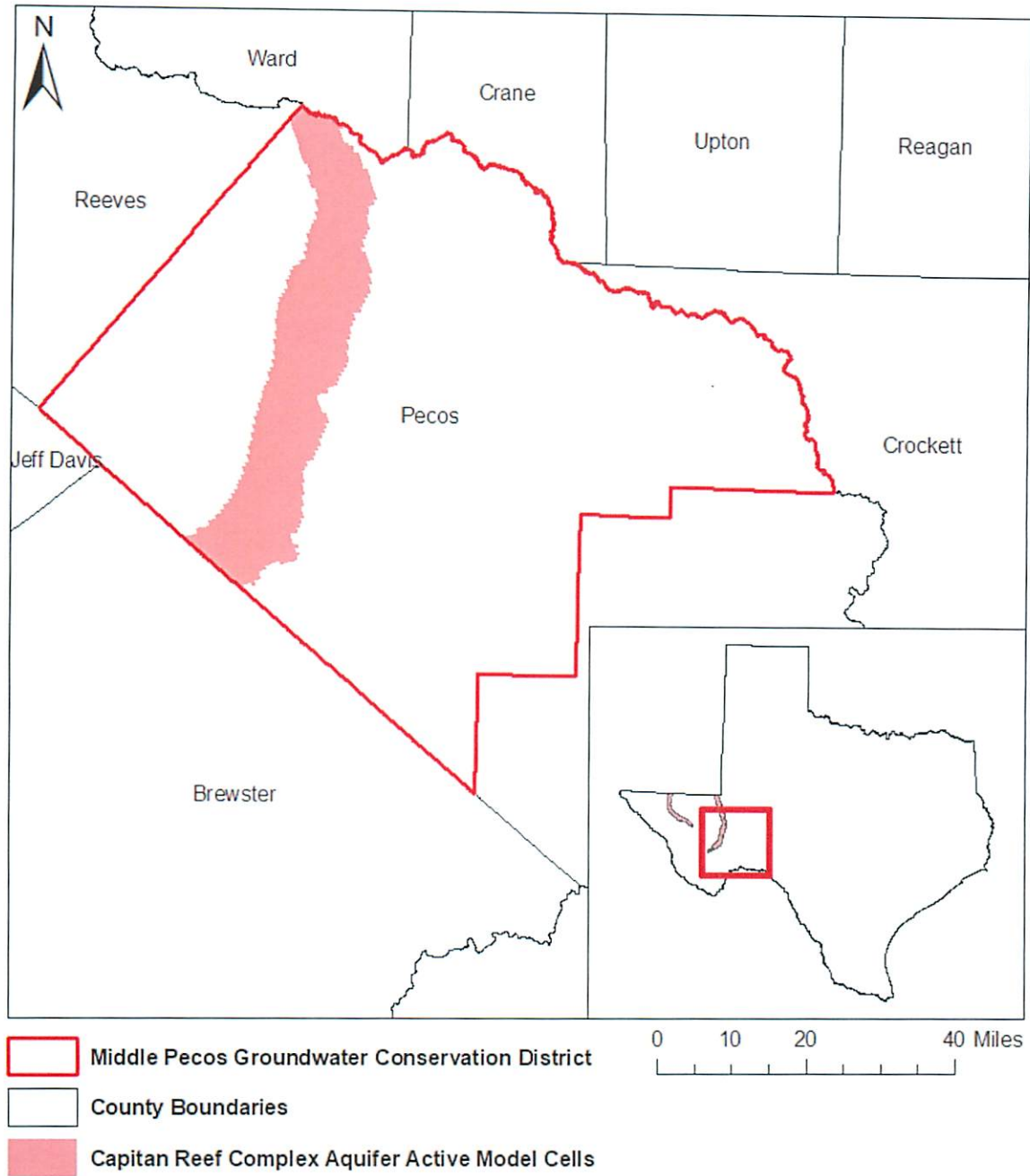
A groundwater budget summarizes the amount of water entering and leaving the aquifer according to the groundwater availability model. Selected groundwater budget components listed below were extracted from the model results for the aquifers located within the district and averaged over the historical calibration periods, as shown in Tables 1, 2, 3, 4 and 5.

1. Precipitation recharge—the areally distributed recharge sourced from precipitation falling on the outcrop areas of the aquifers (where the aquifer is exposed at land surface) within the district.
2. Surface-water outflow—the total water discharging from the aquifer (outflow) to surface-water features such as streams, reservoirs, and springs.
3. Flow into and out of district—the lateral flow within the aquifer between the district and adjacent counties.
4. Flow between aquifers—the net vertical flow between the aquifer and adjacent aquifers or confining units. This flow is controlled by the relative water levels in each aquifer and aquifer properties of each aquifer or confining unit that define the amount of leakage that occurs.

The information needed for the district’s management plan is summarized in Tables 1, 2, 3, 4 and 5. It is important to note that sub-regional water budgets are not exact. This is due to the size of the model cells and the approach used to extract data from the model. To avoid double accounting, a model cell that straddles a political boundary, such as a district or county boundary, is assigned to one side of the boundary based on the location of the centroid of the model cell. For example, if a cell contains two counties, the cell is assigned to the county where the centroid of the cell is located.

TABLE 1: SUMMARIZED INFORMATION FOR THE CAPITAN REEF COMPLEX AQUIFER THAT IS NEEDED FOR THE MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Capitan Reef Complex Aquifer	4,860
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers.	Capitan Reef Complex Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Capitan Reef Complex Aquifer	29,953
Estimated annual volume of flow out of the district within each aquifer in the district	Capitan Reef Complex Aquifer	2,823
Estimated net annual volume of flow between each aquifer in the district	From Capitan Reef Complex Aquifer to Artesia Group/Salado Formation/Castile Formation	23,463
	From Capitan Reef Complex Aquifer to Capitan Reef Complex and other units	9,085

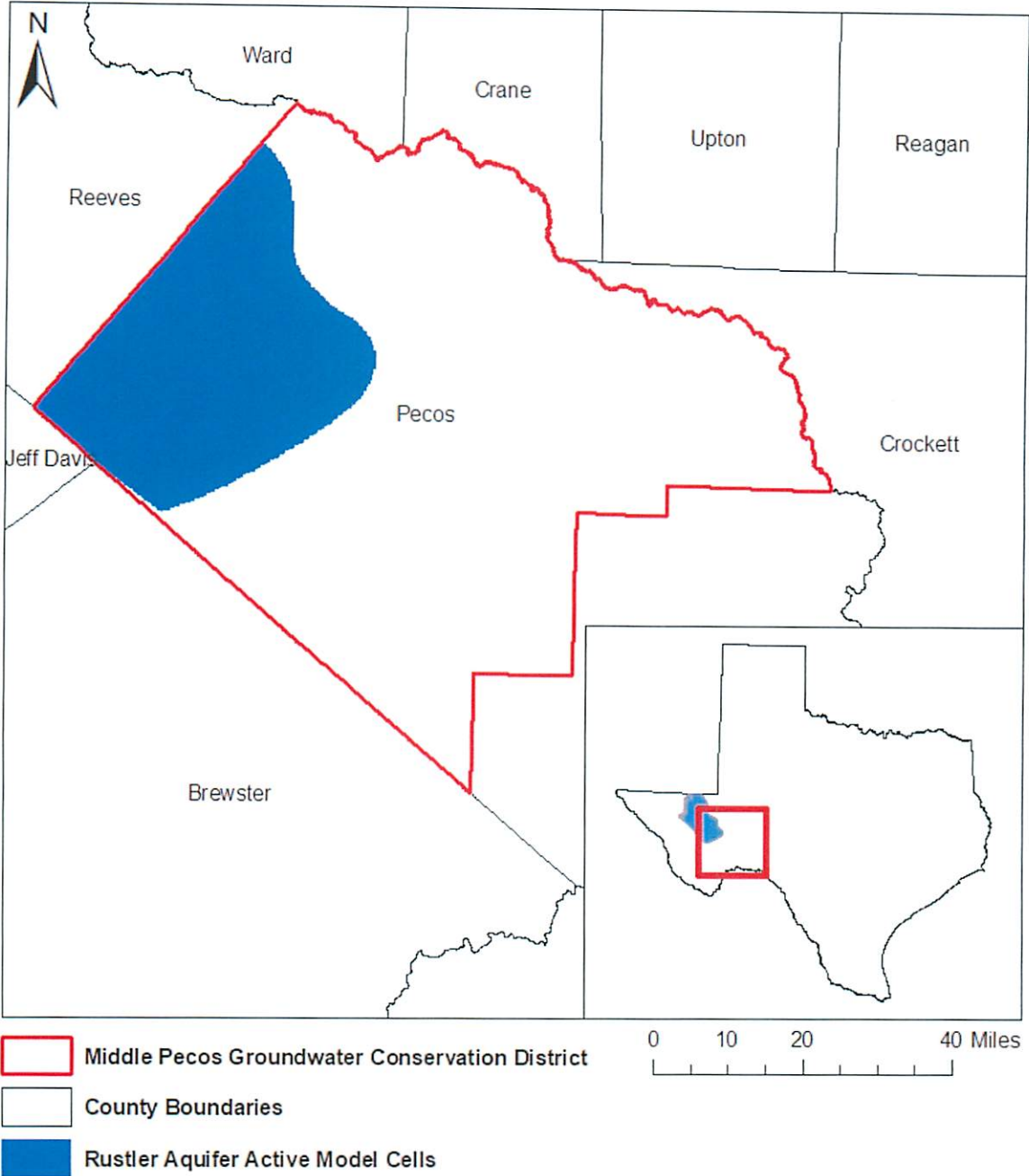


gcd boundary date = 07.03.19, county boundary date = 07.03.19, hpas model grid date = 01.06.20

FIGURE 1: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE CAPITAN REEF COMPLEX AQUIFER FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE CAPITAN REEF COMPLEX AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 2: SUMMARIZED INFORMATION FOR THE RUSTLER AQUIFER THAT IS NEEDED FOR THE MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Rustler Aquifer	0
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers.	Rustler Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Rustler Aquifer	539
Estimated annual volume of flow out of the district within each aquifer in the district	Rustler Aquifer	418
Estimated net annual volume of flow between each aquifer in the district	From the Rustler Aquifer to the Dockum Aquifer	856
	To the Rustler Aquifer from other overlying units	342
	To the Rustler Aquifer from Rustler Formation	532



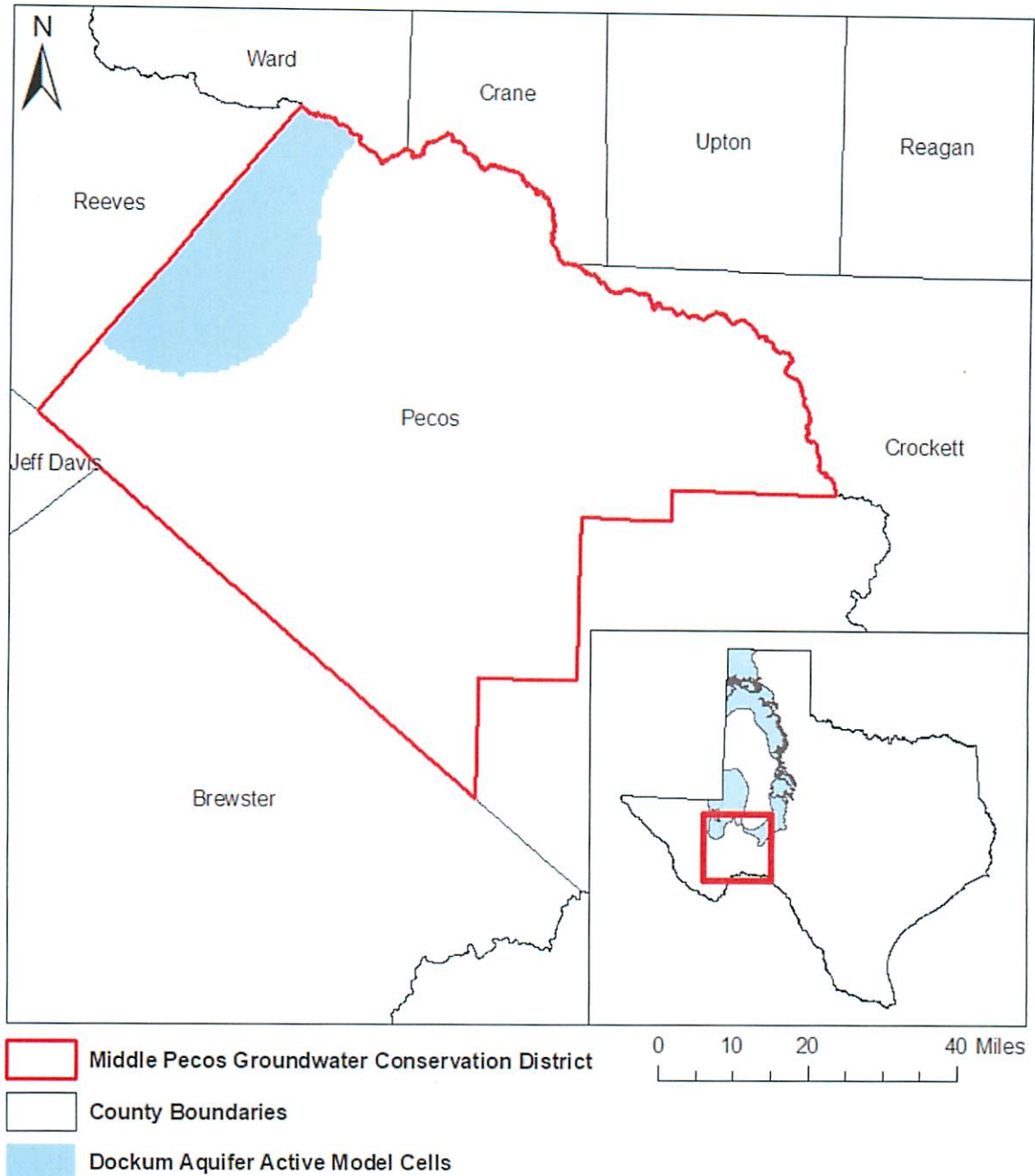
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FIGURE 2: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE RUSTLER AQUIFER FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE RUSTLER AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 3: SUMMARIZED INFORMATION FOR THE DOCKUM AQUIFER THAT IS NEEDED FOR THE MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Dockum Aquifer	0
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers.	Dockum Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Dockum Aquifer	511
Estimated annual volume of flow out of the district within each aquifer in the district	Dockum Aquifer	320
Estimated net annual volume of flow between each aquifer in the district	From the Dockum Aquifer to the Pecos Valley Aquifer	118
	To the Dockum Aquifer from the Edwards-Trinity (Plateau) Aquifer	160
	To Dockum Aquifer from Rustler Aquifer	856*
	From Dockum Aquifer to Dockum Formation	87

* Indicates value calculated from the groundwater availability model for the Rustler Aquifer, all other values are from the groundwater availability model for the High Plains Aquifer System.



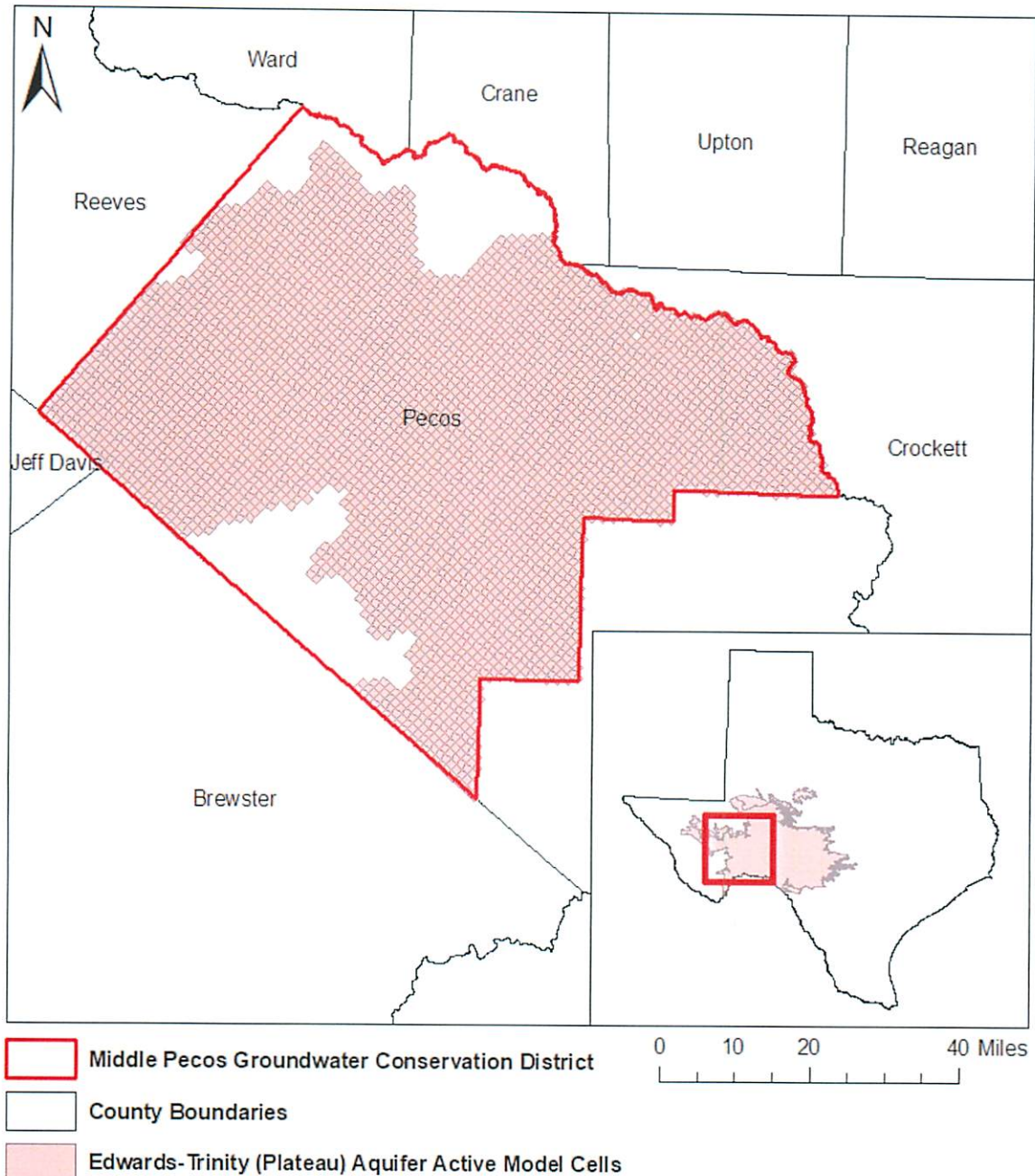
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FIGURE 3: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE HIGH PLAINS AQUIFER SYSTEM FROM WHICH THE INFORMATION IN TABLE 3 WAS EXTRACTED (THE DOCKUM AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 4: SUMMARIZED INFORMATION FOR THE EDWARDS-TRINITY (PLATEAU) AQUIFER THAT IS NEEDED FOR THE MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Edwards-Trinity (Plateau) Aquifer	141,982
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers.	Edwards-Trinity (Plateau) Aquifer	24,024
Estimated annual volume of flow into the district within each aquifer in the district	Edwards-Trinity (Plateau) Aquifer	32,418
Estimated annual volume of flow out of the district within each aquifer in the district	Edwards-Trinity (Plateau) Aquifer	77,569
Estimated net annual volume of flow between each aquifer in the district	From the Edwards-Trinity (Plateau) Aquifer to the Pecos Valley Aquifer	41,370
	From the Edwards-Trinity (Plateau) Aquifer to the Dockum Aquifer	160*

* Indicates values calculated from the groundwater availability model for the High Plains Aquifer System, all other values are calculated from the groundwater availability model for the Edwards-Trinity (Plateau) and Pecos Valley aquifers.



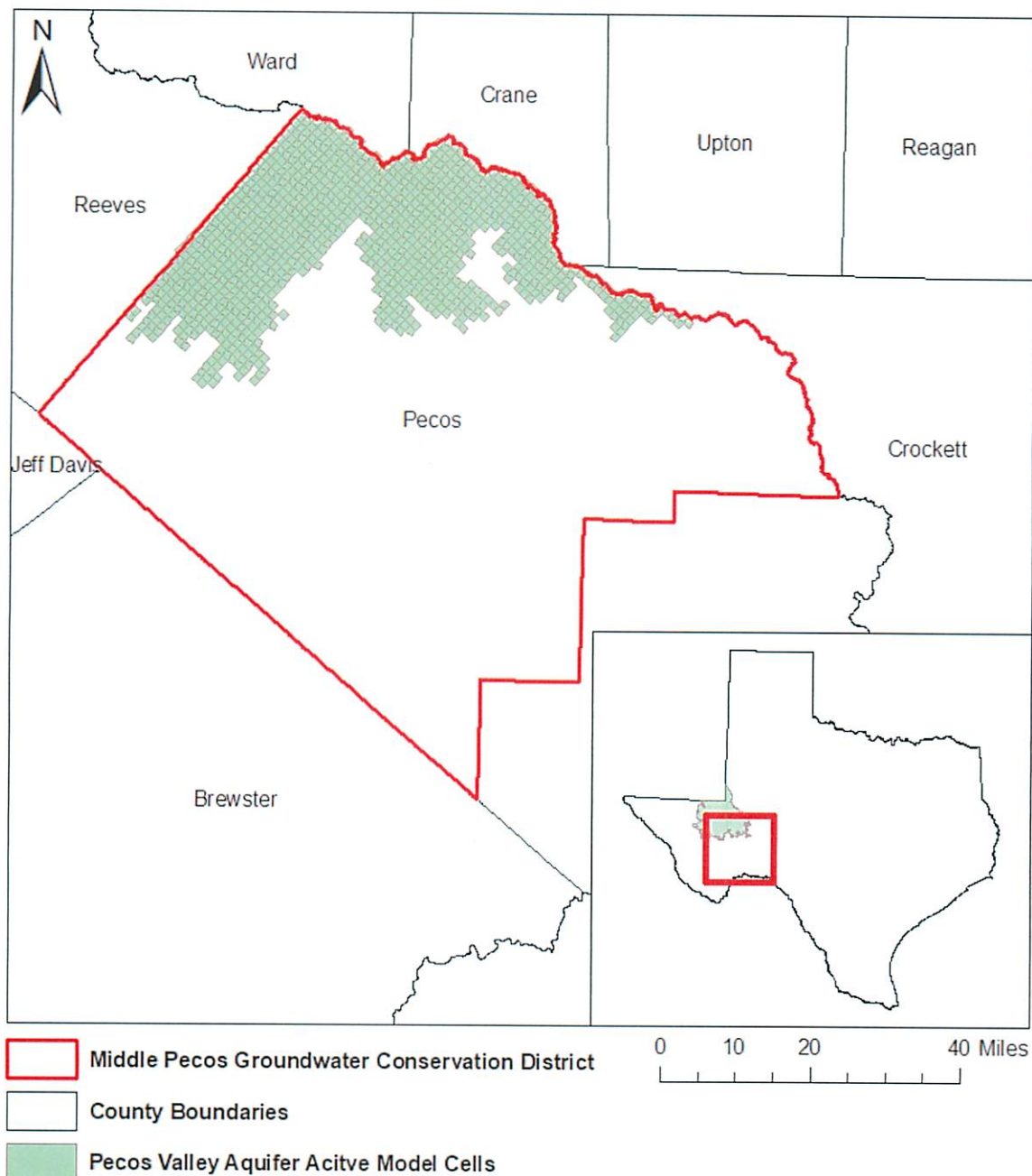
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FIGURE 4: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE EDWARDS-TRINITY (PLATEAU) AND PECOS VALLEY AQUIFERS FROM WHICH THE INFORMATION IN TABLE 4 WAS EXTRACTED (THE EDWARDS-TRINITY (PLATEAU) AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 5: SUMMARIZED INFORMATION FOR THE PECOS VALLEY AQUIFER THAT IS NEEDED FOR THE MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Pecos Valley	35,919
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers.	Pecos Valley	23,989
Estimated annual volume of flow into the district within each aquifer in the district	Pecos Valley	3,225
Estimated annual volume of flow out of the district within each aquifer in the district	Pecos Valley	15,118
Estimated net annual volume of flow between each aquifer in the district	To the Pecos Valley Aquifer from the Edwards-Trinity (Plateau) Aquifer	41,370
	To the Pecos Valley Aquifer from the Dockum Aquifer	118*

* Indicates values calculated from the groundwater availability model for the High Plains Aquifer System, all other values are calculated from the groundwater availability model for the Edwards-Trinity (Plateau) and Pecos Valley aquifers.



gcd boundary date = 07.03.19, county boundary date = 07.03.19, hpas model grid date = 01.06.20

FIGURE 5: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE EDWARDS-TRINITY (PLATEAU) AND PECOS VALLEY AQUIFERS FROM WHICH THE INFORMATION IN TABLE 5 WAS EXTRACTED (THE PECOS VALLEY AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

LIMITATIONS:

The groundwater models used in completing this analysis is the best available scientific tool that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

“Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results.”

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and interaction with streams are specific to particular historic time periods.

Because the application of the groundwater models was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations related to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and overall conditions of the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

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Appendix C

**Middle Pecos Groundwater Conservation District Effective
June 18, 2018**

***MIDDLE PECOS GROUNDWATER
CONSERVATION DISTRICT***

RULES

Effective June 19, 2018

PECOS COUNTY, TEXAS

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INTRODUCTION

BACKGROUND AND PURPOSE

Texas faces a difficult challenge to develop water policies that serve county, state, regional, and individual Texans' interests. The Texas Constitution authorizes the creation of groundwater conservation districts to plan for, develop, and regulate the use of groundwater. A groundwater conservation district is a local unit of government authorized by the Texas Legislature and ratified by local election of the district's constituents to manage and protect groundwater.

The MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT (the "District") was created in the 76th Legislature, 1999 by Senate Bill 1911, and ratified in the 77th Legislature, 2001 by House Bill 1258. The District was confirmed by qualified voters of Pecos County in November of 2002.

The boundaries of the District are coextensive with the boundaries of Pecos County, Texas. Aquifers and other recognized groundwater formations underlying Pecos County include the Capitan Reef, Dockum, Edwards-Trinity, Pecos Valley, Rustler, and San Andres.

The District is governed by a board of eleven directors elected as follows:

- (1) One director shall be elected by the qualified voters of the entire district;
- (2) Two directors shall be elected from each of the four Pecos County Commissioners' precincts by the qualified voters of each respective precinct;
- (3) One director shall be elected from the City of Iraan by the qualified voters of that city; and
- (4) One director shall be elected from the City of Fort Stockton by the qualified voters of that city.

The District has the rights, powers, privileges, authority, functions, and the duties provided by the general law of the State, Chapter 36 of the Texas Water Code, and the District Act.

The substantive rules of the District were initially adopted by the District's Board of Directors on August 18, 2004, at a duly posted public meeting in compliance with the Texas Open Meetings Act and following notice and hearing in accordance with Section 36.101 of the Texas Water Code. The District's rules are hereby adopted as the rules of this District in accordance with Section 59 of Article XVI of the Texas Constitution, Chapter 36 of the Texas Water Code, and the District Act.

The District's rules are and have been adopted to simplify procedures, avoid delays, and facilitate the administration of the water laws of the State of Texas. These rules are to be construed to attain those objectives. These rules may be used as guides in the exercise of discretion, where discretion is vested. However, these rules shall not be construed as a limitation or restriction upon the exercise of discretion conferred by law, nor shall they be construed to deprive the District or the District's Board of any powers, duties, or jurisdiction provided by law.

These rules will not limit or restrict the amount and accuracy of data or information that may be required for the proper administration of the law.

Nothing in these rules or Chapter 36 of the Texas Water Code shall be construed as granting the authority to deprive or divest a landowner, including a landowner's lessees, heirs, or assigns, of the groundwater ownership and rights described by Section 36.002 of the Texas Water Code, recognizing, however, that Section 36.002 does not prohibit the District from limiting or prohibiting the drilling of a well for failure or inability to comply with minimum well spacing or tract size requirements adopted by the District; affect the ability of the District to regulate groundwater production as authorized under Section 36.113, 36.116, or 36.122 or otherwise under Chapter 36, Texas Water Code, or a special law governing the District; or require that a rule adopted by the District allocate to each landowner a proportionate share of available groundwater for production from the aquifer based on the number of acres owned by the landowner.

PURPOSE OF THE DISTRICT

By statutory enactment and declaration by the Texas Supreme Court, groundwater management by groundwater conservation districts is the state's preferred method of groundwater management in order to protect property rights, balance the conservation and development of groundwater to meet the needs of this state, and use the best available science in the conservation and development of groundwater. The District's locally elected board of directors and staff accomplish this purpose by performing certain duties set forth in the general law of the State, Chapter 36 of the Texas Water Code, and the District Act, and implemented in accordance with these rules.

MISSION STATEMENT

Develop and implement an efficient, economical and environmentally sound groundwater management program to protect, maintain and enhance the groundwater resources of the District, and to communicate and administer to the needs and concerns of the citizens of Pecos County associated with these groundwater resources.

SECTION 1. DEFINITIONS, PURPOSE, AND CONCEPTS OF THE RULES

RULE 1.1 DEFINITIONS OF TERMS

In the administration of its duties the District defines terms as set forth in Chapter 36 of the Texas Water Code unless otherwise modified or defined herein as necessary to apply to unique attributes of the District. The specific terms hereinafter defined shall have the following meaning in these rules, the District's Management Plan, forms, and other documents of the District:

“Abandoned Well” means a well that has not been used for a beneficial purpose for at least one year and/or a well not registered with the District. A well is considered to be in use in the following cases:

- (a) a non-deteriorated well which contains the casing, pump and pump column in good condition; or

- (b) a non-deteriorated well which has been capped.

“Affected Person” means, with respect to a Groundwater Management Area:

- (1) an owner of land in the Groundwater Management Area;
- (2) a district in or adjacent to the Groundwater Management Area;
- (3) a regional water planning group with a water management strategy in the Groundwater Management Area;
- (4) a person who holds or is applying for a permit from a district in the Groundwater Management Area;
- (5) a person who has groundwater rights in the Groundwater Management Area;
- (6) or any other person defined as affected by a TCEQ rule.

“Animal Feeding Operation” means a lot or facility (other than an aquatic animal production facility) where animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 (forty-five) calendar days or more in any 12-month period, and the animal confinement areas do not sustain crops, vegetation, forage growth, or postharvest residues in the normal growing season over any portion of the lot or facility.

“Aquifer” means a geologic formation that will yield water to a well in sufficient quantities to make the production of water from this formation feasible for beneficial use. When the term “Aquifer” is used in these rules, it shall also mean the Aquifer’s subdivisions.

“Aquifer Storage and Recovery Project” or “ASR Project” means a project involving the injection of water into a geologic formation for the purpose of subsequent recovery and beneficial use by the Project Operator.

“ASR” means aquifer storage and recovery.

“ASR Injection Well” means a Class V injection well used for the injection of water into a geologic formation as part of an ASR Project.

“ASR Recovery Well” means a well used for the recovery of water from a geologic formation as part of an ASR Project.

“Beneficial Use” means “use for a beneficial purpose,” which means use for:

- (a) agricultural, gardening, domestic, stock raising, municipal, mining, manufacturing, industrial, commercial, recreational, or pleasure purposes;
- (b) exploring for, producing, handling, or treating oil, gas, sulphur, or other minerals;
or

(c) any other purpose that is useful and beneficial to the user.

“Best available science” means conclusions that are logically and reasonably derived using statistical or quantitative data, techniques, analyses, and studies that are publicly available to reviewing scientists and can be employed to address a specific scientific question.

“Board” means the Board of Directors of the District.

“Capitan Limestone Aquifer” means the Capitan Reef Complex consists of the Capitan Reef and associated reefs and limestones which were deposited around the perimeter of the Delaware Basin during Permian time. The reef complex is composed of approximately 2,000 feet of massive, vuggy to cavernous limestone and dolomite, bedded limestone, and reef talus. In the study area, (located in the northern part of the Trans-Pecos region of West Texas, which is in the Great Plains physiographic province, and falls within the Rio Grande basin), the reef occurs in a 6 to 10 mile wide, south-southeast trending belt, extending from New Mexico through western Winkler, central Ward, and western Pecos Counties. Depth to the top of the reef ranges from 2,400 to 3,600 feet (Guyton and Associates, 1958). The Capitan Reef Complex yields small to large quantities of moderately to very saline water to wells in the study area that primarily have been used for secondary recovery of oil in Ward and Winkler Counties (Richey and others, 1985).

“Capping” means equipping a well with a securely affixed, removable device that will prevent the entrance of surface pollutants into the well in compliance with regulations of the Texas Department of Licensing and Regulations.

“Casing” means a tubular structure installed in the excavated or drilled borehole to maintain the well opening.

“Concentrated Animal Feeding Operation” (“CAFO”) means any animal feeding operation with the number of animals established in TCEQ’s rules, including at least 37,500 chickens (other than laying hens), or that has been designated by the TCEQ’s Executive Director as a CAFO because it is a significant contributor of pollutants into or adjacent to water in the state.

“Conservation” refers to those water saving practices, techniques, and technologies that will reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of waste, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses.

“Desired Future Condition” means a quantitative description, adopted in accordance with Section 36.108, Texas Water Code, of the desired condition of the groundwater resources in a Groundwater Management Area at one or more specified future times.

“Dewatering Well” means a well used to remove groundwater from a construction site or excavation, or to relieve hydrostatic uplift on permanent structures.

“Director” means an elected or appointed member of the Board of Directors of the District.

“Discharge” means the volume of water that passes a given point within a given period of time.

“District” means the Middle Pecos Groundwater Conservation District.

“District Act” means the District’s enabling legislation to be codified in Chapter 8851 of the Texas Special District Local Laws effective on April 1, 2013, and originally enacted by Act of the 76th Legislature, 1999, Regular Session, Chapter 1331 (Senate Bill 1911), as amended by Act of the 77th Legislature, 2001, Regular Session, Chapter 1299 (House Bill 1258), and Act of the 82nd Legislature, 2011, Regular Session, Chapter 199 (Senate Bill 564).

“District Management Plan” or **“Management Plan”** means the plan promulgated and adopted by the District, as may be amended and revised by the Board from time to time, pursuant to Sections 36.1071-36.1073 of the Texas Water Code.

“Dockum Group Aquifer” – The Dockum Group of Triassic age consists of upper and lower shaley units and a middle water-bearing sandstone unit often referred to as the “Santa Rosa.” Small to moderate quantities of fresh to moderately saline water are produced from the sandstone in Winkler, Ward, eastern Loving, and eastern Reeves Counties, primarily where the aquifer is relatively shallow. In parts of Pecos, Reeves, Ward, and Winkler Counties, where the sandstone is hydraulically connected to the Pecos Valley Aquifer, the combination has been referred to as the Allurosa aquifer.

“District Office” means the principal office of the District at such location as may be established by the Board.

“Domestic Use” means water used by and connected to a household for personal needs or for household purposes such as drinking, bathing, heating, cooking, sanitation or cleaning, and landscape irrigation. Ancillary use may include watering of domestic animals.

“Domestic Well” means a well providing groundwater for domestic use.

“Drill” means drilling, equipping, completing wells, or modifying the size of wells or well pumps/motors (resulting in an increase in pumpage volume) whereby a drilling or service rig must be on location to perform the activity.

“Edwards-Trinity (Plateau) Aquifer” – The Edwards-Trinity (Plateau) aquifer underlies the Pecos Valley Aquifer in the study area, (located in the northern part of the Trans-Pecos region of West Texas, which is in the Great Plains physiographic province, and falls within the Rio Grande basin), in the southwest half of Reeves County and a portion of the Coynosa area in northwest Pecos County. The aquifer is composed of water-bearing lower Cretaceous sands and limestones that are hydraulically connected to the overlying alluvium. Wells completed in the aquifer produce small to moderate quantities of fresh to moderately saline water, which is generally similar to that of the overlying alluvium. The poorest quality water is the aquifer, with dissolved solids in excess of 3,000 milligrams per liter (mg/l), occurs in the southwestern part of Reeves County where the aquifer receives recharge from the sulfate-rich Rustler aquifer. Water from the Edwards-Trinity(Plateau) aquifer is mostly used for irrigation, with a lesser amount used for industrial purposes in western Reeves County.

“Evidence of Historic or Existing Use” means evidence that is material and relevant to a determination of the amount of groundwater beneficially used without waste by a permit applicant during the relevant time period set by District rule that regulates groundwater based on historic use. Evidence in the form of oral or written testimony shall be subject to cross-

examination. The Texas Rules of Evidence govern the admissibility and introduction of evidence of historic or existing use, except that evidence not admissible under the Texas Rules of Evidence may be admitted if it is of the type commonly relied upon by reasonably prudent persons in the conduct of their affairs.

“Exempt Well” means a well that is exempt pursuant to District Rule 11.3.

“Existing Well” means any well in the District that was drilled on or before the effective date of these rules.

“Export of Groundwater” means pumping, transferring, or transporting groundwater out of the District. The terms “transfer,” “transport,” or “export” of groundwater are used interchangeably within Chapter 36 of the Texas Water Code and these rules.

“Fees” means charges imposed by the District pursuant to these rules.

“Groundwater Management Area” means an area designated and delineated by the TWDB as suitable for the management of groundwater resources.

“Groundwater Reservoir” means a specific subsurface water-bearing reservoir having ascertainable boundaries and containing groundwater.

“Historic and Existing Use Period” means the period September 1, 1989, through the effective date of the rules adopting “Historic and Existing Use” rules, September 1, 2004; provided, however, that this period shall extend an additional consecutive 12-month period dating from September 1 - August 30 (“12-month period” or “year”) for each such year during which the applicant demonstrates continued beneficial use of water in that year and demonstrates continued beneficial use in each and every year between September 1, 1989, and September 1, 2004, up to an additional, consecutive fifteen years extending to September 1, 1974.

“Hydrogeological Report” means a report that identifies the availability of groundwater in a particular area and formation, and which also addresses the issues of quantity and quality of that water and the impacts of pumping that water on the surrounding environment including impacts to nearby or adjacent wells.

“Irrigation Use” means the application of water, not associated with agricultural irrigation use, to plants or land in order to promote growth of plants, turf, or trees. Irrigation use includes but is not limited to athletic fields, parks, golf courses, and landscape irrigation not tied to domestic use.

“Irrigation Well” means a well providing groundwater for irrigation use (a nonexempt well).

“Leachate Well” means a well used to remove contamination from soil or groundwater.

“Livestock” means domesticated horses, cattle, goats, sheep, swine, poultry, ostriches, emus, rheas, deer and antelope, and other similar animals involved in farming or ranching operations on land, recorded and taxed in the County as an agricultural land use. Dogs, cats, birds, fish, reptiles, small mammals, potbellied pigs, and other animals typically kept as pets are not

considered livestock. Livestock-type animals kept as pets or in a pet-like environment are not considered livestock.

“Managed Available Groundwater” refers to the term used by the TWDB in some of its models and associated reports, model runs, and other written documents, and which was defined by statutory law in existence prior to the 2011 legislative session, during which the 82nd Legislature replaced the concept of Managed Available Groundwater with Modeled Available Groundwater.

“Management Zone” means a geographic area delineated under District Rule 10.5 and in accordance with Section 36.116(d), Texas Water Code, and is sometimes referred to as a “management zone”.

“Maximum Historic and Existing Use” means the quantity of water put to beneficial use during the single 12-month period (September 1 – August 30) of maximum beneficial use during the Historic and Existing Use Period.

“Modeled Available Groundwater” means the amount of water that the Executive Administrator of the TWDB determines may be produced on an average annual basis to achieve the Desired Future Conditions established for the Aquifers in the District.

“Modify” means to alter the physical or mechanical characteristics of a well, its equipment, or production capabilities. This does not include repair of equipment, well houses or enclosures, or replacement with comparable equipment.

“Monitoring Well” means a well installed exclusively to measure some property of the groundwater or an aquifer that it penetrates, that does not produce more than 5,000 gallons per year.

“New Well” means any well that is not an existing well, or any existing well, which has been modified to increase water production after the effective date of these Rules.

“Office” means the State Office of Administrative Hearings.

“Pecos Valley Aquifer” – During the Cenozoic Era, a thick sequence of alluvial deposits accumulated in two large slumpage depressions. These depressions are herein referred to as the Monument Draw Trough, which developed along the eastern margin of the Delaware Basin, and the Pecos Trough, which occupies the south-central part of the Basin. The troughs were formed by dissolution and removal of evaporates in the underlying Ochoan Series, which resulted in the collapse of the Rustler Formation and younger rocks into the voids (Maley and Huffington, 1953). Water saturated alluvial fill in these troughs is classified as the Pecos Valley Aquifer.

“Permit Amendment” means a minor or major change in a permit.

“Person” includes a corporation, individual, organization, cooperative, government or governmental subdivision or agency, business trust, estate, trust, partnership, association, or any other legal entity.

“Personal Justiciable Interest” means an interest related to a legal right, duty, privilege, power, or economic interest affected by a permit or permit amendment application. A justiciable interest is an interest beyond that shared by the general public.

“Plugging” means the permanent closure of a well in accordance with approved District standards.

“Pollution” means the alteration of the physical, thermal, chemical, or biological quality of, or the contamination or degradation of, any groundwater within the District that renders the groundwater harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or impairs the usefulness or the public or private use or enjoyment of the water for any lawful or reasonable purpose.

“Presiding Officer” means the Board President or, in the Board President’s absence, a Director delegated authority by the Board to preside over a hearing.

“Production Permit” is synonymous with “Operating Permit,” both terms which mean the type of a permit that authorizes the operation and production from a water well.

“Project Operator” means a person holding an authorization under this subchapter to undertake an ASR Project.

“Retail Public Utility” means any person, corporation, public utility, water supply or sewer service corporation, municipality, political subdivision or agency operating, maintaining, or controlling in this state, facilities (such as a public water supply well) for providing potable water service for compensation.

“Rustler Aquifer” – The Rustler Formation underlies the entire study area, (located in the northern part of the Trans-Pecos region of West Texas, which is in the Great Plains physiographic province, and falls within the Rio Grande basin), and consists of 200 to 500 feet of anhydrite and dolomite with a basal zone of sandstone and shale. Slightly to moderately saline water occurs in the formation in most of Reeves and western Loving, Ward, and Pecos Counties and has mostly been used for irrigation and livestock supply. Elsewhere, the formation produces very saline to brine quality water that is used primarily for secondary oil recovery. Water in the aquifer occurs under artesian conditions, except in the out crop in the Rustler Hills to the west and in collapsed zones in the two troughs.

“Rules” means the standards and regulations promulgated by the District, as they may be amended from time to time, and are often referred to generally as “rules” or the District’s rules.

“Seal” means the impermeable material, such as cement grout, bentonite, or puddling clay, placed in the annular space between the borehole wall and the casing to prevent the downhole movement of surface water or the vertical mixing of groundwater.

“SOAH” means the State Office of Administrative Hearings.

“Special Provisions” means the conditions or requirements added to a permit, which may be more or less restrictive than the Rules as a result of circumstances unique to a particular situation.

“Spring” means a point(s) of natural discharge from an aquifer.

“Static Water Level” means the water level in a well that has not been affected by withdrawal of groundwater.

“Stratum” means a layer of rock having a similar composition throughout.

“Subsidence” means the lowering in elevation of the land surface caused by withdrawal of groundwater.

“Surface Completion” means sealing off access of undesirable water, surface material, or other potential sources of contamination to the wellbore by proper casing and/or cementing procedures.

“TCEQ” means the Texas Commission on Environmental Quality, and its predecessor and any successor agencies.

“TWDB” means the Texas Water Development Board.

“User” means a person who produces, distributes, or uses water from any Aquifer within the District.

“Waste” shall have the meaning provided for in District Rule 14.1.

“Water Table” means the upper boundary of the saturated zone in an unconfined aquifer.

“Water Tight Seal” means a seal that prohibits the entrance of liquids or solutions, including water, which may enter through the wellhead and potentially, contaminate the well.

“Water Well” means any drilled or excavated facility, device, or method used to withdraw groundwater from the groundwater supply.

“Well” means any artificial excavation or borehole constructed for the purposes of exploring for or producing groundwater, or for injection, monitoring, or dewatering purposes.

“Well Registration” means the creation of a record of the well by use and a well identification number for purposes of registering the well as to its geographic location and for notification to the well owner in cases of spills or accidents, data collection, recordkeeping and for future planning purposes. (See Section 9 of the District’s rules).

“Well System” means two or more wells owned, operated, or otherwise under the control of the same person and that are held under the same permit.

“Withdraw or Withdrawal” means the act of extracting groundwater by pumping or any other method other than the discharge of natural springs.

RULE 1.2 PURPOSE OF RULES

The rules of the District are promulgated and adopted under the District's statutory authority to achieve the following purposes and objectives: to provide for conserving, preserving, protecting, and recharging of groundwater or of a groundwater reservoir or its subdivisions, in order to control subsidence, or prevent waste of groundwater. The District's orders rules, requirements, resolutions, policies, guidelines or similar measures have been implemented to fulfill these objectives.

RULE 1.3 USE AND EFFECT OF RULES

These rules are used by the District as guides in the exercise of the powers conferred by law and in the accomplishment of the purposes of the District Act and Chapter 36 of the Texas Water Code. They shall not be construed as a limitation or restriction on the exercise of any discretion, where it exists, nor shall they be construed to deprive the District or Board of the exercise of any powers, duties or jurisdiction conferred by law; nor shall they be construed to limit or restrict the amount and character of data or information that may be required to be collected for the proper administration of the District Act or Chapter 36.

RULE 1.4 AMENDING OF RULES

The Board may, following notice and hearing, amend or repeal these rules or adopt new rules from time to time, following the procedure set forth in the Rulemaking Section of these rules, and applicable law.

RULE 1.5 HEADINGS AND CAPTIONS

The section and other headings and captions contained in these rules are for reference purposes only and do not affect in any way the meaning or interpretation of these rules.

RULE 1.6 CONSTRUCTION

A reference to a title or chapter without further identification is a reference to a title or chapter of the Texas Water Code, unless the context of usage clearly implies otherwise. A reference to a section or rule without further identification is a reference to a section or rule in these rules, unless the context of usage clearly implies otherwise. Construction of words and phrases is governed by the Code Construction Act, Subchapter B, Chapter 311, Texas Government Code. The singular includes the plural, and the plural includes the singular. The words "and" and "or" are interchangeable and shall be interpreted to mean and/or.

RULE 1.7 SEVERABILITY

In case any one or more of the provisions contained in these rules shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other rules or provisions hereof, and these rules shall be construed as if such invalid, illegal, or unenforceable rule or provision had never been contained herein.

RULE 1.8 SEVERABILITY CLAUSE

If any section, sentence, paragraph, clause, or part of these rules should be held or declared invalid for any reason by a final judgment of the courts of this state or of the United States, such decision or holding shall not affect the validity of the remaining portions of these rules, and the Board does hereby declare that it would have adopted and promulgated such remaining portions irrespective of the fact that any other sentence, section, paragraph, clause, or part thereof may be declared invalid.

RULE 1.9 COMPLIANCE

All permit holders and registrants of the District shall comply with all applicable rules and regulations of other governmental entities. Where the District's rules and regulations are more stringent than those of other governmental entities, the District's rules and regulations shall control.

RULE 1.10 VERB USAGE

The verbs may, can, might, should, or could are used when an action is optional or may not apply in every case. The verbs will, shall, or must are used when an action is required. The verb cannot is used when an action is not allowed or is not achievable. Unless otherwise expressly provided for in these rules, the past, present, and future tense shall include each other.

SECTION 2. BOARD AND DISTRICT STAFF

RULE 2.1 MEETINGS

The Board shall meet at least once each quarter and may meet more frequently as the Board may establish from time to time. At the request of the Board President, or by written request of at least three members, the Board may hold special meetings. All Board meetings will be held and conducted according to the Texas Open Meetings Act, Chapter 551, Texas Government Code. Directors shall not knowingly conspire to meet in numbers less than a quorum for the purpose of secret deliberations.

RULE 2.2 COMMITTEES

The Board President may establish committees for formulation of policy recommendations to the Board, and appoint the chair and membership of the committees. Committee members serve at the pleasure of the Board President.

RULE 2.3 ASSISTANT SECRETARY

A Director or member of the District staff may be appointed by the Board as Assistant Secretary to the Board to assist in meeting the responsibilities of the Board Secretary, if desired by the Board.

RULE 2.4 GENERAL MANAGER

The Board may employ or contract with a person to manage the District, and title this person "General Manager". The General Manager shall have full authority to manage and operate the affairs of the District, subject only to Board orders. The Board will review the compensation and/or contract of the General Manager each year at the beginning of the third quarter of every fiscal year. The General Manager, with approval of the Board, may employ all persons necessary for the proper handling of business and operation of the District, and their compensation will be set by the Board.

SECTION 3. BOARD

RULE 3.1 PURPOSE OF BOARD

The Board was created to determine policy and regulate the withdrawal of groundwater within the boundaries of the District for conserving, preserving, protecting and recharging the groundwater and aquifers within the District, and to exercise its rights, powers, and duties in a way that will effectively and expeditiously accomplish the purposes of the District Act. The Board's responsibilities include, but are not limited to, the adoption, implementation, and enforcement of the District's rules and orders.

RULE 3.2 BOARD STRUCTURE, OFFICERS

The Board may elect officers annually, but must elect officers at the first meeting following the November elections of each even-numbered year. Directors and officers serve until their successors are elected or appointed and sworn in accordance with the District Act and these rules, and qualified under applicable State law. If there is a vacancy on the Board, the remaining Directors shall appoint a Director to serve the remainder of the term. If at any time there are fewer than three qualified Directors, the Pecos County Commissioners Court shall appoint the necessary number of persons to fill all the vacancies on the Board. The appointed Director's term shall end on qualification of the Director elected at that election.

RULE 3.3 EX PARTE COMMUNICATIONS

Directors may not communicate, directly or indirectly, about any issue of fact or law in any contested hearing before the Board, with any agency, person, party or their representatives, except on notice and opportunity for all parties to participate. This rule does not apply to a Director who abstains from voting on any matter in which ex parte communications have occurred or to communications between the Board and the staff, professional, or consultants of the District.

SECTION 4. GENERAL PROCEDURAL PROVISIONS

RULE 4.1 DISTRICT ADDRESS

The District's mailing address is P.O. Box 1644, Fort Stockton, Texas, 79735, and its physical address shall be established by the Board and posted on the District's Internet site, if the District has a functioning Internet site.

RULE 4.2 COMPUTING TIME

In computing any period of time specified by these rules, by a Presiding Officer, by the Board, or by law, the period shall begin on the day after the act, event, or default in question, and shall conclude on the last day of that designated period, unless the last day is a Saturday, Sunday, or legal holiday on which the District Office is closed, in which case the period runs until the end of the next day which is neither a Saturday, Sunday, nor legal holiday on which the District Office is closed.

RULE 4.3 FILING OF DOCUMENTS AND TIME LIMIT

Applications, requests, or other papers or documents shall be filed either by hand delivery, mail, or telephonic document transfer to the District Office. The document shall be considered filed as of the date received by the District for a hand delivery; as of the date reflected by the official United States Postal Service postmark if mailed; and, for telephonic document transfers, as of the date on which the telephonic document transfer is complete, except that any transfer occurring after 5:00 p.m. will be deemed complete on the following business day. If a person files a document by facsimile, he or she must file a copy by mail within three (3) calendar days. A document may be filed by electronic mail ("email") only if the Board or Presiding Officer has expressly authorized filing by email for that particular type of document and expressly established the appropriate date and time deadline, email address, and any other appropriate filing instructions.

RULE 4.4 METHODS OF SERVICE UNDER THE RULES

Except as otherwise provided for in these rules, and notice or document required by these rules to be served or delivered may be delivered to the recipient, or the recipient's authorized representative, in person, by agent, by courier-receipted delivery, by certified or registered mail sent to recipient's last known address, by email to the recipient's email address on file with the District if written consent is granted by the recipient, or by facsimile to the recipient's current facsimile number and shall be accomplished by 5:00 o'clock p.m. (as shown by the clock in the recipient's office) of the date on which it is due. Service by mail is complete upon deposit in a post office or other official depository of the United States Postal Service. Service by facsimile is complete upon transfer, except that any transfer commencing after 5:00 o'clock p.m. (as shown by the clock in the recipient's office) shall be deemed complete the following business day. If service or delivery is by mail, and the recipient has the right to perform some act or is required to perform some act within a prescribed period of time after service, three (3) calendar days will be added to the prescribed period. Where service by other methods has proved unsuccessful, the service shall be complete by such other method as may be approved by the Board. The person or person's attorney shall certify compliance with this rule in writing over signature and on the filed document. A certificate by a person or the person's attorney of record, or the return of an officer, or the affidavit of any person showing service of a document, shall be prima facie evidence of the fact of service.

RULE 4.5 USE OF FORMS

The General Manager will furnish forms and instructions for the preparation of any application, declaration, registration or other document that is required to be filed with the District on a form prepared by the District. The use of such forms is mandatory. Supplements may be attached if there is insufficient space on the form. If supplements are used, the data and information entered therein shall be separated into sections that are numbered to correspond with the numbers of the printed form.

RULE 4.6 MINUTES AND RECORDS OF THE DISTRICT

All official documents, reports, records, and minutes of the District will be available for public inspection and copying in accordance with the Texas Public Information Act.

RULE 4.7 APPLICABILITY; PROCEDURES NOT OTHERWISE PROVIDED FOR

This Section 4 shall apply to all types of hearings conducted by the District to the extent this Section is not inconsistent with any other section of these rules that applies to the type of hearing at issue. If, in connection with any hearing, the Board determines that there are no statutes or other applicable rules resolving particular procedural questions then before the Board, the Board will direct the parties to follow procedures consistent with the purpose of these rules, the District Act, and Chapter 36 of the Texas Water Code.

RULE 4.8 CONTINUANCE

Unless provided otherwise in these Rules, any meeting, workshop, or hearing may be continued from time to time and date to date without published notice after the initial notice, in conformity with the Texas Open Meetings Act.

RULE 4.9 REQUEST FOR RECONSIDERATION

To appeal a decision of the District, including any determinations made by the General Manager, concerning any matter not covered under any other section of these rules, a request for reconsideration may be filed with the District within 20 (twenty) calendar days of the date of the decision. Such request for reconsideration must be in writing and must state clear and concise grounds for the request. The Board will make a decision on the request for reconsideration within 45 (forty-five) calendar days thereafter. The failure of the Board to grant or deny the request for reconsideration within 45 (forty-five) calendar days of the date of filing shall constitute a denial of the request.

SECTION 5. HEARINGS GENERALLY

RULE 5.1 APPLICABILITY

- (a) Rulemaking hearings are governed by Section 6 of the District's rules.
- (b) Hearings on the District Management Plan are governed by Section 8 of the District's rules.

- (c) Permit-related hearings and hearings on applications for well-spacing exceptions are governed by Section 11 of the District's rules.
- (d) Hearings to prevent waste, pollution, or degradation of the quality of groundwater under Section 14 of the District's rules may be conducted under Rule 14.4.
- (e) Enforcement hearings are governed by Section 15 of the District's rules.
- (f) Hearings on the Desired Future Conditions, including the appeal process of Desired Future Conditions, are governed by Section 17 of the District's rules.
- (g) All other hearings not described in this rule are governed by Rule 5.2.

RULE 5.2 HEARINGS ON OTHER MATTERS

A public hearing may be held on any matter beyond rulemaking, the District Management Plan, enforcement, and permitting, within the jurisdiction of the District, if the Board deems a hearing to be in the public interest or necessary to effectively carry out the duties and responsibilities of the District. Not less than ten (10) calendar days prior to the date of a public hearing, the Board shall publish notice of the subject matter of the hearing, the time, date, and place of the hearing, in a newspaper of general circulation in the District, in addition to posting the notice in the manner provided by the Texas Open Meetings Act.

SECTION 6. RULEMAKING HEARINGS

RULE 6.1 GENERAL

A rulemaking hearing involves matters of general applicability that implement, interpret, or prescribe the law or District's policy, or that describe the procedure or practice requirements of the District. The District will update its rules to implement the Desired Future Conditions before the first anniversary of the date that the TWDB approves the District Management Plan that has been updated to reflect the adopted Desired Future Conditions.

RULE 6.2 NOTICE AND SCHEDULING OF HEARINGS

- (a) For all rulemaking hearings, the notice shall include a brief explanation of the subject matter of the hearing, the time, date, and place of the hearing, location, or Internet site at which a copy of the proposed rules may be reviewed or copied, if the District has a functioning Internet site, and any other information deemed relevant by the General Manager or the Board.
- (b) Not less than 20 (twenty) calendar days prior to the date of the hearing, and subject to the notice requirements of the Texas Open Meetings Act the General Manager shall:
 - (1) post notice in a place readily accessible to the public at the District Office;
 - (2) provide notice to the County Clerk of Pecos County;

- (3) publish notice in one or more newspapers of general circulation in the District;
 - (4) provide notice by mail, fax, or email to any person who has requested notice under Subsection (c); and
 - (5) make available a copy of all proposed rules at a place accessible to the public during normal business hours, and post an electronic copy on the District's Internet site, if the District has a functioning Internet site.
- (c) A person may submit to the District a written request for notice of a rulemaking hearing. A request is effective for the remainder of the calendar year in which the request is received by the District. To receive notice of a rulemaking hearing in a later year, a person must submit a new request. An affidavit of an officer or employee of the District establishing attempted service by first class mail, fax, or email to the person in accordance with the information provided by the person is proof that notice was provided by the District.
- (d) Failure to provide notice under Subsection (c) does not invalidate an action taken by the District at a rulemaking hearing.
- (e) Any hearing may or may not be scheduled during the District's regular business hours, Monday through Friday of each week, except District holidays. Any hearing may be continued from time to time and date to date without published notice after the initial published notice in conformity with the Texas Open Meetings Act. The District must conduct at least one hearing prior to adopting amendments to the District's rules.

RULE 6.3 RULEMAKING HEARINGS PROCEDURES

- (a) **General Procedures:** The Presiding Officer will conduct the rulemaking hearing in the manner the Presiding Officer deems most appropriate to obtain all relevant information pertaining to the subject of the hearing as conveniently, inexpensively, and expeditiously as possible. In conducting a rulemaking hearing, the Presiding Officer may elect to utilize procedures set forth in these Rules for permit hearings to the extent that and in the manner that the Presiding Officer deems most appropriate for the particular rulemaking hearing. The Presiding Officer will prepare and keep a record of the rulemaking hearing in the form of an audio or video recording or a court reporter transcription at his or her discretion.
- (b) **Submission of Documents:** Any interested person may submit written statements, protests, or comments, briefs, affidavits, exhibits, technical reports, or other documents relating to the subject of the hearing. Such documents must be submitted no later than the time of the hearing, as stated in the notice of hearing; provided, however, the Presiding Officer may grant additional time for the submission of documents.
- (c) **Oral Presentations:** Any person desiring to testify on the subject of the hearing must so indicate on the registration form provided at the hearing. The Presiding Officer establishes the order of testimony and may limit the number of times a person may speak, the time period for oral presentations, and the time period for raising questions. In

addition, the Presiding Officer may limit or exclude cumulative, irrelevant, or unduly repetitious presentations.

- (d) Conclusion of the hearing: At the conclusion of the hearing, the Board may take action on the subject matter of the hearing, take no action, or postpone action until a future meeting or hearing of the Board. When adopting, amending, or repealing any rule, the District shall:
 - (1) consider all groundwater uses and needs;
 - (2) develop rules that are fair and impartial;
 - (3) consider the groundwater ownership and rights described by Section 36.002, Texas Water Code;
 - (4) consider the public interest in conservation, preservation, protection, recharging, and prevention of waste of groundwater, and of groundwater reservoirs or their subdivisions, and in controlling subsidence caused by withdrawal of groundwater reservoirs or their subdivision, consistent with the objectives of Section 59, Article XVI, Texas Constitution;
 - (5) consider the goals developed as part of the District Management Plan under Section 36.1071, Texas Water Code; and
 - (6) not discriminate between land that is irrigated for production and land that was irrigated for production and enrolled or participating in a federal conservation program.

- (e) Hearing Registration Form: A person participating in a rulemaking hearing shall complete a hearing registration form stating the person's name, address, and whom the person represents, if applicable.

RULE 6.4 CONDUCT AND DECORUM

Every person, party, representative, witness, and other participant in a proceeding must conform to ethical standards of conduct and must exhibit courtesy and respect for all other participants. No person may engage in any activity during a proceeding that interferes with the orderly conduct of District business. If in the judgment of the Presiding Officer, a person is acting in violation of this provision, the Presiding Officer will first warn the person to refrain from engaging in such conduct. Upon further violation by the same person, the Presiding Officer may exclude that person from the proceeding for such time and under such conditions as the Presiding Officer deems necessary.

SECTION 7. EMERGENCY RULES AND ORDERS

RULE 7.1 EMERGENCY RULES

The Board may adopt an emergency rule without prior notice and/or hearing if the Board finds that a substantial likelihood of imminent peril to the public health, safety, or welfare, or a requirement of state or federal law, requires adoption of a rule on less than 20 (twenty) calendar days' notice. The Board shall prepare a written statement of the reasons for this finding. An emergency rule adopted shall be effective for not more than 90 (ninety) calendar days after its adoption by the Board. The Board may extend the 90-day period for an additional 90 (ninety) calendar days if notice of a hearing on the final rule is given not later than the 90th calendar day

after the date the rules is adopted. An emergency rule adopted without notice and/or a hearing must be adopted at a meeting conducted under Chapter 551, Texas Government Code.

RULE 7.2 EMERGENCY ORDER AUTHORIZING TEMPORARY PRODUCTION FOR DEMONSTRATED EMERGENCY NEED

- (a) A person can request in writing that the District issue an emergency order authorizing the production of groundwater for a beneficial use without a permit for a temporary period of time during which the person can submit a Production Permit application. This request must be in writing and include sufficient factual detail of the emergency situation; the quantity of groundwater needed (in gallons or acre feet); the proposed source of the groundwater (identify the aquifer); the specific location of the well from which the groundwater will be produced; and the period of time proposed for the requested emergency authorization. This request must be submitted to the District's office by any means that ensures receipt by the District.
- (b) Upon receipt and consideration of the written request for an emergency order under this rule, the District's Board President or General Manager may issue an emergency order partially or fully granting the request. An order issued under this rule will provide a time limit during which it is effective, which may not exceed 75 (seventy-five) calendar days.
- (c) Upon issuance of an order under this rule, the requestor is not required to hold a permit but must use its best efforts to prepare and submit a Production Permit application. The beneficiary of the emergency order authorization must submit a Production Permit application to the District within 20 (twenty) calendar days of issuance of the emergency order. If a Production Permit application is timely submitted under this subsection, then it is within the discretion of the District's Board President or General Manager to extend the 75-day timeframe of the emergency order while the application is pending.
- (d) If neither the District's Board President nor General Manager issues an order under this rule after reviewing the request, the requestor's remedy is to submit a Production Permit application.
- (e) If an emergency order is issued, the District's Board must be notified of the circumstances and relief granted at the District's next Board meeting.

RULE 7.3 EMERGENCY PERMIT AMENDMENT

If an emergency water need is demonstrated to the Board, the Board may amend a Production Permit or Historic or Existing Use Permit to authorize production from one or more additional wells owned or operated by the permit holder to provide flexibility to the entity with the emergency water need as long as the amendment is consistent with Rule 11.1(b). A hearing is not required under this rule. The Board may take action under this rule at a meeting for which notice has been provided in accordance with the Texas Open Meetings Act.

SECTION 8. DISTRICT MANAGEMENT PLAN

RULE 8.1 ADOPTION OF A MANAGEMENT PLAN

The Board shall adopt a Management Plan that specifies the acts, procedures, performance and avoidance necessary to minimize as far as practicable the drawdown of the water table or the reduction of artesian pressure, to prevent interference between wells, to prevent degradation of water quality, to prevent waste, and to avoid impairment of Desired Future Conditions. The District shall use the District's rules to implement the Management Plan.

RULE 8.2 AMENDMENT

The Board will review and readopt or amend the plan at least every fifth year after its last approval by TWDB. The District will amend its plan to address goals and objectives consistent with achieving the Desired Future Conditions within two years of the adoption of the Desired Future Conditions by the Groundwater Management Area.

RULE 8.3 EFFECTIVE DATE

The Management Plan and any amendments thereto take effect on approval by the TWDB's Executive Administrator or, if appealed, on approval by the TWDB. Approval of the Management Plan remains in effect until the District fails to timely readopt a Management Plan, the District fails to timely submit the District's readopted Management Plan to the TWDB's Executive Administrator, or the TWDB's Executive Administrator determines that the readopted Management Plan does not meet the requirements for approval, and the District has exhausted all appeals to the TWDB or appropriate court.

RULE 8.4 NOTICE

- (a) The notice of a hearing on any adoption or amendment of the Management Plan shall include the time, date, and place of the hearing, location or Internet site at which a copy of the proposed plan may be reviewed or copied, if the District has a functioning Internet site, and any other information deemed relevant by the General Manager or the Board.
- (b) Not less than ten (10) calendar days prior to the date of the hearing, and subject to the notice requirements of the Texas Open Meetings Act, the General Manager shall:
 - (1) post notice in a place readily accessible to the public at the District Office;
 - (2) provide notice to the county clerk of Pecos County; and
 - (3) make available a copy of the proposed plan at a place accessible to the public during normal business hours, and post an electronic copy on the District's Internet site, if the District has a functioning Internet site.
- (c) Any hearing may or may not be scheduled during the District's regular business hours, Monday through Friday of each week, except District holidays. Any hearing may be continued from time to time and date to date without notice after the initial notice, in compliance with the Texas Open Meetings Act. The District must conduct at least one hearing prior to adopting the plan or any amendments to the plan.

RULE 8.5 HEARING PROCEDURES

- (a) General Procedures: The Presiding Officer will conduct the hearing in the manner the Presiding Officer deems most appropriate to obtain all relevant information pertaining to

the subject of the hearing as conveniently, inexpensively, and expeditiously as possible. The Presiding Officer will prepare and keep a record of the hearing in the form of an audio or video recording or a court reporter transcription at his or her discretion.

- (b) **Submission of Documents:** Any interested person may submit written statements, protests, or comments, briefs, affidavits, exhibits, technical reports, or other documents relating to the subject of the hearing. Such documents must be submitted no later than the time of the hearing, as stated in the notice of hearing; provided, however, the Presiding Officer may grant additional time for the submission of documents.
- (c) **Oral Presentations:** Any person desiring to testify on the subject of the hearing must so indicate on the registration form provided at the hearing. The Presiding Officer establishes the order of testimony and may limit the number of times a person may speak, the time period for oral presentations, and the time period for raising questions. In addition, the Presiding Officer may limit or exclude cumulative, irrelevant, or unduly repetitious presentations.
- (d) **Conclusion of the hearing:** At the conclusion of the hearing, the Board may take action on the subject matter of the hearing, take no action, or postpone action until a future meeting or hearing of the Board. When adopting, amending, or repealing the Management Plan, the District shall:
 - (1) use the District's best available data and groundwater availability modeling information provided by the TWDB's Executive Administrator together with any available site-specific information that has been provided by the District to the TWDB's Executive Administrator for review and comment before being used in the plan;
 - (2) address the management goals set forth in Section 36.1071, Texas Water Code; and
 - (3) use and address objectives consistent with achieving the Desired Future Conditions as adopted during the joint planning process.
- (e) **Hearing Registration Form:** A person participating in a hearing on the Management Plan shall complete a hearing registration form stating the person's name, address, and whom the person represents, if applicable.

SECTION 9. WATER WELL REGISTRATION

RULE 9.1 REGISTRATION

All water wells, existing and new, exempt and nonexempt, must be registered with the District and are required to comply with the District's registration requirements in these rules.

RULE 9.2 GENERAL REGISTRATION POLICIES AND PROCEDURES

- 9.2.1 Each person who intends to drill, equip, modify, complete, operate, change type of use, plug, abandon, or alter the size of a well within the District must complete and submit to the District the District's Notice of Intent to Drill a New Well (Notice of Intent),

registration or permit application form, as applicable, even though the well may be exempt from the requirement of a permit under District Rule 11.3.

- 9.2.2 Pre-registration: For all proposed new exempt and nonexempt wells, the owner of the proposed new well, or the well operator or any other person acting on behalf of the owner of the proposed new well must file a Notice of Intent prior to drilling the proposed new well. If it is believed by the person filing the Notice of Intent that the proposed new well will be exempt under District Rule 11.3, then the Notice of Intent must reflect the basis for the exemption, and must be approved by the District prior to drilling the new well. Within five (5) calendar days from receipt of a Notice of Intent, the District's General Manager shall (1) determine whether the well is exempt under the District's rules, (2) complete the District Use Only section at the end of the Notice of Intent indicating whether the well is exempt, and (3) return a copy of the completed Notice of Intent by facsimile or mail to the address(es) and facsimile number(s) set forth in the Notice of Intent. If the District's determination is that the well is exempt, drilling may begin immediately upon receiving the approved Notice of Intent. The drilling of a new exempt well is subject to the rules of the District. Upon completion of the new exempt well, a registration form must be completed and filed. If the District's determination is that the well is nonexempt, a Drilling Permit application must be filed and approved by the District before drilling may begin.
- 9.2.3 Registration: All wells must be registered. Existing nonexempt and exempt wells shall be registered immediately. New nonexempt wells shall be registered immediately upon completion pursuant to a Drilling Permit. New exempt wells shall be registered immediately upon completion pursuant to an approved pre-registration.
- 9.2.4 Re-registration: If the owner or operator of a registered well plans to change the type of use of the groundwater, increase the withdrawal rate, or substantially alter the size of the well or well pump in a manner that does not require a permit, the well must be re-registered on a new registration form.
- 9.2.5 In the event of an emergency during the drilling of a new exempt well or with an existing well, as defined by the well driller or well service operator, as applicable, an exempt well may be reworked prior to re-registration. The registration requirement will be waived for a 48-hour period.
- 9.2.6 Term: A registration certificate is perpetual in nature, subject to cancellation for violation of these Rules.
- 9.2.7 Transfer of Registration: Upon submission to the District of written notice of transfer of ownership or control of any water right or water well covered by a registration and documents evidencing the transfer, the District's General Manager will amend the well registration to reflect the new owner(s).

SECTION 10. PRODUCTION LIMITATIONS

RULE 10.1 HISTORIC AND EXISTING USE PERMITS

The District shall designate the quantity of groundwater that may be produced on an annual basis in each Historic and Existing Use Permit issued by the District, and each permit shall be subject to the conditions of the District Act, Chapter 36 of the Texas Water Code, and these rules, provided, however, that the quantity that may be withdrawn shall not exceed the Maximum Historic and Existing Use demonstrated by the applicant, and determined by the Board, except as that designated quantity of groundwater may be reduced if the District imposes restrictions under these rules and/or permit conditions, or consistent with a Demand Management Plan developed under Rule 10.3(b).

RULE 10.2 PRODUCTION PERMITS

The District shall designate the quantity of groundwater that may be produced on an annual basis under a Production Permit pursuant to the conditions of the District Act, Chapter 36 of the Texas Water Code, and these rules, provided, however, that the quantity shall not exceed an amount demonstrated by the applicant and determined by the Board to be necessary for beneficial use throughout the permit term, except as may be reduced if the District imposes restrictions under these rules and/or permit conditions, or consistent with a Demand Management Plan developed under Rule 10.3(b).

RULE 10.3 AQUIFER-BASED PRODUCTION LIMITS

- (a) The District may limit the total amount of authorized annual production and maximum annual rate of groundwater withdrawal for any aquifer within the District as the District determines to be necessary based upon the best available hydrogeologic, geographic, and other relevant scientific data, including but not limited to noted changes in the water levels, water quality, groundwater withdrawals, annual recharge, or the loss of stored water in the aquifer, to avoid impairment of any Desired Future Condition. The District may also develop, utilize, and/or adopt groundwater availability models in support of the District's management of the groundwater within its jurisdiction. The District may establish a series of index or monitoring wells to aid in this determination.
- (b) The District will continue to study what aquifer conditions may indicate that proportional adjustment reductions to the amount of permitted production of groundwater are necessary to avoid impairment of the Desired Future Conditions of any of the various aquifers within the District. The District will also continue to study what quantity of proportional adjustment reductions to the amount of permitted production of groundwater are necessary to avoid impairment of the Desired Future Conditions of any of the various aquifers within the District. The Board will consider the findings of the District regarding actions necessary to avoid impairment of the Desired Future Conditions of any of the various aquifers within the District, and may adopt, after appropriate rulemaking notice and hearing, an aquifer-specific Demand Management Plan setting forth a schedule of the actions that may be necessary to avoid impairment of the Desired Future Conditions of any of the various aquifers within the District.
- (c) The Board has the right to modify a permit if data from monitoring wells within the source aquifer or other evidence reflects conditions such as but not limited to an unacceptable level of decline in water quality of the aquifer, or as may be necessary to

prevent waste and achieve water conservation, minimize as far as practicable the drawdown of the water table or the reduction of artesian pressure, lessen interference between wells, or control and prevent subsidence, or to avoid impairment of the Desired Future Conditions of any of the various aquifers within the District. If the Board has an interest in modifying a permit under this rule, it must provide notice and an opportunity for hearing pursuant to Section 11 of the District's rules.

- (d) Upon adoption of Desired Future Conditions and setting of the Modeled Available Groundwater numbers for any aquifer or its subdivisions in the District, the District shall, to the extent possible, issue permits up to the point that the total volume of exempt and permitted groundwater production will achieve an applicable Desired Future Condition for each such aquifer or its subdivision in the District. If the total amount of production within an aquifer, or its subdivision, as applicable, is less than the total volume of exempt and permitted groundwater production that will achieve an applicable Desired Future Condition for that aquifer, production amounts authorized under Historic and Existing Use and Production Permits may remain the same or be increased, as set forth under these rules. As determined by the District, if the total amount of production within an aquifer exceeds the Modeled Available Groundwater set for an aquifer, production amounts may be decreased proportionally among all permit holders producing from that aquifer, if necessary to avoid impairment of the Desired Future Condition. Any necessary reductions will first be applied to Production Permits, and, subsequently, if production still exceeds the Modeled Available Groundwater set for an aquifer after reducing Production Permits in their entirety, to Historic and Existing Use Permits, as set forth under Rule 10.4.

RULE 10.4 PROPORTIONAL ADJUSTMENT

- (a) When establishing proportional adjustment restrictions, the Board shall first set aside an amount of groundwater equal to an estimate of total exempt use.
- (b) After setting aside an amount of groundwater for exempt use, to the extent of remaining groundwater availability, the Board shall allocate groundwater to Historic and Existing Use Permits according to the permitted Maximum Historic and Existing Use in each. If there is insufficient groundwater availability to allow withdrawal under all Historic and Existing Use Permits, the Board shall allocate the groundwater availability first to the Historic and Existing Permits in an amount up to the Eligible Recharge Credit, on a pro rata basis relative to all other Historic and Existing Permits. The Eligible Recharge Credit shall mean 30% of the permitted Maximum Historic and Existing Use that is designated for and previously put to irrigation use in each Historic and Existing Use Permit. The groundwater authorized for withdrawal pursuant to an Eligible Recharge Credit must be withdrawn from the same aquifer that has been recharged with groundwater allocated under the respective permit or application. The remaining groundwater availability shall then be allocated among the Historic and Existing Use Permits up to an amount authorized under each permit on an equal percentage basis until total authorized production equals groundwater availability for a particular aquifer district-wide or within a management zone, if applicable. The Eligible Recharge Credit shall be applied in such a manner that the irrigation user's Existing and Historic Use Permit shall not be proportionally reduced to the extent of the Eligible Recharge Credit. The only basis for proportionately reducing the Eligible Recharge Credit shall be in the

event that 100% of the non-recharge credit portion of the Historic and Existing Use Permit allotments has been reduced. If it can be demonstrated and the Board takes official action to determine that the irrigation recharge is more or less than 30%, then the Eligible Recharge Credit may be adjusted by subsequent rulemaking. No groundwater shall be authorized for production under Production Permits if there is insufficient water availability to satisfy all Historic and Existing Use Permits and exempt use, subject to Subsection (e) of this rule. The Eligible Recharge Credit for irrigation use under a Production Permit shall not be applied where there is equal to or less than enough groundwater to satisfy all Historic and Existing Use Permits and exempt use.

- (c) If there is sufficient groundwater to satisfy all Historic and Existing Use Permits and exempt use, the Board shall then allocate remaining water availability first to the existing Production Permit holders in an amount equal to their Eligible Recharge Credit, on a pro rata basis relative to all other Production Permits. The Eligible Recharge Credit shall mean 30% of the groundwater allocated under each Production Permit that is designated for and previously put to irrigation use. The groundwater authorized for withdrawal pursuant to an Eligible Recharge Credit must be withdrawn from the same aquifer that has been recharged with groundwater allocated under the respective Production Permit. The remaining groundwater availability shall then be allocated among the Production Permits up to an amount authorized under each permit on an equal percentage basis until total authorized production equals groundwater availability for a particular aquifer district-wide or within a management zone, if applicable. The recharge credit shall be applied in such a manner that the irrigation user's Production Permit shall not be proportionally reduced to the extent of the recharge credit. The only occasion for proportionately reducing the Eligible Recharge Credit shall be in the event that 100% of the non-recharge credit portion of the Production Permit allotments has been reduced, and there is only sufficient groundwater availability to supply exempt use and Historic and Existing Use. If it can be demonstrated and the Board takes official action to determine that the irrigation recharge is more or less than 30%, then the recharge credit shall be adjusted accordingly. No groundwater may be authorized for production under new Production Permits if there is insufficient groundwater availability to satisfy all existing Production Permits, subject to Subsection (e) of this rule.
- (d) If there is sufficient groundwater to satisfy all Historic and Existing Use Permits, exempt use, and existing Production Permits, the Board may then allocate remaining groundwater availability to applications for new or amended Production Permits approved by the District.
- (e) When establishing proportional adjustment restrictions that contemplate the reduction of authorized production or a prohibition on authorization for new or increased production, the Board may also choose to proportionately reduce any existing Production Permits on a pro rata basis, excluding the authorized Eligible Recharge Credit, in order to make groundwater available for new applications for Production Permits and may allocate to each surface acre a designated amount of groundwater. In doing so, the Board may elect to allocate more water to surface acreage recognized under existing Production Permits than to surface acreage associated with applications for new Production Permits.

RULE 10.5 MANAGEMENT ZONES

- (a) As set forth in the District Management Plan and illustrated in Figures 1 through 4 below, the following management zones are established within the principal areas of irrigation and pertinent surrounding areas of Pecos County:

Management Zone 1 – Leon-Belding Irrigation Area and Vicinity of City of Fort Stockton to include outlets of Comanche Springs:

This management zone area is generally bounded by the TWDB Edwards-Trinity (Plateau) / Pecos Valley Aquifer GAM-Grid cells that contain the following sets of latitude and longitude coordinates: (30.90321N, -102.8566 W); (30.85306N, -102.8928 W); (30.69796 N, -10.15137 W). The specific GAM-grid cells composing Management Zone 1 are provided in Appendix G of the District Management Plan.

Management Zone 2 – Bakersfield Irrigation Area:

This management zone area is generally bounded by the TWDB Edwards-Trinity (Plateau) / Pecos Valley Aquifer GAM-Grid cells that contain the following sets of latitude and longitude coordinates: (except where cells are truncated by intersection with the Pecos County-line): (31.05667 N, -102.3717 W); (30.8992 N, -102.28911 W); (30.95167 N, -102.1653 W); (30.96833 N, -102.2169 W). The specific GAM-Grid cells used to compose Management Zone 2 are provided in Appendix G of the District Management Plan.

Management Zone 3 – Coyanosa Irrigation Area:

This management zone area is generally bounded by the TWDB Edwards-Trinity (Plateau) / Pecos Valley Aquifer GAM-Grid cells that contain the following sets of latitude and longitude coordinates (except where cells are truncated by intersection with the Pecos County-line): (31.1805 N, 103.0202 W); (31.3169 N, 103.0511 W); (31.2097 N, 103.0026 W); (31.1105 N, 102.9924 W); (31.1025 N, 103.1022 W); (31.1834 N, 103.1347 W). The specific GAM-Grid cells used to compose Management Zone 3 are provided in Appendix G of the District Management Plan.

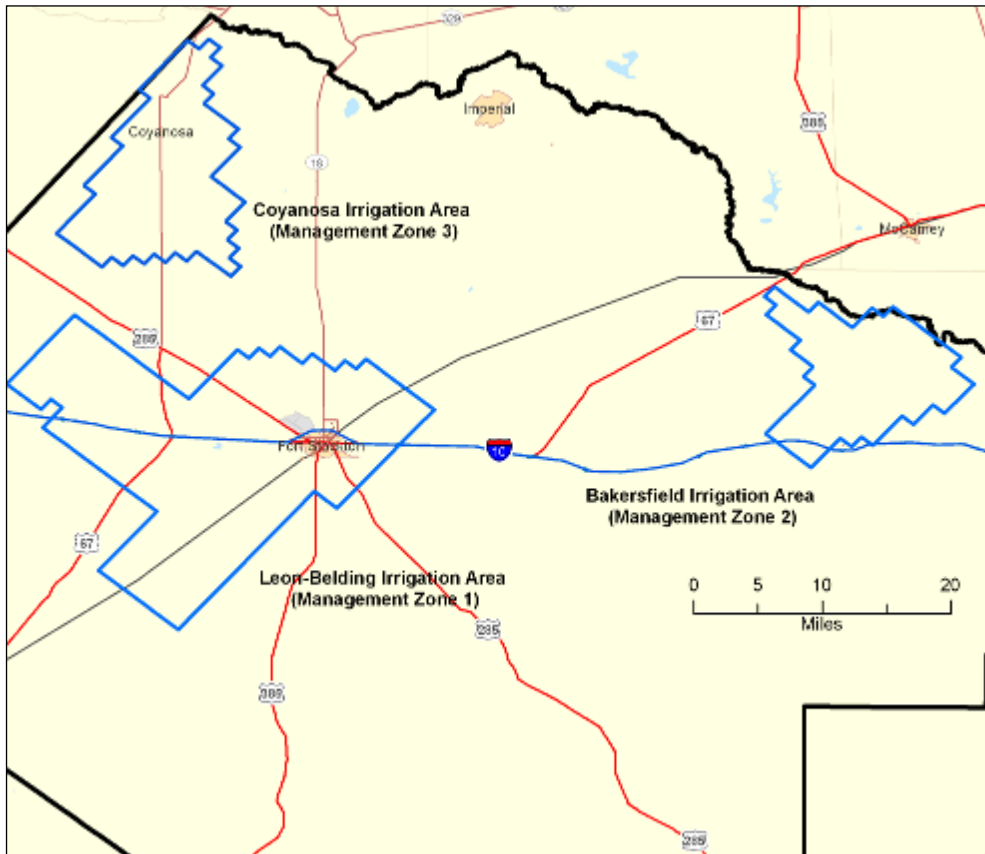


Figure 1, District Designated Management Zones

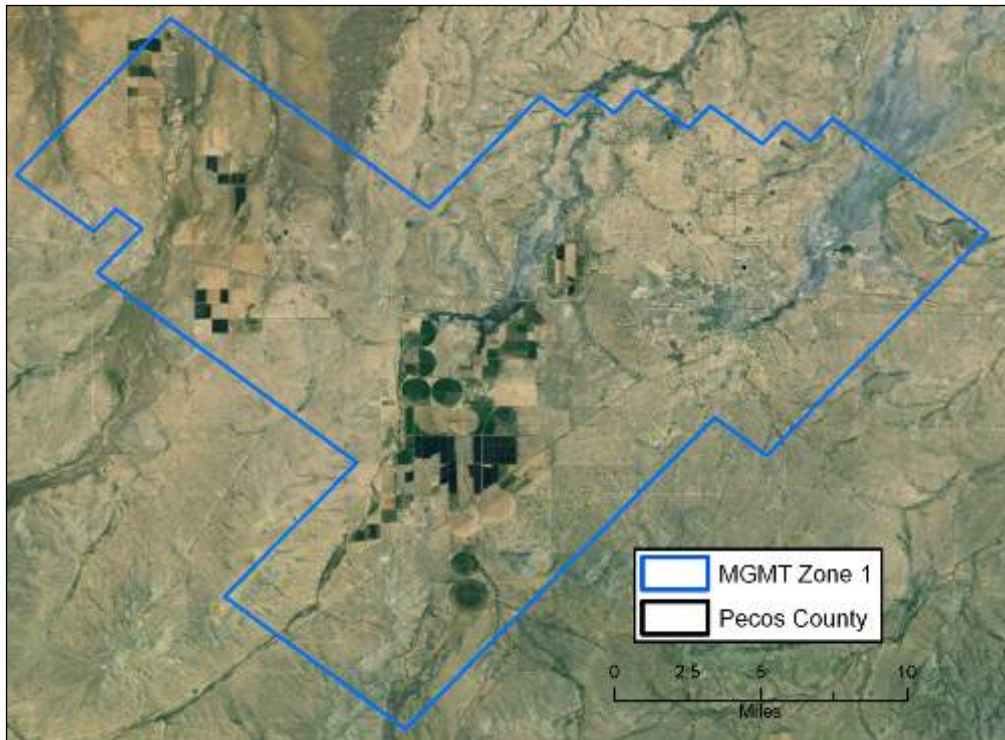


Figure 2, District Management Zone 1

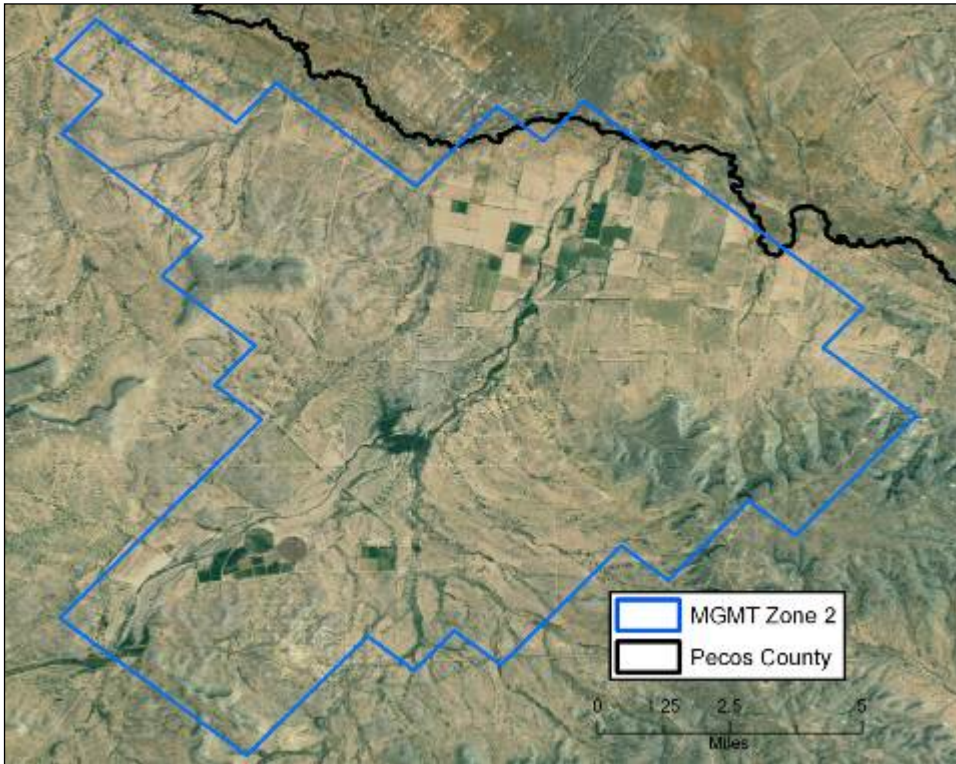


Figure 3, District Management Zone 2

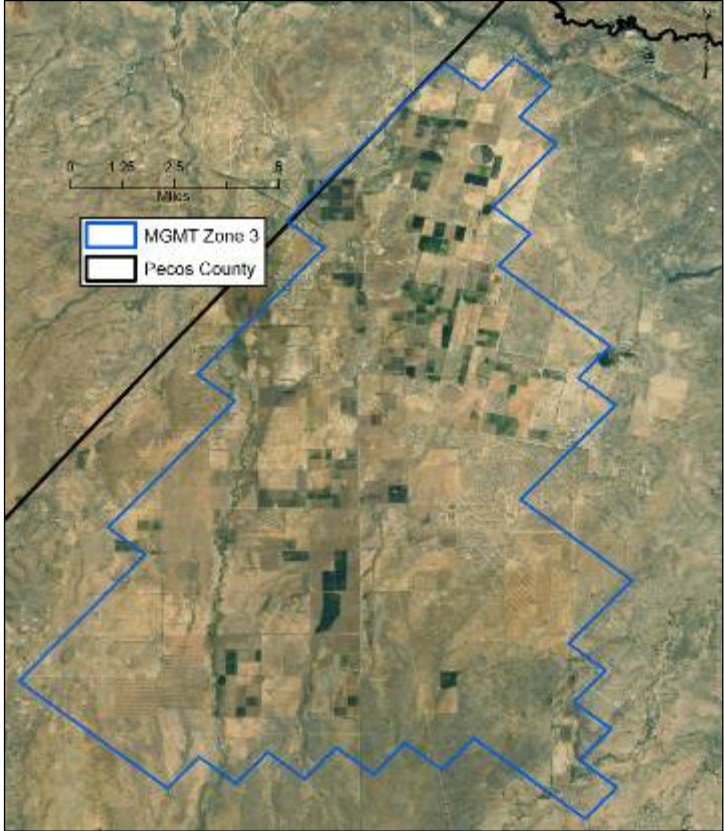


Figure 4, District Management Zone 3

(b) The District shall establish benchmarks of sustainable groundwater use over time to avoid impairment of the Desired Future Condition of each of the aquifers within each management zone, and will re-establish benchmarks from time to time as necessary to be consistent with such Desired Future Conditions. The benchmarks of sustainable groundwater use are threshold amounts of acceptable drawdown over time. The threshold amounts of acceptable drawdown are the average predicted drawdown values over time for each management zone predicted in Scenarios 10 and 11 of TWDB GAM-Run 09-35, Version 2, used to establish the DFCs for the Edwards-Trinity (Plateau) and Pecos Valley aquifers in the District. The predicted drawdown values over time for Management Zones 1 and 2, located in the GMA-7 portion of the District, are from Scenario 10. The predicted drawdown values over time for Management Zone 3, located in the GMA-3 portion of the District, are from Scenario 11. The threshold amounts of acceptable drawdown over time for each management zone are as presented in TWDB GAM Task Report 10-033, which presents more detailed information on Pecos County than otherwise available in but consistent with Scenarios 10 and 11 of TWDB GAM-Run 09-35. The threshold amounts of acceptable drawdown over time for each management zone are as follows:

Year	Management Zone-1 Average Draw-Down (in feet, rounded to nearest foot)	Management Zone-2 Average Draw-Down (in feet, rounded to nearest foot)	Management Zone-3 Average Draw-Down (in feet, rounded to nearest foot)
2015	3	1	2
2020	7	2	4
2025	10	2	5
2030	13	2	7
2035	17	2	8
2040	20	3	9
2045	23	3	11
2050	26	3	12
2055	29	3	13
2060	32	3	15

Table 1, Example Predictive Average Drawdown Values over Time in Edwards-Trinity (Plateau) and Pecos Valley Aquifers for MPGCD Management Zones from TWDB GAM Task Report 10-033.

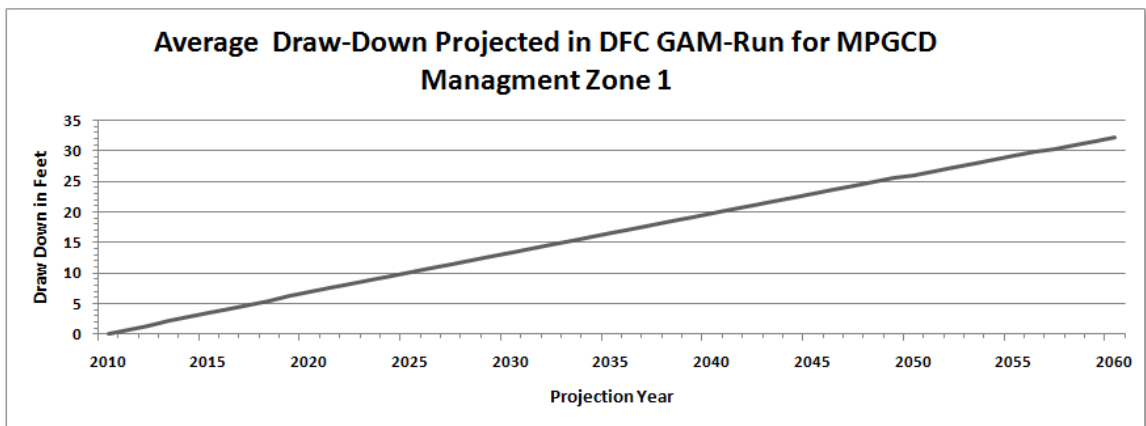


Figure 5, Chart of Predictive Average Drawdown Values over Time in Edwards-Trinity (Plateau) and Pecos Valley Aquifers for MPGCD Management Zone 1 from TWDB GAM Task Report 10-033.

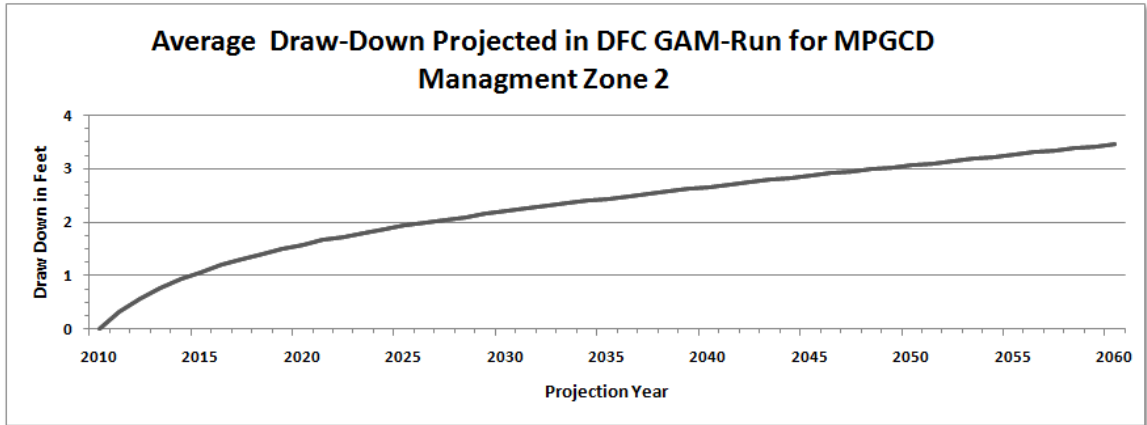


Figure 6, Chart of Predictive Average Drawdown Values over Time in Edwards-Trinity (Plateau) and Pecos Valley Aquifers for MPGCD Management Zone 2 from TWDB GAM Task Report 10-033.

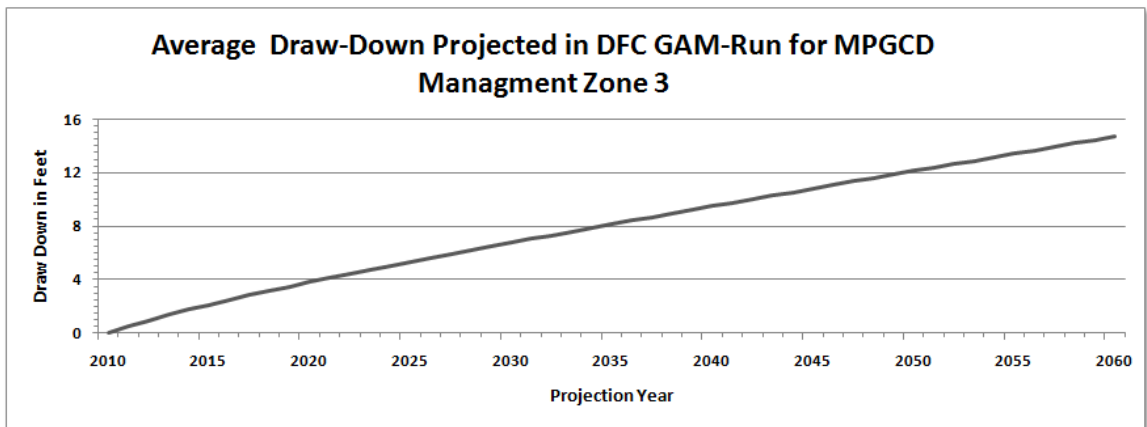


Figure 7, Chart of Predictive Average Drawdown Values over Time in Edwards-Trinity (Plateau) and Pecos Valley Aquifers for MPGCD Management Zone 3 from TWDB GAM Task Report 10-033.

- (c) At least every five years, the District will assess the amount of average drawdown realized in each of the management Zones established by the District. The District will compare the amount of realized drawdown in each Management Zone to the time-appropriate threshold of acceptable drawdown in order to determine whether the amount of groundwater use occurring in the Management Zone appears likely to impair the DFC. The District may elect to assess the aquifer drawdown realized in any Management Zone and compare the realized drawdown to the time-appropriate threshold of acceptable drawdown as often as necessary to effectively manage groundwater use and insure the aquifer DFCs are not impaired. The Board may authorize the General Manager to determine whether a comparison of realized drawdown to the threshold of acceptable drawdown is needed for any Management Zone.
- (d) The District recognizes that, as of the date of these Rules, the majority of groundwater used the Management Zones is for agricultural irrigation involving widespread intensive seasonal use of groundwater followed by a general cessation of use by the majority of users in the Management Zones. The District further recognizes that after the general

cessation of use the aquifer recovers from the effects of the previous intensive seasonal use to reach a point of maximum water-level recovery prior to initiation of the succeeding intensive-use season. The District also recognizes that the threshold of acceptable drawdown values generally represent the year-end maximum recovered water level of the aquifer in the Management Zones for the referenced year. However, the actual date of the maximum recovery of the aquifer water levels in the Management Zone may occur anytime from the month of November of a given calendar year through the month of February of the following year.

- (e) To facilitate the comparison of realized drawdown to the thresholds of acceptable drawdown over time in the Management Zones the District will use the following procedures or actions:
- (1) Establish several monitor wells in and around each Management Zone for the purpose of observing and quantifying the amount of aquifer drawdown realized over time in each Management Zone;
 - (2) Develop maps of maximum water-level recovery conditions for year 2010 following procedures in this subsection below;
 - (3) On or before February 25, 2013, adopt after notice and hearing, the maps of 2010 Management Zone water levels as the 2010 benchmarks for future comparisons of water levels under these rules;
 - (4) Observe the recovery of aquifer water levels as represented by the monitor wells after the intensive-use season to determine the apparent point of maximum water-level recovery in the Management Zone;
 - (5) In observing the recovering water levels in the monitor wells of a Management Zone, the District may determine that the apparent point of maximum water-level recovery from the season of intensive use in any given year occurs on a date through the month of February of the succeeding year;
 - (6) Compile the water-level data, of the Management Zone for the year in which the comparison is to be made;
 - (7) Determine the water-level drawdown from the established year 2010 conditions for the centroid of each grid-cell of the TWDB Edwards-Trinity (Plateau) / Pecos Valley Aquifer GAM located in the Management Zone area from the water-level contour map;
 - (8) Calculate the average drawdown of aquifer water levels for the year in which the comparison is to be made in each Management Zone using the set of GAM grid-cell centroid drawdown values for that year;
 - (9) Compare the calculated average water-level drawdown value for the Management Zone to the DFC-based threshold of acceptable drawdown for the year in which the comparison is to be made, taking into consideration how the distribution of monitoring wells and the amount of pumping known or estimated to be occurring within a Management Zone may affect comparison with the results of TWDB GAM Task Report 10-033 used to establish the thresholds of acceptable drawdown; and
 - (10) Adopt, after notice and hearing, maps of water levels of all the aquifers, which were not addressed in subsection (3) above, as benchmarks for future comparisons of water levels under these rules.

- (f) The Board may, after appropriate rulemaking notice and hearing, establish proportional adjustment reductions based upon the availability of groundwater, benchmarks of sustainable groundwater use over time, and/or degradation of water quality that could result from declining water levels if the Board determines reductions are required to conform with these rules. Upon adoption of a Desired Future Condition and setting of Modeled Available Groundwater for an aquifer within the District, the District shall ensure that the groundwater available for production within a management zone or among management zones designated for that aquifer does not impair the Desired Future Condition and is consistent with the Modeled Available Groundwater for that aquifer within the District. Restrictions within a certain management zone will be uniformly applied within that management zone.
- (g) As determined by the District, if the total amount of production within a management zone causes the benchmark of sustainable use within the management zone to be impaired, production amounts authorized under Historic and Existing Use and Production Permits may be decreased within a management zone.

RULE 10.6 LIMIT SPECIFIED IN PERMIT

The maximum annual quantity of groundwater that may be withdrawn under a Historic and Existing Use Permit or Production Permit issued by the District shall be no greater than the amount specified in the permit or the amended permit unless the District makes a determination under Section 10 to increase or decrease the authorized amount of withdrawal. Permits may be issued subject to conditions and restrictions placed on the rate and amount of withdrawal pursuant to the District's rules and permit terms necessary to prevent waste and achieve water conservation, minimize as far as practicable the drawdown of the water table or the reduction of artesian pressure, lessen interference between wells, or control and prevent subsidence. The permit holder, by accepting the permit, agrees to abide by any and all groundwater withdrawal regulations established by the District that are currently in place, as well as any and all regulations established by the District in the future. Acceptance of the permit by the person to whom it is issued constitutes acknowledgment of and agreement to comply with all of the terms, provisions, conditions, limitations, and restrictions.

In addition to any special provisions or other requirements incorporated into the permit, each permit is subject to the following standard permit provisions:

- (a) This permit is granted in accordance with the provisions of the rules of the District, and acceptance of this permit constitutes an acknowledgment and agreement that the permit holder will comply with the rules of the District.
- (b) The permit terms may be modified or amended pursuant to the provisions of the District's rules or to comply with statutory requirements.
- (c) The operation of the well for the authorized withdrawal must be conducted in a non-wasteful manner.
- (d) Withdrawals from all nonexempt wells must be accurately measured either by meter or District-approved alternative measuring method, in accordance with the District's rules. The owner or operator of all permitted wells must file an annual pumpage report with the

District. If the well is metered, the meter readings must be attached to the annual pumpage report filed with the District. Wells that are drilled, completed, or equipped so that they are incapable of producing more than 25,000 gallons per day are not required to have a meter or report annual production if used for domestic purposes or for watering livestock or poultry.

- (e) The General Manager or Board may, after notice and hearing consistent with permitting hearings governed by Section 11, reduce the quantity of groundwater authorized under a production permit if the applicant has not demonstrated that the water allocated has been withdrawn and put to beneficial use for the purpose and in the amount described in the permit for at least one calendar year during the first three full calendar years following issuance of the permit. The applicant has the burden of proof to demonstrate that the groundwater allocated has been withdrawn and put to beneficial use for the purpose and in the amount described in the permit. No parties other than the permit holder and General Manager may be named as parties in the hearing. The District shall provide written notice of this hearing by certified mail (return receipt requested), hand delivery, first class mail, fax, email, FedEx, UPS, or any other type of public or private courier or delivery service. If the District is unable to provide notice to the permit holder by any of these forms of notice, the District may tape the notice on the door of the permit holder's office or home, or post notice in the newspaper of general circulation in the District and within the county in which the alleged violator resides or in which the alleged violator's office is located.
- (f) The well site must be accessible to District representatives for inspection, and the permit holder agrees to cooperate fully in any reasonable inspection of the well and well site by the District representatives.
- (g) The application pursuant to which this permit has been issued is incorporated in the permit, and the permit is granted on the basis of, and contingent upon, the accuracy of the information supplied in that application. A finding that false information has been supplied is grounds for immediate revocation of the permit.
- (h) Violation of a permit's terms, conditions, requirements, or special provisions is punishable by civil penalties as provided by the District's rules.
- (i) The permit may also contain provisions relating to the means and methods of export outside the District of groundwater produced within the District.

RULE 10.7 MEASURING AND REPORTING GROUNDWATER WITHDRAWALS

- (a) Nonexempt wells: Every owner or operator of a nonexempt Water Well is responsible for measuring withdrawals from each Water Well either by a District-approved meter or alternative measuring method. Meters must be selected and installed in accordance with the District General Manager's specifications and approval, at the well owner's cost. Meters are not required to be installed on nonexempt wells that are drilled, completed, or equipped so that they are incapable of producing more than 25,000 gallons per day, as long as an alternative measuring method approved by the District is used to record and report groundwater production from this type of well.

- (b) Alternative measuring method: The District may authorize the use of an alternative measuring method in lieu of a meter if it can be demonstrated by the well owner that the alternative measuring method is capable of accurate measurement of groundwater withdrawal. The owner of a nonexempt well must secure the District General Manager's approval of an alternative measuring method of determining the amount of groundwater withdrawn. The District General Manager may authorize the alternative measuring method if the applicant well owner demonstrates that the alternative measuring method can accurately measure the groundwater withdrawn. Reporting shall still be required by an owner or operator of a well who is using a District-approved alternative measuring method. A report reflecting annual withdrawals, on a calendar-year basis, shall be provided by any means approved by the General Manager, or more frequently, if requested by the General Manager.
- (c) Exempt wells:
- (1) An entity holding a permit issued by the Railroad Commission of Texas under Chapter 134, Texas Natural Resources Code, that authorizes the drilling of a water well, shall report monthly to the District:
 - (A) the total amount of water withdrawn during the month;
 - (B) the quantity of water necessary for mining activities; and
 - (C) the quantity of water withdrawn for other purposes.
 - (2) A report reflecting the total amount of water withdrawn each month from a well exempt under District Rule 11.3(a)(2) must be submitted to the District by the owner or operator. The owner and the operator of such a well may coordinate to determine the amount of monthly withdrawals and to submit this report. However, both the owner and operator of such a well are responsible for ensuring that the withdrawals are determined and that the report is submitted to the District.
 - (3) The groundwater production from wells subject to reporting under this Subsection (c) must be measured by meter or alternative measuring method approved under this Rule 10.7.
- (d) A meter shall be read and the meter reading monthly recorded to reflect the actual amount of pumpage throughout each calendar year. A report reflecting the annual withdrawals and annual system water loss, on a calendar-year basis, shall be provided by any means approved by the General Manager, or more frequently, if requested by the General Manager. The permit holder subject to this reporting requirement shall keep accurate records of the amount of groundwater withdrawn and the purpose of the withdrawal, and such records shall be available for inspection by the District or its representatives. Where wells are permitted in the aggregate, metering and reporting are required on a well-by-well basis.
- (e) Immediate written notice shall be given to the District in the event a withdrawal exceeds or is anticipated to exceed the quantity authorized by a permit issued by the District.
- (f) Meter accuracy to be tested. The District may require a well owner or operator, at the well owner's or operator's expense, to test the accuracy of the meter and submit a

certificate of the test results. The District also has the authority to test a meter. If a test reveals that a meter is not registering within an accuracy of 95%-105% of actual flow, or is not properly recording the total flow of groundwater withdrawn from the well or Well System, the well owner or operator must take appropriate steps to remedy the problem, and to retest the meter within 90 (ninety) calendar days from the date the problem is discovered.

- (g) **Violation of Metering and Reporting Requirements:** False reporting or logging of meter readings, intentionally tampering with or disabling a meter, or similar actions to avoid accurate reporting of groundwater use and pumpage shall constitute a violation of these rules and shall subject the person performing the action, as well as the well owner, and/or the primary operator who authorizes or allows that action, to such remedies as provided in the District Act and these rules.
- (h) **Recordkeeping Required until Installation of Meter:** In the event that a well owner or operator is not measuring withdrawals by District-approved meter or alternative measuring method, the well owner or operator shall be required to keep an accurate log of dates of operation of each well, the duration of such operation, and the purpose and place of use of the water produced until such time as the well owner or operator installs a District-approved meter or secures an alternate measuring method. Such metering log shall be submitted to the District in writing and sworn to within ten (10) calendar days of the installation of the meter or approval of an alternate measuring method, whichever is earlier. Failure to provide the metering log as required by this rule or the provision of false information therein shall be a violation of these rules and grounds for permit denial or revocation.
- (i) **Meter Maintenance:** Costs of meter maintenance shall be borne by the well owner or operator.
- (j) **Water Use Reporting:** Pursuant to Texas Water Code Sections 36.109 and 36.111, if the Board or General Manager deems it useful or otherwise necessary for the District to secure monthly groundwater use data, the General Manager may notify any user of groundwater that monthly groundwater use must be reported to the District.

SECTION 11. GENERAL PERMITTING POLICIES AND PROCEDURES

RULE 11.1 REQUIREMENT FOR PERMIT TO DRILL, OPERATE, OR ALTER THE SIZE OF A WELL OR WELL PUMP; PERMIT AMENDMENT

- (a) **Permits Required:** No person may drill, operate, equip, complete, or alter the size of a well or well pump without first obtaining a permit or approved pre-registration, as applicable, from the District as provided by statutory law and these rules.
- (b) **Permit Amendment Required:** A permit amendment is required prior to any deviation from the permit terms regarding the maximum amount of groundwater to be produced from a well, the location of a proposed well, the purpose of use of the groundwater, the location of use of the groundwater, or the drilling and operation of additional wells, even if aggregate withdrawals remain the same. A Historic and Existing Use Permit may not be amended to modify the purpose of use for which the Historic and Existing Use Permit was originally granted, but may be amended to modify the place of use to a place inside

or outside the district. The District may authorize a permit holder to lease or otherwise transfer ownership of a Historic and Existing Use Permit or the amount of groundwater production authorized under such a permit, as long as the purpose of use does not change and as long as the withdrawal is made from the same aquifer and within the same management zone, if applicable, and such transfers are subject to the Rule 11.9.1 and Rule 11.10.10.

- (c) Absent an express reservation of rights in the transferor, the transfer of ownership of the well(s) designated by a permit is presumed to transfer ownership of the permit, and the transfer of the land and well site on which the well is located is presumed to transfer ownership of the well. The ownership of a permit may be transferred separately from the ownership of water rights and a well and land and well site on which the well is located, subject to these Rules and permit conditions, with sufficient documentation of an ownership or contractual right to hold the permit. If a transferor retains any interest in the permit, the District may issue a second permit to the transferee that contains the benefits severed and transferred. The District may thereafter amend the permit of the transferor accordingly, along with any appropriate conditions relevant to the transfer imposed by the District. The District shall limit the amount of production authorized in the transfer of a permit to a different location of use to the amount of water produced and beneficially used by the transferor under the original permit.
- (d) If the production authorized for two or more wells that have been aggregated to function as part of a Well System under Rule 11.2 and one or more wells under the Well System will be transferred, the District may allocate a pro rata share of the total authorized production to each well transferred unless the conveyance documents transferring the well(s) clearly provides for a different method of allocation.
- (e) Upon submission to the District of written notice of transfer of ownership or control of any water right or water well covered by a permit and documents evidencing the transfer, the District's General Manager will amend the permit to reflect the new owner(s).

RULE 11.2 AGGREGATION OF WITHDRAWAL AMONG MULTIPLE WELLS

A Drilling Permit application must be filed for each well that requires permitting. However, one application shall be filed for a Production Permit, or for renewal thereof, which consolidates two or more wells that will function as part of a Well System.

RULE 11.3 PERMIT EXCLUSIONS AND EXEMPTIONS

- (a) The District's permit requirements in these rules do not apply to:
 - (1) drilling or operating a well used solely for domestic use or for providing water for livestock or poultry if the well is located or to be located on a tract of land larger than 10 acres and drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater a day; provided, however, that this exemption shall also apply after the effective date of this rule to a well to be drilled, completed, or equipped on a tract of land equal to or less than 10 acres in size only if:

- (A) the well is to be used solely for domestic use or for providing water for livestock or poultry on the tract;
 - (B) such tract was equal to or less than 10 acres in size prior to the effective date of this rule; and
 - (C) such tract is not further subdivided into smaller tracts of land after the effective date of this rule and prior to the drilling, completion, or equipping of the well.
 - i. A well qualifying for exemption under this subsection must observe a minimum distance of 50 feet from the property line and 50 feet from other wells.
 - ii. For purposes of an exemption under this subsection, the terms “livestock use” and “poultry use” do not include livestock or poultry operations that fall under the definition of “Animal Feeding Operation” or “Concentrated Animal Feeding Operation” set forth in District Rule 1.1.
- (2) drilling a water well used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas well permitted by the Railroad Commission of Texas provided that the person holding the permit is responsible for drilling and operating the water well and the water well is located on the same lease or field associated with the drilling rig.
 - (3) drilling a water well authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, Texas Natural Resources Code, or for production from the well to the extent the withdrawals are required for mining activities regardless of any subsequent use of the water.
 - (4) an injection water source well permitted by the Railroad Commission of Texas for secondary or enhanced oil or gas recovery.
 - (5) a well used for an ASR Project, except as provided under District Rule 18.1.
 - (6) monitoring wells.
 - (7) leachate wells.
 - (8) dewatering wells.
- (b) A well exempted under Subsections (a)(2), (3), (4), and (5) above loses its exemption and must be permitted and comply with all the District’s rules in order to be operated if:
- (1) the groundwater withdrawals that were exempted under Subsection (a)(2) are no longer used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas well permitted by the Railroad Commission of Texas;

- (2) the groundwater withdrawals that were exempted under Subsection (a)(3) are no longer necessary for mining activities or are greater than the amount necessary for mining activities specified in the permit issued by the Railroad Commission of Texas under Chapter 134, Texas Natural Resources Code;
 - (3) the groundwater withdrawals that were exempted under Subsection (a)(4) are no longer used solely to supply water for secondary or enhanced oil recovery pursuant to the terms of the permit issued by the Railroad Commission of Texas; or
 - (4) the groundwater withdrawals that were exempted under Subsection (a)(5) exceed the amount specified in the permit issued by TCEQ.
- (c) A water well exempted under Section (a) above shall:
- (1) be pre-registered and registered in accordance with rules promulgated by the District; and
 - (2) be equipped and maintained so as to conform to the District's rules requiring installation of casing, pipe, and fittings to prevent the escape of groundwater from a groundwater reservoir to any reservoir not containing groundwater and to prevent the pollution of harmful alteration of the character of the water in any groundwater reservoir.
- (d) Registered wells observe exemptions that were in place at the time of filing the registration.
- (e) A well exempt under this section will lose its exempt status if the well is subsequently used for a purpose or in a manner that is not exempt.

RULE 11.4 HISTORIC AND EXISTING USE PERMITS

The District recognizes the validity of Historic and Existing Use Permits granted under the District's rules and will continue to recognize the rules and procedures applicable to a Historic and Existing Use permit existing at the time the permit was granted. The District no longer accepts applications for Historic and Existing Use Permits because the deadline has passed, and the application procedures and the Historic and Existing Use Permit permitting process are now obsolete. Historic and Existing Use Permits are subject to the transfer, renewal, and permit amendment provisions set forth in these rules.

RULE 11.5 PERMITS REQUIRED TO DRILL A NEW WELL

- (a) Every person who drills a water well after the initial effective date of these rules must file the Notice of Intent provided for in Rule 9.2. Every person who drills a nonexempt well must file a permit application on a form approved by the District.
- (b) Drilling Permit Requirement: The well owner, well operator, or any other person acting on behalf of the well owner must obtain a Drilling Permit from the District prior to

drilling a new water well, perforating an existing well or increasing the size of a well pump therein so that the well could reasonably be expected to produce 25,000 gallons per day or more, unless the well is an exempt well under District Rule 11.3.

RULE 11.6 PERMITS REQUIRED TO OPERATE A NEW WELL OR FOR INCREASED WITHDRAWAL AND BENEFICIAL USE FROM AN EXISTING WELL

Prior to and no later than 21 (twenty-one) calendar days after completion of a new water well, or reworking or re-equipping an existing water well, the well owner or well operator must file a completed Production Permit application on a form approved by the District. A Production Permit may only be issued if the well from which water is proposed to be withdrawn has been drilled or if the Production Permit is subject to the well being drilled in accordance with the terms of a Drilling Permit. If the Drilling Permit expires without a well being drilled, any associated Production Permit shall expire at the same time the Drilling Permit expires.

RULE 11.7 PERMIT TERM

- (a) Drilling Permit Term: Unless specified otherwise by the Board or these rules, Drilling Permits are effective for a term ending 120 (one hundred twenty) calendar days after the date the permit is issued by the District, which may be extended by the General Manager with good cause shown.
- (b) Historic and Existing Use Permit and Production Permit Terms: Unless specified otherwise by the Board or these rules, Historic and Existing Use Permits and Production Permits are effective until the end of the calendar year in which they are issued. If renewed, such permits shall thereafter be effective for one-year terms from the initial expiration date unless specified otherwise by the Board. The permit term will be shown on the permit. A permit applicant requesting a permit term longer than one year must substantiate its reason for the longer term and its need to put groundwater to beneficial use throughout the proposed permit term.

RULE 11.8 PERMIT RENEWAL

- (a) Permit Renewal: Renewal applications shall be provided by the District prior to expiration of the permit term, and shall be filed with the District no later than January 15th of the new year for which the permit renewal is requested. Production Permits will not be renewed unless the well has been drilled at the time of the renewal application.
- (b) Renewal Application Requirements: The District will timely provide a form for an application for renewal prior to expiration of the permit term. The renewal application will be a streamlined application and will not include all of the elements required for an original application.
- (c) The District shall, without a hearing, renew or approve an application to renew a Production Permit before the date on which the permit expires, provided that:

- (1) the application is submitted in a timely manner; and
 - (2) the permit holder is not requesting a change related to the renewal that would require a permit amendment under the District's rules.
- (d) The District is not required to renew a permit under District Rule 11.8(c) if the applicant:
- (1) is delinquent in paying a fee required by the District;
 - (2) is subject to a pending enforcement action for a substantive violation of a District permit, order, or rule that has not been settled by agreement with the District or a final adjudication; or
 - (3) has not paid a civil penalty or has otherwise failed to comply with an order resulting from a final adjudication of a violation of a District permit, order, or District rule.
- (e) If the District is not required to renew a permit under District Rule 11.8(d), the permit remains in effect until the final settlement or adjudication on the matter of the substantive violation.
- (f) Any permit holder seeking renewal may appeal the General Manager's ruling by filing, within ten (10) calendar days of notice of the General Manager's ruling, a written request for a hearing before the Board. The Board will hear the applicant's appeal at the next available regular Board meeting. The General Manager shall inform the Board of any renewal applications granted or denied. On the motion of any Board member, and a majority concurrence in the motion, the Board may overrule the action of the General Manager. The General Manager may authorize an applicant for a permit renewal to continue operating under the conditions of the prior permit, subject to any changes necessary under proportional adjustment regulations or these rules, for any period in which the renewal application is the subject of a hearing.
- (g) If the holder of a Production Permit, in connection with the renewal of a permit or otherwise, requests a change that requires an amendment to the permit under District Rule 11.1, the permit as it existed before the permit amendment process remains in effect until the later of:
- (1) the conclusion of the permit amendment or renewal process, as applicable; or
 - (2) a final settlement or adjudication on the matter of whether the change to the permit requires a permit amendment.
- (h) If the permit amendment process results in the denial of an amendment, the permit as it existed before the permit amendment process shall be renewed under District Rule 11.8(c) without penalty, unless subsection (d) of District Rule 11.8 applies to the applicant.
- (i) The District may initiate an amendment to a Production Permit, in connection with the renewal of a permit or otherwise, for the purpose of achieving a Desired Future Condition

or another statutory purpose of the District. Any amendment initiated by the District shall be processed in accordance with Section 11 of the District's rules. If the District initiates an amendment to a Production Permit, the permit as it existed before the permit amendment process shall remain in effect until the conclusion of the permit amendment or renewal process, as applicable.

RULE 11.9 PERMIT APPLICATIONS

11.9.1 Requirements for All Permit Applications:

- (a) Each application for a water well Drilling Permit, Production Permit, and permit amendment requires the filing of a separate application. The application must be completed on the District's form and may be supplemented. Each application for a permit shall be in writing and sworn to, and shall include the name, mailing address, phone number, and email address of the applicant and the owner of the land on which the well or Well System is or will be located.
- (b) In addition to the information required of all permit applications in Rule 11.9.1(a), an application for a Drilling Permit or to amend a Drilling Permit must include the following information:
 - (1) if the applicant does not own the well site(s) and proposed well(s), documentation establishing the applicable authority to construct, drill, and complete each well on each proposed well site;
 - (2) the location of each well and the estimated rate at which water will be withdrawn;
 - (3) the conditions and restrictions, if any, placed on the rate and amount of withdrawal;
 - (4) the date the permit is to expire if each well is not drilled or if each existing well is not properly completed to meet all statutory and regulatory requirements for the intended purpose of use;
 - (5) a declaration that the applicant will comply with all District well plugging and capping guidelines and report closure to the Commission;
 - (6) a location map of all existing wells within a one half (1/2) mile radius of the proposed well or Well System or the existing well or wells to be modified;
 - (7) a map or other document from the Pecos County Tax Appraisal District indicating the ownership and location of the subject property;
 - (8) a document indicating the location of each proposed well or each existing well to be modified, the subject property, and adjacent owners' physical and mailing addresses;

- (9) notice of any application to TCEQ to obtain or modify a Certificate of Convenience and Necessity to provide water and wastewater service with water obtained pursuant to the requested permit; and
 - (10) a statement of the nature and purpose of the proposed use and the amount of water to be used for each purpose.
- (c) In addition to the information required of all permit applications in Rule 11.9.1(a), an application for a production permit or to amend a production permit must include the following information:
- (1) if the applicant does not own the well site(s), proposed well(s), and groundwater, documentation establishing the applicable authority to operate each well and produce and beneficially use the groundwater from each well;
 - (2) the annual amount of groundwater claimed to be necessary for beneficial use during each year of the proposed permit term with information supporting the annual amount of use requested for each proposed purpose of use;
 - (3) a requirement that the water withdrawn under the permit be put to beneficial use at all times;
 - (4) the location of the use of the water from the well or Well System;
 - (5) the conditions and restrictions, if any, placed on the rate and amount of withdrawal;
 - (6) a declaration that the applicant will comply with the District's rules and all groundwater use permits and plans promulgated pursuant to the District's rules;
 - (7) a declaration that the applicant will comply with the District Management Plan;
 - (8) a drought contingency plan;
 - (9) a declaration that the applicant will comply with all District well plugging and capping guidelines and report closure to the Commission;
 - (10) the duration the permit is proposed to be in effect, if greater than one year;
 - (11) a written statement addressing each of the applicable criteria in Rules 10.2 and 11.10.10(a), (b), and (c) and substantiating why the applicant believes the Board should consider each of these applicable criteria in a manner favorable to the applicant; and
 - (12) if groundwater is proposed to be exported out of the District, the applicant shall describe the following issues and provide documents relevant to these issues:
 - (A) the availability of water in the District and in the proposed receiving area

during the period for which the water supply is requested;

- (B) the projected effect of the proposed export on aquifer conditions, depletion, subsidence, or effects on existing permit holders or other groundwater users within the District; and
 - (C) how the proposed export is consistent with the approved regional water plan and certified District Management Plan.
- (13) a hydrogeological report shall be attached to an application that:
- (A) requests a new Production Permit for 1,000 acre feet or more per year from one or more wells or an associated Well System;
 - (B) requests a new Production Permit or amendment to an existing Production Permit in an amount that when combined with the amount of an existing Production or Historic and Existing Use permit or permits associated with the same well or wells or Well System is at least 1, 000 acre feet per year; or
 - (C) requests to amend and increase by at least 250 acre feet the annual maximum permitted use of a Production Permit for a well or Well System.

This report must address the area of influence of the well(s) and any associated Well System for which a permit is being requested and a description of the aquifer that will supply water to each well, and be complete in a manner that complies with the requirements adopted in Rule 11.9.3.

- (14) the hydrogeological report required in Subsection (13) shall be updated for each and every permit amendment application that requests an increase in production of at least 1,000 acre feet per year from one or more wells or an associated Well System authorized under an existing Production or Historic and Existing Use Permit or Permits that currently authorize at least 1,000 acre feet per year.
- (15) the results of a pump test for each well for which a production permit or amendment to a production permit is being requested depends upon the following thresholds:
- (A) If the annual amount of groundwater withdrawal from one or more wells or an associated Well System in any calendar year during the permit term is more than 20 acre feet and less than 1,000 acre feet, the pump test(s) and results must meet the requirements of Rule 11.9.2(a);
 - (B) If an application is subject to the hydrogeological report requirements in Subsection (13) of this rule, the pump test(s) and results must meet the requirements of Rule 11.9.2(b).
- (d) The General Manager or Board may waive one or more of the informational requirements for an application to amend a production permit depending on the nature of the

amendment provided that the Board has sufficient, relevant information to consider the application at the hearing.

- (e) The applicant must provide the District with the information relevant to the type of application that is required in this Rule 11.9 for the District to declare that the application is administratively complete. If the District provides a written list of application deficiencies, the applicant shall have 60 (sixty) calendar days to fully respond to the General Manager's satisfaction, after which a deficient application expires. The applicant may request an extension of this 60-day period or a ruling on the administrative completeness of its application by filing a written request with the District. The District will set an applicant's request under this rule on its next regularly scheduled Board meeting agenda, with three (3) calendar days' notice compliant with the Texas Open Meetings Act. The Board will consider and take action on an applicant's request under this rule at this meeting.

11.9.2 Specific Capacity Pump Test and Pump Test Report Requirements

- (a) Specific Capacity Pump Test and Pump Test Report Requirements required by Rule 11.9.1(c)(15)(A)(for one or more nonexempt wells or an associated Well System proposed to be authorized to annually withdraw less than 1,000 acre feet): The specific capacity pump test will provide the District with site-specific aquifer properties and well-yield information necessary to better evaluate a production permit application. The District is aware that a pump test to obtain aquifer specific capacity information requires site preparation, specialized monitoring equipment, monitoring during the test and pump test data analysis which can be time consuming and somewhat costly. The District will assist the production permit applicant with site preparation, provide the required water level monitoring equipment and conduct the technical analysis of the specific capacity pump test.

As part of its consideration of the relevant permitting factors in Rules 11.10.10, the MPGCD Board will consider the specific capacity pump test analysis results provided by the applicant along with input on these results from MPGCD's General Manager and professionals and, if there is a contested hearing, input on these results from any parties admitted into the contested hearing.

The dedicated pump must have the production capacity to meet the permit applicant's requested groundwater demand. The District must be notified at least 14 days in advance of any specific capacity pump test. A specific capacity pump test conducted without prior approval from the District will be deemed noncompliant with MPGCD permit requirements.

If the specific capacity pump test activity is found to be flawed or not acceptable by the District's General Manager, the District's General Manager may require the specific capacity pump test to be repeated.

The District Manager has the authority to exempt a permit applicant from this requirement provided the permit applicant provides good cause why other information submitted with the application is sufficient to describe the type of site-specific aquifer

properties and well-yield information that would be obtained from the pump test and associated analysis.

(1) Specific Capacity Pump Test Site Preparation

(A) Availability of local monitor wells: The District is working to expand its understanding of the groundwater resources within the District to ensure the best available science is considered during the permitting process. If a well located within 1,000 feet of and completed within the same aquifer as the permit applicant's specific capacity pump test well is available to be monitored during the pump test, the General Manager may require that it be monitored during the test. This monitor well would provide additional, important aquifer properties. A monitor well(s) may not be actively pumping during the pump test.

(B) Installation of Water-level Transducers and the Determination of Static Water Levels

i. The District staff will assist in the installation of District's own water-level transducers into the permit applicant's well to be pump tested and additional transducers into any monitor wells identified for the specific capacity pump test.

ii. The District staff will determine the depth from the static water level of the well to the top of the pump intake (pump test water column thickness) prior to a pump test to understand at what water level depth the water level will drop below the water level transducer or below the pump intake. It is recommended that the water level transducer depth should be located at least 10 feet above the pump intake.

iii. Prior to a specific capacity pump test, static water levels of the pump test well and any associated monitor wells must be measured by transducers for at least 24 hours prior to the pump test.

iv. The District's staff will make sure that the transducers are time synchronized if there is more than one transducer. The transducers will be programmed to collect water levels every 15 minutes during the entire pump test event which includes: 24 hours before pumping commences, during pumping (8 or 12 hours), and for at least 8 hours after pumping concludes (well recovery measurements).

(2) Determination of Specific Capacity Pump Test Discharge Rate: The specific capacity pump test discharge rate should be representative of the production needed to meet the permit applicant's requested instantaneous production rate (expressed in gallons per minute) and annual quantity of production (expressed in gallons or acre-feet per year). The District's General Manager will provide guidance to the permit applicant on a recommended pump test discharge rate.

- (3) **Monitoring of Specific Capacity Pump Test Discharge Rate:** During a specific capacity pump test, the water level within the well usually declines and, as it does, the well discharge rate will also decrease. The permit applicant needs to provide a flow meter or a method to accurately estimate (within 10% of the actual rate) the pump test discharge rate during the specific capacity pump test. The pump test discharge monitoring method must be pre-approved by the District's General Manager before the pump test begins.

There should be allowance for increasing the pump rpm to maintain a constant discharge rate during the specific capacity pump test or, with the District General Manager's approval, the average discharge rate during the pump test could be used to calculate the well's specific capacity.

- (4) **Specific Capacity Pump Test Time Period:** The specific capacity pump test time period will vary depending on the aquifer and will be confirmed by the District's General Manager in the following ranges:

- (A) At least an 8-hour specific capacity pump test for the Edwards-Trinity, Pecos Alluvium and Dockum aquifers.
- (B) At least a 12-hour specific capacity pump test for the Rustler, Capitan, San Andres and Igneous aquifers.

- (5) **Specific Capacity Pump Test**

- (A) The District staff will help initiate the pump test at an agreed-upon time determined by the District General Manager and the permit applicant. The District will verify that the water-level transducers are active and collecting water level data.
- (B) Using a conductivity meter provided by the District measure the discharge water conductivity at 5 to 10 minutes after the pump test has started, mid-way through the pump test and at the end of the pump test. The District's staff will collect the first and last conductivity measurements.
- (C) The permit applicant is responsible for monitoring and recording the pumping well's discharge rate changes during the pump test and the mid-pump test water quality conductivity measurement.
- (D) Upon completion of the required time for the pump test, the District's staff will shut down the pump test and confirm that the water-level transducers are still active and collecting water level data.

- (6) **Post Specific Capacity Pump Test:** After the completion of the water level recovery measurements, the District's staff will:

- (A) Remove transducers from all the wells, and collect pump test information from the permit applicant (variation in pump test discharge rates or the

time which permit applicant adjusted pump rate to fixed discharge rate and mid-pump test water quality measurement).

- (B) The District's staff will download all the water level transducer data into an Excel spreadsheet with notations on the variations of pump discharge rates with time.
- (C) District's groundwater consultant (PG or PE) will take pump test data provided by the District and calculate specific capacity and determine aquifer properties for the monitor wells (if available).
- (D) District's groundwater consultant will prepare a brief report to provide to the District's Board and the permit applicant.

(b) Pump Test and Pump Test Report Requirements Associated with Hydrogeological Report required by Rule 11.9.1(c)(14) and (15)(B) (for one or more nonexempt wells or an associated Well System proposed to be authorized to annually withdraw at least 1,000 acre feet): The American Society of Testing and Materials (ASTM) documents D4043 (Selection of Aquifer Test Method) and D4050 (Field Procedure, Pump Tests) provide guidance for designing and implementation of pump tests, and D4105 (Confined Aquifer Pump Test Analysis) or D4106 (Unconfined Aquifer Pump Test Analysis) provide guidance to determine aquifer properties. A permit applicant can purchase these documents at <http://global.ihs.com/standards.cfm?publisher=ASTM&RID=Z06&MID=5280> and is strongly encouraged to review these documents prior to designing and conducting any pump tests.

(1) Pump Tests:

Pump tests conducted without prior approval from the District may be deemed noncompliant with the District's Production Permit requirements. The District must be notified at least 48 hours in advance of any pump test conducted as part of the hydrogeological investigation.

Texas registered geoscientists (P.G.) and/or engineers (P.E.) with five years or more of groundwater experience will be required to oversee the design and implementation of each pump test and associated monitor wells and will evaluate the pump test results to determine aquifer properties. Aquifer properties to be determined from the pump tests include specific capacity, transmissivity, hydraulic conductivity, and possibly storage coefficient or storativity values.

(2) Pump Test Monitor Wells:

Monitor wells are required for applicant well fields with multiple wells. Monitor wells selected by the applicant for the pump test must comply with the District's monitor well requirements and the monitor well selection must be pre-approved by the District's General Manager. Monitor wells may not be actively pumping during the pump test. The use of existing private wells within two miles of the

pumping wells and within the same groundwater producing formation is acceptable if the well meets the District's monitor well requirements.

A monitor well selected for the pump test is required to monitor only the applicant's aquifer and exhibit a connection with the pumping wells indicated by a minimum of 0.2 feet of drawdown during the pump test. For confined aquifers, the District may also require a monitor well in an overlying aquifer to monitor potential water level fluctuations and to determine whether there is communication between the applicant's aquifer and overlying aquifers.

(3) Pump Test Requirements:

- (A) If possible, the District and/or the applicant will meet with any adjacent landowners with large operating wells (>250 gpm) within a two-mile radius of the pump test pumping wells prior to the pump test. The District and/or the applicant will inform the landowners of the date of the pump test, and, if possible, determine whether the landowners' wells will be active during the scheduled pump test. If the landowners' wells are going to be active during the pump test, the District will request that the landowners do not vary the pumping rates during the pump test.
- (B) The designed pump test results must be able to be used to mimic the well field's impact of the applicant's requested acre feet per year pumpage.
- (C) Static water levels of each pump test pumping and monitor wells should be measured every 12 hours for a total of 36 hours for the Pecos Valley Alluvium, Edwards-Trinity Plateau, and Dockum clastic aquifers and for a total of 72 hours for the Rustler and Capitan Reef Complex karstic aquifers and the San Andres karstic formation prior to the beginning of the pump test.
- (D) Flow meters will be used to monitor each pumping well's groundwater production.
- (E) Measure water levels and pump test discharge rates and times during pump test at acceptable frequency according to ASTM 4050.
- (F) A metered pump test of not less than a continuous 36 hours for the dominantly clastic aquifers, including the Pecos Valley Alluvium (clastic), Edwards-Trinity Plateau (carbonate karst and clastic), and Dockum (clastic).
- (G) The documentation of times of field activities, weather changes, and pump test adjustments and/or problems will be recorded.
- (H) A recovery phase of a period sufficient for a 95 percent recovery of beginning water levels of each pumping well and 90 percent recovery for each monitor well, not to exceed time period of pumping activity. Water level measurements during recovery should be measured at the same

frequency as during the pumping phase (frequent at beginning and decreasing frequency with time).

- (I) Water quality parameters (pH, temperature, and conductivity) of the pump test wells' discharged water will be measured at the beginning of the pump test and every 12 hours during the pump test.
- (J) Water quality analysis will include TDS, SO₄, Cl, Ca, Mg, Na, HCO₃, F, Br, and NO₃ from each pumping well and will be collected twice—prior to and at the end of each pump test.

The applicant may request that the District's General Manager consider a variation of the above pump test requirements. The District's General Manager has 30 days to review and approve or disapprove the variance request.

(4) Pump Test Report Requirements:

- (A) A discussion about the general characteristics of the aquifer, including, but not limited to: confined or unconfined, elastic or karstic, variation in aquifer thickness, and interpreted degree of karst development. Discuss whether the production wells are partially or fully penetrating and the impact on monitor well selection.
- (B) For each pump test and monitor well, tables listing water level changes with times, initial water levels at the start of pump test (for pumping and monitor wells), pump test date, start time, end time, changes during and final pumping rates, and water quality parameters measured during the pump test, as a report appendix.
- (C) For each pump test and monitor well, a table listing the water level recovery measurements with times as a report appendix.
- (D) Copies of field notes collected during the pump test as a report appendix.
- (E) A discussion of the reasoning for the selection of the pump test analysis method used to estimate the aquifer properties for each pumping and monitor well in the pump test.
- (F) A table listing final estimated aquifer properties for each pumping and monitor well in the pump test.
- (G) A table of the pumping wells water quality parameters collected during the pump test.
- (H) A discussion of any observed groundwater quality changes (if any) that occurred during the pump test.

If the pump test activity or analysis is found to be flawed or not acceptable by the District's General Manager, the District's General Manager may require that the

pump test or analysis be repeated in an acceptable manner before the groundwater Production Permit application may be considered.

11.9.3 Hydrogeological Report Requirements for Production Permits for >1,000 Or More Acre-Feet Per Year: Planning and implementation of all hydrogeological reports required for a Production Permit application should be coordinated with the District to minimize technical issues and to expedite the review process of the application. The District may exercise discretion in the application of the guidelines on an individual and site-specific basis in order to allow a practicable application of the guidelines while ensuring a result yielding the information needed by the District to manage groundwater resources.

The hydrogeological report is intended to provide information to the District on:

- (1) the geologic setting of the applicant's proposed production well field;
 - (2) well construction information of production and monitor wells;
 - (3) local aquifer characterization of aquifer properties by pump tests; and
 - (4) an evaluation of whether the proposed use of water unreasonably affects existing groundwater resources or existing permit holders.
- (a) Geologic Setting of Applicant's Proposed Production Well Field: The report shall include a discussion of the surface and subsurface geology of the applicant's tract of land on which each proposed production well or wells are located and will include a brief description of the local geology and the selected aquifer within a two-mile radius of each of Applicant's proposed wells. The description will include:
- (1) A table that illustrates the stratigraphic column of geological formations overlying and underlying the applicant's identified producing aquifer.
 - (2) The following figures will be required for the hydrogeological report based on available subsurface well data. The aerial extent of the following figures will include the applicant's proposed production well field and a two-mile buffer zone, reflected by concentric circles with a radius of two miles from each of the applicant's proposed wells.
 - (A) A figure illustrating the location of the applicant's proposed production and monitor wells, property boundary, and each existing water well located within a two-mile radius of the applicant's proposed production wells. This figure will include the name of each adjacent landowner whose property adjoins the applicant's, the locations of existing water wells, and the names of local streets and/or roads.
 - (B) A figure illustrating the contoured top depth of the producing aquifer. (This is not required for the Pecos Valley Alluvium or Edwards-Trinity Plateau aquifers.)

- (C) A figure illustrating the most recent available water level measurements of the applicant's and adjacent landowners' existing water wells within a two-mile radius of the proposed well field.

- (b) Required Well Construction Information: The hydrogeological report will include well construction information for each of the applicant's existing groundwater production and monitor well(s) to be used in the proposed well field. New, proposed production and monitor wells will need a well construction schematic, based on available information. Well construction information for each production and monitor well should include the following:
 - (1) the identification of the aquifer to be produced from;
 - (2) the total depths, diameters, and expected screen or production intervals of each of the applicant's existing and proposed production and monitor wells;
 - (3) each production well's proposed maximum pumping rate; and
 - (4) a water well driller's report and/or driller's log (if available) for existing wells.

- (c) Local Aquifer Characterization: The District may require a pump test to determine local aquifer characterization of the applicant's proposed well field and to evaluate the potential impact of the requested production on existing wells and the District's DFCs. Production from all confined aquifers will require pump tests. The District may exempt the applicant from conducting pump tests on unconfined aquifers if:
 - (1) the proposed well field (multiple production wells) is in an unconfined aquifer and each proposed well is more than two miles from the applicant's property lines;
 - (2) the proposed well field involves a single production well in an unconfined aquifer and is more than one mile from the applicant's property lines; or
 - (3) there are no other landowners' production wells using the applicant's designated unconfined aquifer within two miles of the applicant's property lines.

If the District grants an exemption to the applicant for a pump test, local aquifer properties from available groundwater models (TWDB, USGS, or available reviewed consultant's groundwater models with the District's prior approval) will be used to estimate the potential for unreasonable effects on existing wells by the proposed pumping, including, but not limited to, identifying water level declines within a two-mile radius from each of the applicant's proposed wells.

The applicant may appeal the District's General Manager's decision to require pump tests by filing with the District a request for reconsideration identifying all the reasons why the applicant believes a pump test is unnecessary. The District's General Manager has 30 days to review the appeal and decide whether to support or repeal the pump test requirement. The applicant may appeal the General Manager's decision on the request

for reconsideration by filing with the District a written appeal to the District's Board identifying all the reasons why the applicant believes a pump test is unnecessary.

*Pump test and pump test report guidance is provided in Rule 11.9.2.

- (d) Potential of Unreasonable Effects from Proposed Production on Existing Wells and Groundwater Resources: The applicant is required to estimate the potential water level impacts caused by the proposed pumping to wells located within a two-mile radius of the applicant's well field applying the assumptions and otherwise meeting the requirements enumerated below in this section. This analysis must mimic the applicant's expected full production operations.
- (1) The time periods for water level decline analyses are 30, 180, 365, and 730 days.
 - (2) The water level impact for the above time periods must be estimated for each well within a two-mile radius from each of the applicant's proposed wells; or a figure illustrating calculated water level decline contours at one quarter (1/4) mile intervals up to two miles (eight contour intervals) for each time period is acceptable.
 - (3) The water level impact information should also be summarized in a report table.

The applicant has two options on how to evaluate the potential of water level impacts:

Option 1: The applicant can have the District's consultant hydrogeologist assist in completing Section (d) of the applicant's hydrogeological report. If the applicant chooses this option, the applicant realizes that having the District's hydrogeologist complete the hydrogeological report does not guarantee that the District's Board will approve the application, just that the hydrogeological report will be administratively and technically complete. The hydrogeological analysis of the provided pump test results may be favorable or unfavorable for the applicant. The District's hydrogeologist will make a recommendation to the District's Board based on his or her professional opinion of the hydrogeological information provided and compiled in the report.

The applicant will provide the completed hydrogeological report (Sections (a), (b), and (c)) and the pump test results (in an Excel format) to the District's hydrogeologist. If a Production Permit application requests 10,000 acre feet per year or less, then the District's hydrogeologist will use the applicant's pump test derived aquifer properties and estimate water level declines for all the report required wells using pump test simulation software.

If a Production Permit application requests more than 10,000 acre feet per year, then an existing groundwater availability model will be run to estimate the water level declines and potential DFC impacts. The groundwater availability model used for this analysis will be selected by the District's hydrogeologist after discussions with the applicant's groundwater consultants. In the case of the San Andres formation (for which no groundwater availability models exist), a detailed analysis using pump test simulation software will be completed.

If no pump test was required from the applicant for the hydrogeological report, the local aquifer properties will be obtained from the District's hydrogeologist's selected groundwater availability model (USGS, TWDB, or consultant's groundwater model) to determine the water level impact analyses. After running the pump test simulation software (<10,000 acre feet) or groundwater models (>10,000 acre feet), the District's hydrogeologist will generate all the required well level change text, figures, and charts necessary to complete the applicant's hydrogeological report.

The District will charge the applicant the District's hydrogeologist's hourly fee for this service.

Option 2: The applicant may use their own consultant and/or groundwater model (groundwater model must be reviewed and accepted by the District's hydrogeologist prior to model runs) to complete the water level impact analyses. The applicant's consultant will provide text, figures, and tables to meet the above-stated District requirements for the water level impact analyses.

RULE 11.10 PERMIT HEARINGS

- 11.10.1 All hearings shall be held before a quorum of the Board, a hearings examiner delegated in writing the responsibility to preside over the hearing, or SOAH in accordance with Rule 11.10.4.
- 11.10.2 Notice and Scheduling of Hearing: Once the District has received an administratively complete application for a water well Drilling Permit, Production Permit, or a permit amendment, or if the Board desires to modify an existing permit, the General Manager will issue a written notice of the hearing on the application in accordance with these rules.
- (a) Notices of all hearings of the District shall be prepared by the General Manager and shall, at a minimum, state the following information:
- (1) the name and address of the applicant or permit holder;
 - (2) the name or names of the owner or owners of the land if different from the applicant or permit holder;
 - (3) the time, date, and location of the hearing;
 - (4) the address or approximate proposed location of the well or Well System, if different than the address of the applicant or permit holder;
 - (5) a brief explanation of the proposed permit or permit amendment, including any requested amount of groundwater, the purpose of the proposed use, and any change in use, or if the Board desires to modify an existing permit, a brief explanation of the proposed permit modification and the basis for the proposed

modification; and

(6) any other information the Board or General Manager deems appropriate to include in the notice.

(b) Not less than ten (10) calendar days prior to the date of the hearing, notice shall be:

(1) posted by the General Manager at a place readily accessible to the public in the District office;

(2) provided by the General Manager to the County Clerk of Pecos County, whereupon the County Clerk shall post the notice on a bulletin board at a place convenient to the public in the county courthouse; and

(3) provided to the applicant by regular mail.

Not less than ten (10) calendar days prior to the date of the hearing, notice may be provided by regular mail to landowners who, in the discretion of the General Manager, may be affected by the application.

(c) A person may request notice from the district of a hearing on a permit or a permit amendment application. The request shall be memorialized in writing and is effective for the remainder of the calendar year in which the request is received by the District. To receive notice of a hearing in a later year, a person must submit a new request. An affidavit of an officer or employee of the District establishing attempted service by first class mail, fax, or email to the person in accordance with the information provided by the person is proof that notice was provided by the District.

(d) Failure to provide notice under Subsection (c) does not invalidate an action taken by the District at the hearing.

(e) The Board shall conduct an evidentiary hearing on a permit or permit amendment application if a party appears to protest that application or if the General Manager proposes to deny that application in whole or in part, unless the applicant or other party in a contested hearing requests the District to contract with SOAH to conduct the evidentiary hearing. If no one appears at the initial, preliminary hearing and the General Manager proposes to grant the application, the permit or permit amendment application is considered uncontested, and the Board may act on the permit application after considering the permitting criteria in these rules. Unless one of the parties in a contested hearing requests a continuance and demonstrates good cause for the continuance, the Board may conduct the preliminary and evidentiary hearings on the same date.

(f) Any hearing may or may not be scheduled during the District's regular business hours, Monday through Friday of each week, except District holidays. All hearings shall be held at the location set forth in the notice.

(g) The General Manager shall set an initial, preliminary hearing date within 60 (sixty)

calendar days after the date the administratively complete application is submitted. The initial, preliminary hearing shall be held within 35 (thirty-five) calendar days after the setting of the date. Within this same time frame, the General Manager shall post notice and set a hearing on the application before the District Board. The General Manager may schedule as many applications at one hearing as the General Manager deems necessary.

11.10.3 Authority of Presiding Officer: The Presiding Officer may conduct preliminary and evidentiary hearings or other proceedings in the manner the Presiding Officer deems most appropriate for the particular hearing. The Presiding Officer has the authority to:

- (a) set hearing dates, other than the initial, preliminary hearing date for permit matters;
- (b) convene the hearing at the time and place specified in the notice for public hearing;
- (c) rule on motions;
- (d) permit the receipt of and rule on the admissibility of evidence consistent with Subchapter D, Chapter 2001, Texas Government Code;
- (e) establish the order for presentation of evidence;
- (f) administer oaths to all persons presenting testimony;
- (g) examine and allow cross-examination of witnesses;
- (h) ensure that information and testimony are introduced as conveniently and expeditiously as possible, without prejudicing the rights of any party to the proceeding;
- (i) conduct public hearings in an orderly manner in accordance with these rules;
- (j) recess any hearing from time to time and place to place;
- (k) issue subpoenas, require depositions, or order other discovery consistent with Subchapter D, Chapter 2001, Texas Government Code;
- (l) exercise any other appropriate powers necessary or convenient to effectively carry out the responsibilities of Presiding Officer; and
- (m) determine how to apportion among the parties the costs related to a contract for the services of a Presiding Officer and the preparation of the official hearing record.

11.10.4 Appearance; Presentation; Time for Presentation; Ability to Supplement; Conduct and Decorum; Written Testimony; Hearing before SOAH:

- (a) Appearance: Protestants and non-protestant interested persons may present evidence, exhibits, or testimony, or make an oral presentation as allowed by the Presiding Officer. A person appearing in a representative capacity may be required to prove proper authority. Each person attending and participating in a hearing of the District must submit on a form provided by the District, prior to or at the commencement of the initial,

preliminary hearing, the following information: the person's name and address, who the person represents if other than himself, whether the person wishes to testify, whether the person is protesting the application, and any other information relevant to the hearing.

- (1) Protestants: To protest an application for a permit or permit amendment, a potential party must attend the permit hearing prepared to articulate his or her justiciable interest related to a legal right, duty, privilege, power, or economic interest that is within the District's regulatory authority and how that justiciable interest would be adversely affected by the permit proposed by the application. This potential party must attend the initial, preliminary hearing and be prepared to address and respond to inquiry and any cross-examination regarding their alleged justiciable interest. A justiciable interest does not include persons who have only an interest common to members of the general public. It is recommended that a person desiring to protest an application for a permit or permit amendment file with the District a notice of protest setting forth the protestant's justiciable interest related to a legal right, duty, privilege, power, or economic interest that is within the District's regulatory authority and how that justiciable interest would be adversely affected by the permit proposed by the application. It is recommended that the notice of protest be submitted so that it is received by the District at least two business days before the permit hearing. The Board may take testimony and shall deliberate and take official action at the hearing to determine whether the protestant has sufficiently demonstrated their justiciable interest and how that justiciable interest would be adversely affected by the permit proposed by the application. If the Board finds that a protestant does not adequately establish that its justiciable interest is affected by the proposed permit, then the protestant shall not be allowed to participate in the hearing.
 - (2) Non-protestant interested persons: A person may appear at an initial, preliminary hearing in person or by representative provided the representative is fully authorized, in writing, to speak and act for the principal. Any person appearing and offering any evidence pursuant to this subsection shall be subject to cross-examination.
 - (3) Request for SOAH Hearing: If an application is contested, any party to the hearing may request that the District contract with SOAH to conduct further proceedings in the hearing. A request for a SOAH hearing under this rule must be made to the Board at the initial, preliminary hearing and is untimely if submitted after the conclusion of the preliminary hearing.
- (b) After the Presiding Officer calls a hearing to order, the Presiding Officer shall announce the subject matter of the hearing and the order and procedure for presentations.
 - (c) The Presiding Officer may prescribe reasonable time limits for the presentation of evidence and oral argument at the preliminary and evidentiary hearings.
 - (d) If requested with good cause shown and if allowed in the sole discretion of the Presiding Officer, any person who appears at a hearing and makes a presentation before the Board may supplement that presentation by filing additional written evidence with the Board within ten (10) calendar days after the date of conclusion of the hearing. Cumulative,

repetitive, and unduly burdensome evidence filed under this subsection will not be considered by the Board. A person who files additional written material with the presiding officer under this subsection must also provide the material, not later than the 10th calendar day after the date of the hearing, to any person who provided comments on an uncontested application or any party to a contested hearing. A person who receives additional written material under this subsection may file a response to the material with the presiding officer not later than the 10th day after the date the material was received.

- (e) Every person, party, representative, witness, and other participant in a proceeding must conform to ethical standards of conduct and must exhibit courtesy and respect for all other participants. No person may engage in any activity during a proceeding that interferes with the orderly conduct of District business. If in the judgment of the Presiding Officer, a person is acting in violation of this provision, the Presiding Officer will first warn the person to refrain from engaging in such conduct. Upon further violation by the same person, the Presiding Officer may exclude that person from the proceeding for such time and under such conditions as the Presiding Officer deems necessary.
- (f) **Written Testimony:** When the Presiding Officer determines that a proceeding will be expedited and the interest of the parties will not be prejudiced substantially, the Presiding Officer may allow testimony to be received in written form, which testimony shall be subject to cross-examination. If the Presiding Officer allows written testimony, the written testimony of a witness, either in narrative or question and answer form, may be admitted into evidence upon the witness being sworn and identifying the testimony as a true and accurate record of what the testimony would be if given orally.
- (g) **SOAH Hearing:**
 - (1) **Deadline, Location:** If timely requested by the applicant or other party to a contested hearing, the District shall contract with SOAH to conduct the hearing on the application. The Board shall determine whether the SOAH hearing will be held in Travis County or at the District Office or other regular meeting place of the Board, after considering the interests and convenience of the parties, and the expense of a SOAH contract.
 - (2) **Costs, Deposit:** The party requesting that the hearing be conducted by SOAH shall pay all costs associated with the contract for the hearing and shall make a deposit with the District in an amount that is sufficient to pay the estimated SOAH contract amount before the hearing begins. If the total cost for the contract exceeds the amount deposited by the paying party at the conclusion of the hearing, the party that requested the hearing shall pay the remaining amount due to pay the final price of the contract. If there are unused funds remaining from the deposit at the conclusion of the hearing, the unused funds shall be refunded to the paying party.
 - (3) **Referral:** Upon execution of a contract with SOAH and receipt of the deposit from the appropriate party or parties, the District's Presiding Officer shall refer the application to SOAH. The Presiding Officer's referral to SOAH shall be in writing and shall include procedures established by the Presiding Officer under

Subsection (g)(4) below; a copy of the permit application, all evidence admitted at the preliminary hearing, the District's rules and other relevant policies and precedents, the District Management Plan, and the District Act; and guidance and the District's interpretation regarding its regulations, permitting criteria, and other relevant law to be addressed in a Proposal for Decision and Findings of Fact and Conclusions of Law to be prepared by SOAH. The District or Presiding Officer may not attempt to influence the Finding of Facts or the Administrative Law Judge's application of the law in a contested case except by proper evidence and legal argument. SOAH may certify one or more questions to the District's Board seeking the District Board's guidance on District precedent or the District Board's interpretation of its regulations or other relevant law, in which case the District's Board shall reply to SOAH in writing.

- (4) Procedure before SOAH: A hearing conducted by SOAH is governed by SOAH's procedural rules; Subchapters C, D, and F, Chapter 2001, Texas Government Code; and, to the extent, not inconsistent with these provisions, any procedures established by the Presiding Officer under District Rule 11.10.3.
- (5) District's Receipt of SOAH's Proposal for Decision and Findings of Fact and Conclusions of Law: The District's Board shall conduct a hearing within 45 (forty-five) days of receipt of SOAH's Proposal for Decision and Findings of Fact and Conclusions of Law, and shall act on the application at this hearing or no later than 60 days after the date that the Board's final hearing on the application is concluded in a manner consistent with Section 2001.058, Texas Government Code. At least ten (10) calendar days prior to this hearing, the Presiding Officer shall provide written notice to the parties of the time and place of the Board's hearing under this subsection by mail and fax, for each party with a fax number. The Presiding Officer shall exercise his or her authority under Rule 11.10.3 in conducting this hearing.
- (6) The Board may change a finding of fact or conclusion of law made by the Administrative Law Judge, or may vacate or modify an order issued by the Administrative Law Judge, only if the Board determines:
 - (A) that the Administrative Law Judge did not properly apply or interpret applicable law, District rules, written policies, or prior administrative decisions;
 - (B) that a prior administrative decision on which the Administrative Law Judge relied is incorrect or should be changed; or
 - (C) that a technical error in a finding of fact should be changed.

11.10.5 Recording

- (a) Contested Hearings: Contested Hearings: A record of the hearing in the form of an audio or video recording or a court reporter transcription shall be kept in a contested hearing. The Presiding Officer shall have the hearing transcribed by a court reporter upon a request by a party to a contested hearing. Court reporter transcription costs may be

assessed against the party requesting the transcription or among the parties to the hearing. In assessing reporting and transcription costs, the Presiding Officer must consider the following factors:

- (1) the party who requested the transcript;
 - (2) the financial ability of the requesting party to pay the costs;
 - (3) the extent to which the requesting party participated in the hearing;
 - (4) the relative benefits to the various parties of having a transcript;
 - (5) the budgetary constraints of a governmental entity participating in the proceeding;
and
 - (6) any other factor that is relevant to a just and reasonable assessment of costs.
- (b) Uncontested Hearings: In an uncontested hearing, the Presiding Officer may substitute meeting minutes or the report required under Rule 11.10.9 for a method of recording the hearing.

11.10.6 Evidence; Broadening the Issues

- (a) The Presiding Officer shall admit evidence if it is relevant to an issue at the hearing.
- (b) The Presiding Officer may exclude evidence that is irrelevant, immaterial, or unduly repetitious.
- (c) No person will be allowed to appear in any hearing whose appearance, in the opinion of the Presiding Officer, is for the sole purpose of unduly broadening the issues to be considered in the hearing.

11.10.7 Continuance: The Presiding Officer may continue hearings or other proceedings from time to time and from place to place without the necessity of publishing, serving, mailing, or otherwise issuing a new notice. If a hearing or other proceeding is continued and a time and place for the hearing or other proceeding to reconvene are not publicly announced at the hearing or other proceeding by the Presiding Officer before it is recessed, a notice of any further setting of the hearing or other proceeding which shall include the date, hour, place and subject of the meeting will be provided by regular mail at a reasonable time to the parties and any other person the Presiding Officer deems appropriate, but it is not necessary to post or publish a notice of the new setting, except as required by the Texas Open Meetings Act. This rule applies only to permit hearings.

11.10.8 Uncontested Hearings: If no persons timely protest the application and the General Manager proposes to grant the application, the application shall be considered uncontested and the General Manager may act on the application without subjecting the application to a permit hearing before the Board.

- (a) The Board may take action on any uncontested application at a properly noticed public meeting held at any time after the public hearing at which the application is scheduled to be heard. The Board may issue a written order to:
 - (1) grant the application;

- (2) grant the application with special conditions; or
 - (3) deny the application.
- (b) An applicant may, not later than the 20th day after the date the Board issues an order granting the application, demand a contested case hearing if the order:
- (1) includes special conditions that were not part of the application as finally submitted; or
 - (2) grants a maximum amount of groundwater production that is less than the amount requested in the application.
- (c) If, during a contested case hearing, all interested persons contesting the application withdraw their protests or are found by the Board not to have a justiciable interest affected by the application, or the parties reach a negotiated or agreed settlement which, in the judgment of the Board, settles the facts or issues in controversy, the proceeding will be considered an uncontested hearing and the Board may take any action authorized under District Rule 11.10.8(a).

11.10.9 Proposal for Decision: If the hearing was conducted by a quorum of the Board and if the Presiding Officer prepared a record of the hearing as provided by Rule 11.10.5(a), the Presiding Officer shall determine whether to prepare and submit a Proposal for Decision (“PFD”) to the Board under this rule. If a PFD is required, the Presiding Officer shall submit a PFD to the Board within 30 days after the date the hearing is finally concluded. The PFD must include a summary of the subject matter of the hearing, the evidence or public comments received, and the Presiding Officer’s recommendations for Board action on the subject matter of the hearing. A copy of the PFD shall be provided to the applicant and each designated party. The applicant and any designated party may submit to the Board written exceptions to the PFD. The Presiding Officer may direct the General Manager or another District representative to prepare the PFD and recommendations required by this Rule. The Board shall consider the PFD at a final hearing. Additional evidence may not be presented during this final hearing, however the parties may present oral argument to summarize the evidence, present legal argument, or argue an exception to the PFD. A final hearing may be continued in accordance with Rule 11.10.7 and Section 36.409, Texas Water Code.

11.10.10 Board Action: Either on the final hearing date or no later than 60 (sixty) calendar days after the final hearing date is concluded, the Board must take action on the subject matter of the hearing.

- (a) In deciding whether or not to issue or amend a Drilling Permit, Production Permit, or Historic and Existing Use Permit, and in setting the permitted volume and other terms of a permit, the Board must consider whether:
- (1) the application contains accurate information and conforms to the requirements prescribed by Chapter 36, Texas Water Code;

- (2) the water well(s) complies with spacing and production limitations identified in these rules;
 - (3) the proposed use of water does or does not unreasonably affect existing groundwater and surface water resources or existing permit holders;
 - (4) the proposed use of water is dedicated to a beneficial use;
 - (5) the proposed use of water is consistent with the District Management Plan;
 - (6) the applicant agrees to avoid waste and achieve water conservation;
 - (7) the applicant has agreed that reasonable diligence will be used to protect groundwater quality and that the applicant will follow well plugging guidelines at the time of well closure; and
 - (8) for those hearings conducted by SOAH under Rule 11.10.4, the Board shall consider the Proposal for Decision and Findings of Fact and Conclusions of Law issued by SOAH.
- (b) In deciding whether or not to modify a permit, and in setting the modified permitted volume and other terms of a permit, the Board must consider whether the data from monitoring wells within the source aquifer or other evidence reflects:
- (1) an unacceptable level of decline in water quality of the aquifer;
 - (2) that modification of the permit is necessary to prevent waste and achieve water conservation;
 - (3) that modification of the permit will minimize as far as practicable the drawdown of the water table or the reduction of artesian pressure;
 - (4) that modification of the permit will lessen interference between wells;
 - (5) that modification of the permit will control and prevent subsidence; and
 - (6) that modification of the permit is necessary to avoid impairment of Desired Future Conditions.
- (c) The Board shall consider the relevant criteria and observe the relevant restrictions and may exercise the authority set forth in Sections 36.113, 36.1131, and 36.122 of the Texas Water Code. In issuing permits, the District shall manage total groundwater production on a long-term basis to achieve an applicable Desired Future Condition and consider:
- (1) the Modeled Available Groundwater;
 - (2) the TWDB Executive Administrator's estimate of the current and projected amount of groundwater produced under exemptions granted by District Rule 11.3 and Section 36.117, Texas Water Code;

- (3) the amount of groundwater authorized under permits previously issued by the District;
 - (4) a reasonable estimate of the amount of groundwater that is actually produced under permits issued by the District; and
 - (5) yearly precipitation and production patterns.
- (d) The District may not impose any restrictions on the production of groundwater for use outside of the District other than imposed upon production for in-district use, and shall be fair, impartial, and nondiscriminatory.

11.10.11 Request for Rehearing and Appeal:

- (a) An applicant in a contested or uncontested hearing on an application or a party to a contested hearing may administratively appeal a decision of the Board on a permit or permit amendment application by requesting written findings of fact and conclusions of law from the Board not later than the 20th calendar day after the date of the decision.
- (b) On receipt of a timely written request, the Board shall make written findings and conclusions regarding a decision of the Board on a permit or permit amendment application. The Board shall provide certified copies of the findings and conclusions to the party who requested them, and to each designated party, not later than the 35th calendar day after the date the Board receives the request. A party to the contested case hearing may request a rehearing before the Board not later than the 20th calendar day after the date the Board issues the findings and conclusions. A party to a contested hearing must first make a request for written findings and conclusions under District Rule 11.10.11(a) before a party to the contested case may submit a request for rehearing under this rule.
- (c) A request for rehearing must be filed in the District office and must state clear and concise grounds for the request. The person requesting a rehearing must provide copies of the request to all parties to the hearing.
- (d) If the Board grants a request for rehearing, the Board shall, after proper notice, schedule the rehearing not later than the 45th calendar day after the date the request is granted.
- (e) The failure of the Board to grant or deny a request for rehearing before the 91st calendar day after the date the request is submitted is a denial of the request.
- (f) A decision by the Board on a permit or permit amendment application is final:
 - (1) if a request for rehearing is not filed on time, on the expiration of the period for filing a request for rehearing;
 - (2) if a request for rehearing is filed on time and the Board denies the request for rehearing, on the date the Board denies the request for rehearing; or

- (3) if a request for rehearing is filed on time and the Board grants the request for rehearing:
 - (A) on the final date of the rehearing if the Board does not take further action;
 - (B) if the Board takes further action after rehearing, on the expiration of the period for filing a request for rehearing on the Board's modified decision if a request for rehearing is not timely filed; or
 - (C) if the Board takes further action after rehearing and another request for rehearing on this Board action is timely filed, then Subsections 3(A) and (C) of this rule shall govern the finality of the Board's decision.

- (g) The applicant or party to a contested case hearing must exhaust all administrative remedies with the District prior to seeking judicial relief from a District decision on a permit or permit amendment application. After all administrative remedies are exhausted with the District, an applicant or a party to a contested case hearing must file suit in a court of competent jurisdiction in Pecos County to appeal the District's decision on a permit or permit amendment application within 60 (sixty) calendar days after the date the District's decision is final. An applicant or party to a contested case hearing is prohibited from filing suit to appeal a District's permitting decision if a request for rehearing was not timely filed.

SECTION 12. REWORKING AND REPLACING A WELL

RULE 12.1 REWORKING AND REPLACING A WELL

- (a) An existing well may be reworked or re-equipped in a manner that will not change the existing well status.
- (b) A permit must be applied for and granted by the Board if a party wishes to replace an existing well with a replacement well.
- (c) A replacement well, in order to be considered such, must be drilled within a reasonable distance of the existing well as long as it meets the District's spacing requirements.
- (d) In the event the application meets spacing and production requirements, the General Manager may grant such application without further notice.

SECTION 13. WELL LOCATION AND COMPLETION

RULE 13.1 RESPONSIBILITY

- (a) After an application for a well Drilling Permit has been granted, the well or wells, if drilled, must be drilled within a reasonable distance of the location specified in the Drilling Permit, and not elsewhere, provided, however, that spacing restrictions be met. If the well or wells are drilled at a different location, the drilling or operation of such well may be enjoined by the Board pursuant to Chapter 36, Texas Water Code.
- (b) As described in the Texas Water Well Drillers' Rules, all well drillers and persons having any exempt or nonexempt well drilled, deepened, or otherwise altered shall adhere to the provisions of the rule prescribing the location of wells and proper completion. Each and every exempt and nonexempt well shall be completed in accordance with all statutory and regulatory requirements applicable to the type of well required for the purpose of use authorized under the permit. The driller of any exempt or nonexempt well shall file with the District the well log required by Section 1901.251, Texas Occupations Code, and, if available, the geophysical log and electric log.

RULE 13.2 LOCATION OF DOMESTIC, INDUSTRIAL, INJECTION, IRRIGATION WELLS

Location of wells should be as specified in *16 Texas Administrative Code, Chapter 76.1000*.

RULE 13.3 STANDARDS OF COMPLETION FOR DOMESTIC, INDUSTRIAL, INJECTION, AND IRRIGATION WELLS

Standards of completion shall be as specified in *16 Texas Administrative Code, Chapter 76.1000*.

RULE 13.4 RE-COMPLETIONS

Standards shall be as specified in *16 Texas Administrative Code, Chapter 76.1003*.

RULE 13.5 SPACING REQUIREMENTS

- (a) Spacing and Location of Existing Wells: Wells drilled prior to the Effective Date of these rules are not subject to spacing requirements of this rule except that these existing wells shall have been drilled in accordance with state law in effect, if any, on the date such drilling commenced.
- (b) Spacing and Location of New Wells: All new permitted wells must comply with the spacing and location requirements set forth under the Texas Water Well Drillers and Pump Installers Administrative Rules, Title 16, Part 4, Chapter 76, Texas Administrative Code, except that wells shall not be located within 50 (fifty) feet from a property line or any existing well. Water well drillers shall indicate the method of completion performed on the Well Report (Texas Department of Licensing and Regulation Form #001 WWD, Section 10, Surface Completion). The District does not impose any additional requirements, but shall consider evidence submitted at the hearing on the permit application that demonstrates that the proposed new well(s) adversely impact and interfere with neighboring wells.
- (c) Exceptions to Spacing Requirements:

- (1) The Board may grant exceptions to the spacing requirements of the District if the requirements of this section are met.
- (2) If an exception to the spacing requirements of the District is desired, the person seeking the exception shall submit an application to the Board and provide written notice of the application to all owners of adjacent property and owners of registered wells located on adjacent property. In the application, the applicant must explain the circumstances justifying an exception to the spacing requirements of the District. The application must include a plat or sketch, drawn to scale, one inch equaling 200 feet. The application and plat must be certified by some person actually acquainted with the facts who shall state that the facts contained in the application and plat are true and correct, and that notice was sent to each of the appropriate property and well owners.
- (3) The Board shall conduct a hearing within 65 (sixty-five) calendar days after the application is administratively complete, and no sooner than 20 (twenty) calendar days after the applicant's notice was sent to each of the appropriate property and well owners. The District shall post notice and conduct the public hearing in accordance with Section 11 of the District's rules. Provided, however, if all owners of adjacent property and owners of registered wells execute a waiver in writing, stating that they do not object to the granting of the exception, the Board may proceed, upon notice to the applicant only and without hearing, and determine the outcome of the application. The applicant may waive notice or hearing or both.
- (4) If the applicant presents waivers signed by all landowners and well owners whose property or permitted wells would be located within the applicable minimum distance established under these Rules from the proposed well site stating that they have no objection to the proposed location of the well site, the Board, upon the General Manager's recommendation, may waive certain spacing requirements for the proposed well location.

SECTION 14. WASTE AND BENEFICIAL USE

RULE 14.1 DEFINITION OF WASTE

“Waste” means any one or more of the following:

- (a) withdrawal of groundwater from a groundwater reservoir at a rate and in an amount that causes or threatens to cause intrusion into the reservoir of water unsuitable for municipal, industrial, agricultural, gardening, domestic, or stock raising purposes;
- (b) the flowing or producing of wells from a groundwater reservoir if the water produced is not used for a beneficial purpose, or is not used for such purposes with a reasonable degree of efficiency. Includes line losses in excess of those determined to be unavoidable.
- (c) escape of groundwater from a groundwater reservoir to any other reservoir or geologic strata that does not contain groundwater;

- (d) pollution or harmful alteration of groundwater in a groundwater reservoir by saltwater or by other deleterious matter admitted from another stratum or from the surface of the ground;
- (e) willfully or negligently causing, suffering, or allowing groundwater to escape into any river, creek, natural watercourse, depression, lake, reservoir, drain, sewer, street, highway, road, or road ditch, or onto any land other than that of the owner of the well other than the natural flow of natural springs unless such discharge is authorized by permit, rule, or order issued by TCEQ under Chapter 26 of the Texas Water Code, *Water Quality Control*;
- (f) groundwater pumped for irrigation that escapes as irrigation tailwater onto land other than that of the owner of the well unless permission has been granted by the occupant of the land receiving the discharge;
- (g) groundwater used for heating or cooling that is allowed to drain on the land surface as tailwater and not re-circulated back to the aquifer;
- (h) the loss of groundwater in the distribution system and/or storage facilities of the water supply system which should not exceed acceptable “system water losses” as defined by the American Water Works Association standard; or
- (i) Pursuant to Section 11.205 of the Texas Water Code, unless the water from an artesian well is used for a purpose and in a manner in which it may be lawfully used on the owner’s land, it is waste and unlawful to willfully cause or knowingly permit the water to run off the owner’s land or to percolate through the stratum above which the water is found.

RULE 14.2 WASTEFUL USE OR PRODUCTION

- (a) No person shall intentionally or negligently commit waste.
- (b) Underground water shall not be produced within, or used within or without the District in such a manner as to constitute waste.
- (c) Any person producing or using groundwater shall use every possible precaution, in accordance with the most approved methods, to stop and prevent waste of water.

RULE 14.3 POLLUTION OR DEGRADATION OF QUALITY OF GROUNDWATER

- (a) No person shall cause pollution or harmfully alter the character of the underground water of the District by means of salt water or other deleterious matter admitted from another stratum or strata or from the surface of the ground, or from the operation of a well.
- (b) No person shall cause pollution or harmfully alter the character of the underground water of the District by activities on the surface of the ground which cause or allow pollutants to enter the groundwater through recharge features, whether natural or manmade.
- (c) No person shall cause degradation of the quality of groundwater.

RULE 14.4 ORDERS TO PREVENT WASTE, POLLUTION, OR DEGRADATION OF QUALITY OF GROUNDWATER

After providing 15 (fifteen) calendar days' notice to affected parties and an opportunity for a hearing, the Board may adopt orders to prohibit or prevent waste, pollution, or degradation of the quality of groundwater. If the factual basis for the order is disputed, the Board shall direct that an evidentiary hearing be conducted prior to consideration and decision on the entry of such an order. If the Board President or his or her designee determines that an emergency exists requiring the immediate entry of an order to prohibit waste or pollution and protect the public health, safety, and welfare, he or she may enter a temporary order without notice and hearing provided, however, the temporary order shall continue in effect for the lesser of 15 (fifteen) calendar days or until a hearing can be conducted. In such an emergency, the Board President or his or her designee is also authorized, without notice or hearing to pursue a temporary restraining order, injunctive, and other appropriate relief in a court of competent jurisdiction.

RULE 14.5 REQUIRED EQUIPMENT ON WELLS FOR THE PROTECTION OF GROUNDWATER QUALITY

14.5.1 EQUIPMENT REQUIRED. The following equipment must be installed on all wells having a chemical injection, chemigation or foreign substance unit in the water delivery system: an in-line, automatic quick-closing check valve capable of preventing pollution or harmful alteration of the groundwater. Such equipment must be installed on all new wells at the time of completion. Such equipment shall be installed on all existing wells the next time the wells are serviced.

14.5.2 CHECK VALVES. The type of check valve installed shall meet the following specifications:

- (a) Check valves must be equipped with a TCEQ-approved hazardous materials backflow device, and installed in a manner approved by Texas Department of Licensing and Regulation (“TDLR”).
- (b) A vacuum-relief device shall be installed between the pump discharge and the check valve in such a position and in such a manner that insects, animals, floodwater, or other pollutants cannot enter the well through the vacuum-relief device. The vacuum-relief device may be mounted on the inspection port as long as it does not interfere with the inspection of other anti-pollution devices.

SECTION 15. INVESTIGATIONS AND ENFORCEMENT

RULE 15.1 NOTICE AND ACCESS TO PROPERTY

Board Members and District agents and employees are entitled to access to all property within the District to carry out technical and other investigations necessary to the implementation of the District’s rules. Prior to entering upon property for the purpose of conducting an investigation, the person seeking access must give notice in writing or in person or by telephone to the owner, lessee, or operator, agent, or employee of the well owner or lessee, as determined by information contained in the application or other information on file with the District. Notice is not required if prior permission is granted to enter without notice. Inhibiting or prohibiting access to any Board Member or District agents or employees who are attempting to conduct an investigation under the District’s rules constitutes a violation and subjects the person who is inhibiting or prohibiting access, as well as any other person who authorizes or allows such action, to the penalties set forth in Texas Water Code Chapter 36.

RULE 15.2 CONDUCT OF INVESTIGATION

Investigations or inspections by the District that require entrance upon property must be conducted at reasonable times, and must be consistent with the establishment’s rules and regulations concerning safety, internal security, and fire protection. The District representative or representatives conducting such investigations must identify themselves and present credentials upon request of the owner, lessee, operator, or person in charge of the well or property.

RULE 15.3 RULE ENFORCEMENT; ENFORCEMENT HEARING

15.3.1 If it appears that a person has violated or is violating any provision of the District’s rules, the District may employ any of the following means, or a combination thereof, in providing notice of the violation:

- (a) Informal Notice: The officers, staff or agents of the District acting on behalf of the District or the Board may inform the person of the violation via telephone by informing, or attempting to inform, the appropriate person to explain the violation and the steps necessary to cure the violation. The information received by the District through this

informal notice concerning the violation and the date and time of the telephone call will be documented and will remain in the District's files. Nothing in this subsection shall limit the authority of the District to take action, including emergency actions or any other appropriate enforcement action, without prior notice provided under this subsection.

- (b) **Written Notice of Violation:** The District may inform the person of the violation through written notice of violation. Each notice of violation issued herein shall explain the basis of the violation, identify the rule or order that has been violated or is currently being violated, and list specific required actions that must be satisfactorily completed to cure a past or present violation to address each violation raised, and may include the payment of applicable civil penalties. Notice of a violation issued herein shall be provided through a delivery method in compliance with these Rules. Nothing in this Subsection shall limit the authority of the District to take action, including emergency actions or any other appropriate enforcement action, without prior notice provided under this subsection.
- (c) **Compliance Meeting:** The District may hold a meeting with any person whom the District believes to have violated, or to be violating, a District rule or order to discuss each such violation and the steps necessary to satisfactorily remedy each such violation. The General Manager may conduct a compliance meeting without the Board, unless otherwise determined by the Board or General Manager. The information received in any meeting conducted pursuant to this subsection concerning the violation will be documented, along with the date and time of the meeting, and will be kept on file with the District. Nothing in this subsection shall limit the authority of the District to take action, including emergency actions or any other appropriate enforcement action, without prior notice provided under this subsection.

15.3.2 Show Cause Hearing.

- (a) Upon recommendation of the General Manager to the Board or upon the Board's own motion, the Board may order any person that it believes has violated or is violating any provision of the District's rules a District order to appear before the Board at a public meeting, held in accordance with the Texas Open Meetings Act, and called for such purpose and to show cause of the reasons an enforcement action, including the assessment of civil penalties and initiation of a suit in a court of competent jurisdiction in Pecos County, should not be pursued against the person made the subject of the show cause hearing. The Presiding Officer may employ the procedural rules in Section 11 of the District's rules.
- (b) No show cause hearing under subsection (a) of this Rule may be conducted unless the District serves, on each person made the subject of the show cause hearing, a written notice ten (10) calendar days prior to the date of the hearing. Such notice shall include all of the following information:
 - (1) the time, date, and place for the hearing; and
 - (2) the basis of each asserted violation; and
 - (3) the rule or order that the District believes has been violated or is currently being violated; and
 - (4) a request that the person duly appear and show cause of the reasons an enforcement action should not be pursued.

- (c) The District may pursue immediate enforcement action against the person cited to appear in any show cause order issued by the District where the person cited fails to appear and show cause of the reasons an enforcement action should not be pursued.
- (d) Nothing in this rule shall constrain the authority of the District to take action, including emergency actions or any other enforcement action, against a person at any time, regardless of whether the District decides to hold a hearing under this Section.

15.3.3 Remedies

- (a) The Board shall consider the appropriate remedies to pursue against an alleged violator during the show cause hearing, including assessment of a civil penalty, injunctive relief, or assessment of a civil penalty and injunctive relief. In assessing civil penalties, the Board may determine that each day that a violation continues shall be considered a separate violation. The civil penalty for a violation of any District rule is hereby set at the lower of \$10,000.00 per violation or a lesser amount determined after consideration, during the enforcement hearing, of the criteria in subsection (b) of this rule.
- (b) In determining the amount of a civil penalty, the Board of Directors shall consider the following factors:
 - (1) compliance history;
 - (2) efforts to correct the violation and whether the violator makes a good faith effort to cooperate with the District;
 - (3) the penalty amount necessary to ensure future compliance and deter future noncompliance;
 - (4) any enforcement costs related to the violation; and
 - (5) any other matters deemed necessary by the Board.

15.3.4 The District shall collect all past due fees and civil penalties accrued that the District is entitled to collect under the District's rules. The District shall provide written notice of the alleged violation and show cause hearing by certified mail, return receipt requested, hand delivery, first class mail, facsimile, email, FedEx, UPS, or any other type of public or private courier or delivery service. If the District is unable to provide notice to the alleged violator by any of these forms of notice, the District may tape the notice on the door of the alleged violator's office or home, or post notice in the newspaper of general circulation in the District and within the county in which the alleged violator resides or in which the alleged violator's office is located. Any person or entity in violation of these rules is subject to all past due fees and civil penalties along with all fees and penalties occurring as a result of any violations that ensue after the District provides written notice of a violation. Failure to pay required fees will result in a violation of the District's rules and such failure is subject to civil penalties.

15.3.5 The District may afford an opportunity to the alleged violator to cure a violation through coordination and negotiation with the District.

15.3.6 After conclusion of the show cause hearing, the District may commence suit. Any suit shall be filed in a court of competent jurisdiction in Pecos County. If the District prevails

in a suit brought under this Section, the District may seek and the court shall grant, in the interests of justice and as provided by Subsection 36.066(h), Texas Water Code, in the same action, recovery of attorney's fees, costs for expert witnesses, and other costs incurred by the District before the court.

RULE 15.4 SEALING OF WELLS

Following notice to the well owner and operator and upon resolution by the Board, the District may seal wells that are prohibited from withdrawing groundwater within the District to ensure that such wells are not operated in violation of the District's rules. A well may be sealed when: (1) no application has been made for a permit to drill a new water well which is not excluded or exempted; or (2) no application has been made for a Production permit to withdraw groundwater from an existing well that is not excluded or exempted from the requirement that a permit be obtained in order to lawfully withdraw groundwater; or (3) the Board has denied, canceled or revoked a Drilling Permit or a Production permit.

The well may be sealed by physical means, and tagged to indicate that the well has been sealed by the District, and other appropriate action may be taken as necessary to preclude operation of the well or to identify unauthorized operation of the well.

Tampering with, altering, damaging, or removing the seal of a sealed well, or in any other way violating the integrity of the seal, or pumping of groundwater from a well that has been sealed constitutes a violation of these rules and subjects the person performing that action, as well as any well owner or primary operator who authorizes or allows that action, to such penalties as provided by the District's rules.

RULE 15.5 CAPPING AND PLUGGING OF WELLS

- (a) The District may require a well to be capped to prevent waste, prevent pollution, or prevent further deterioration of a well casing. The well must remain capped until such time as the conditions that led to the capping requirement are eliminated. If well pump equipment is removed from a well and the well will be re-equipped at a later date, the well must be capped, provided however that the casing is not in a deteriorated condition that would permit co-mingling of water strata, in which case the well must be plugged. The cap must be capable of sustaining a weight of at least four hundred (400) pounds and must be constructed with a water tight seal to prevent entrance of surface pollutants into the well itself, either through the well bore or well casing.
- (b) A deteriorated or abandoned well must be plugged in accordance with the Texas Department of License and Regulation, Water Well Drillers and Pump Installers Rules (16 TAC Chapter 76). It is the responsibility of the landowner to see that such a well is plugged to prevent pollution of the underground water and to prevent injury to persons and animals. Registration of the well is required prior to, or in conjunction with, well plugging.

Any person that plugs a well in the District must submit a copy of the plugging report to the District and the Texas Department of License and Regulation within 30 (thirty) calendar days of plugging completion.

- (c) If the owner or lessee fails or refuses to plug or cap the well in compliance with this rule and District standards within 30 (thirty) calendar days after being requested to do so in writing by an officer, agent, or employee of the District, then, upon Board approval, any person, firm, or corporation employed by the District may go on the land and plug or cap the well safely and securely, pursuant to TWC Chapter 36.118.

Reasonable expenses incurred by the District in plugging or capping a well constitutes a lien on the land on which the well is located.

The District shall perfect the lien by filing in the deed records an affidavit, executed by any person conversant with the facts, stating the following:

- (1) the existence of the well;
- (2) the legal description of the property on which the well is located;
- (3) the approximate location of the well on the property;
- (4) the failure or refusal of the owner or lessee, after notification, to close the well within 30 (thirty) calendar days after the notification;
- (5) the closing of the well by the District, or by an authorized agent, representative, or employee of the District; and
- (6) the expense incurred by the District in closing the well.

SECTION 16. FEES

RULE 16.1 GROUNDWATER EXPORT FEE

- (a) The District may impose an export fee or surcharge, established by Board resolution, for export of groundwater out of the District using one of the following methods:
 - (1) a fee negotiated between the District and the exporter; or
 - (2) a rate not to exceed the equivalent of the District's tax rate per hundred dollars of valuation for each thousand gallons of water exported from the District or 2.5 cents per thousand gallons of water, if the District assesses a tax rate of less than 2.5 cents per hundred dollars of valuation.

If a production fee is assessed, this export fee shall not exceed 10 percent of the amount of the fee assessed for the production of water for use within the District.

- (b) Payment of the Groundwater Export Fee shall be made at a time negotiated under 16.1(a)(1) or no later than the payment deadline established by the General Manager.

RULE 16.2 RETURNED CHECK FEE

Any person who tenders to the District a check that is returned to the District for insufficient funds, account closed, signature missing, or any other reason shall immediately remit funds to the District in the amount of the check that was returned and reimburse the District for any expenses associated with the returned check that were incurred by the District.

SECTION 17. PROPOSED DESIRED FUTURE CONDITIONS; PUBLIC COMMENT, HEARING, AND BOARD ADOPTION; APPEAL OF DESIRED FUTURE CONDITIONS

RULE 17.1 PUBLIC COMMENT

Upon receipt of proposed Desired Future Conditions from the Groundwater Management Area's district representatives, a public comment period of 90 (ninety) calendar days commences, during which the District will receive written public comments and conduct at least one hearing to allow public comment on the proposed Desired Future Conditions relevant to the District. The District will make available at the District Office a copy of the proposed Desired Future Conditions and any supporting materials, such as the documentation of factors considered under Subsection 36.108(d) and groundwater availability model run results.

RULE 17.2 NOTICES OF HEARING AND MEETING

- (a) At least ten (10) calendar days before a hearing or meeting under this Section, the Board must post notice that includes:
- (1) the proposed Desired Future Conditions and a list of any other agenda items;
 - (2) the date, time, and location of the hearing;
 - (3) the name, telephone number, and address of the person to whom questions or requests for additional information may be submitted;
 - (4) the names of the other districts in the District's management area; and
 - (5) information on how the public may submit comments.
- (b) Except as provided by Subsection (a), the hearing and meeting notice must be provided in the manner prescribed for a rulemaking hearing under Rule 6.2(b) and Subsection 36.101(d), Texas Water Code.

RULE 17.3 HEARING

The District shall hold a public hearing to accept public comments using procedures prescribed in Section 6 of these rules.

RULE 17.4 DISTRICT'S REPORT ON PUBLIC COMMENTS AND SUGGESTED REVISIONS

After the public hearing, the District shall compile for consideration at the next joint planning meeting a summary of relevant comments received, any suggested revisions to the proposed Desired Future Conditions, and the basis for any suggested revisions.

RULE 17.5 BOARD ADOPTION OF DESIRED FUTURE CONDITIONS

As soon as possible after the District receives the Desired Future Conditions resolution and explanatory report from the Groundwater Management Area's district representatives pursuant to Subsection 36.108(d-3), the Board shall adopt the Desired Future Conditions in the resolution and explanatory report that apply to the District. The Board shall issue notice of its meeting at which it will take action on the Desired Future Conditions in accordance with Rule 17.2(a) and

(b).

RULE 17.6 APPEAL OF DESIRED FUTURE CONDITIONS

(a) Not later than 120 (one hundred twenty) calendar days after the date on which the District adopts a Desired Future Condition under Subsection 36.108(d-4), Texas Water Code, a person determined by the District to be an affected person may file a petition appealing the reasonableness of a Desired Future Condition. The petition must include:

- (1) evidence that the petitioner is an affected person;
- (2) a request that the District contract with SOAH to conduct a hearing on the petitioner's appeal of the reasonableness of the Desired Future Condition;
- (3) evidence that the districts did not establish a reasonable Desired Future Condition of the groundwater resources within the relevant Groundwater Management Area.

(b) Not later than ten (10) calendar days after receiving a petition described by Subsection (a), the District's Presiding Officer shall determine whether the petition was timely filed and meets the requirements of Rule 17.6(a) and, if so, shall submit a copy of the petition to the TWDB. If the petition was untimely or did not meet the requirements of Rule 17.6(a), the District's Presiding Officer shall return the petition to the petitioner advising of the defectiveness of the petition. Not later than 60 (sixty) calendar days after receiving a petition under Rule 17.6(a), the District shall:

- (1) contract with SOAH to conduct the requested hearing; and
- (2) submit to SOAH a copy of any petitions related to the hearing requested under Rule 17.6(a) and received by the District.

(c) A hearing under District Rule 17.6 must be held:

- (1) at the District office or Pecos County Courthouse unless the District's Board provides for a different location; and
- (2) in accordance with Chapter 2001, Texas Government Code, and SOAH's rules.

Not less than ten (10) calendar days prior to the date of the hearing, notice may be provided by regular mail to landowners who, in the discretion of the General Manager, may be affected by the application.

(d) Not less than ten (10) calendar days prior to the date of the SOAH hearing under this rule, notice shall be issued by the District and meet the following requirements:

- (1) state the subject matter, time, date, and location of the hearing;
- (2) be posted at a place readily accessible to the public at the District's office;

- (3) be provided to the County Clerk of Pecos County, whereupon the County Clerk shall post the notice on a bulletin board at a place convenient to the public in the County Courthouse; and
- (4) be sent by certified mail, return receipt requested; hand delivery; first class mail; fax; email; FedEx; UPS; or any other type of public or private courier or delivery service to:
 - (A) the petitioner;
 - (B) any person who has requested notice in writing to the District;
 - (C) each nonparty district and regional water planning group located within the same Groundwater Management Area as a district named in the petition;
 - (D) TWDB's Executive Administrator; and
 - (E) TCEQ's Executive Director.

If the District is unable to provide notice by any of these forms of notice, the District may tape the notice on the door of the individual's or entity's office or home, or post notice in the newspaper of general circulation in the District and within the county in which the person or entity resides or in which the person's or entity's office is located.

- (e) Before a hearing is conducted under this rule, SOAH shall hold a prehearing conference to determine preliminary matters, including:
 - (1) whether the petition should be dismissed for failure to state a claim on which relief can be granted;
 - (2) whether a person seeking to participate in the hearing is an affected person who is eligible to participate; and
 - (3) each affected person that shall be named as a party to the hearing.
- (f) The petitioner shall pay the costs associated with the contract for the hearing conducted by SOAH under this rule. The petitioner shall deposit with the District an amount sufficient to pay the contract amount before the hearing begins. After the hearing, SOAH may assess costs to one or more of the parties participating in the hearing and the District shall refund any money exceeding actual hearing costs to the petitioner. SOAH shall consider the following in apportioning costs of the hearing:
 - (1) the party who requested the hearing;
 - (2) the party who prevailed in the hearing;
 - (3) the financial ability of the party to pay the costs;

- (4) the extent to which the party participated in the hearing; and
 - (5) any other factor relevant to a just and reasonable assessment of costs.
- (g) On receipt of the SOAH Administrative Law Judge’s findings of fact and conclusions of law in a proposal for decision, which may include a dismissal of a petition, the District shall issue a final order stating the District’s decision on the contested matter and the District’s findings of fact and conclusions of law. The District may change a finding of fact or conclusion of law made by the Administrative Law Judge, or may vacate or modify an order issued by the Administrative Law Judge, as provided by Section 2001.058(e), Texas Government Code.
- (h) If the District vacates or modifies the proposal for decision, the District shall issue a report describing in detail the District’s reasons for disagreement with the Administrative Law Judge’s findings of fact and conclusions of law. The report shall provide the policy, scientific, and technical justifications for the District’s decision.
- (i) If the District in its final order finds that a Desired Future Condition is unreasonable, not later than the 60th calendar day after the date of the final order, the District shall coordinate with the districts in the Groundwater Management Area at issue to reconvene in a joint planning meeting for the purpose of revising the Desired Future Condition found to be unreasonable in accordance with the procedures in Section 36.108, Texas Water Code.
- (j) The Administrative Law Judge may consolidate hearings requested under this rule that affect two or more districts. The Administrative Law Judge shall prepare separate findings of fact and conclusions of law for each district included as a party in a multidistrict hearing.

SECTION 18. AQUIFER STORAGE AND RECOVERY (ASR)

RULE 18.1 APPLICABILITY OF DISTRICT’S RULES TO ASR PROJECTS

- (a) As a general matter, TCEQ has exclusive jurisdiction over the regulation and permitting of ASR Injection Wells. However, the District has concurrent jurisdiction over an ASR Injection Well that also functions as an ASR Recovery Well. The District is entitled to notice of and may seek to participate in an ASR permitting matter pending at TCEQ and, if the District qualifies as a party, in a contested hearing on an ASR application.
- (b) The provisions of District Rule 18.1 apply to an ASR Recovery Well that also functions as an ASR Injection Well.
- (c) A Project Operator shall:
 - (1) register an ASR Injection Well and ASR Recovery Well associated with the ASR Project if a well is located in the District;

- (2) submit to the District the monthly report required to be provided to TCEQ under Section 27.155, Texas Water Code, at the same time the report is submitted to TCEQ; and
 - (3) submit to the District the annual report required to be provided to TCEQ under Section 27.156, Texas Water Code, at the same time the report is submitted to TCEQ.
- (d) If an ASR Project recovers an amount of groundwater that exceeds the volume authorized by TCEQ to be recovered under the project, the Project Operator shall report to the District the volume of groundwater recovered that exceeds the volume authorized to be recovered in addition to providing the report required by District Rule 18.1(c)(2).
 - (e) Except as provided by District Rule 18.1(f), the District may not require a permit for the drilling, equipping, operation, or completion of an ASR Injection Well or an ASR Recovery Well that is authorized by TCEQ.
 - (f) Each ASR Recovery Well that is associated with an ASR Project is subject to the permitting, spacing, and production requirements of the District if the amount of groundwater recovered from the wells will exceed the volume authorized by TCEQ to be recovered under the project. The requirements of the District apply only to the portion of the volume of groundwater recovered from the ASR Recovery Well that exceeds the volume authorized by TCEQ to be recovered.
 - (g) A Project Operator may not recover groundwater from an ASR Project in an amount that exceeds the volume authorized by TCEQ to be recovered under the project unless the Project Operator complies with the applicable requirements of the District as described by this rule.
 - (h) The District may not assess a production fee or export fee or surcharge for groundwater recovered from an ASR Recovery Well, except to the extent that the amount of groundwater recovered under the ASR Project exceeds the volume authorized by TCEQ to be recovered.
 - (i) The District may consider hydrogeologic conditions related to the injection and recovery of groundwater as part of an ASR Project in the planning for and monitoring of the achievement of a Desired Future Condition for the aquifer in which the wells associated with the project are located.

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Appendix D

Evidence of Notice and Hearing

MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT

NOTICE OF PUBLIC HEARING ON AMENDMENTS TO MANAGEMENT PLAN

July 14, 2020 at 10:00 a.m.
District's Office, 405 North Spring Drive
Fort Stockton, Texas 79735

The Middle Pecos Groundwater Conservation District (District) will hold a public hearing on proposed amendments to the District's management plan on July 14, 2020, at 10:00 a.m. at its office at 405 North Spring Drive, Fort Stockton, Texas 79735. All interested parties are invited to attend and are encouraged to provide input, and may do so orally or in written form. Additionally, this public hearing will be accessible via videoconference call in accordance with Governor Abbott's declaration of the COVID-19 public health threat and action to temporarily suspend certain provisions of the Texas Open Meetings Act. Members of the public may listen to and participate in the meeting via the web video link and toll-free call-in number below.

Link: <https://us02web.zoom.us/j/84263436983> Call-in #: 1-888-992-1129
Meeting ID: 842 6343 6983
Password: 754489

The proposed amendments to the management plan incorporate the updated Desired Future Conditions and Modeled Available Groundwater information developed from the work of the Texas Water Development Board (TWDB), groundwater conservation districts and other stakeholders within Groundwater Management Areas 3 and 7, and amends certain management objectives and performance standards. Following this hearing, the District will, in coordination with surface water management entities on a regional basis, complete the management plan to address the management goals statutorily required in Section 36.1071 of the Texas Water Code and TWDB's rules.

Copies of the proposed management plan are available for review at the District's office at 405 North Spring Drive, Fort Stockton, Texas 79735, and on the District's webpage at www.middlepecosgcd.org.

The District is committed to compliance with the Americans with Disabilities Act (ADA). If you require special assistance to participate in this hearing, please call (432) 336-0698 at least 24 hours in advance of the meeting to make arrangements. For more information about the management plan or public hearing, please contact the District's General Manager Ty Edwards at (432) 336-0698.

FILED
JUN 29 2020

LIZ CHAPMAN
CLERK COUNTY COURT, PECOS CO., TEXAS

By J. K. [Signature] Deputy
10:35 AM

FILED

JUL 10 2020

MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT

LIZ CHAPMAN
CLERK COUNTY COURT, PECOS CO., TEXAS

P.O Box 1644 Fort Stockton, TX 79735

Phone (432)336-0698 Fax (432)336-3407

405 North Spring Drive Fort Stockton, Texas 79735

Deputy email: mpgcd@mpgcd.org

Website: www.middlepecosgcd.org

By *J. Ross*
2:00pm

Directors

Jerry McGuairt, President Janet Groth, Vice President M. R. Gonzalez, Secretary/Treasurer
Alvaro Mandujano, Jr. Vanessa Cardwell Ronald Cooper
Weldon Blackwelder Allan Childs Jeff Sims Puja Boinpally Larry Drgac

Employees

Ty Edwards, General Manager
Office: Gail Reeves & Melissa Mills Field Technician: Anthony Bodnar

**NOTICE OF REGULAR BOARD MEETING AND PUBLIC HEARING
TO BE HELD BY VIDEOCONFERENCE AND TELECONFERENCE¹**

July 14, 2020
Call to Order at 10:00 a.m.

In accordance with Governor Abbott's declaration of the COVID-19 public health threat and action to temporarily suspend certain provisions of the Texas Open Meetings Act, a quorum of the District's Board of Directors will hold its regular Board meeting and hearing by videoconference and teleconference. There will not be an in-person meeting. The public may join this meeting as follows:

Access the videoconference at this link: <https://us02web.zoom.us/j/84263436983>
Password: 754489 / Meeting ID: 842 6343 6983

Alternatively, call in to this meeting at this toll-free number: 1-888-992-1129

Members of the public wishing to make public comment during the meeting and/or hearing must register by emailing mpgcd@mpgcd.org prior to 9:30 a.m. on July 14, 2020. A copy of the agenda packet will be available on the District's website at the time of the meeting.

During this meeting, the Board reserves the right to go into executive session for any of the purposes authorized under the Texas Open Meetings Act, Chapter 551 of the Texas Government Code, for any item on this agenda or as otherwise authorized by law.

REGULAR BOARD MEETING

- I Call to order regular Board meeting and roll call.
- II Comments from **public and media** (limit 5 minutes per person cumulative for all items addressed). Members of the public may address the Board for a limited time concerning any subject whether or not it is on the agenda (each person wishing to speak must submit a completed public comment form).²
- III Consider and/or act upon **Minutes of Regular Meeting on June 16, 2020.**

Agenda for July 14, 2020

PUBLIC HEARING ON AMENDMENTS TO MANAGEMENT PLAN³

- I Call to Order at 10:00 a.m.
- II Public hearing to receive public input on proposed Amendments to Management Plan.
- III Adjourn.

REGULAR BOARD MEETING – CONTINUED

- IV Consider and/or act upon **Treasurer’s Report for the Month Ending June 30, 2020.**
- V Consider and review **2020-2021 draft budget.**
- VI Consider and/or act upon **2020 Amendments to Management Plan.**
- VII Consider and/or act on **Cockrell Investment Partners, L.P.’s (Cockrell’s) pending motion for contested case hearing and referral to State Office of Administrative Hearings (SOAH) on District’s proposed rules (filed August 10, 2017).**
- VIII Consider and/or act regarding rules acted on at **June 16, 2020 Board meeting and future workshop(s) and/or hearing(s) on proposed rules.**
- IX Consider and/or act on **Cockrell’s Request for Reconsideration regarding third-party party status concerning Fort Stockton Holdings, L.P.’s (FSH’s) Application for Permit Renewal (filed July 6, 2020).**
- X Consider and/or act on **Cockrell’s Request for Findings and Conclusions regarding FSH’s Application for Permit Renewal (filed July 6, 2020).**
- XI Briefing and take action as necessary on **Cockrell Investment Partners, L.P. v. Middle Pecos Groundwater Conservation District, Cause No. P-12176-112-CV (Pecos County District Court).**
- XII Consider and/or act upon **Order of General Election for November 3, 2020.**
- XIII Consider and/or act regarding compliance with and/or exemption from recently adopted **Texas Commission on Environmental Quality rules regarding recycling** and associated statutory requirements.
- XIV **Progress Reports: Well Registrations, Production Permits, Drilling Permits, Data Loggers, Drought Monitor Map, Water Quality Analysis and General Manager’s Correspondence.**⁴
- XV **Directors’ Comments**⁴ and consider and/or act upon **agenda for next meeting.**
- XVI **Adjourn Board meeting.**

¹ The Board may break for lunch and commence or continue the Board meeting and/or hearing immediately after lunch. Requests for accommodations under the ADA/Americans with Disabilities Act must be made 48 hours prior to this meeting by contacting Ty Edwards at 432-336-0698.

² The Board will apply new statutory law governing public comment. If more than 5 minutes (cumulative) is requested, there must be good cause in the sole discretion of the Presiding Officer. The Board is not allowed to take action on any subject presented that is not on the agenda, nor is the Board required to provide a response; any substantive consideration and action by the Board will be conducted under a specific item on a future agenda.

³ Additional more detailed notice of this public hearing required by state law and the District's rules was separately issued by the District.

⁴ No action will be taken on these agenda items. These items are on the agenda to provide the District's General Manager and Directors an opportunity to bring to the public's and each other's attention important issues pertinent to groundwater management within the District such that any substantive deliberation and formal action on any of these issues will be conducted under a specific item on a future agenda.

**RESOLUTION
OF THE BOARD OF DIRECTORS OF THE MIDDLE PECOS
GROUNDWATER CONSERVATION DISTRICT
HEARING HELD JULY 14, 2020**

A RESOLUTION ADOPTING THE DISTRICT'S MANAGEMENT PLAN

WHEREAS, the Middle Pecos Groundwater Conservation District (the "District") is a political subdivision of the State of Texas organized and existing under and by virtue of Article XVI, Section 59, of the Texas Constitution, and a groundwater conservation district acting under Chapter 36 of the Texas Water Code and the District's enabling act, Texas Special District Local Laws Code Chapter 8851;

WHEREAS, under the direction of the Board of Directors (the "Board"), and in accordance with Section 36.1071, Texas Water Code; Chapter 356, Title 31, Texas Administrative Code; and Section 8 of the District's rules, the District has revised its Management Plan;

WHEREAS, the District held a properly noticed public hearing to receive and consider public comments on the Management Plan for the District at 405 North Spring Drive (District Office), Fort Stockton, Texas on July 14, 2020;

WHEREAS, on June 29, 2020, more than 10 days prior to its July 14th public hearing, the District made its Management Plan available for public review at the District's office and on the District's webpage;

WHEREAS, the District obtained comments from the Texas Water Development Board ("TWDB") through a preliminary review of the District's Management Plan conducted by TWDB staff, and the District has considered and addressed all such comments in the development of its Management Plan;

WHEREAS, the Board received and considered the advice of the District's legal counsel and consultant on the revisions to the District's Management Plan;

WHEREAS, the Board received public comments on the District's Management Plan, considered and reviewed those comments in preparing revisions to its Management Plan, and completed its five-year review;

WHEREAS, the District has coordinated and will continue to coordinate with the appropriate surface water management entities pursuant to Section 36.1071, Texas Water Code; and

WHEREAS, the Board of Directors finds that the Management Plan meets all of the requirements of Chapter 36, Texas Water Code, and Chapter 356, Title 31, Texas Administrative Code.


NOW THEREFORE BE IT RESOLVED THAT:

1. The above recitals are true and correct.
2. The Management Plan is hereby adopted as the groundwater management plan for the District.
3. The District's Board, General Manager, legal counsel and consultant are further authorized to take any and all action necessary to file the adopted Management Plan with TWDB and to coordinate with TWDB as may be required in furtherance of TWDB's approval pursuant to the provisions of Chapter 36 of the Texas Water Code and other applicable law.

AND IT IS SO ORDERED.

Upon motion duly made by Director Ronald Cooper, and seconded by Director M.R. Gonzalez, and upon discussion, the Board voted 10 in favor, 0 opposed, 0 abstained, and 1 absent, and the motion thereby PASSED on this 14th day of July, 2020.

MIDDLE PECOS GROUNDWATER CONSERVATION DISTRICT

By: 
Board President

ATTEST:


Board Secretary

Appendix E

Coordination with Surface Water Entities

Bill Hutchison

From: Middle Pecos GCD <mpgcd@mpgcd.org>
Sent: Wednesday, July 15, 2020 9:46 AM
To: PCWID2@hotmail.com; Ronnie Cooper; redbluff@windstream.net; Melissa Mills
Subject: MPGCD 2020 Management Plan
Attachments: MPGCD Notice of Public Hearing on Amendments to Management Plan 7-14-2020 (1).pdf;
07-14-2020 mgmt plan resol - executed.pdf

By way of this email The Middle Pecos Groundwater Conservation District is notifying you we have adopted our 2020 Management Plan.

A copy of the 2020 MPGCD Management Plan is available [here](#).

PCWID #2
PCWID2@hotmail.com

PCWID#3
ronniec@valornet.com

Red Bluff Water Power Control District
GM: Robin Prutte
432-448-2818
e-mail: redbluff@windstream.net

Ty Edwards
General Manager
Middle Pecos GCD
PO Box 1644
405 North Spring Drive
Ft. Stockton Texas 79735
Cell: 432-940-1357
Office: 432-336-0698
www.mpgcd.org

From: Middle Pecos GCD <mpgcd@mpgcd.org>
Sent: Tuesday, July 28, 2020 16:43
To: PCWCID#1 <pcwcid1@gmail.com>; Bill Hutchison <billhutch@texasgw.com>
Cc: Stephen Allen <Stephen.Allen@twdb.texas.gov>
Subject: Re: FW: Middle Pecos GCD Final GW Management Plan- One more item needed

External: Beware of links/attachments.

Billy,
Attached is the Districts approved final 2020 management plan.

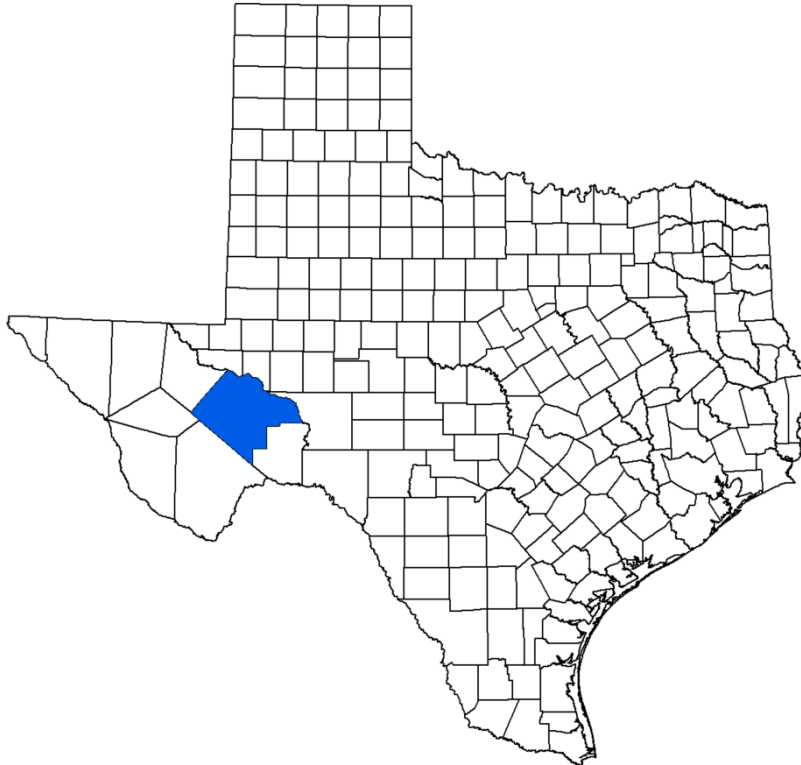
Ty Edwards
General Manager
Middle Pecos GCD
PO Box 1644
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www.mpgcd.org

Appendix F

Comparison of Groundwater Elevations and Drawdowns: GAM DFC Simulation and Measured Data from TWDB

Final Report

**Comparison of Groundwater Elevations and Drawdowns:
GAM DFC Simulation and Measured Data from TWDB**



Prepared for:

Middle Pecos Groundwater Conservation District
PO Box 1644
Ft. Stockton, TX 79735
432-336-0698

Prepared by:

William R. Hutchison, Ph.D., P.E., P.G.

Independent Groundwater Consultant

9305 Jamaica Beach

Jamaica Beach, TX 77554

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billhutch@texasgw.com

June 8, 2020

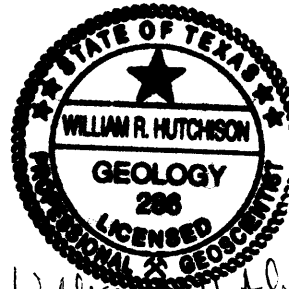
Professional Engineer and Professional Geoscientist Seals

This report was prepared by William R. Hutchison, Ph.D., P.E., P.G., who is licensed in the State of Texas as follows:

- Professional Engineer (Geological and Civil) No. 96287
- Engineering Firm Registration No. 14526
- Professional Geoscientist (Geology) No. 286



William R. Hutchison
6/8/20



William R. Hutchison
6/8/20

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Appendix

A – Hydrographs for 28 Monitoring Wells

1.0 Introduction

One of the required goals (Goal 8) of the Middle Pecos Groundwater Conservation District Management Plan is a how the District addresses the desired future conditions in a quantitative manner. This report:

- Summarizes the available data from the TWDB Groundwater Database
- Describes the analyses that were completed to select monitoring wells for the comparison with the simulations that are the basis for the desired future condition
- Provides a comparison of model simulated groundwater elevations and drawdowns with actual data and provides some context to the results with an analysis of precipitation in the area.

1.1 2020 District Management Plan

The updated 2020 District Management Plan outlines a process where the District downloads groundwater data for Pecos County from the Texas Water Development Board groundwater database and compares the model results on a well-by-well basis for data that are available. As described in the management plan, wells were selected using the following criteria:

1. The well was located within the boundaries of the District
2. The TWDB database included aquifer completion information
3. End-of-the-year groundwater elevation data are available for 2005 which is the starting point of the drawdown calculation of the desired future condition for the Edwards-Trinity (Plateau) and Pecos Valley aquifers.

As developed in this report, data are insufficient to complete this comparison for the Capitan Reef Complex, Dockum, and Rustler aquifers.

1.2 TWDB Database

1.2.1 Groundwater Levels

The groundwater level database for Texas which includes groundwater levels for the major and minor aquifers was downloaded from the TWDB website on May 15, 2020. The files *WaterLevelsMajor.txt* and *WaterLevelsMinor.txt* contain all water level data for Texas. The data for Pecos County were used for this effort.

There was a total of 26,527 groundwater level entries in Pecos County from 564 wells. Of the entries in the database, 25,799 had depth to water data (i.e. 728 had no data entered for a variety of reasons). Of the 25,799 entries that had data, 25,404 from 545 wells were labeled “publishable” (i.e. 395 were labeled “questionable” for a variety of reasons).

The “publishable” data cover the period March 3, 1940 to April 30, 2020. The number of readings in each aquifer (as labeled by TWDB) are as follows:

- Capitan Reef Complex Aquifer: 38
- Dockum Aquifer: 1
- Edwards-Trinity (Plateau) Aquifer: 20,712
- Pecos Valley Aquifer: 4,436
- Rustler Aquifer: 217

The “publishable” groundwater level data were saved in the file *PecosPubWL.xlsx*.

1.2.2 Geographic Coordinates, Well Depths, and Well Use

Geographical coordinates, well depths, and well use for the 545 wells with “publishable” data were extracted from the file *WellMain.txt* from the TWDB groundwater database. These data were combined with the groundwater level data in *PecosPubWL.xlsx* and resulted in adding the well coordinates, depths, and well use to the groundwater level data. These coordinates from the TWDB are expressed in latitude and longitude. The coordinates were converted into x- and y-coordinates (GAM coordinate system) using the commercial software *Surfer*. The results were saved in the file *PecosPubWLCoord.xlsx*.

1.2.3 GAM Row and Column Locations

The x- and y-coordinates of the well locations were used to find the well in terms of the appropriate model grids of the GAMs (Capitan Reef Complex Aquifer, Edwards-Trinity (Plateau)/Pecos Valley aquifers, and Rustler Aquifer). There was only one data point for the Dockum aquifer in the TWDB database and it was taken in 1964 and is not useful for the analysis of comparing simulated drawdowns with actual monitoring data in the context of evaluating consistency with desired future conditions.

FORTRAN programs were written to find the appropriate model grid cell:

- Capitan Reef Complex Aquifer: *capitanrowcol.exe*
- Edwards-Trinity (Plateau) and Pecos Valley aquifers: *etppvrowcol.exe*
- Rustler Aquifer: *rustlerrowcol.exe*

Results were written to the following files:

- Capitan Reef Complex Aquifer: *capitanrowcolwl.dat*
- Edwards-Trinity (Plateau) and Pecos Valley aquifers: *etppvrowcolwl.dat*
- Rustler Aquifer: *rustlerrowcolwl.dat*

1.2.4 End-of-Year Groundwater Elevations

The data files for each aquifer were combined into a file named *allrowcolwl.dat*. A FORTRAN program named *AnnGWData.exe* was written to pick an end-of-year groundwater level that can be used to compare with GAM simulation results. For purposes of this selection, the priority of groundwater levels was as follows:

1. December of the current year
2. January of the next year
3. November of the current year
4. February of the next year

Data from March to October were ignored for purposes of this end-of-year selection. Output from the FORTRAN program includes a file named *annwellcount.dat* that contains the number of annual readings for each well and the earliest and most reading year of data, and a file named *annngwe.dat* that contains the measured end-of-year groundwater elevation. Please note of the 545 wells that had “published” data in the file *allrowcolwl.dat*, only 443 had end-of-year data. The ID number in the first column of *annngwe.dat* was also used to track data in addition to the state well number (as shown in the file *annwellcount.dat*).

1.2.5 Simulated Groundwater Elevations from Groundwater Availability Models

The Capitan Reef Complex Aquifer GAM calibration period was 1931 to 2005 (75 annual stress periods). The predictive scenarios were run for the period 2006 to 2070 (65 annual stress periods). The FORTRAN program *getcaphed.exe* was developed to extract simulated groundwater elevations for both the calibrated model and the simulation that was the basis for the desired future condition (Scenario 4). The simulated groundwater elevations were chosen based on the TWDB groundwater database monitoring points in *annngwe.dat* described in the previous section. Comparisons were limited to the wells identified in the TWDB database as Capitan Reef Complex Aquifer wells. Results were written to the file *caphedcompare.dat*.

The calibration period of the alternative GAM that covers the Edwards-Trinity (Plateau) and Pecos Valley aquifers was 1930 to 2005 (76 annual stress periods). The predictive scenarios were run for the period 2006 to 2070 (65 annual stress periods). The FORTRAN program *getetppvhed.exe* was developed to extract simulated groundwater elevations for both the calibrated model and the simulation that was the basis for the desired future condition (Scenario 2). The simulated groundwater elevations were chosen based on the TWDB groundwater database monitoring points in *annngwe.dat* described in the previous section. Comparisons were limited to wells identified in the TWDB database as Edwards-Trinity (Plateau) or Pecos Valley aquifer wells. Results were written to the file *etppvhedcompare.dat*.

The Rustler Aquifer GAM calibration period was 1918 to 2008 (91 annual stress periods). The predictive scenarios were run for the period 2009 to 2070 (62 annual stress periods). The FORTRAN program *getrustlerhed.exe* was developed to extract simulated groundwater elevations for both the calibrated model and the simulation that was the basis for the desired future condition (Scenario 4). The simulated groundwater elevations were chosen based on the TWDB groundwater database monitoring points in *annngwe.dat* described in the previous section. Comparisons were limited to the wells identified in the TWDB database as Rustler Aquifer wells. Results were written to the file *rustlerhedcompare.dat*.

2.0 Comparison of Measured Data with GAM Results

2.1 Capitan Reef Complex and Rustler Aquifers

The comparison of actual data to GAM results for the Capitan Reef Complex Aquifer yielded only six end-of-year groundwater elevations in five wells have been collected since 2005 (the end of the calibration period of the GAM). The comparison results are contained in the file *caphedcompare.dat*. There is general lack of data and there is a poor match between actual data and GAM results. However, the high pumping anticipated in the predictive run that was the basis for the desired future condition has not started. Thus, any variation in the actual groundwater elevations that may have occurred would be the result of natural variation in recharge and the small amount of pumping from this aquifer. This review suggests that additional monitoring be initiated, or the aquifer should be classified as not relevant for purposes of joint planning. If the aquifer were classified as not relevant for purposes of joint planning, Middle Pecos GCD would still manage groundwater and could still issue permits for production under its rules. However, no desired future condition would be established, no modeled available groundwater would be calculated by TWDB, and groundwater availability for this aquifer would be established by the regional planning group.

The comparison of actual data to GAM results for the Rustler Aquifer yielded only 11 end-of-year groundwater elevations in three wells have been collected since 2009 (the end of the calibration period of the GAM). The comparison results are contained in the file *RustlerHedCompare.xlsx*. There is a general lack of data and there is a poor match between the actual data and GAM results in the one well that has a multi-year record (Well 52-16-202). Actual data from 2010 to 2018 show a decline of about 7 feet. However, the GAM at the location of the well predicts a decline of about 93 feet. This review suggests that additional monitoring be initiated, or the aquifer should be classified as not relevant for purposes of joint planning. If the aquifer were classified as not relevant for purposes of joint planning, Middle Pecos GCD would still manage groundwater and could still issue permits for production under its rules. However, no desired future condition would be established, no modeled available groundwater would be calculated by TWDB, and groundwater availability for this aquifer would be established by the regional planning group.

2.2 Edwards-Trinity (Plateau) and Pecos Valley Aquifers

The comparison of actual data to GAM results for the Edwards-Trinity (Plateau) and Pecos Valley aquifers yielded 3,313 end-of-year groundwater elevations for both the calibration period and predictive period of the GAM runs. These data were further divided into readings through 2005 (calibration period) and after 2005 (predictive period). The file *ETPPVHeadcompare.xlsx* includes a sheet named “All” with all the data, a sheet named “Calibration” that contains 2,395 end-of-year groundwater elevations through 2005, and a sheet named “Prediction” that contains 882 end-of-year groundwater elevations from 2006 to 2019.

2.2.1 Overall Evaluation of Model Calibration

The GAM was calibrated to achieve a reasonable fit throughout the regional aquifer. This analysis involves evaluating the calibration specifically in Pecos County. Model calibration for Pecos County was evaluated graphically and with summary statistics. Figure 1 presents a cross plot of measured groundwater elevations vs. simulated groundwater elevation.

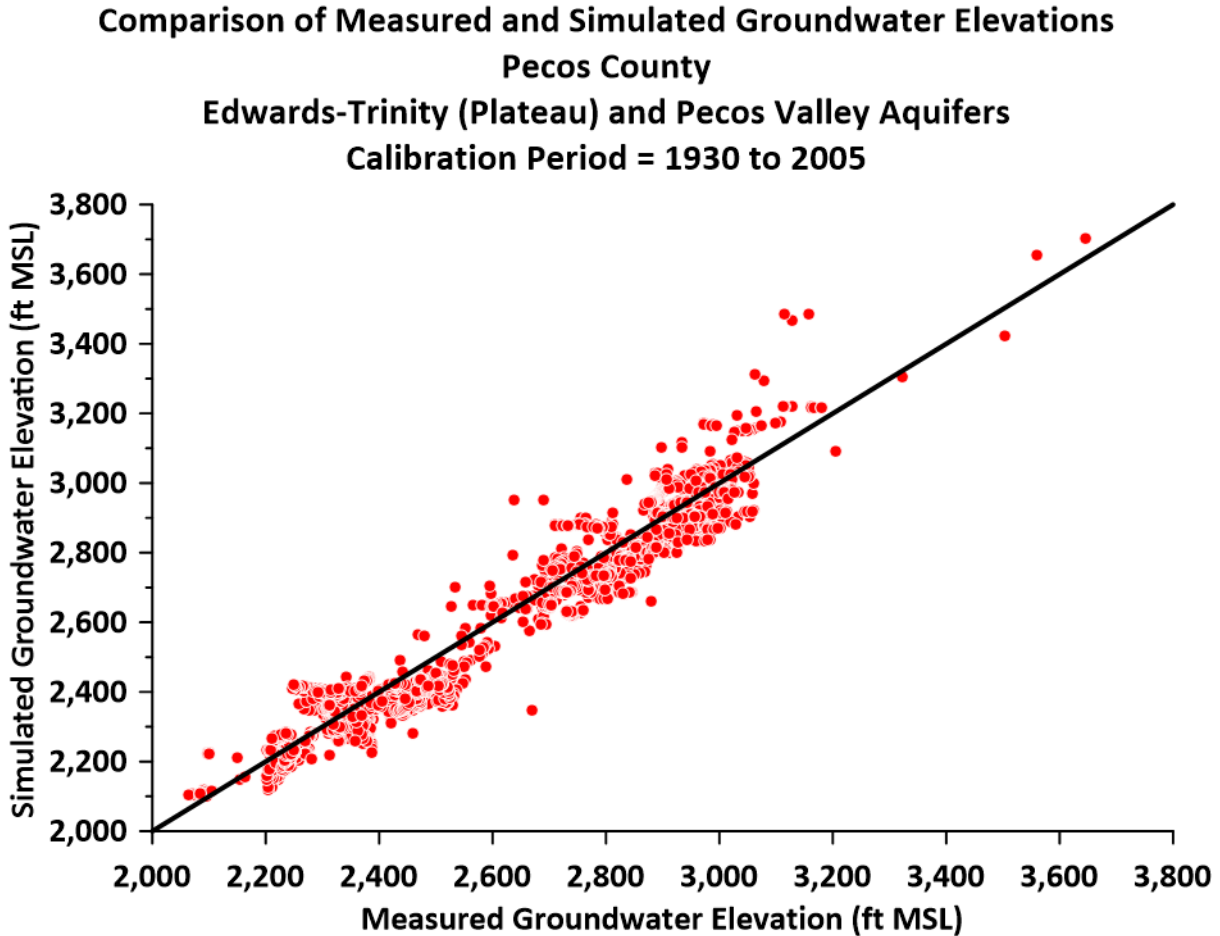


Figure 1. Comparison of Groundwater Elevations - Calibration Period

Each red data point shows the relationship between the measured groundwater elevation and the simulated groundwater elevation. An ideal match lies on the black 1 to 1 line. Points that lie below or to the right of the black line are instances where the simulated groundwater elevation is less than the measured groundwater elevation. Points that lie above or to the left of the black line are instances where the simulated groundwater elevation is higher than the measured groundwater elevation.

Table 1 summarizes the calibration statistics in Pecos County. The residual is calculated as the measured groundwater elevation minus the simulated groundwater elevation. The mean of the residual (23.20 feet), therefore, reflects that the average simulated groundwater elevation is 23.20 feet below the average measured groundwater elevation. A measure to assess the overall calibration is the scaled residual standard deviation (the residual standard deviation divided by the range in measurements). Typically, a value of less than 0.1 is considered acceptable. Please note that the calculated value for this analysis is 0.04.

Table 1. Pecos County Calibration Statistics

Statistic	Value
Residual Mean	23.20
Absolute Residual Mean	55.25
Residual Standard Deviation	64.21
Sum of Squared Residuals	11,160,002
Root Mean Square Error	68.26
Minimum Residual	-372.34
Maximum Residual	323.05
Number of Observations	2,395
Range in Observations	1,581.77
Scaled Residual Standard Deviation	0.0406
Scaled Absolute Residual Mean	0.0349
Scaled Root Mean Square Error	0.0432
Scaled Residual Mean	0.0147

Based on this analysis, the calibration is considered generally acceptable, but with some limitations due to the relatively large residual mean and root mean square error. Limitations to the calibration were considered when evaluating the comparison of the predictive simulation (i.e. the basis for the desired future condition) and actual monitoring data from 2006 to present.

2.2.2 Overall Comparison of Predictive Simulation

A cross plot of the overall comparison between measured groundwater elevations in Pecos County from 2006 to 2019 vs. simulated groundwater elevation at each point for the same period under the predictive simulation that was the basis for the desired future condition is presented in Figure 2. The associated statistics of this comparison are presented in Table 2.

**Comparison of Measured and Simulated Groundwater Elevations
Pecos County
Edwards-Trinity (Plateau) and Pecos Valley Aquifers
Prediction Period = 2006 to 2019**

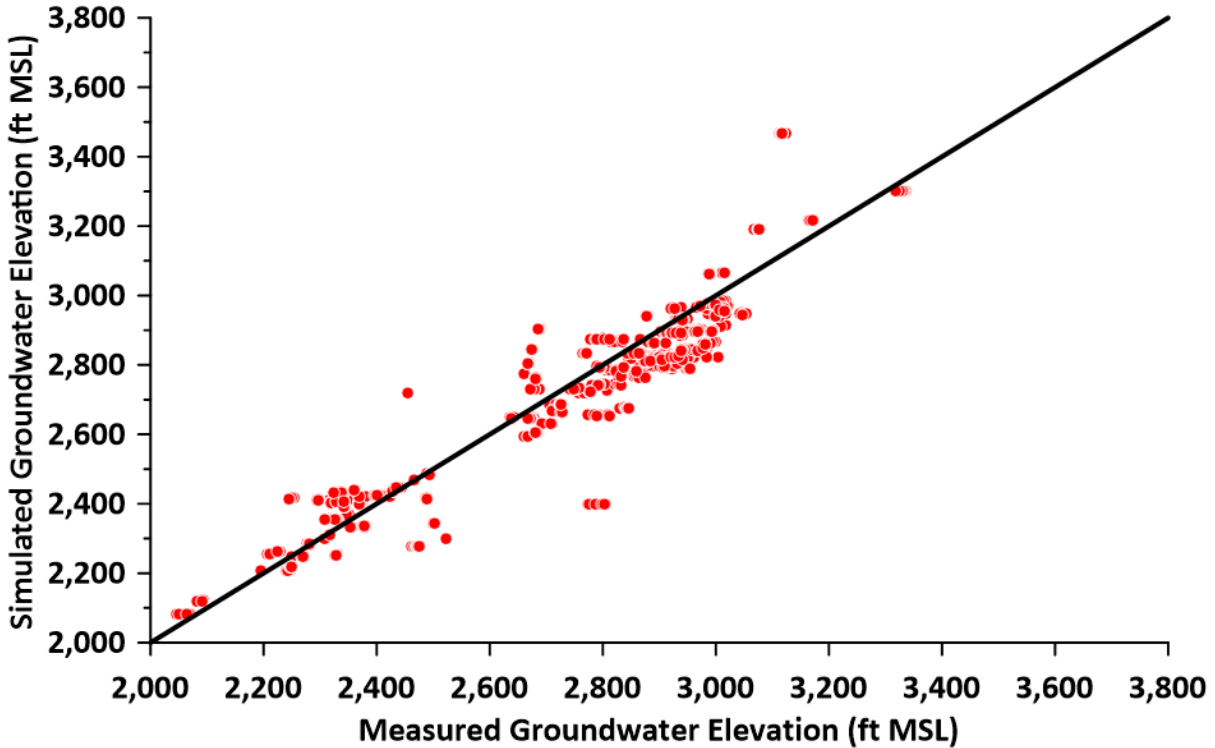


Figure 2. Comparison of Groundwater Elevations - Predictive Period

The predictive simulation assumed average rainfall and recharge conditions for each year from 2006 to 2070. Therefore, the only variation in simulated groundwater elevations is due to changes in groundwater pumping. However, the variation in measured groundwater elevations is due to a combination of changes in pumping and variations in rainfall and recharge. Thus, a more detailed comparison between measured groundwater elevations and simulated groundwater elevations is necessary as described below.

Table 2. Pecos County Predictive Simulation Comparison Statistics

Statistic	Value
Residual Mean	15.40
Absolute Residual Mean	71.00
Residual Standard Deviation	96.08
Sum of Squared Residuals	8,342,707
Root Mean Square Error	97.26
Minimum Residual	-354.28
Maximum Residual	405.97
Number of Observations	882
Range in Observations	1,289.82
Scaled Residual Standard Deviation	0.0745
Scaled Absolute Residual Mean	0.0550
Scaled Root Mean Square Error	0.0754
Scaled Residual Mean	0.0119

3.0 Drawdown Comparison

3.1 Well Selection

The desired future condition for the Edwards-Trinity (Plateau) and Pecos Valley aquifers as adopted by the groundwater conservation districts of Groundwater Management Area 7 for Pecos County is average drawdown not to exceed 14 feet from 2010 to 2070. This average drawdown was calculated based on a model run that was completed from 2006 to 2070 since the calibration period ended in 2005.

Inspection of the available measured data in 2005 yields 28 wells with a measured groundwater elevation at the end of 2005. The inspection also yields that there were 15 wells with end-of-year measurements in 2010. Thus, comparison of the predictive run using 2005 as a basis for the comparison will yield almost twice the number of the comparisons as a comparison based on 2010. As a result of the more comprehensive comparison, all drawdown calculations and comparisons will be based on 2005 measurements as a starting point.

The 28 wells with data in 2005 are summarized in Table 3 and the locations of these wells are presented in Figure 3.

Table 3. Summary of 28 Wells Used in Comparison

Well ID	State Well Number	Aquifer	GAM Row	GAM Column	2005 End-of-Year Measured Groundwater Elevation (ft MSL)
102	4562402	ETP	169	141	2,459.00
103	4562901	PV	167	148	2,249.70
105	4563701	ETP	166	150	2,244.74
113	4648604	PV	182	100	2,249.51
114	4648801	PV	184	101	2,327.96
127	4656306	ETP	184	105	2,369.81
130	4656401	PV	191	102	2,486.30
167	5206501	ETP	212	104	2,874.43
180	5207302	ETP	203	110	2,795.13
184	5207502	ETP	207	110	2,872.89
190	5207901	ETP	208	114	2,943.59
196	5208302	ETP	199	116	2,875.00
199	5208801	ETP	205	118	2,955.50
226	5216302	ETP	205	121	2,997.89
239	5216505	PV	207	120	3,015.00
252	5216802	ETP	209	123	3,027.20
263	5221301	ETP	226	109	3,179.15
320	5301707	ETP	200	120	2,942.92
326	5301902	ETP	197	126	2,924.36
360	5302708	ETP	197	128	2,889.32
370	5303901	ETP	189	137	2,730.61
385	5306501	ETP	173	149	2,311.42
399	5307202	ETP	166	153	2,268.60
400	5307203	ETP	166	154	2,211.60
421	5309105	ETP	204	122	2,979.63
425	5309301	ETP	200	127	2,923.96
430	5309306	ETP	198	126	2,927.00
448	5312702	ETP	192	144	2,757.00

Two output files are written, one with a summary of all drawdown comparisons (a total of 910), and two files are written for each of the 28 wells: one file with actual drawdown and one file with simulated drawdown. The individual files were used to construct hydrographs of drawdown that are presented in Appendix A.

The 910 drawdown comparisons were saved as an Excel spreadsheet (*PrePost2005Compare.xlsx*). The tab labeled “All” contains all 910 comparisons. The tab labeled “Pre2005” contains 640 comparisons before 2005 (1946 to 2004). These are useful to assess the calibration of the model in terms of drawdown. The tab labeled “Post2005” contains 242 comparisons after 2005 (2006 to 2019).

A summary tab is included as is reproduced as Table 4, which includes the number of wells for each year of the comparison, the average measured drawdown, and the average simulated drawdown from those wells with measured data. Please note that 2019 only had a single measured drawdown. The average drawdown data from 2006 to 2018 are presented in Figure 4. Each measured drawdown point in Figure 4 includes the annual precipitation in inches during that year. Average rainfall was 13.48 inches from 1940 to 2019.

Table 4. Summary of Average Drawdown 2006 to 2019

Year	Number of Wells	Average Measured Drawdown (ft from 2005)	Average Simulated Drawdown (ft from 2005)
2006	17	1.47	2.20
2007	17	0.23	3.72
2008	14	5.52	4.04
2009	21	0.55	4.76
2010	15	4.49	5.40
2011	19	10.85	5.68
2012	21	12.51	6.06
2013	21	17.87	6.55
2014	21	13.78	7.02
2015	21	3.68	7.49
2016	21	4.24	7.94
2017	16	6.18	8.90
2018	17	2.78	9.31
2019	1	13.11	17.07

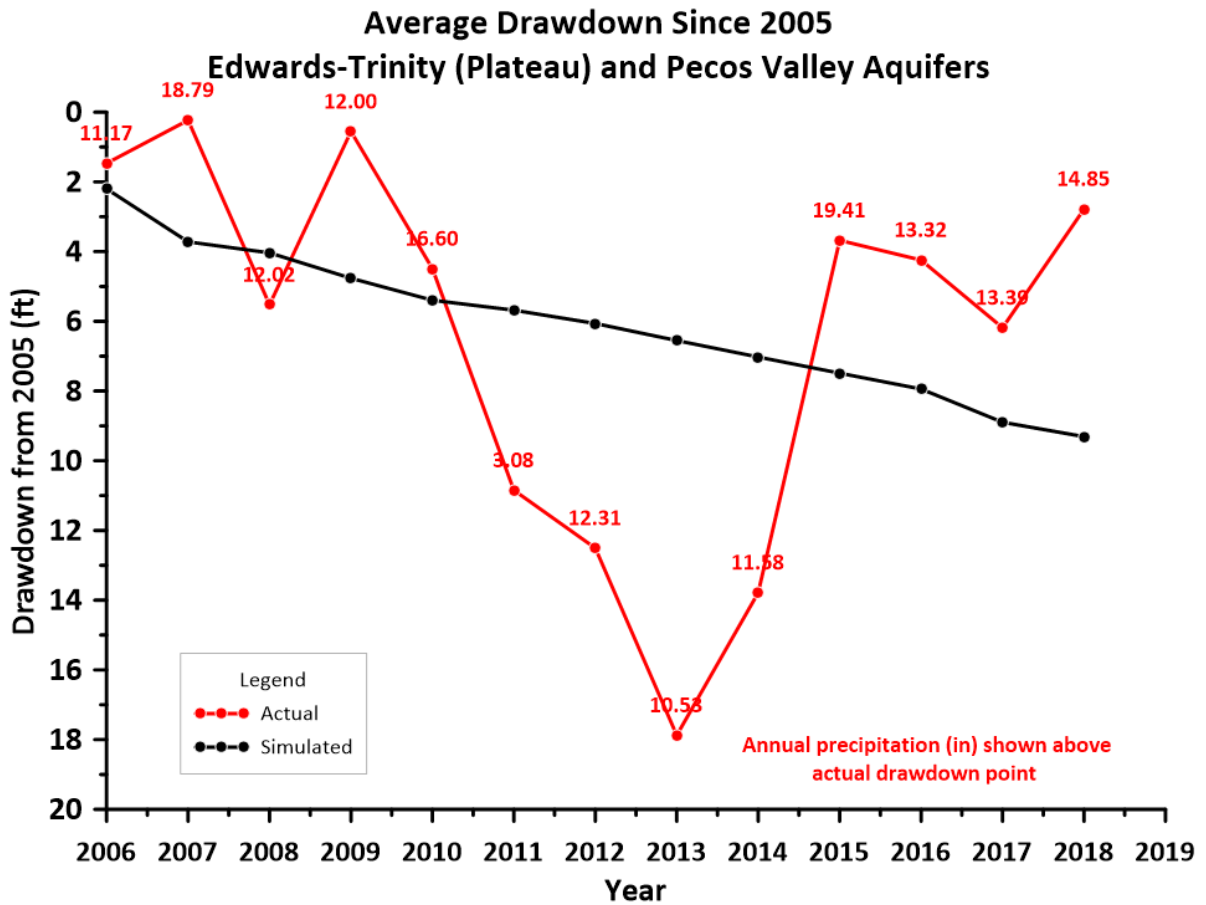


Figure 4. Average Drawdown (2005 to 2018)

Please note that the simulated drawdown is declining from 2006 to 2018 with only slight variations from a linear trend. The linear trend is expected because the simulation assumed constant and average rainfall and recharge conditions. The slight variation is expected because the specific wells used in the calculation change from year to year depending on data availability (i.e. not all wells have an end-of-year groundwater elevation measurement).

The actual drawdown, in contrast, exhibits larger variation than the simulated drawdown. To further assess the variation in the actual drawdown, an analysis of rainfall in the region was completed.

4.0 Precipitation Evaluation

Precipitation data were downloaded from the TWDB website (<https://waterdatafortexas.org/lake-evaporation-rainfall>). As seen in Figure 6, Pecos County is in parts of four quadrangles (604, 605, 704, and 705).

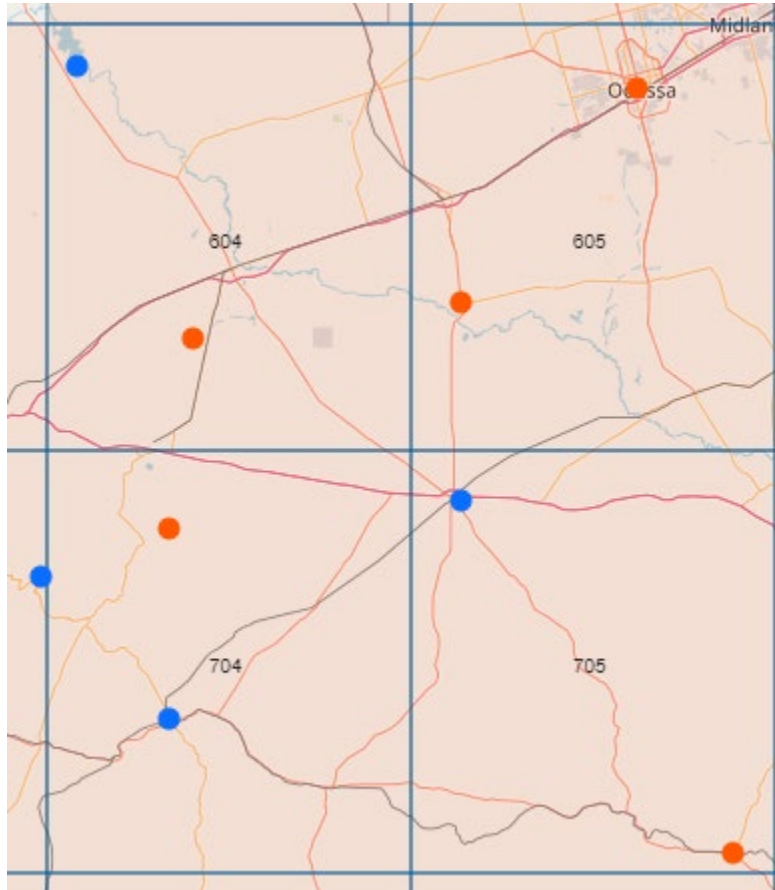


Figure 5. Location of Precipitation Quads

3.1 Annual Precipitation

The available data for the four quadrangles include monthly totals of precipitation from 1940 to 2019. These data were saved to the file *PecosPrecip.xlsx* in the tab labeled “All”. The monthly data were averaged across all four quadrangles, the annual totals for each year were summed and presented in Column J. The annual rainfall was also expressed in terms of a percent average for the entire period in Column K. Average rainfall from 1940 to 2019 was 13.48 inches. Annual departures from the average are presented in Column L, and the cumulative departures from the

average are presented in Column M. The pertinent data for the years of interest (2006 to 2019) are summarized in Table 6.

Table 5. Precipitation (in/yr) for Quadrangles 604, 605, 704, and 705: 2006 to 2019

Year	Annual Precipitation (in)	Annual Precipitation (% of Average)	Annual Departure from Average (in)	Cumulative Departure from Average Since 1940 (in)
2006	11.17	82.82	-2.32	3.08
2007	18.79	139.38	5.31	8.39
2008	12.02	89.17	-1.46	6.93
2009	12.00	89.00	-1.48	5.45
2010	16.60	123.13	3.12	8.57
2011	3.08	22.86	-10.40	-1.83
2012	12.32	91.34	-1.17	-3.00
2013	10.53	78.08	-2.96	-5.96
2014	11.58	85.90	-1.90	-7.86
2015	19.41	143.97	5.93	-1.93
2016	13.32	98.79	-0.16	-2.09
2017	13.39	99.33	-0.09	-2.18
2018	14.85	110.12	1.36	-0.82
2019	14.30	106.06	0.82	0.00

The annual totals for the average of the four Quadrangles for all years were plotted and are presented in Figure 6. The plot shows the significance of 2011 in the context of the entire record as the driest year.

Although 2011 was the driest year in the record (3.08 in), it must be placed in context of persistent periods of less than average precipitation as shown in Figure 7, the dry period around 2010 was about the same as the dry period in the early 2000s. However, a persistent dry period started in the 1950s and extended through the late 1970s when a series of wet years were observed. The driest period coincides with the period of lowest recorded groundwater elevations in the 1970s, which appear to be due to a combination of high groundwater pumping and persistent drought conditions.

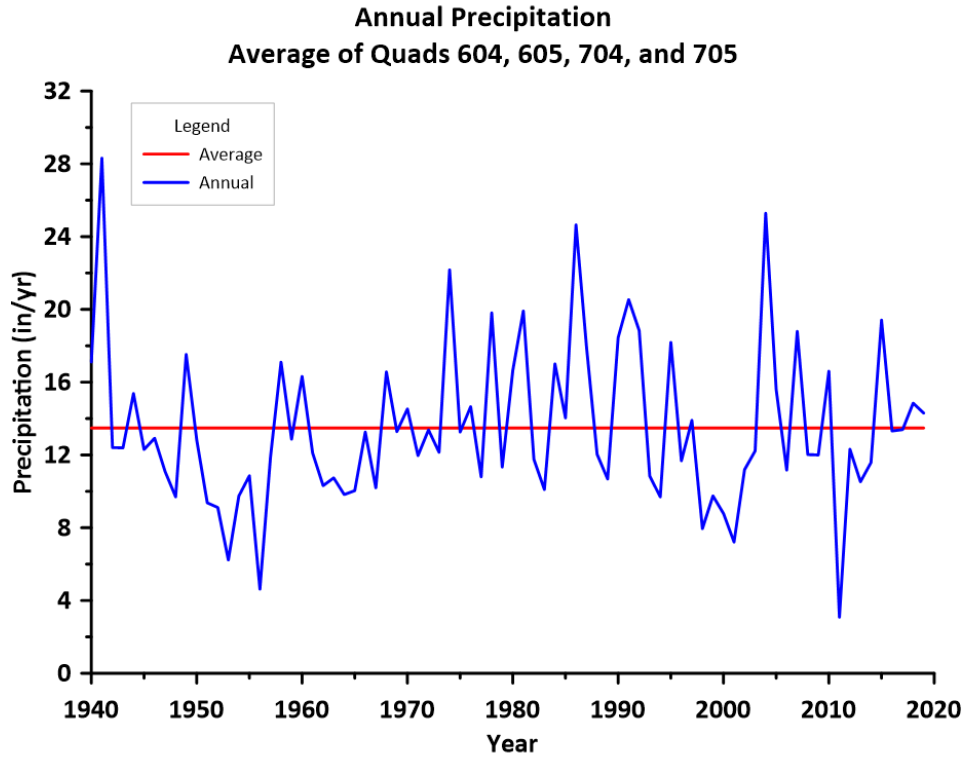


Figure 6. Annual Precipitation in Pecos County Area

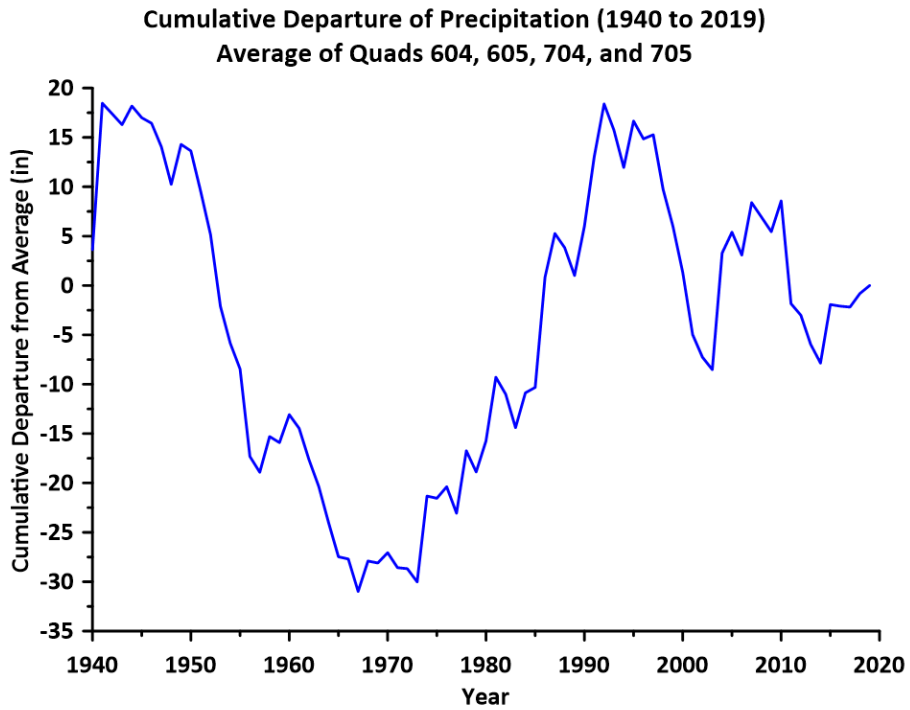


Figure 7. Cumulative Departure from Average Precipitation

Figure 8 presents a plot of annual precipitation vs. measured drawdown, along with the best-fit line based on a linear regression. Please note that the year is also shown on each data point. As expected, the higher the rainfall, the lower the drawdown. However, the plot shows considerable scatter. The 95% confidence of the linear regression is also shown.

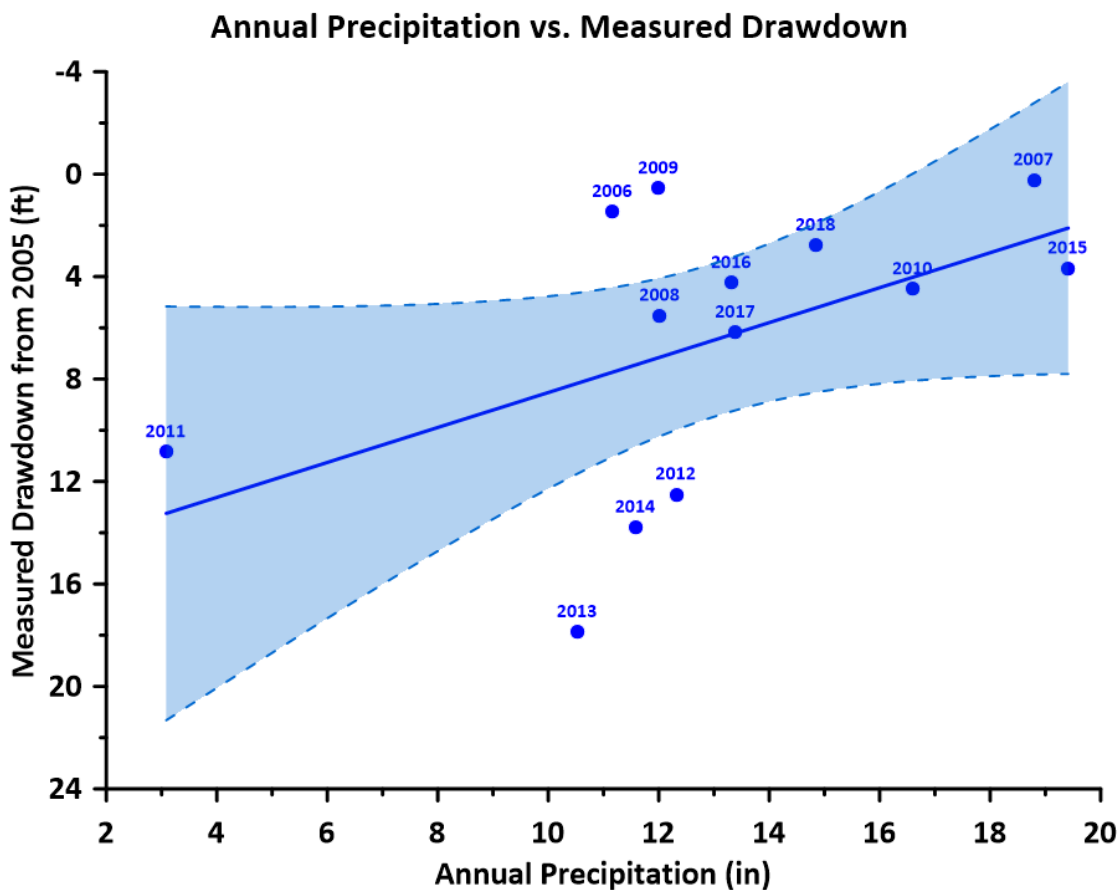


Figure 8. Annual Precipitation vs. Measured Drawdown

5.0 Discussion and Recommendations

The TWDB database was sampled to find wells with groundwater elevation measurements in Pecos County.

The analysis showed that the TWDB database did not have sufficient groundwater elevation data to complete a comparison with simulated drawdowns for the Capitan Reef Complex, Dockum, and Rustler aquifers. It is recommended that monitoring of wells completed in these aquifers be identified and data collection from these wells improved, or the aquifers be classified as not

relevant for purposes of joint planning. Such a classification would result in no desired future condition for that aquifer in Pecos County and would result in no modeled available groundwater calculation by the Texas Water Development Board. The Regional Planning Group (Region F) would be responsible for establishing groundwater availability if an aquifer is classified as not relevant for purposes of joint planning.

The analysis showed that the TWDB database had sufficient groundwater elevation data to complete a comparison with simulated drawdown for the Edwards-Trinity (Plateau) and Pecos Valley aquifers. The database was sampled to find wells in Pecos County with groundwater elevation measurements in 2005 to compare with simulated drawdowns from the GAM simulation that was the basis for the desired future condition.

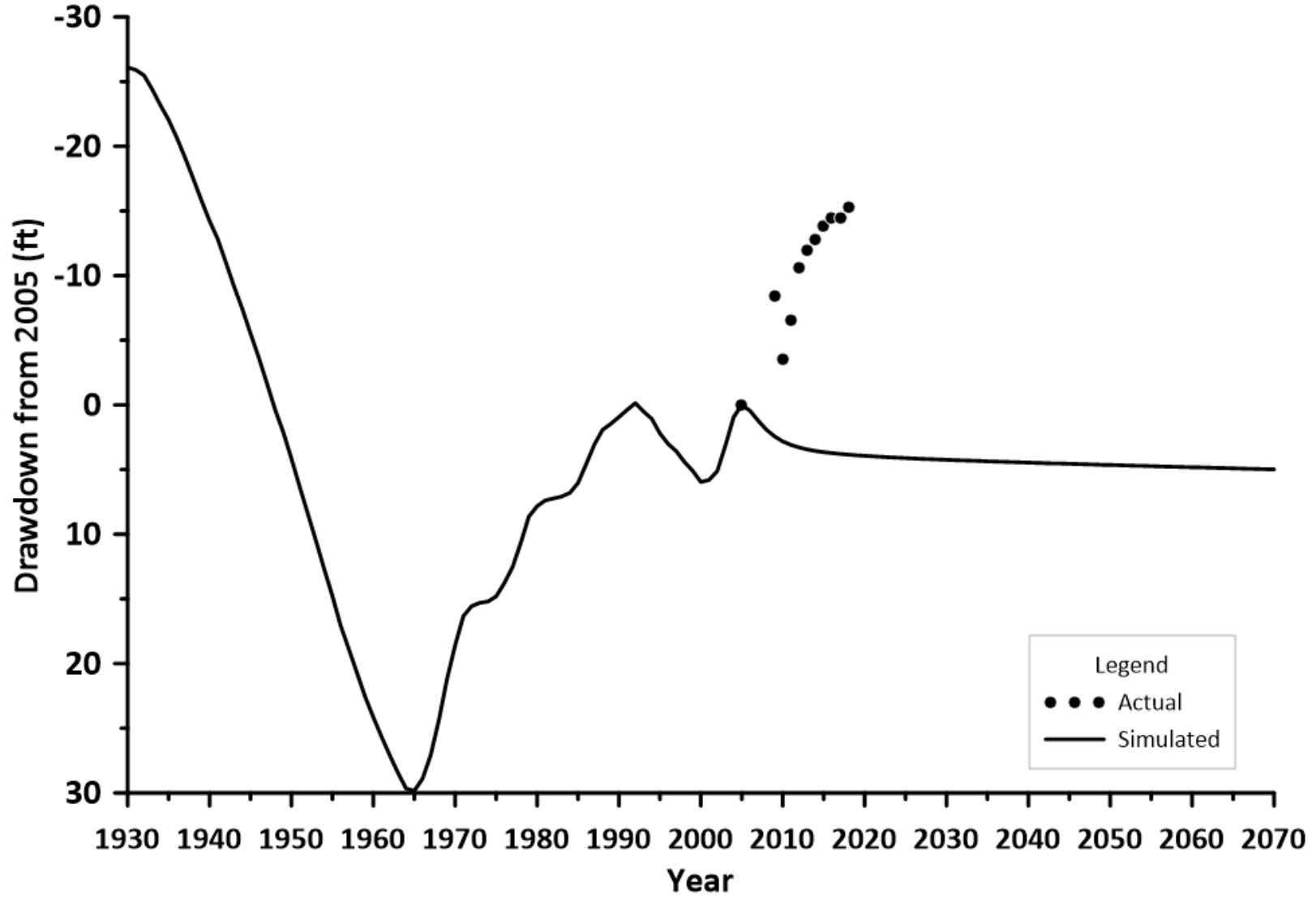
The comparison of measured drawdowns with simulated drawdowns showed that, in general, when annual precipitation is higher than average, measured drawdown is less than simulated drawdown and when annual precipitation is less than average, measured drawdown is higher than simulated drawdown. In general, lower than average precipitation correlates with lower than average recharge and higher than average pumping. However, this relationship is complex and other factors are important. This analysis shows a weak correlation between annual precipitation and measured drawdown, but the analysis also shows that the measured drawdowns are consistent with the simulation that was the basis for the desired future condition.

Based on this analysis, it is recommended that the approach used in this analysis should be incorporated into the Middle Pecos GCD management plan to specifically address Goal 8. The current plan also has other elements related to monitoring that are valid and important for other specific groundwater management activities within the District. The comparison of measured data with the desired future condition is a specific activity related to advancing the planning goals of Groundwater Management Areas 3 and 7 and are not necessarily the same as the management activities of other monitoring.

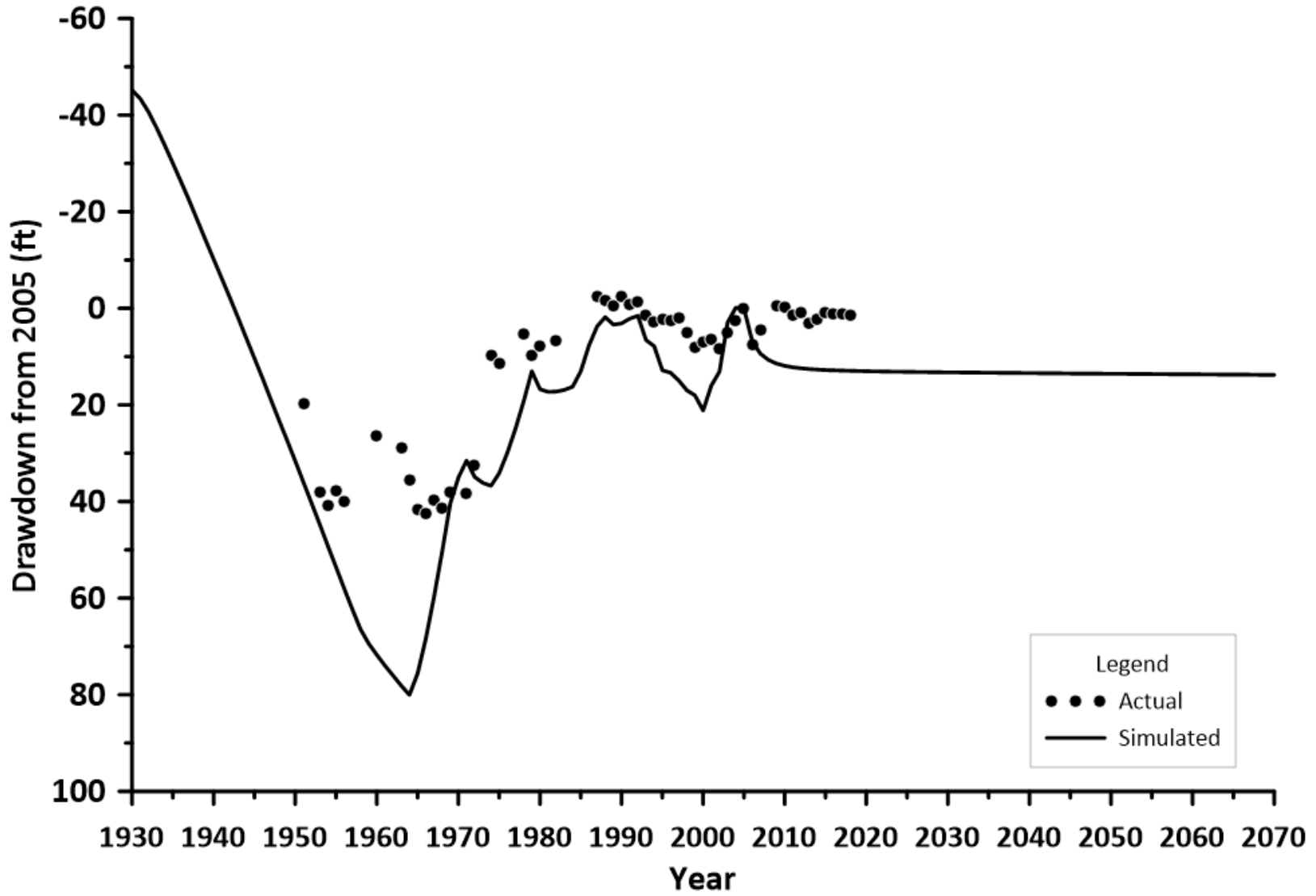
Appendix A

Hydrographs for 28 Monitoring Wells

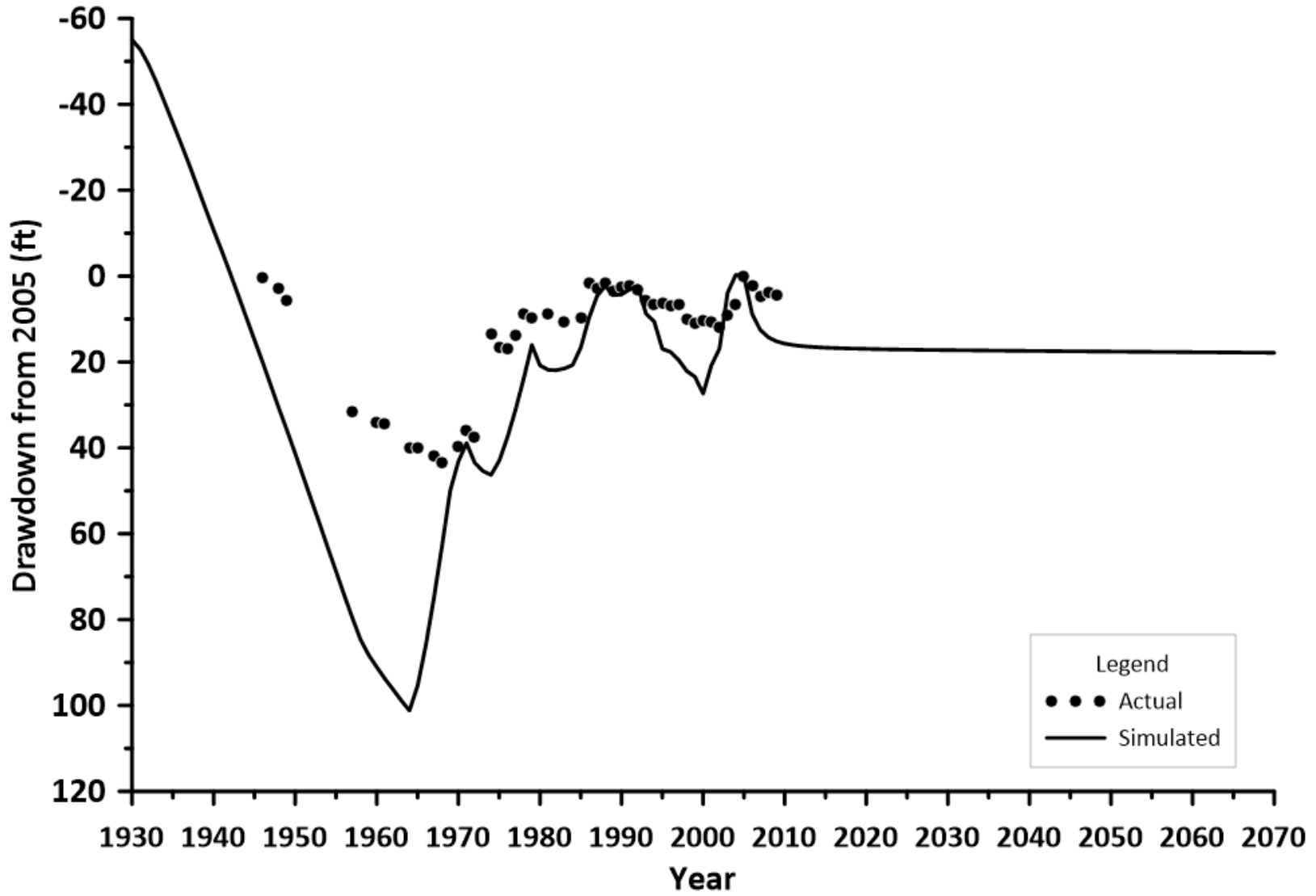
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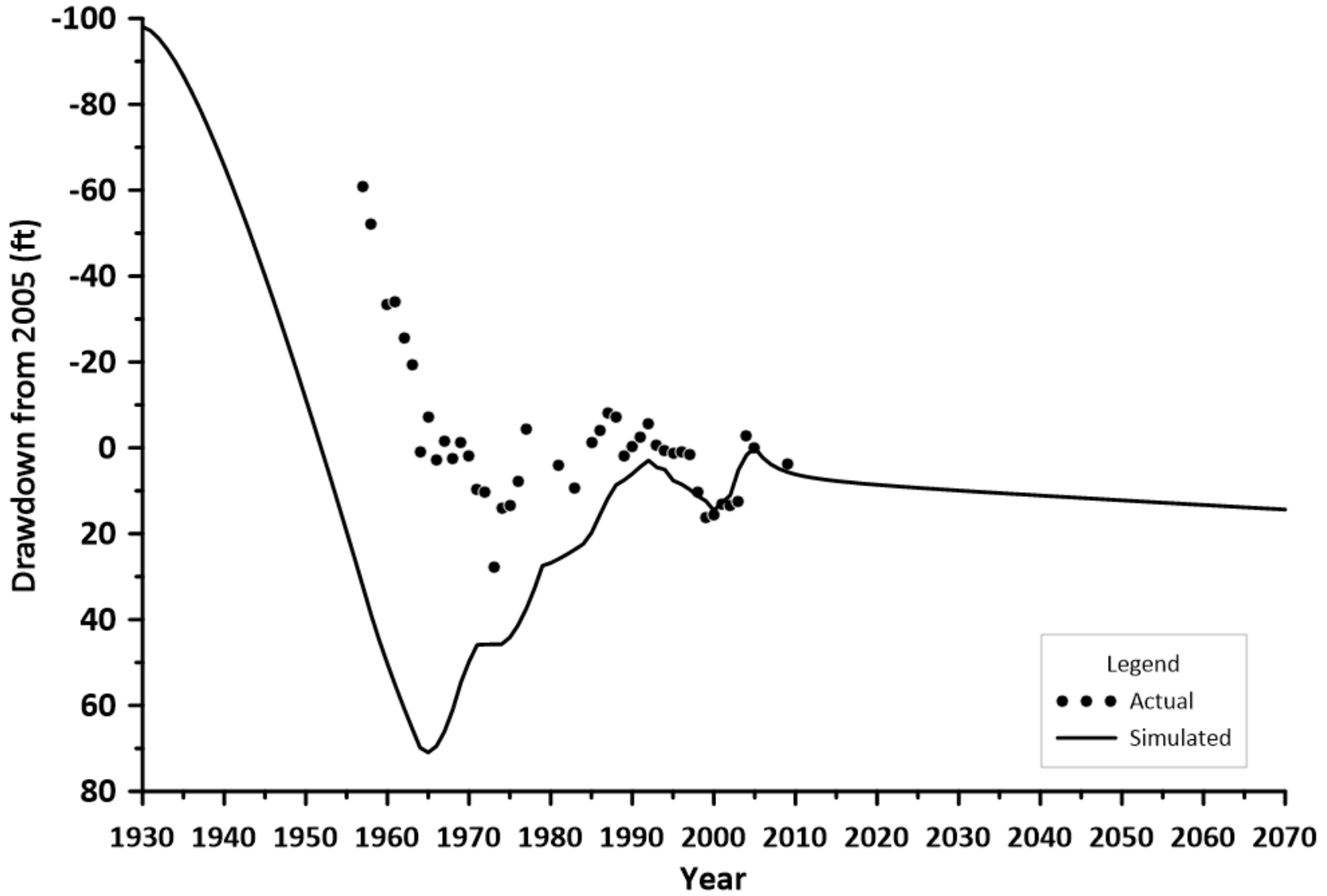
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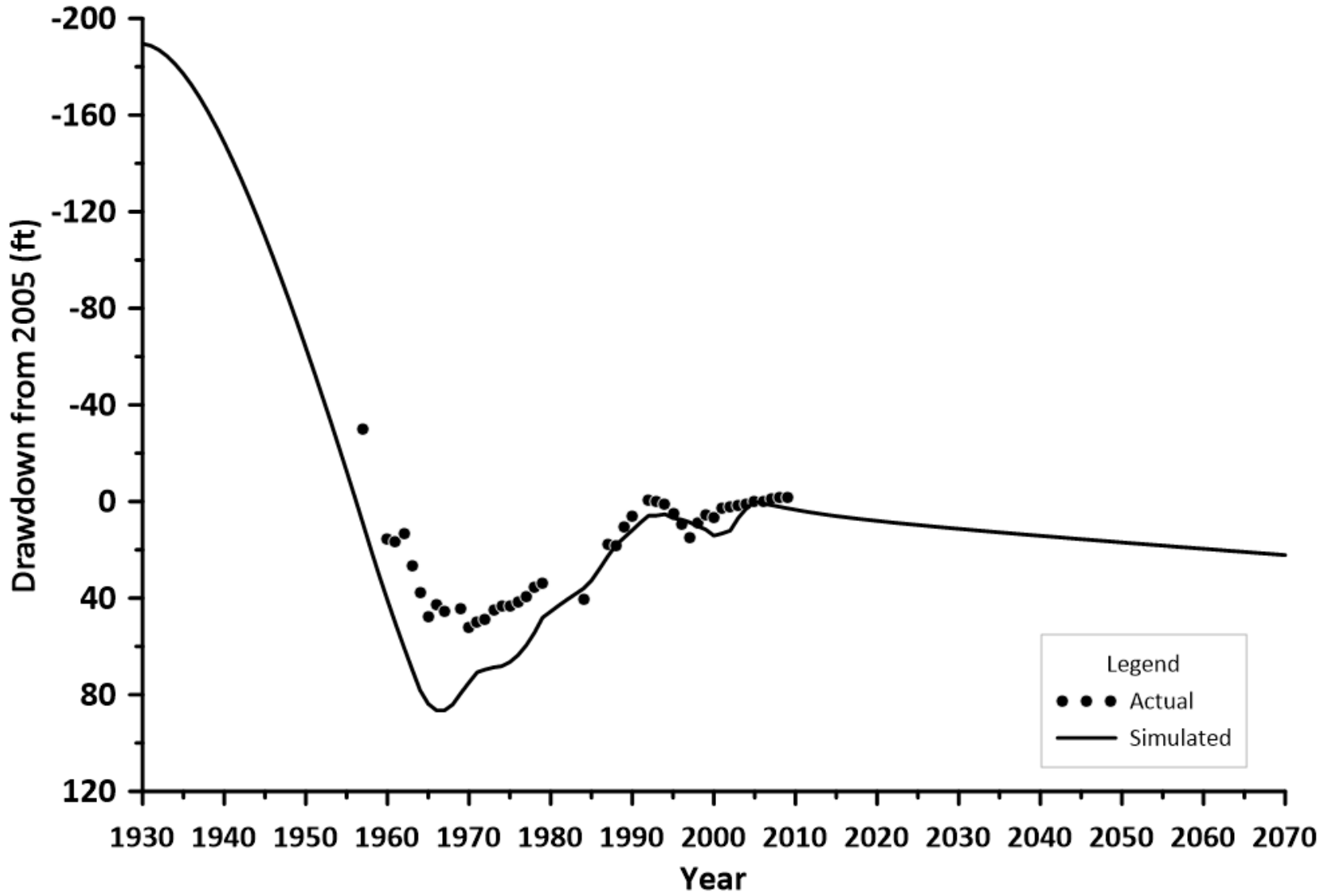
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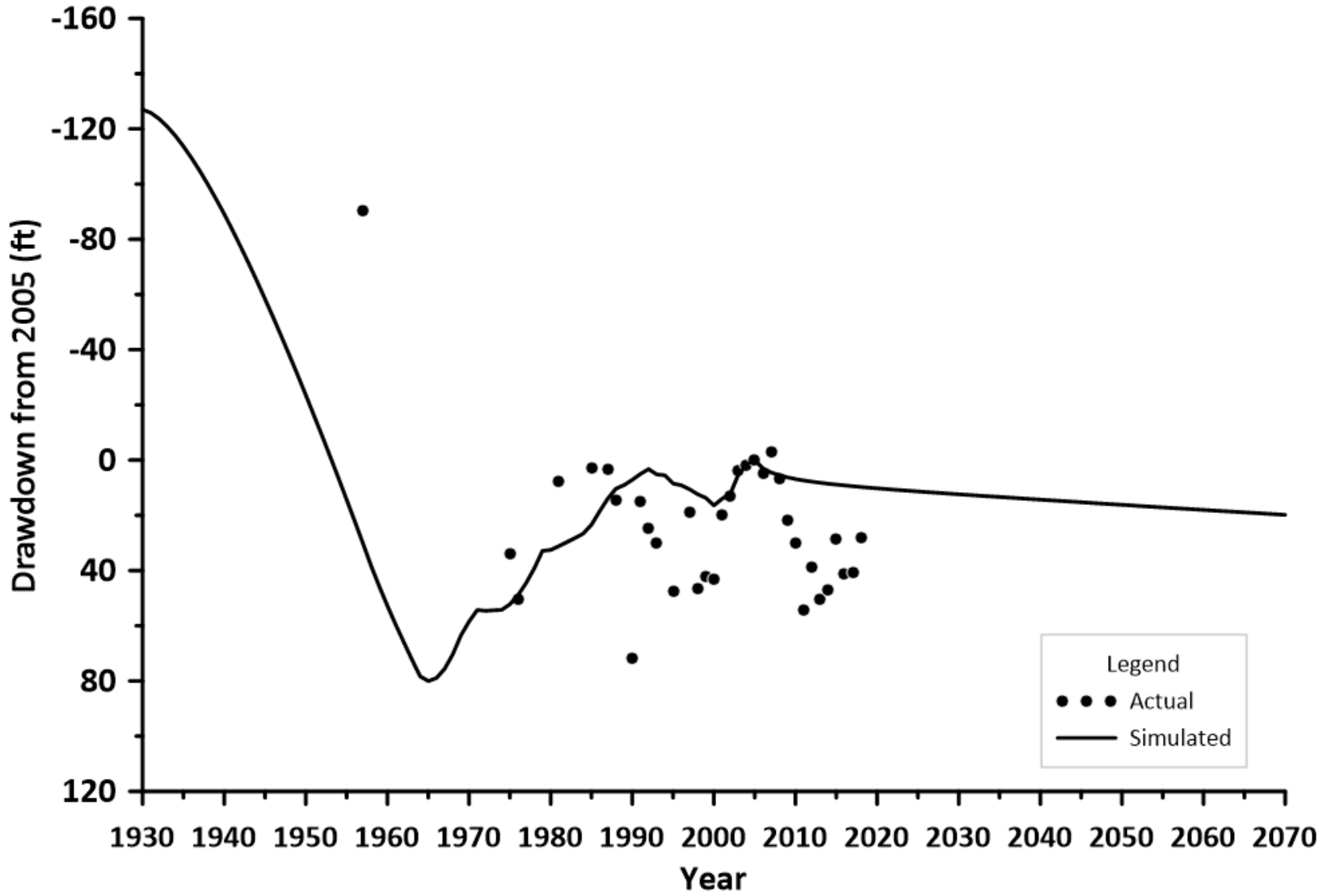
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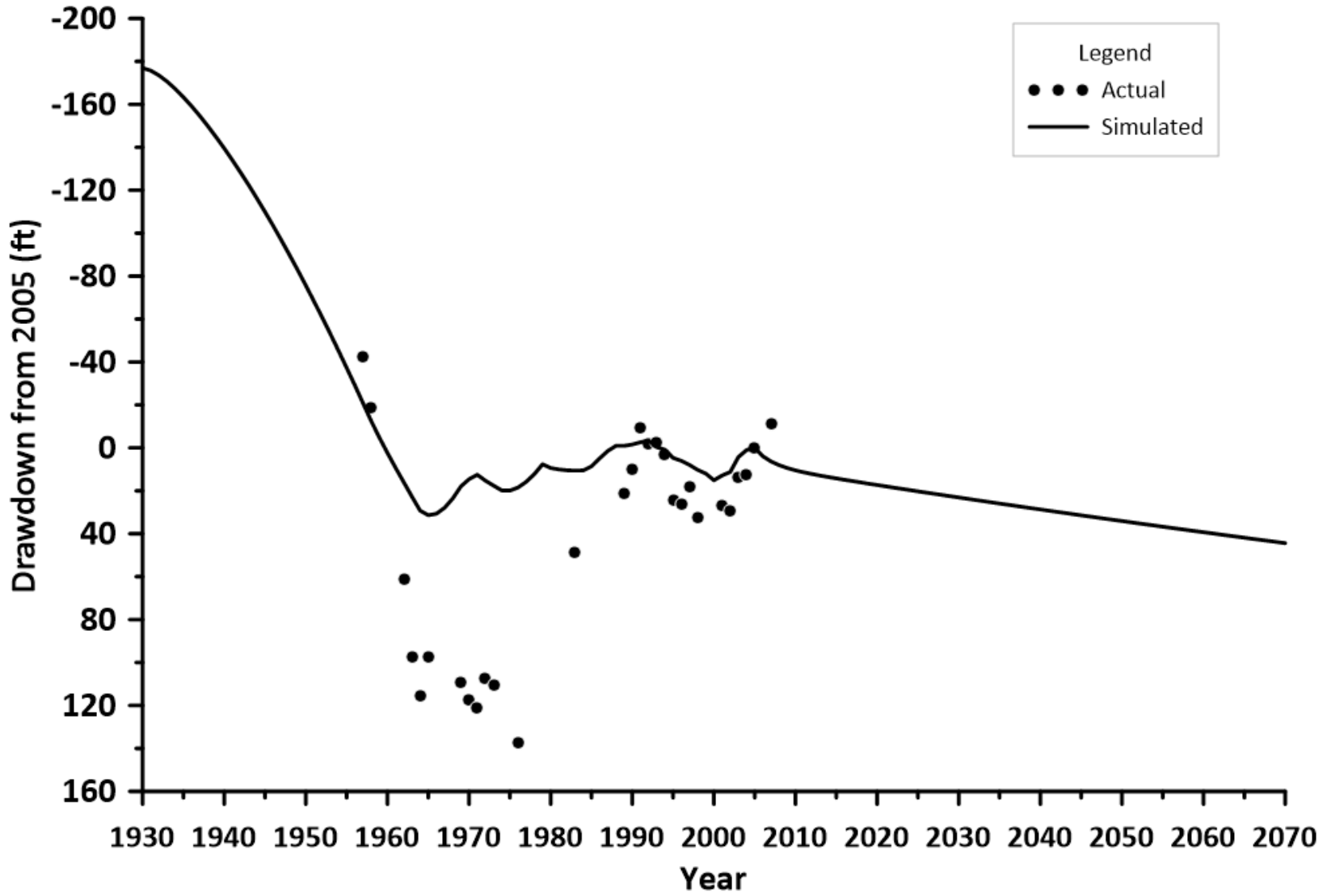
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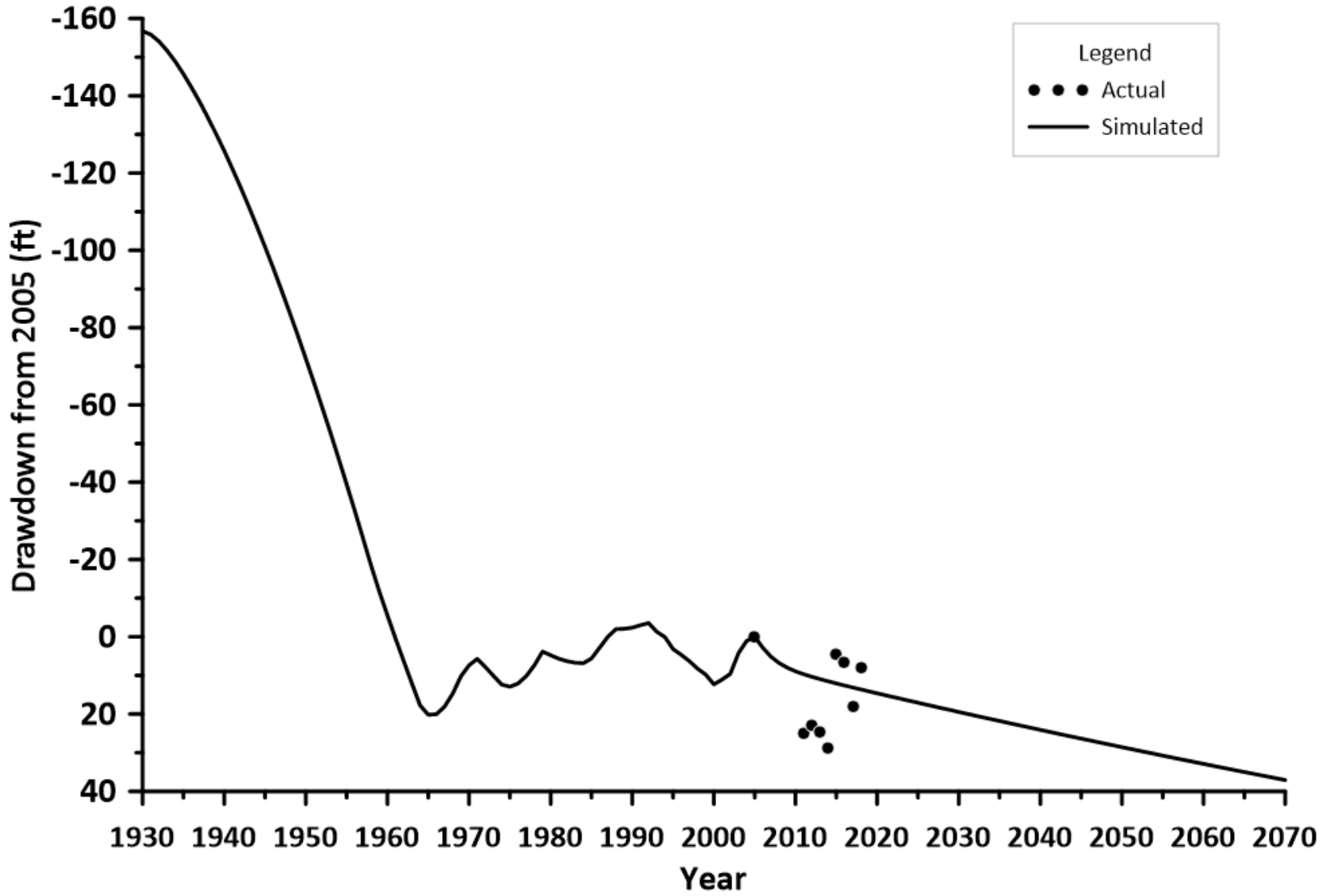
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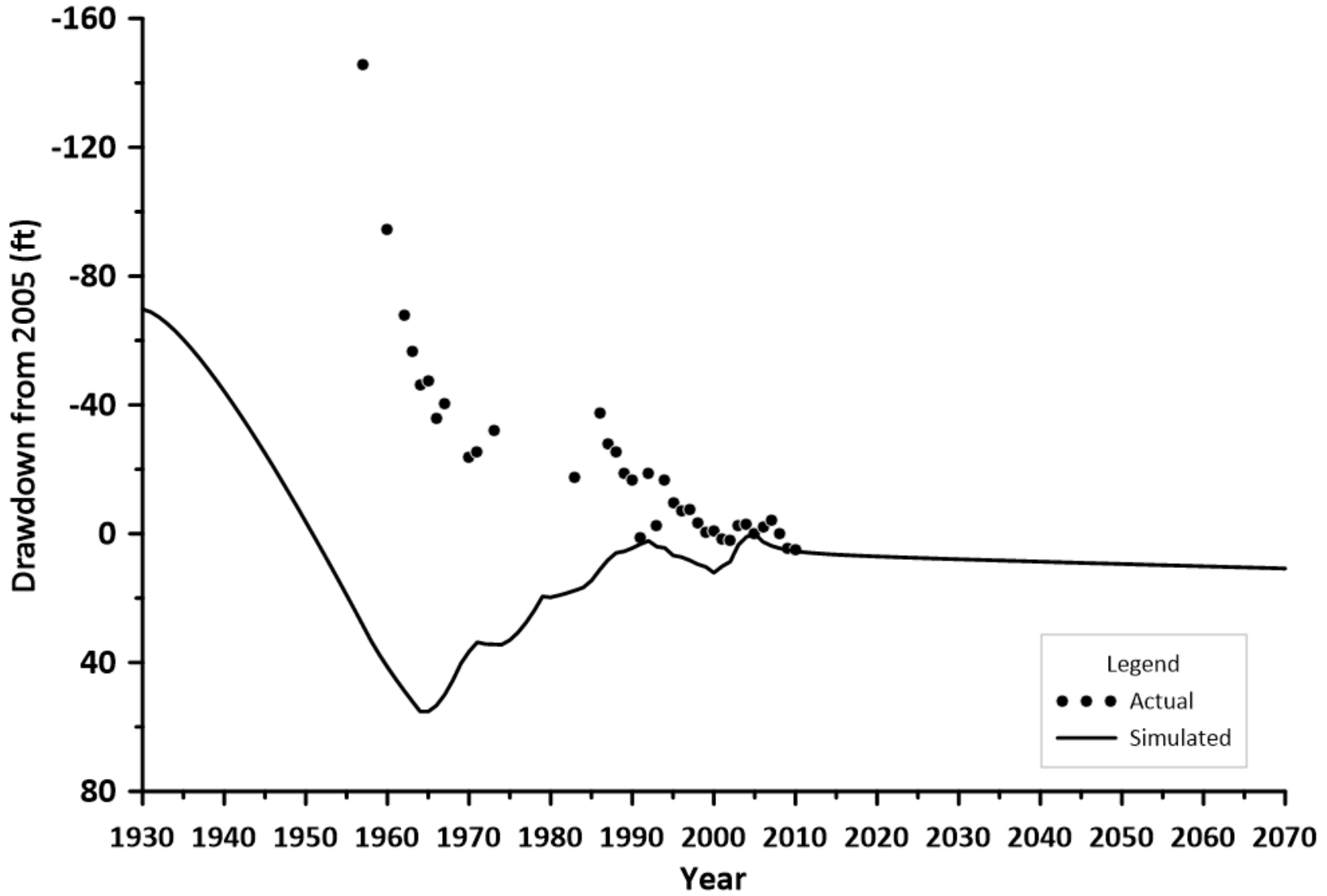
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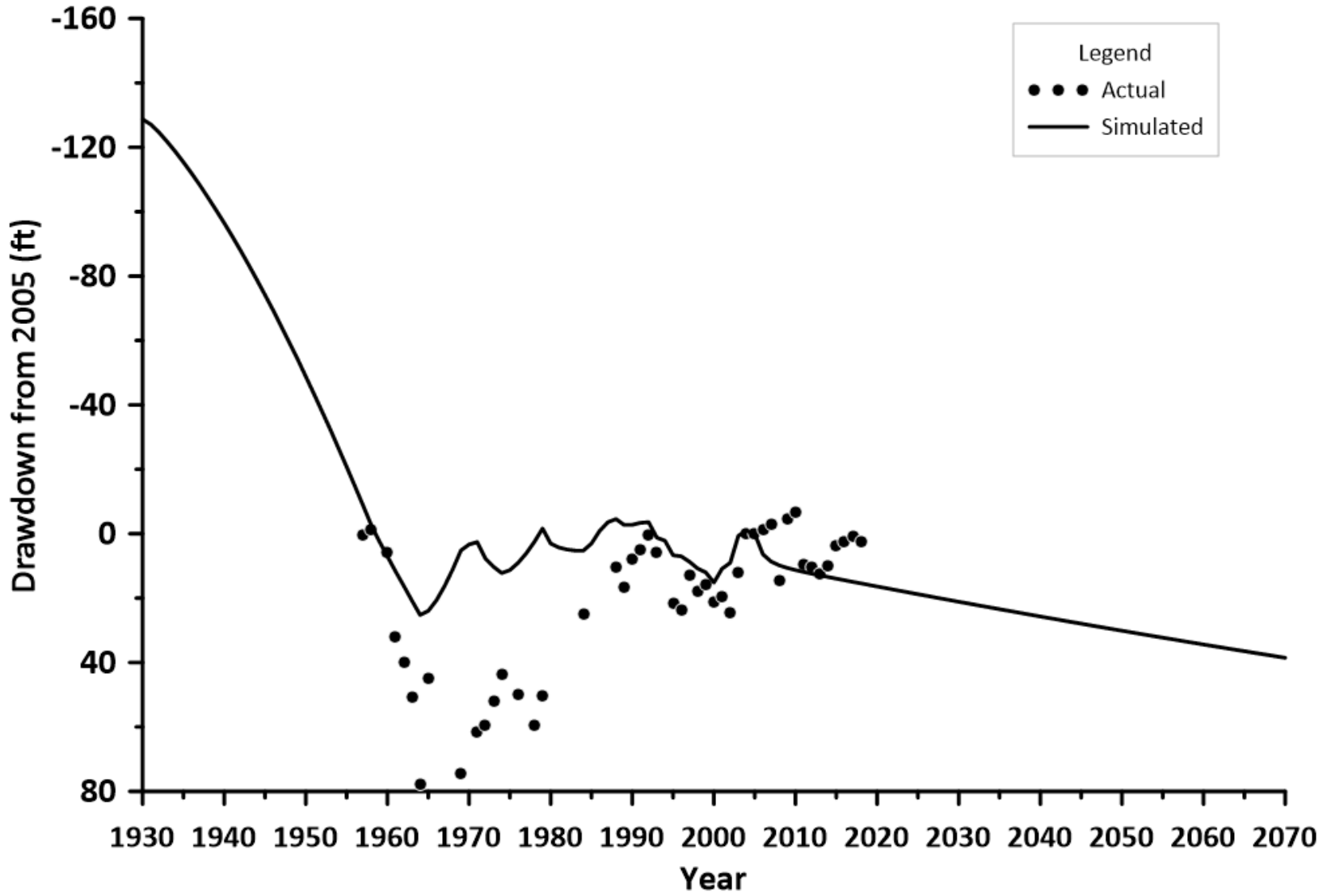
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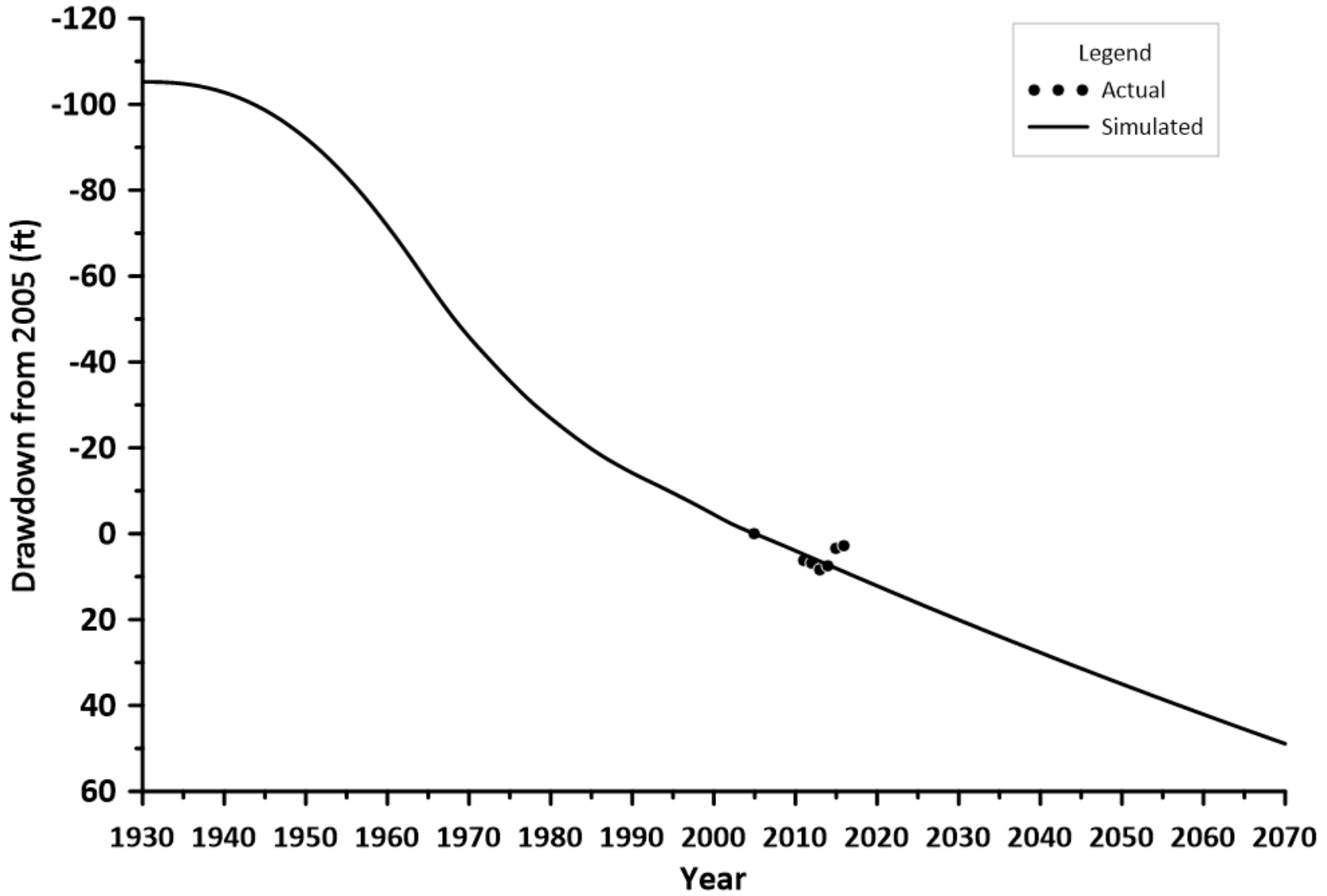
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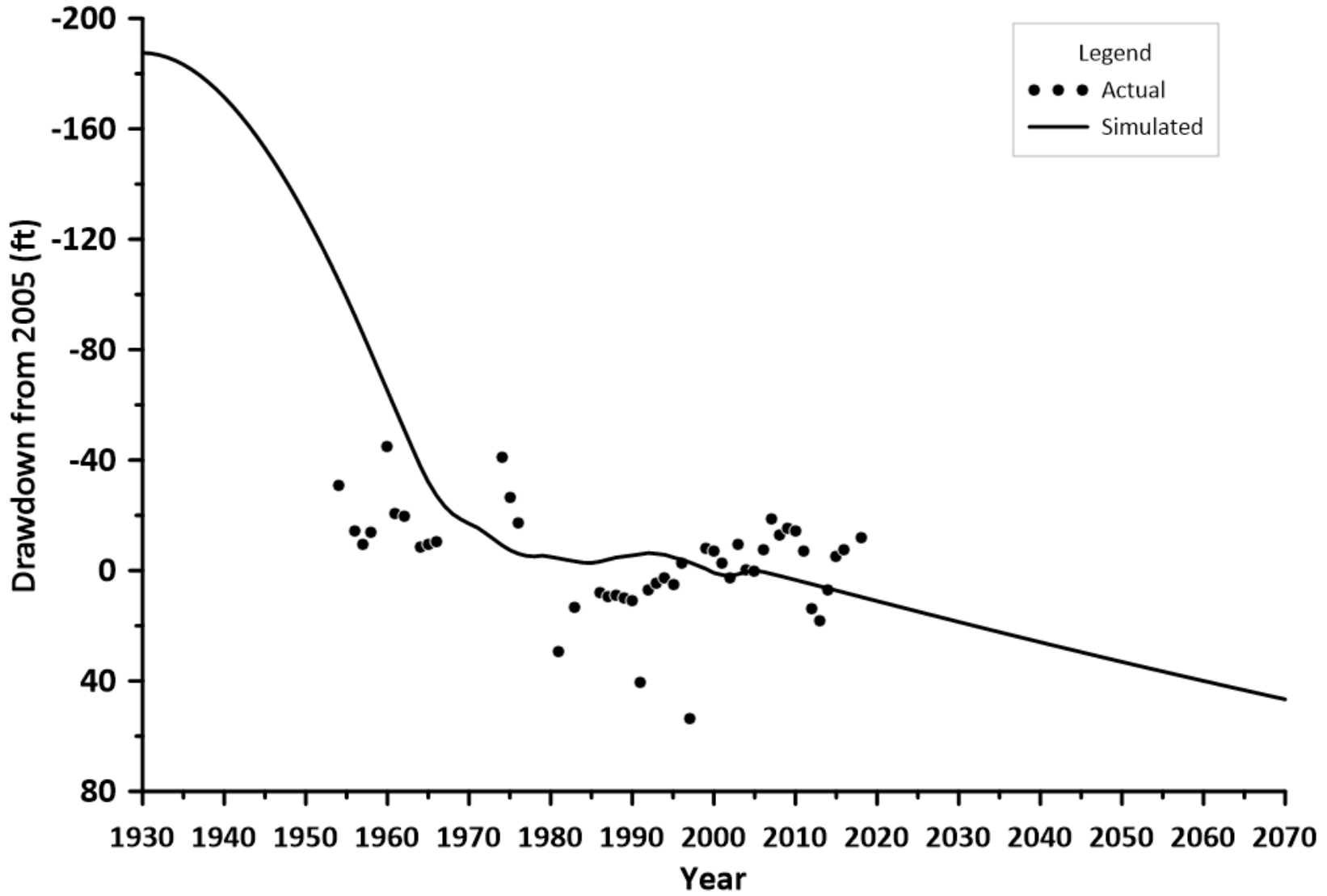
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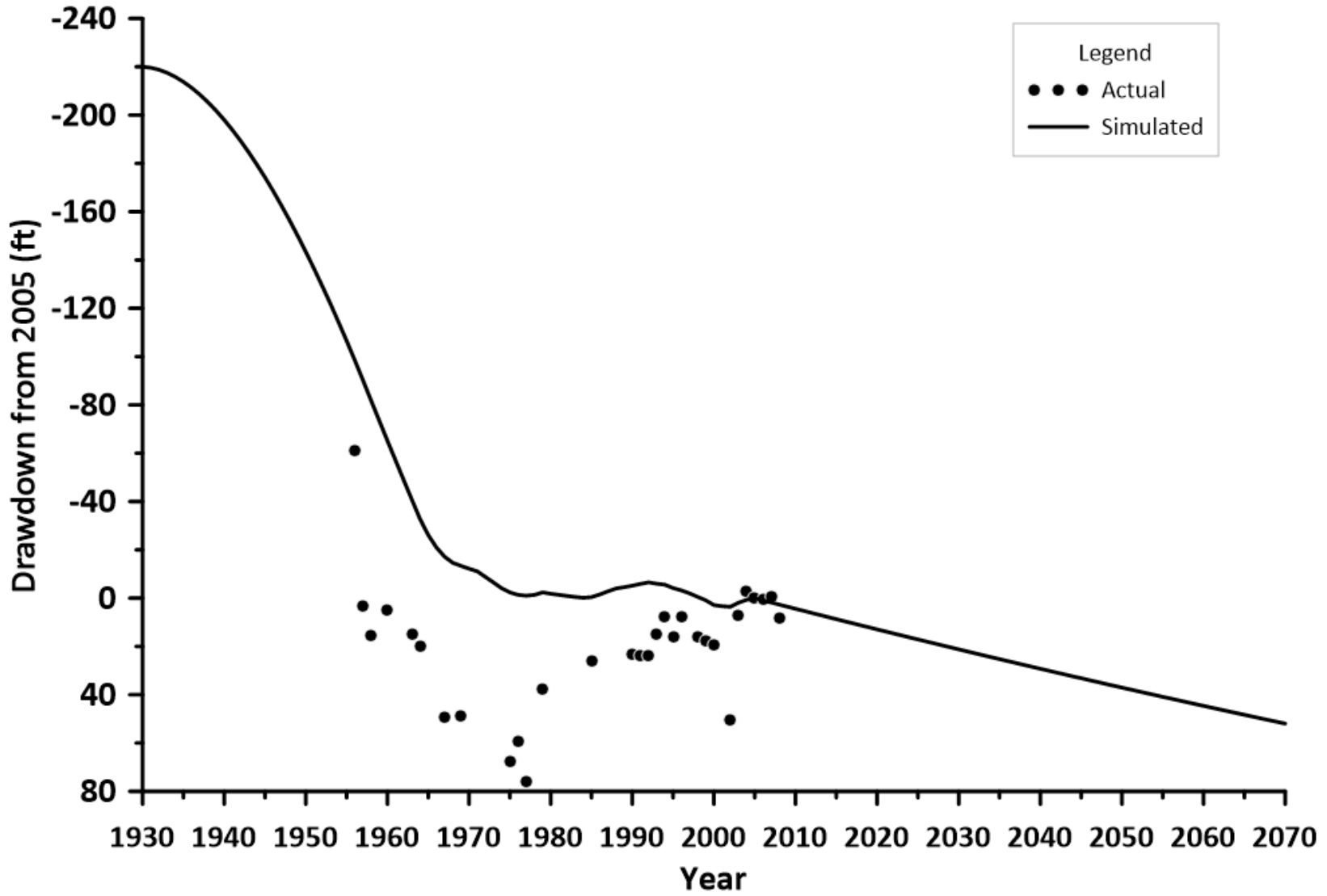
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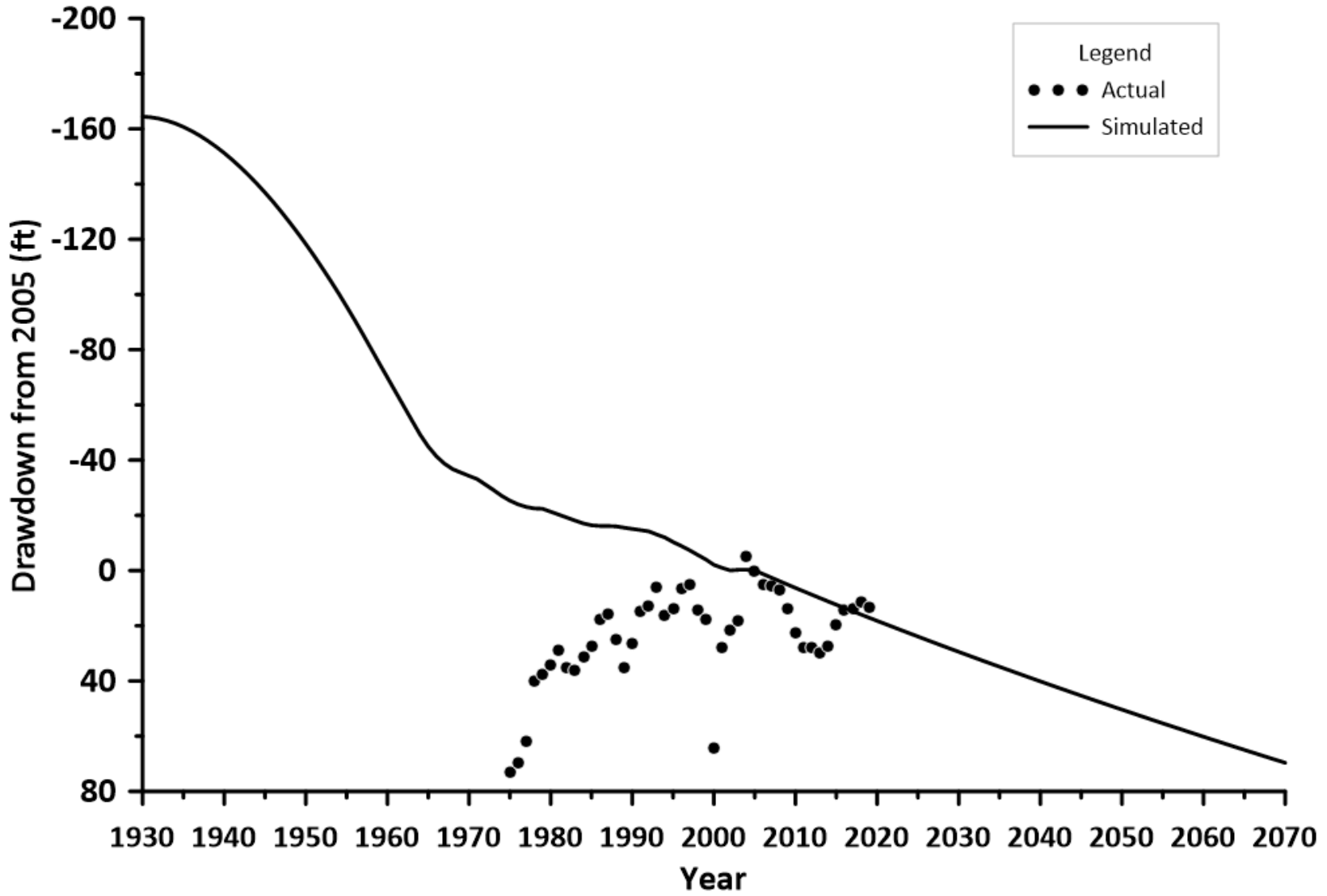
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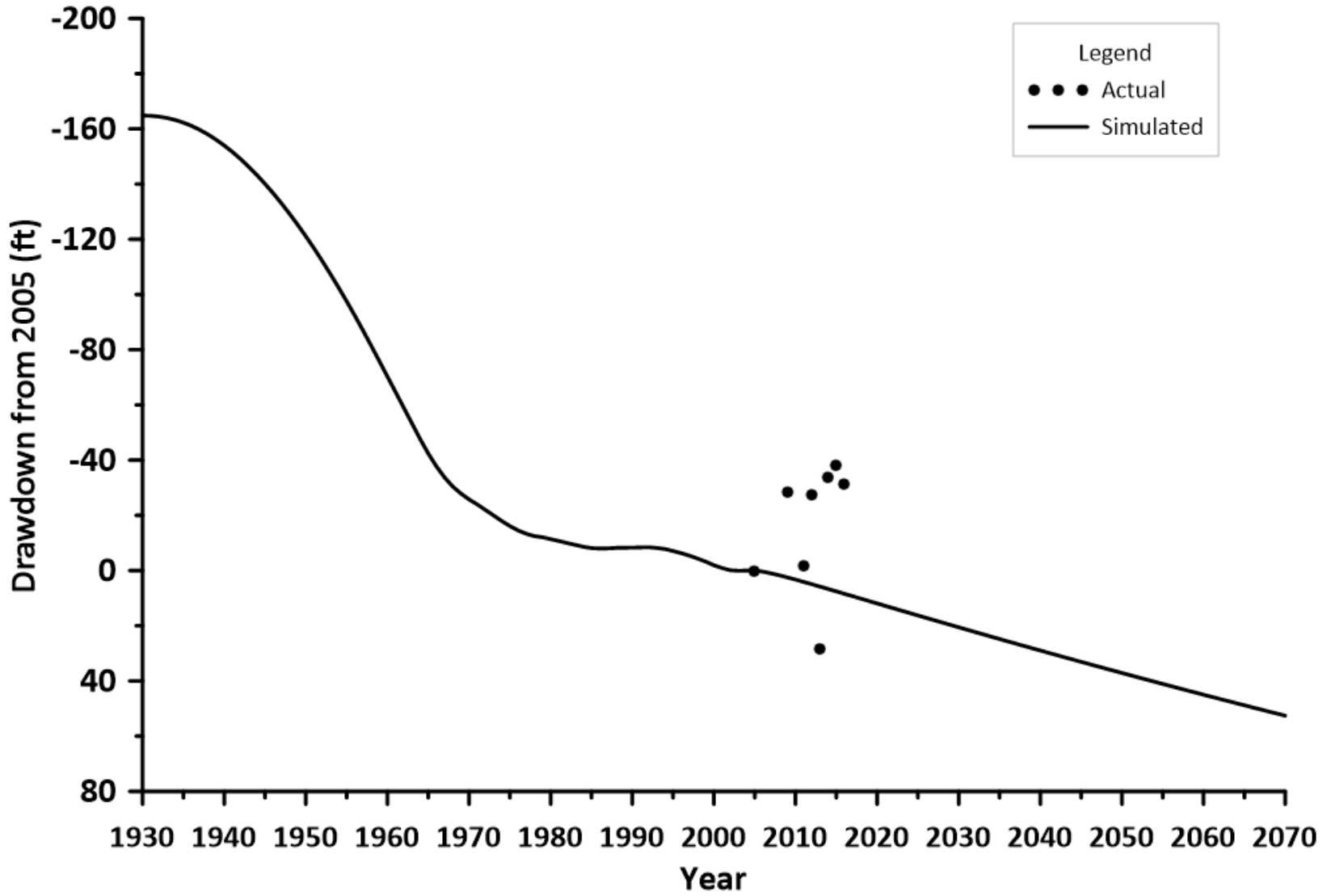
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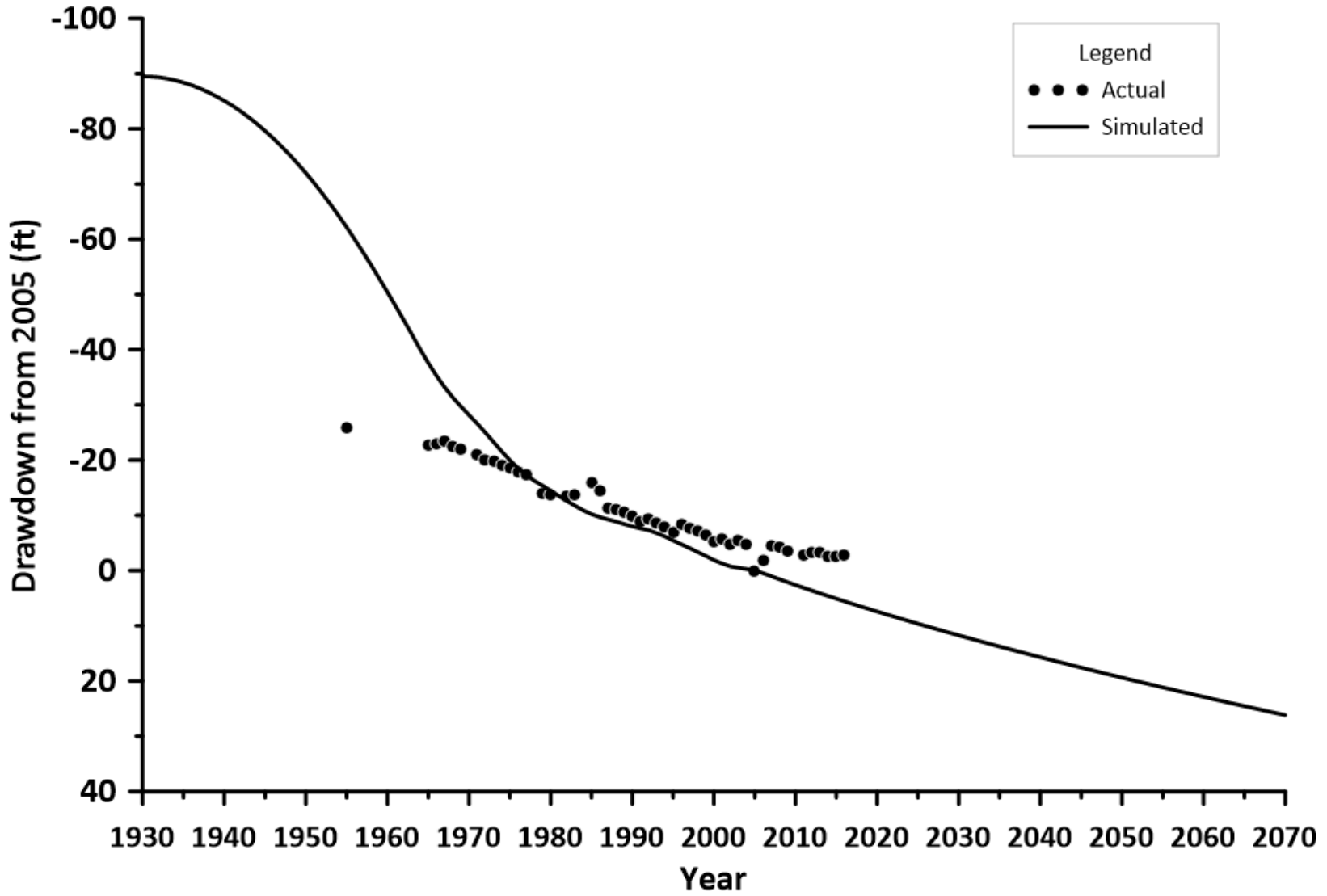
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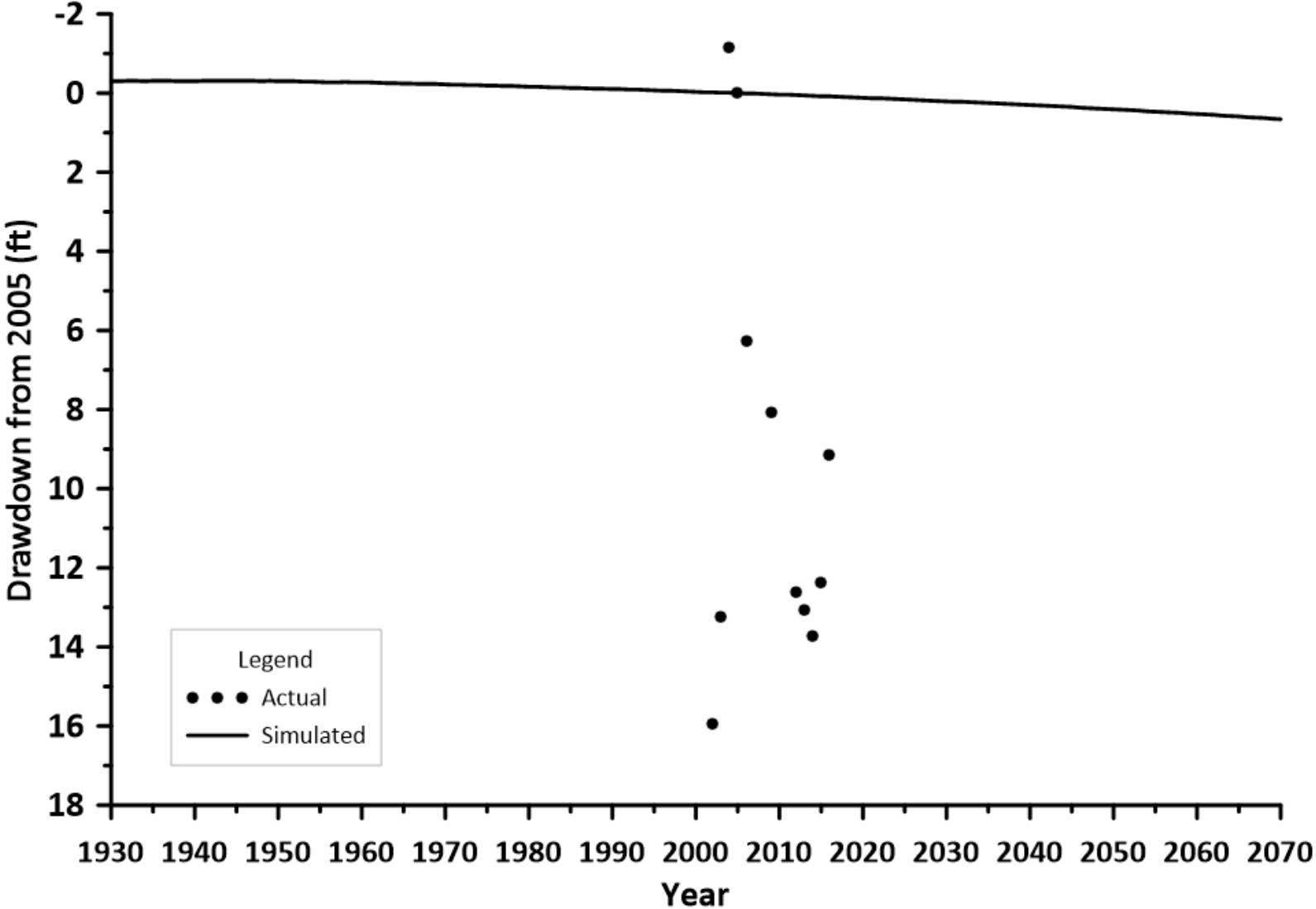
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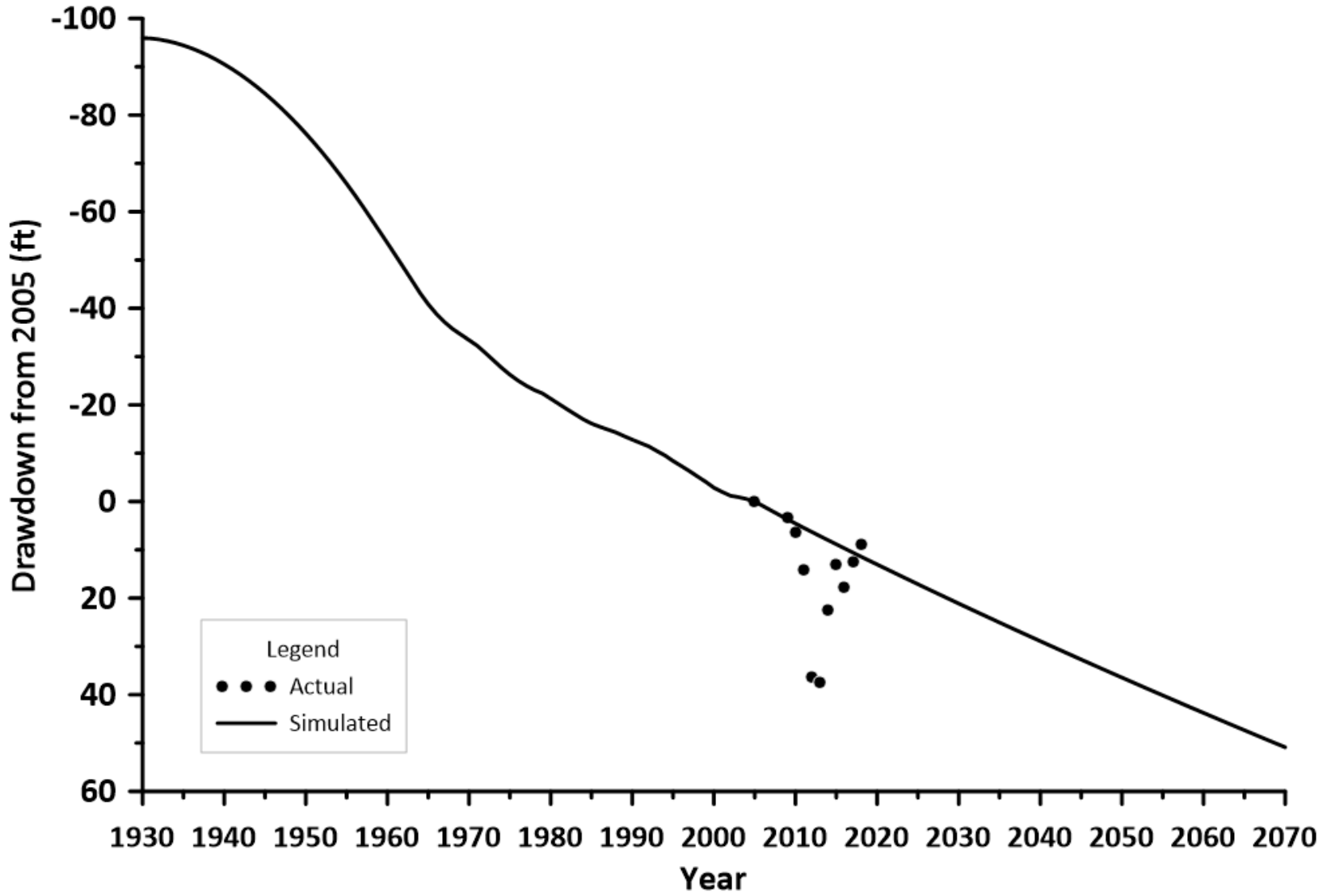
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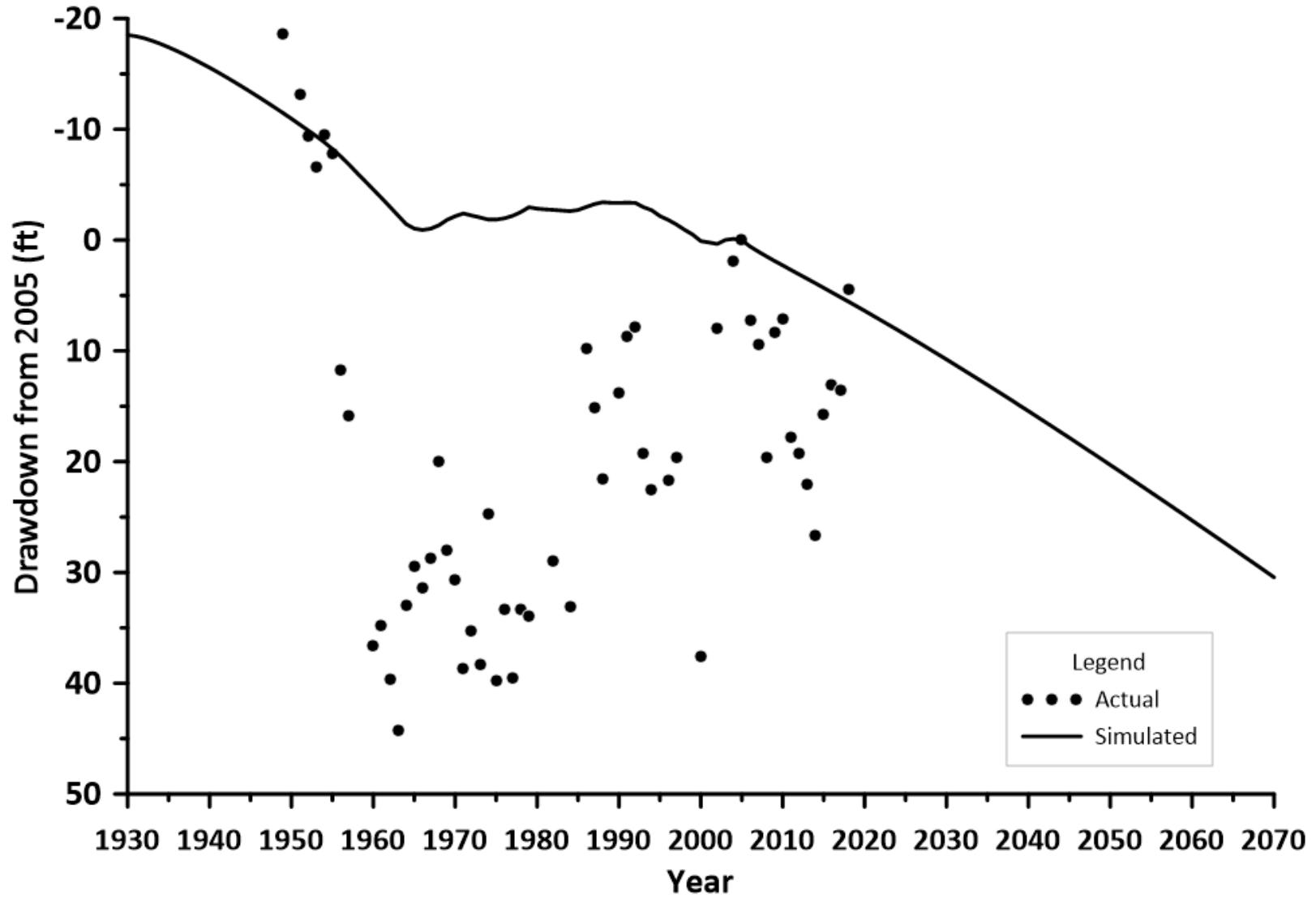
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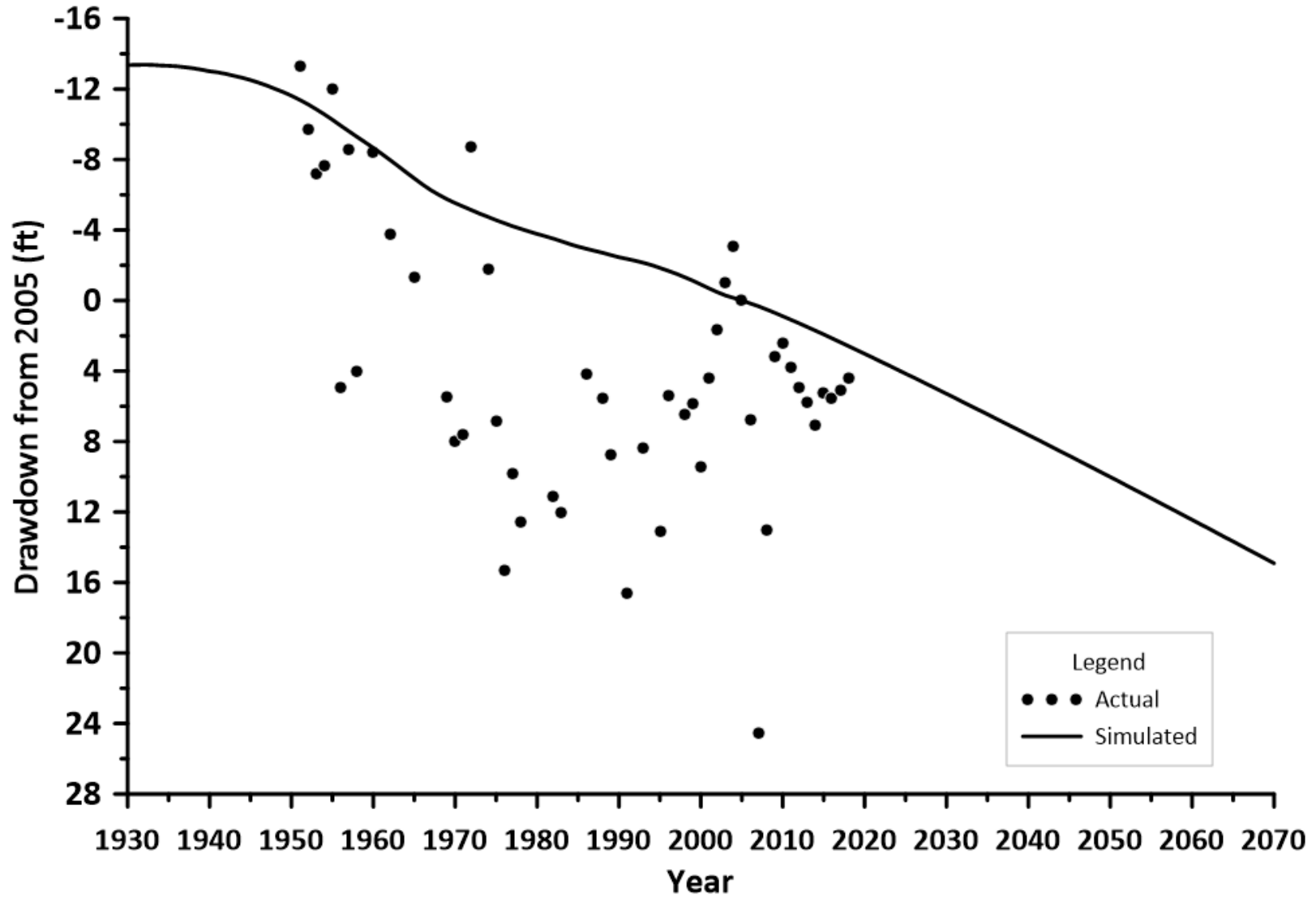
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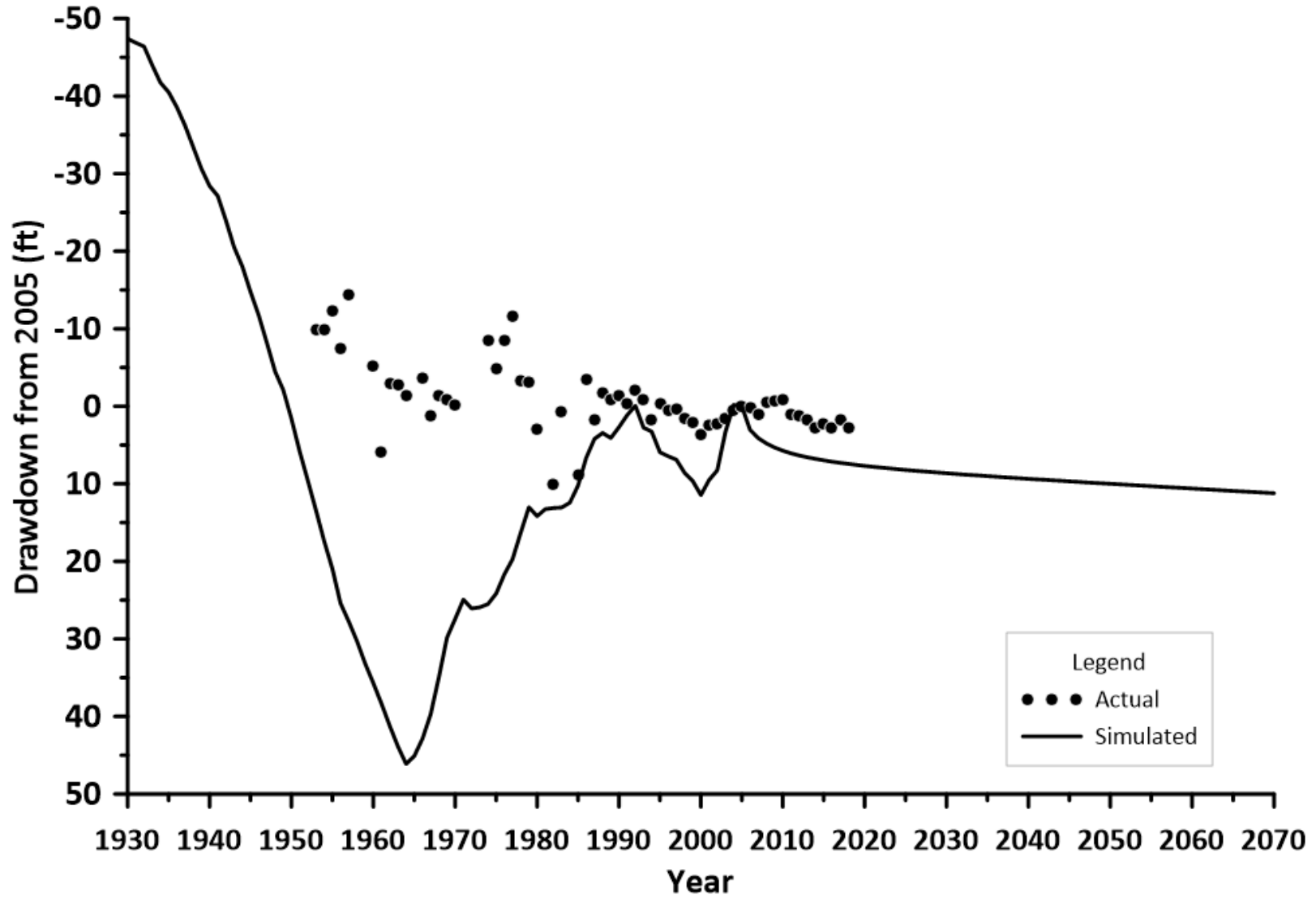
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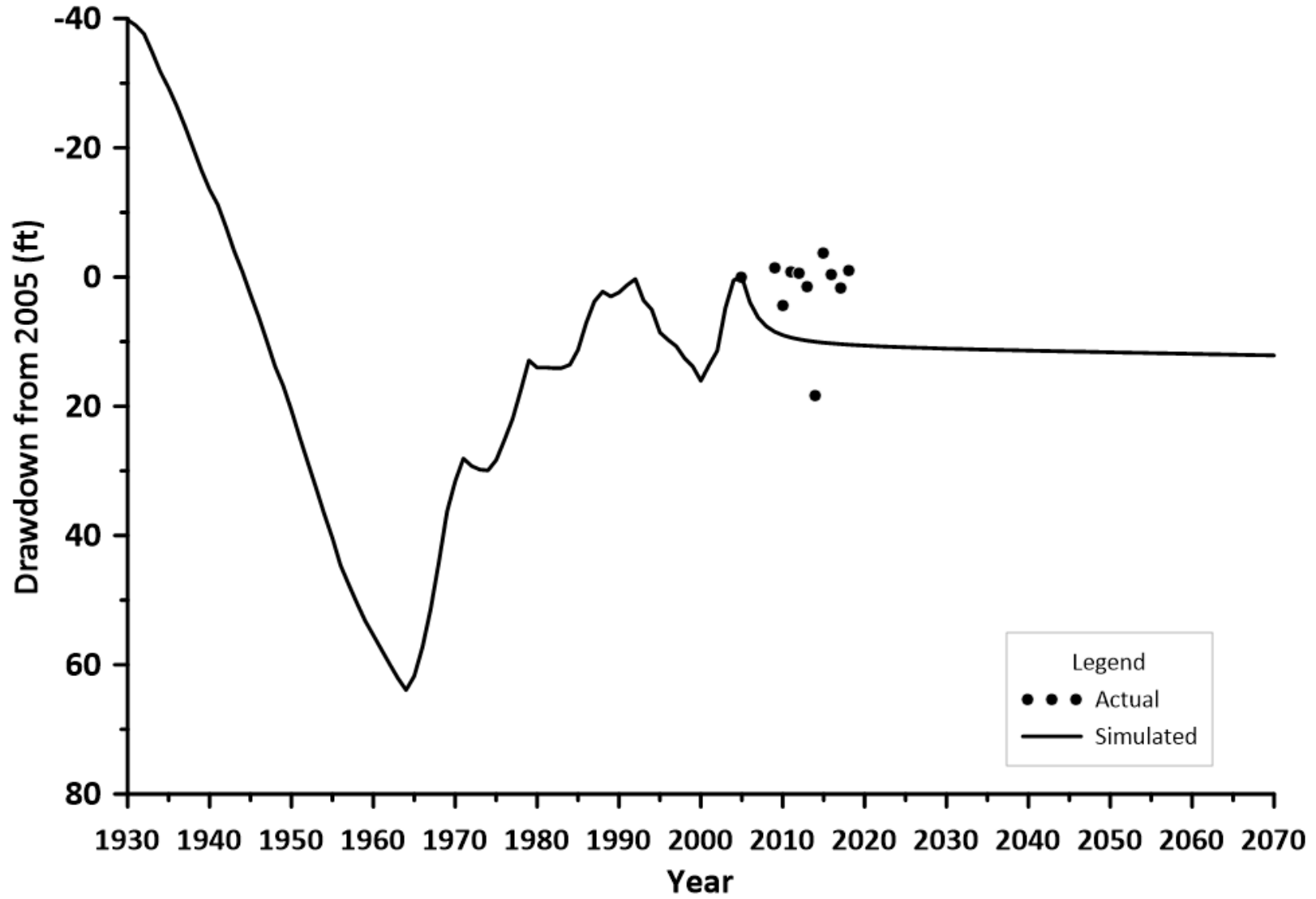
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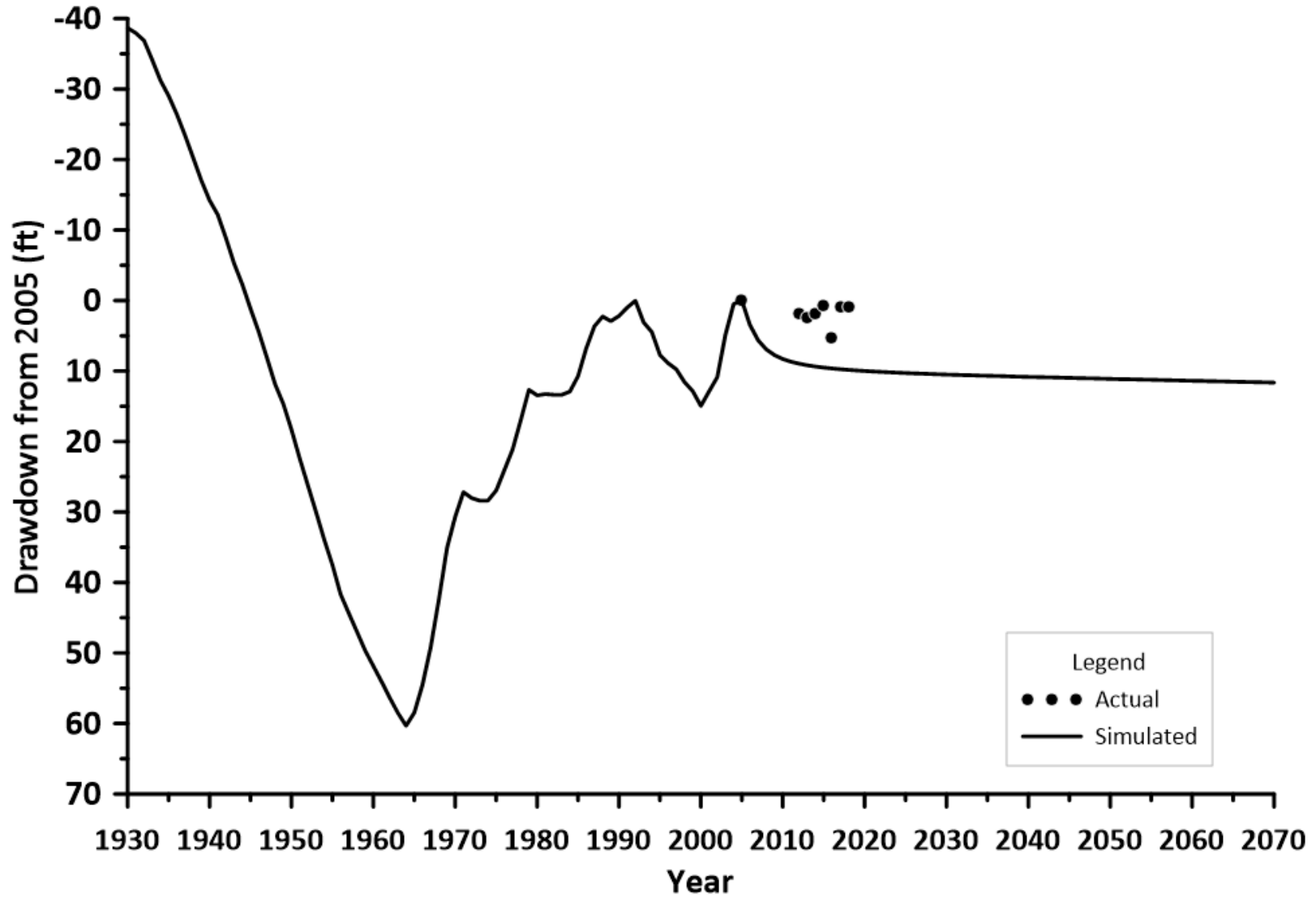
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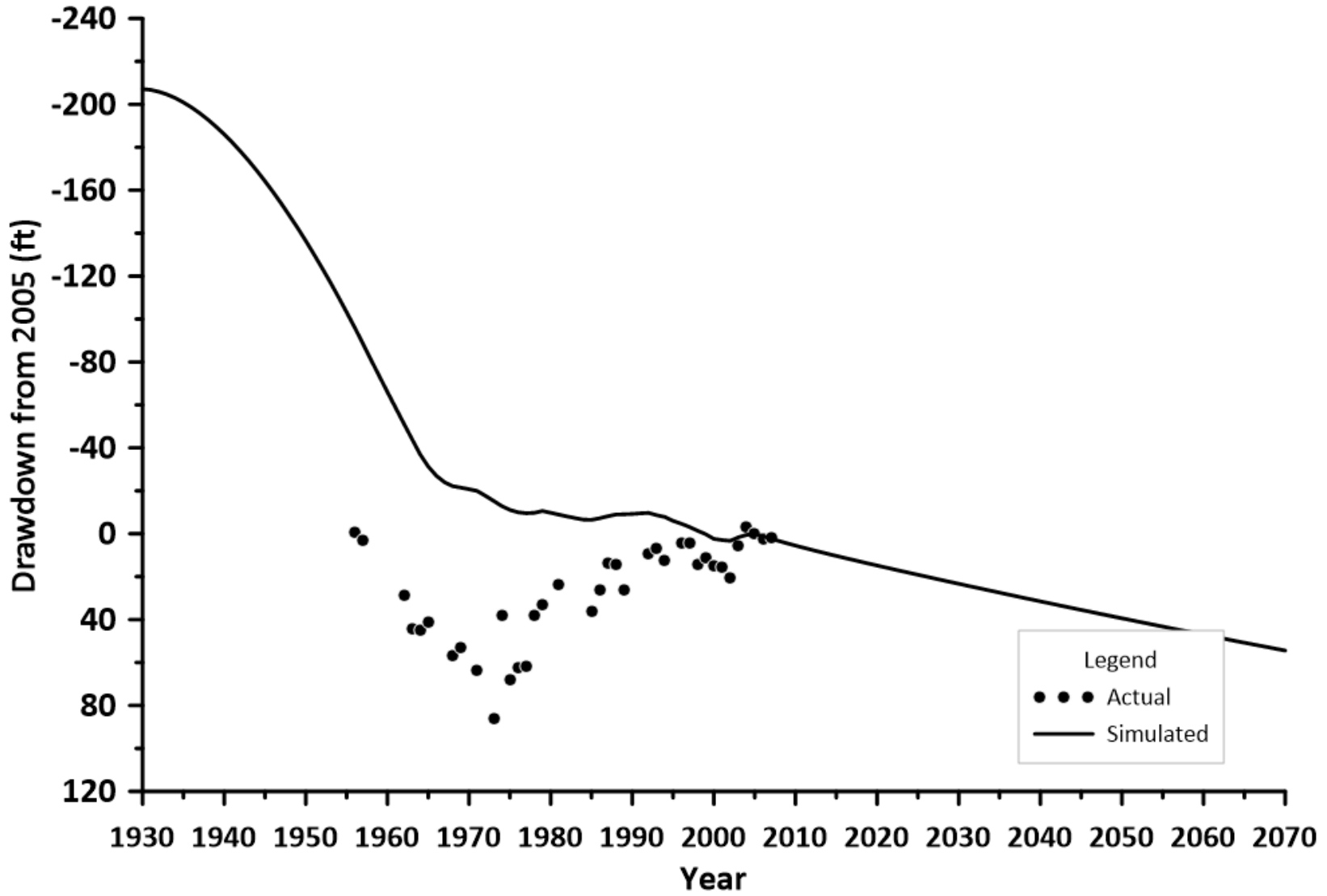
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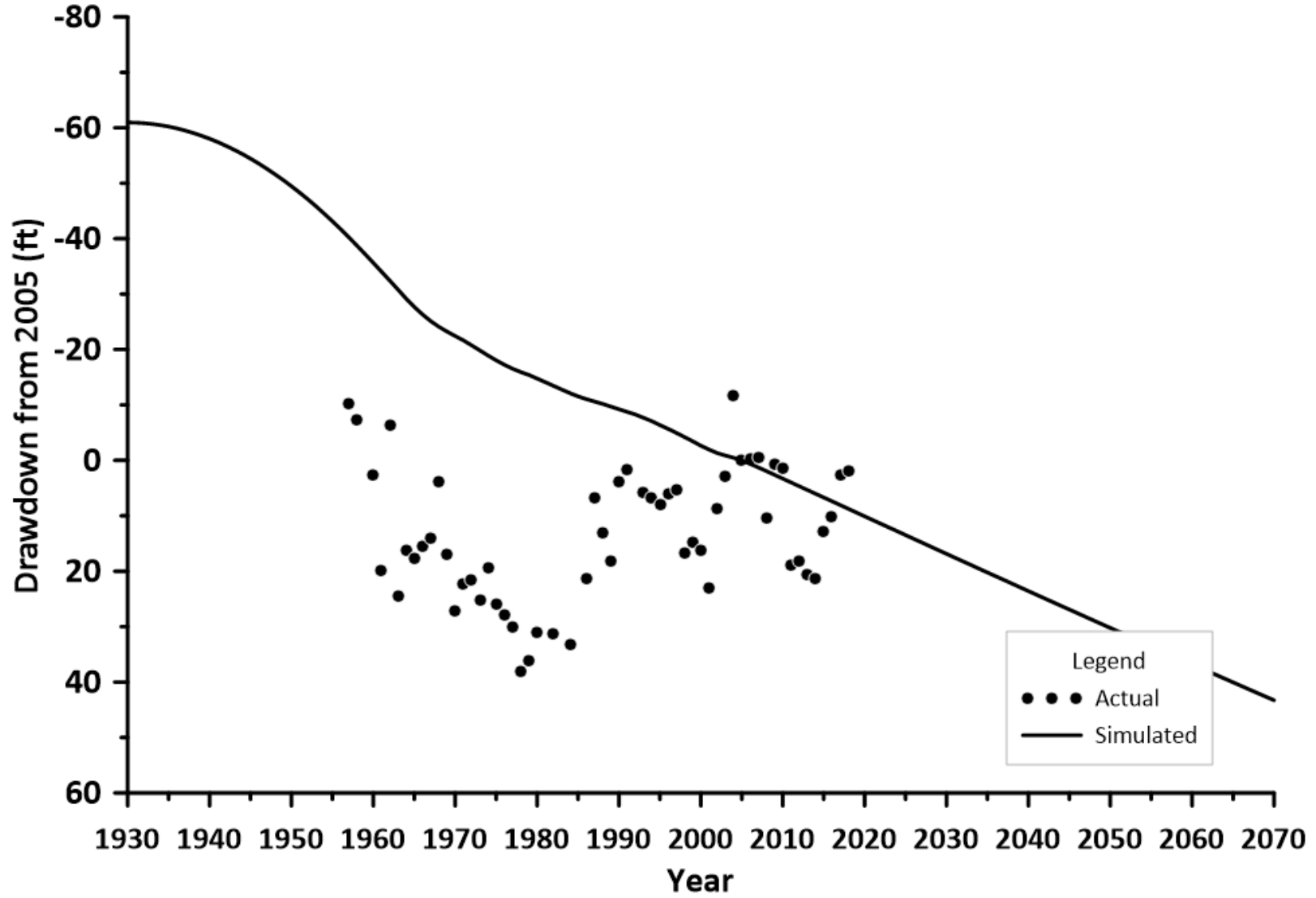
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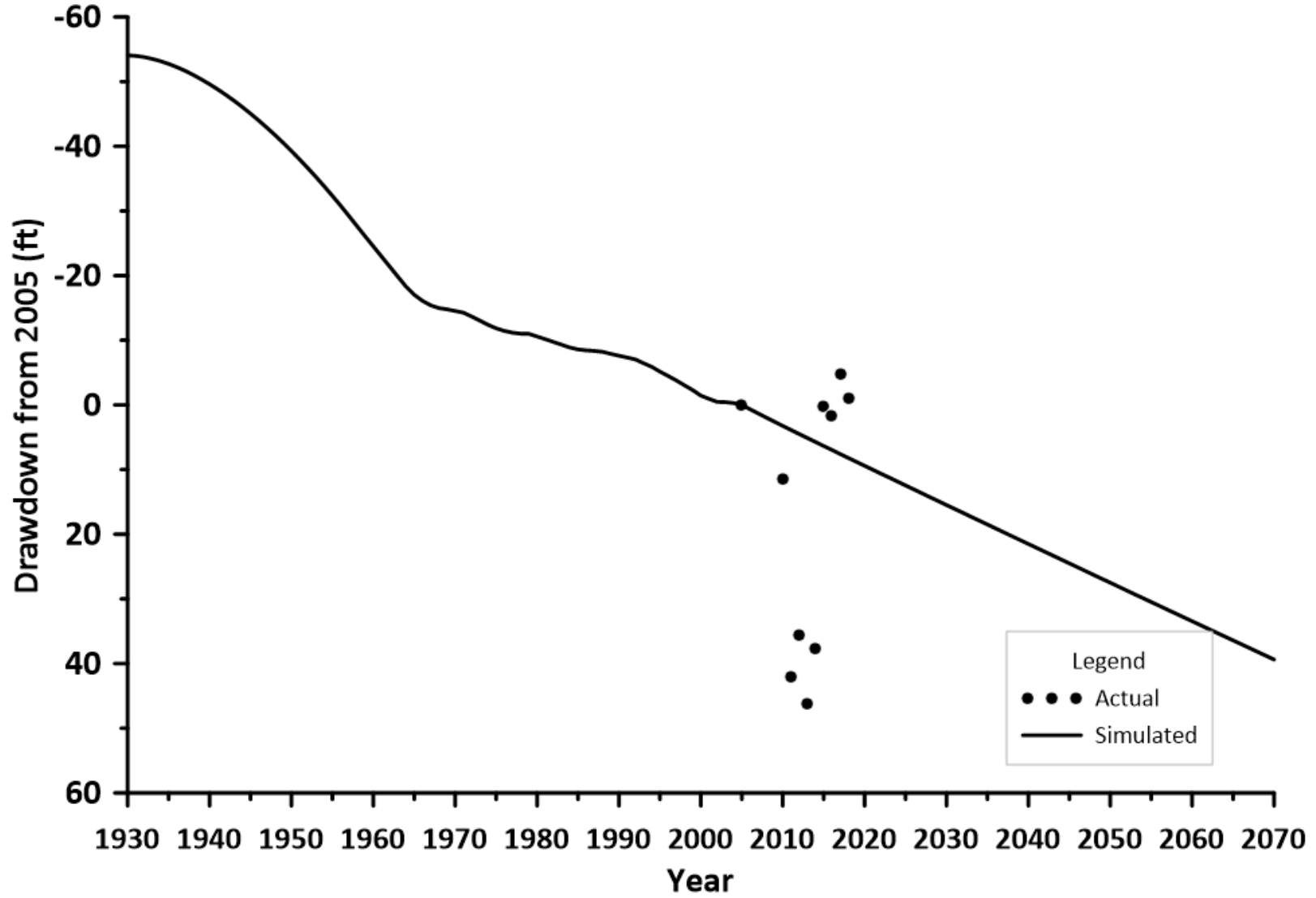
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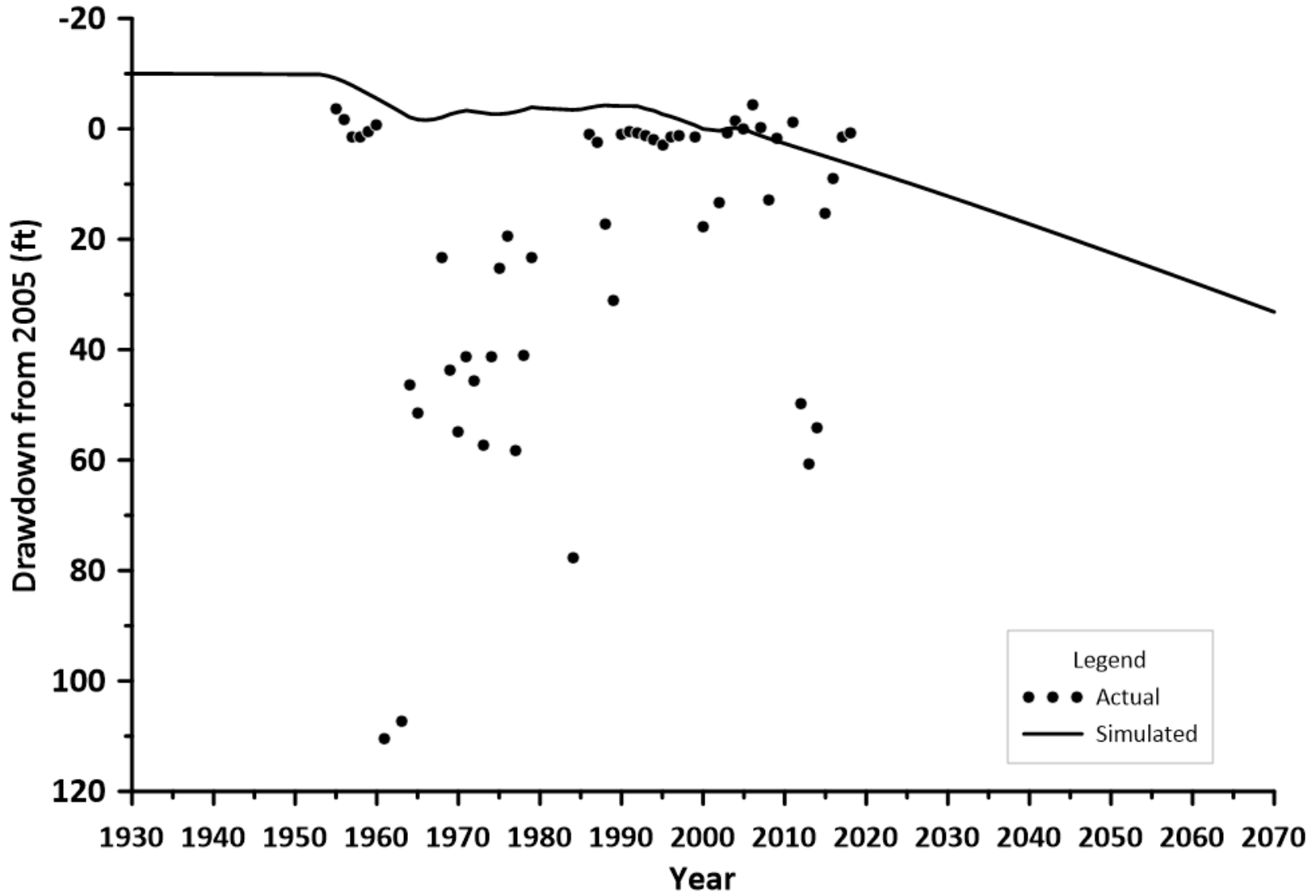
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Well 5309306 Drawdown (ID=430)



Well 5301902 Drawdown (ID=326)



Well 5312702 Drawdown (ID=448)

