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# REEVES COUNTY GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

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Adopted July 31, 2018

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## **GLOSSARY OF SYMBOLS/TERMS/ACRONYMS IN MANAGEMENT PLAN**

§:	Section (referring to a statutory provision)
Board:	Board of Directors of the Reeves County Groundwater Conservation District
District:	Reeves County Groundwater Conservation District
District Act:	Enabling legislation of Reeves County Groundwater Conservation District (codified at Tex. Spec. Dist. Loc. Laws Code Ch. 8859)
DFC:	Desired Future Condition
GPM:	Gallons per minute
GAM:	Groundwater Availability Model
GCD:	Groundwater Conservation District
GMA:	Groundwater Management Area
HB:	House Bill
MAG:	Modeled Available Groundwater
SB:	Senate Bill
TCEQ:	Texas Commission on Environmental Quality
TWDB:	Texas Water Development Board
WUG:	Water user group

## **1 Introduction**

The Reeves County Groundwater Conservation District (the District), after notice and hearing, adopts this Management Plan according to the requirements of Texas Water Code § 36.1071. The District Management Plan represents the management goals of the District for the next five years, including the desired future conditions of the aquifers within the jurisdictional boundaries of the District. These desired future conditions were adopted through the joint planning process in Groundwater Management Area 3 as prescribed in Chapter 36, Texas Water Code.

### **1.1 District Mission**

The Mission of the District is to develop rules to provide protection to existing wells, prevent waste, promote conservation, provide a framework that will allow availability and accessibility of groundwater for future generations, protect the quality of the groundwater in the recharge zone of the aquifer, ensure that the residents of Reeves County maintain local control over their groundwater, and operate the District in a fair and equitable manner for all residents of the District.

### **1.2 Guiding Principles**

The District is committed to managing and protecting the groundwater resources within its jurisdiction and to working with others to ensure a sustainable, adequate, high quality and cost-effective supply of water, now and in the future. The District will strive to develop, promote, and implement water conservation, and management strategies to protect water resources for the benefit of the citizens, economy and environment of the District. The preservation of this most valuable resource can be managed in a prudent and cost-effective manner through conservation, education, and management. The District will endeavor to consider and respect individual property owner rights when acting on related matters.

## **2 History and Purpose of the Management Plan**

The 75th Texas Legislature in 1997 enacted Senate Bill 1 (“SB 1”) to establish a comprehensive statewide water planning process. In particular, SB 1 contained provisions that required groundwater conservation districts to prepare management plans to identify the water supply resources and water demands that will shape the decisions of each district. SB 1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries. In 2001, the Texas Legislature enacted Senate Bill 2 (“SB 2”) to build on the planning requirements of SB 1 and to further clarify the actions necessary for districts to manage and conserve the groundwater resources of the state of Texas.

The Texas Legislature enacted significant changes to the management of groundwater resources in Texas with the passage of House Bill 1763 (“HB 1763”) in 2005. HB 1763 created a long-term

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planning process in which groundwater conservation districts (“GCDs”) in each Groundwater Management Area (“GMA”) are required to meet and determine the Desired Future Conditions (“DFCs”) for the groundwater resources within their boundaries by September 1, 2010. In addition, HB 1763 required GCDs to share management plans with and for review by the other GCDs in the GMA. In 2011, Senate Bills 660 and 737 further modified these groundwater laws and GCD management requirements in Texas.

Senate Bill 660 required that GMA representatives must participate within each applicable regional water planning group (RWPG). It also required the Regional Water Plans be consistent with the DFCs in place when the regional plans are initially developed. TWDB technical guidelines for the round of planning associated with Senate Bill 660 established that the managed available groundwater (within each county and basin) was the maximum amount of groundwater that could be used for existing uses and new strategies in Regional Water Plans. In other words, the MAG volumes are a cap on groundwater production for TWDB planning purposes.

“Managed available groundwater” was redefined as “modeled available groundwater” in Senate Bill 737 by the 82nd Legislature. Modeled available groundwater is “the amount of water that can be produced on an average annual basis” to achieve a desired future condition.

The 84<sup>th</sup> Texas Legislature streamlined permit renewals via Senate Bill 854. House Bill 655 addressed the definition of aquifer storage and recovery (ASR) projects, clarification of ASR and TCEQ permitting roles, and gave TCEQ the ability to limit the volume of recovered water. These changes in law have been incorporated into the Texas Water Code and used as a framework to develop this management plan.

### **3 District Information**

#### **3.1 Creation**

The Reeves County Groundwater Conservation District (the “District”) was created by the 83rd Texas Legislature under the authority of Section 59, Article XVI, of the Texas Constitution, and in accordance with Chapter 36 of the Texas Water Code (“Water Code”), by the Act of May 17, 2013, 83rd Leg., R.S., Ch. 457, codified at Texas Special District Local Laws Code Chapter 8876.

The District is a governmental agency and a body politic and corporate. The District was created to serve a public use and benefit, and is essential to accomplish the objectives set forth in Section 59, Article XVI, of the Texas Constitution. The District’s boundaries are coextensive with the boundaries of Reeves County, Texas, and lands and other property within these boundaries will benefit from the works and projects that will be accomplished by the District.

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### **3.2 Directors**

The District is governed by a board of seven appointed directors. Directors serve staggered four-year terms, with the terms of three or four directors expiring on December 1 every other year. A director serves until the director's successor has qualified to serve.

### **3.3 Authority**

The District has the rights and responsibilities provided for in Chapter 36 of the Texas Water Code, Texas Special District Local Laws Code Chapter 8876, and 31 Texas Administrative Code Chapter 356. The District is charged with conducting hydrogeological studies, adopting a management plan, providing for the permitting of non-exempt water wells and implementing programs to achieve statutory mandates. The District has rulemaking authority to implement the policies and procedures needed to manage the groundwater resources of Reeves County.

### **3.4 Location and Extent**

The District's boundaries are coextensive with the boundaries of Reeves County, Texas. The District covers an area of approximately 2,640 square miles. A map is included as Figure 1.

### **3.5 Topography and Drainage**

The District is located within the Rio Grande River Basin. Most surface water drainages within Reeves County flow to the north or northeast towards the Pecos River, except for a few tributaries of Salt Draw in western Reeves County, which flow to the east. Elevations in the District range between approximately 2,460 feet (on the Pecos River) to 5,115 feet (in the Barilla Mountains) above mean sea level (amsl). Portions of several mountain ranges are located in western and southern Reeves County (Apache Mountains, Barilla and Davis Mountains, and the Rustler Hills), and the land surface generally slopes toward the Pecos River to the north. Average annual rainfall is about 13 inches.

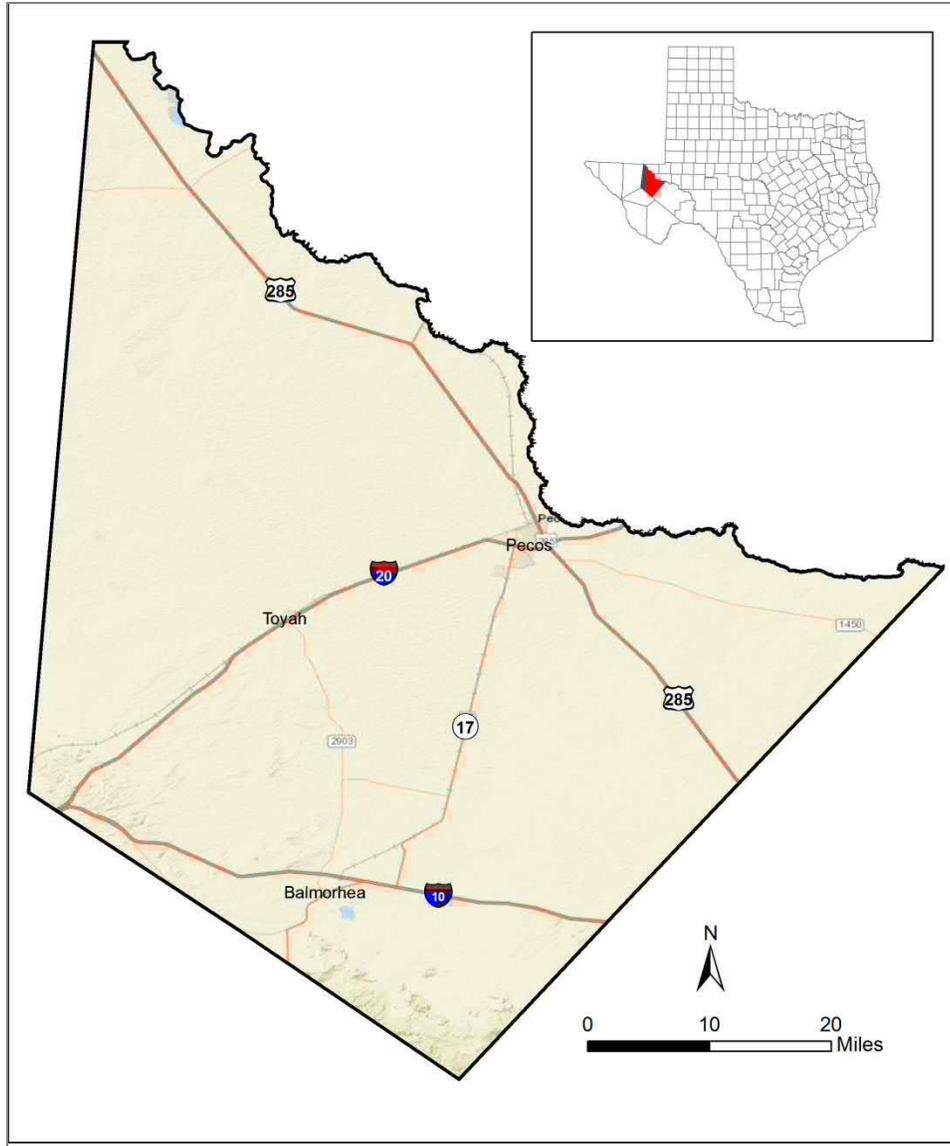


Figure 1. Reeves County GCD

## 4 Criteria for Plan Approval

### 4.1 Planning Horizon

This management plan becomes effective upon adoption by the District Board of Directors and subsequent approval by the Executive Administrator of the Texas Water Development Board (TWDB). This management plan incorporates a planning period of five years from the adoption date of this plan in accordance with 31 Texas Administrative Code §356.52(a)(2).

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#### **4.2 Board Resolution**

A certified copy of the Reeves County Groundwater Conservation District resolution adopting the plan is in Appendix A – Resolution Adopting the Management Plan.

#### **4.3 Plan Adoption**

Public notices documenting that the plan was adopted following appropriate public meetings and hearings are in Appendix B – Evidence that the Management Plan was adopted.

#### **4.4 Coordination with Surface Water Management Entities**

A template letter transmitting copies of this plan to the surface water management entities in the District along with a list of the surface water management entities to which the plan was sent are in Appendix C – Evidence that the District coordinated development of the Management Plan with surface water entities.

### **5 Actions, Procedures, Performance, and Avoidance for Plan Implementation, and Management of Groundwater Supplies**

The District is only permitted to adopt rules pertaining to well registration, well spacing, and non-wasteful use before the Management Plan is adopted. The District may also accept permit applications, but is not allowed to act on any permits until the plan is approved.

Once the management plan is adopted, the District may make and enforce temporary rules for the purpose of conserving, preserving, protecting, and recharging groundwater in the District in order to prevent subsidence, degradation of water quality, waste of groundwater, and to carry out the powers and duties of Chapter 36, Texas Water Code, and the District Act.

The rules will be used by the District in the exercise of the powers conferred on the District by law and in the accomplishment of the purposes of the law creating the District. The rules may be used as guides in the exercise of discretion, where discretion is warranted. However, under no circumstances and in no particular case will they or any part therein, be construed as a limitation or restriction upon the District to exercise powers, duties and jurisdiction conferred by law. These rules will create no rights or privileges in any person or water well, and shall not be construed to bind the Board in any manner in its application of the management plan, amendments to rules or promulgation of rules.

The District may amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code and to insure 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.

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The District will encourage public cooperation and coordination in the implementation of the management plan for the District. All operations and activities of the District will be performed in a manner that best encourages cooperation with the appropriate state, regional or local water entity. The meetings of the Board of Directors will be noticed and conducted at all times in accordance with the Texas Open Meetings Law. The District will also make available for public inspection all official documents, reports, records and minutes of the District pursuant to the Texas Public Information Act.

Water Code section 36.1071(f) limits the District's rulemaking authority until after a management plan is approved. Nevertheless, Water Code Section 36.1071(e)((2) requires the District to submit draft rules as a part of the management plan. Appendix D contains draft rules that have not been adopted.

## **6 Methodology to Track District Progress in Achieving Management Goals**

An annual report ("Annual Report") will be created by the general manager and staff of the District and provided to the members of the Board of Directors. The Annual Report will cover the activities of the District including information on the District's performance regarding achieving the District's management goals and objectives. The Annual Report will be delivered to the Board within 180 days following the completion of the District's fiscal year, beginning with the fiscal year that started on January 1, 2019. A hard copy of the Annual Report will be kept on file and will be available for public inspection at the District's offices upon adoption. Annual reports will also be available via the District's website.

## **7 Management Objectives and Performance Standards**

The following goals, management objectives, and performance standards have been developed and adopted to ensure the management and conservation of groundwater resources within the District's jurisdiction.

For purposes of this management plan, an exempt well means a well that meets any one of the following criteria stated in *Texas Water Code §36.117*, unless a different meaning is set forth in the District rules, or the context clearly provides otherwise:

*(b)(1) drilling or operating a well used solely for domestic use or for providing water for livestock or poultry if the well is:*

*(A) located or to be located on a tract of land larger than 10 acres; and*

*(B) drilled, completed, or equipped so that it is incapable of producing more than 20 gpm or 28,800 gallons of groundwater a day;*

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*(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; or*

*(3) drilling a water well authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, 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.*

*(c) A district may not restrict the production of water from any well described by Subsection (b)(1).*

All wells that do not meet one of these criteria are considered to be non-exempt for purposes of this management plan. The characterization of exempt and non-exempt wells is intended to apply only to wells described in this management plan and shall not be interpreted to mean that the wells will be considered exempt or not exempt from permitting under any permanent rules adopted by the District in the future.

### **Goal 1 - Providing the most efficient use of groundwater**

*31 TAC § 356.52(a)(1)(A) and Tex. Water Code § 36.1071(a)(1)*

The District, through strategies and programs adopted in this management plan and rules, strives to ensure the most efficient use of groundwater in order to sustain available resources for the future while maintaining the economic growth of the District.

#### **Management Objective 1.1**

The District will require the registration of wells not otherwise exempt from registration within the District's boundaries each year. Each year the District will locate and register a minimum of one well.

#### **Performance Standard 1.1**

The number of new and existing wells registered with the District will be provided in the Annual Report for each fiscal year.

#### **Management Objective 1.2**

The District will require permits for all groundwater use considered non-exempt within District boundaries each year. The District will establish a permitting process in the District's rules.

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### **Performance Standard 1.2**

The District will accept and process permit applications for all non-exempt groundwater use pursuant to the permitting process described in the District Rules. The Annual Report will contain a summary for each year of the number of applications submitted to the District requesting authorization for the permitted use of groundwater and the number and type of permits issued by the District.

### **Goal 2 - Controlling and preventing the waste of groundwater**

*31TAC § 356.52(a)(1)(B) and Tex. Water Code § 36.1071(a)(2)*

Another important goal of the District is to implement strategies that will control and prevent the waste of groundwater. The definitions of waste and beneficial use are included here until they are incorporated into District rules (TWC § 36.001(8) &(9)).

*(8) "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 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;*

*(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 unless such discharge is authorized by permit, rule, or order issued by the commission under Chapter 26;*

*(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; or*

*(G) for water produced from an artesian well, "waste" also has the meaning assigned by Section 11.205.*

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(9) *"Use for a beneficial purpose" 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.*

**Management Objective 2.1**

Each year the District will provide information to the public on reducing and preventing the waste of groundwater. The District will use one of the methods set forth below to provide information to the public at least once during each fiscal year:

- a. Offer public presentations on groundwater issues, including waste prevention;
- b. Sponsor an educational program or course;
- c. Distribute literature packets or brochures;
- d. Provide information on the District's web site addressing the prevention of waste; or
- e. Submit newspaper articles to the newspapers of general circulation within the District for publication;

**Performance Standard 2.1**

The Annual Report will include a summary of the District's efforts during the previous year to provide information to the public on the reducing and preventing the waste of groundwater.

**Management Objective 2.2**

The District will prohibit waste as defined by Chapter 36 of the Texas Water Code within its boundaries and will implement this prohibition through its rules.

**Performance Standard 2.2**

The District prefers to work with both the responsible and affected parties to find the best solution for all parties that also protects and enhances the waters of the District. The District's Annual Report will include a summary of:

- a. the number of well owners who had complaints made against them alleging waste, and
- b. the number of well owners who were found to be wasting water by the District Board of Directors using the definitions included in this management plan, and
- c. the actions that were taken to stop the waste of groundwater.

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### **Goal 3 - Controlling and preventing subsidence**

*31 TAC § 356.52(a)(1)(C) and Tex. Water Code §36.1071(a)(3)*

Due to the hydrogeology of the various aquifers in the District, a goal addressing subsidence is not applicable.

### **Goal 4 - Addressing conjunctive surface water management issues**

*31 TAC §356.52(a)(1)(D) and Tex. Water Code §36.1071(a)(4)*

Surface water resources represent a vital component in meeting current and future water demands in all water use sectors within the District. The District coordinates with surface water management entities within the region by designating a board member or the general manager to attend and coordinate on water supply and management issues with the Region F Water Planning Group.

#### **Management Objective 4.1**

Participation in the regional water planning process will ensure coordination with surface water management agencies that are participating in the regional water planning process. Coordination with surface water management agencies - the designated board member or General Manager will annually do, at a minimum, one of the following:

- a. Attend at least one meeting of the Region F Water Planning Group, or
- b. Receive regional planning updates or reports from a District representative,
- c. Track regional planning group meeting agenda and minutes.

#### **Performance Standard 4.1**

The designated board member or General Manager will report on actions of the Region F Water Planning Group as appropriate to the board, and the General Manager will document meetings attended in the Annual Report.

#### **Management Objective 4.2**

Monitor technical assessments, presentations or reporting concerning discharge and water quality of the San Solomon Springs Group and associated surface water features.

#### **Performance Standard 4.2**

The General Manager of the District will report relevant findings in the District's Annual Report.

### **Goal 5 - Addressing natural resource issues**

*31TAC §356.52(a)(1)(E); and Tex. Water Code §36.1071(a)(5)*

The District understands the important nexus between water resources and natural resources. The exploration and production of natural resources such as oil and gas represent potential

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management issues for the District. For example, improperly plugged oil and gas wells may provide a conduit for various hydrocarbon, drilling fluids, or saline waters to potentially migrate and contaminate groundwater resources in the District.

**Management Objective 5.1**

The District would like to encourage and actively promote water reuse within the District, especially the reuse of produced water among oil and gas operators.

**Performance Standard 5.1**

The District will provide information and/or discussion about reuse at least once each year by one of the following methods:

- a. Invite operators who are interested in reuse to attend a District Board meeting, or
- b. Post relevant educational material on the website, or
- c. Host a conference that focuses on reuse applications and methods.

**Goal 6 - Addressing drought conditions**

*31TAC §356.52(a)(1)(F) and Tex. Water Code §36.1071(a)(6)*

**Management Objective 6.1**

The District will monitor drought information each quarter to track developing droughts or current drought conditions. Examples of sites that will be monitored include:

- a. the weekly updates to the Palmer Drought Severity Index (PDSI) map for Texas at <http://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?TX>, and
- b. the TWDB Drought Page at <https://waterdatafortexas.org/drought>.

**Performance Standard 6.1**

Current drought conditions information from multiple resources including the Palmer Drought Severity Index (PDSI) map for the state and the links to the Drought Preparedness Council Situation Report (<http://www.dps.texas.gov/dem/sitrep/default.aspx>) is made available to the public through the District's website.

**Goal 7 - Addressing conservation, recharge and precipitation enhancement, rainwater harvesting, and brush control**

*31TAC §356.52(a)(1)(G) and TWC §36.1071(a)(7)*

Texas Water Code § 36.1071(a)(7) requires that a management plan include a goal that addresses conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost-effective. The District has

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determined that a goal addressing recharge and precipitation enhancement is not appropriate or cost-effective, and therefore is not applicable to the District.

**Management Objective 7.1**

The District will provide information to the public addressing water conservation, brush control, and/or rainwater harvesting at least once each fiscal year by one of the following methods:

- a. Distribute literature packets or brochures within the District;
- b. Provide information to the public at the District office and/or
- c. Provide information on the District's website (once established);
- c. Conduct public presentations;
- d. Submit articles to newspapers of general circulation in the District for publication; or
- e. Present exhibits at local public events.

**Performance Standard 7.1**

The District's Annual Report will provide a description of the District efforts and a copy of any information provided to the public during the previous year to promote conservation, brush control, and/or rainwater harvesting.

**Goal 8 - Addressing the desired future conditions of groundwater resources**

*31TAC §356.52(a)(1)(H) and Tex. Water Code § 36.1071(a)(8)*

The desired future conditions of the aquifers in Groundwater Management Area 3 represent average water levels in the various aquifers at the end of 50-years based on meeting current and projected groundwater supply needs. The Board of Directors has committed to a strategic approach that includes the adoption of this management plan and rules necessary to achieve the desired future conditions.

**Management Objective 8.1**

State statute requires GCDs to review, amend as necessary, and read adopt management plans at least every five years. The General Manager will annually present a summary report on the status of achieving the adopted desired future conditions, beginning in year 2021. Prior to the adoption date of the next management plan, the General Manager will work with the Board of Directors to conduct a focused review to determine if any elements of this management plan or rules need to be amended in order to achieve the adopted desired future conditions, or if the adopted desired future conditions need to be revised to better reflect the needs of the District.

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**Performance Standard 8.1**

The General Manager will include a summary report on the status of addressing the adopted desired future conditions in the Annual Report beginning by 2021. This summary report will primarily be based on data collected from the current groundwater monitoring program.

Four years after the adoption of this management plan, and based on the annual review conducted by the General Manager and the Board of Directors, the Board of Directors will determine which of the following apply to the District: (1) the current management plan and rules are working effectively to meet the adopted desired future conditions, (2) specific amendments need to be made to this management plan and/or rules in order to address the adopted desired future conditions, (3) amendments are needed to the adopted desired future conditions in order to better meet the needs of the District, or (4) a combination of (2) and (3). This determination will be made at a regularly scheduled meeting of the Board of Directors.

**Management Objective 8.2**

The General Manager will participate in Groundwater Management Area 3 (GMA-3) meetings and the joint planning process to address the DFCs collaboratively.

**Performance Standard 8.2**

The designated board member or General Manager will report on actions of GMA-3 as appropriate to the board, and the General Manager will document meetings attended in the Annual Report.

**Management Objective 8.3**

In order to evaluate continually the effectiveness of the District's rules in meeting the goal of ensuring the efficient use of groundwater, the District will utilize TWDB's existing groundwater monitoring network to track water levels of the aquifers in the District (Figure 2).

**Performance Standard 8.3**

Track the number of wells in Reeves County for which water levels were measured per year and report the results in the Annual Report presented by the General Manager to the Board of Directors.

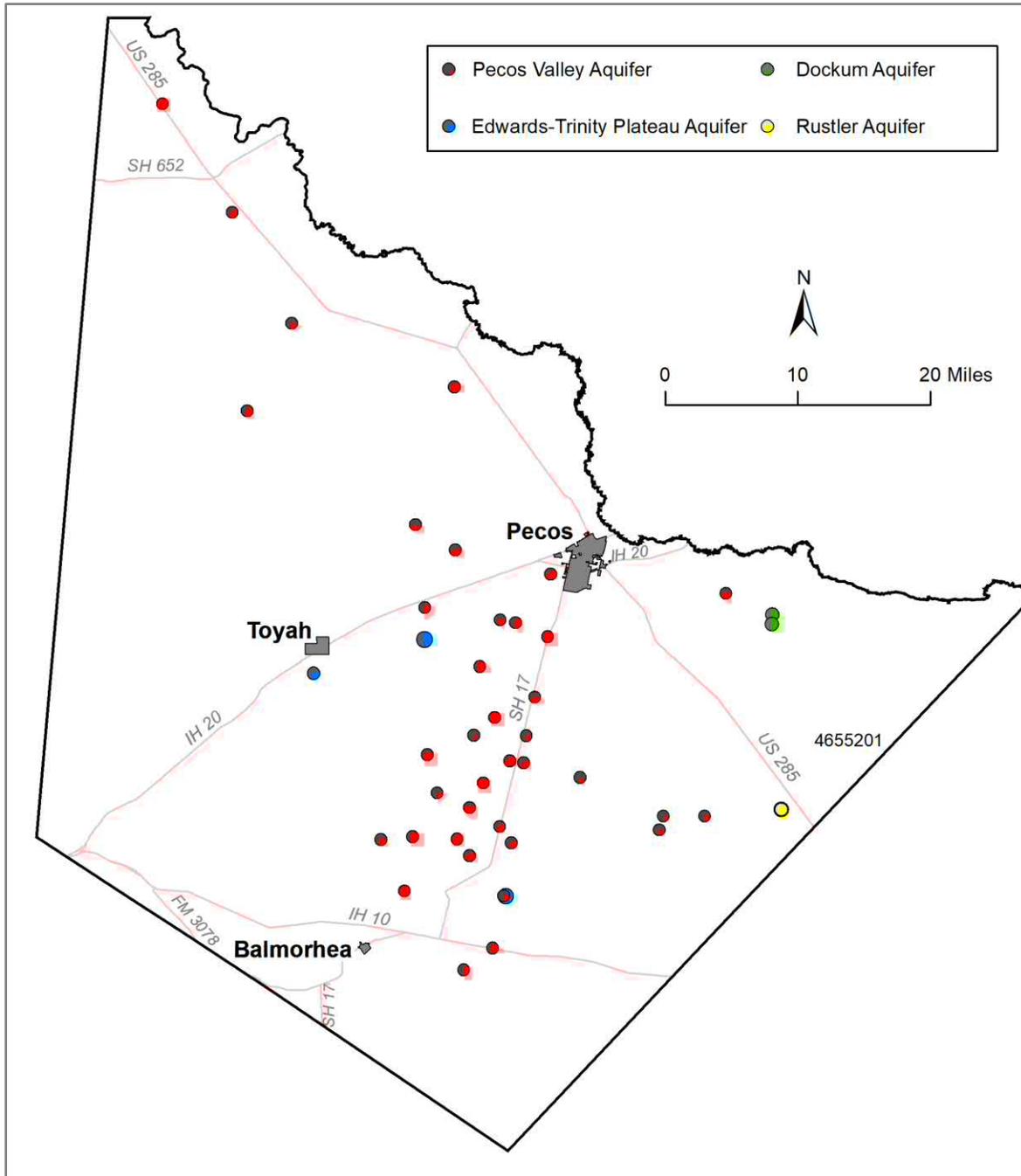


Figure 2. Locations of Current TWDB Observation Wells

## 8 Estimates of Technical Information

### 8.1 Modeled Available Groundwater based on Desired Future Conditions

Texas Water Code § 36.001 defines modeled available groundwater 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 amount of water that may be permitted from an aquifer is not the same amount as the total amount that can be pumped from an aquifer. Total pumping includes uses of water both subject to permitting and exempt from permitting (“exempt use”). Examples of exempt use include: domestic, livestock, and some types of water use associated with oil and gas exploration.

To determine the DFCs, a series of simulations using the TWDB’s Groundwater Availability Model (“GAM”) for the relevant aquifers were completed. Each GAM simulation was done by iteratively applying various amounts of simulated groundwater pumping from the aquifer over a predictive period that included a simulated repeat of the drought of record. Pumping was increased until the amount of pumping that could be sustained by the aquifer without impairing the aquifer conditions selected for consideration as the indicator of the aquifer desired future condition was identified.

The joint planning process set forth in Texas Water Code § 36.108 must be collectively conducted by all groundwater conservation districts within the same GMA. The District is a member of GMA 3. During the first round of joint planning, GMA-3 passed and adopted a resolution proposing DFCs for all relevant aquifers by letter dated August 9, 2010. The adopted DFCs were then forwarded to the TWDB for development of the MAG calculations.

The DFCs for the second round of joint planning were adopted by resolution by Groundwater Management Area 3 (GMA 3) on October 20, 2016. The DFC for the Edwards-Trinity (Plateau) and Pecos Valley was corrected by resolution dated December 13, 2017. The MAGs from the second round of joint planning for the aquifers in GMA 3 are documented in GAM Run 16-027 MAG. The GAM run report is in Appendix E. The DFCs are based on average drawdown in feet after 50 years for each aquifer.

A summary of the desired future conditions specific to Reeves County and the modeled available groundwater from the second round of joint planning are presented in Tables 1 and 2 below. A map of surrounding GCDs and GMAs is included as Figure 3.

**Table 1. Current desired future conditions, in total average feet of drawdown**

<b>Aquifer</b>	<b>Desired Future Condition (feet)</b>	<b>Adoption Date</b>
Edwards-Trinity (Plateau) and Pecos Valley	8	December 2017
Dockum	20	October 2016
Capitan Reef	Not relevant	October 2016
Rustler	40	October 2016

**Table 2. Modeled Available Groundwater based on GAM Run 16-027 (2020 – 2070)**

<b>Aquifer</b>	<b>Modeled Available Groundwater (acre-feet per year)</b>
Edwards-Trinity (Plateau) and Pecos Valley	189,744
Dockum	2,539
Capitan Reef	Not relevant
Rustler	2,387
<b>District Total</b>	<b>194,670</b>

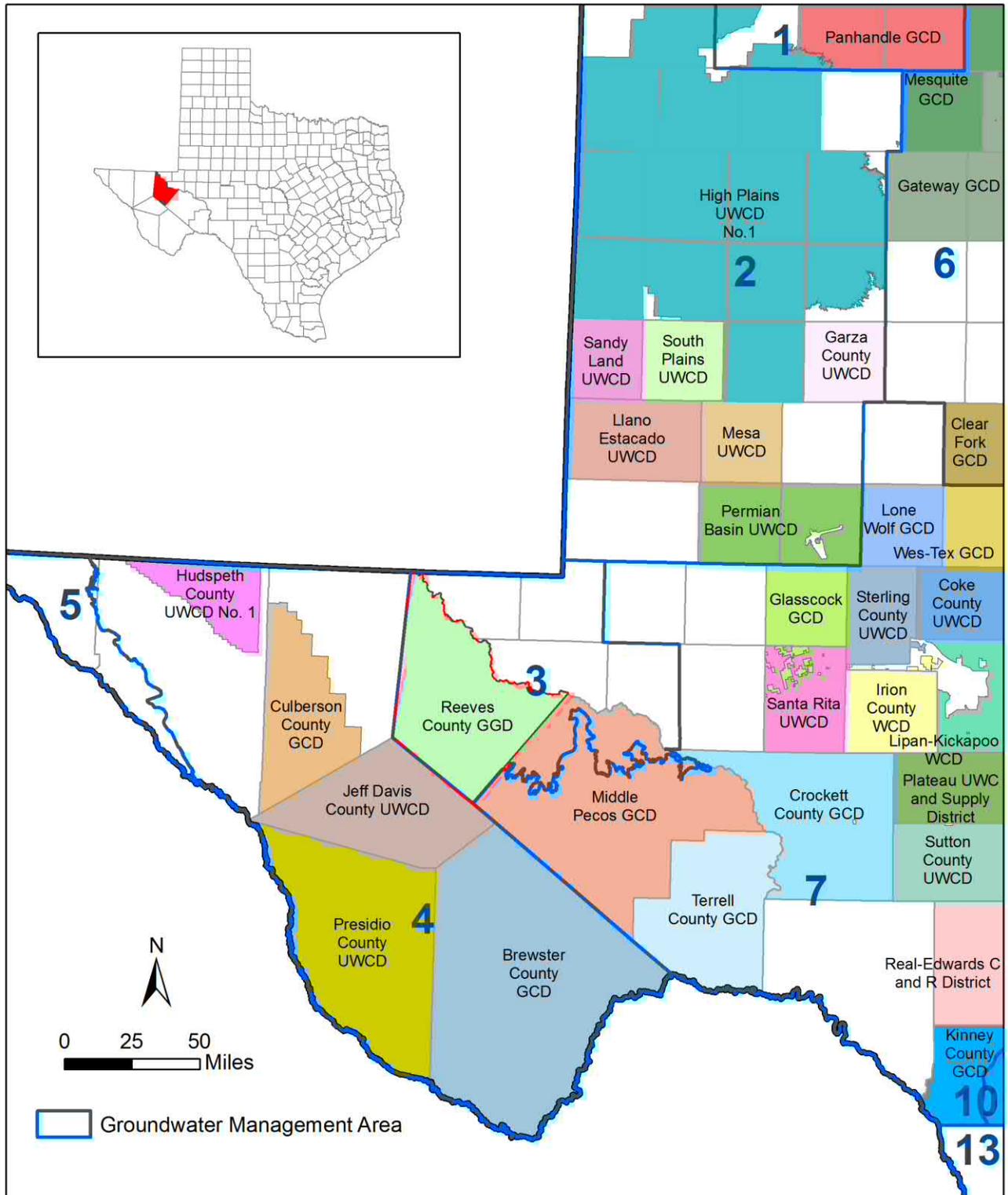


Figure 3. Groundwater Conservation Districts and Groundwater Management Areas

## 8.2 Amount of Groundwater Being Used within the District

Each year the TWDB conducts an annual survey of ground and surface water use by municipal and industrial entities within the state of Texas. The information obtained is then utilized by the TWDB for water resources planning. The historical water use estimates are subject to revision as additional data and corrections are made available to the TWDB.

Estimated groundwater use in Reeves County by category in 2014 was approximately 87 percent for irrigation, 10 percent for municipal use, 2 percent for mining, 1 percent for livestock use, less than one percent for manufacturing, and zero percent for steam-electric power use. In the TWDB Water Use Survey, the municipal use category includes small water providers and rural domestic pumping in addition to municipalities.

Total use in the year 2000 was approximately 68,000 acre-feet per year, in 2004 it was estimated to be nearly 47,000 acre-feet per year. This difference is attributed to a decline in irrigation use.

Figure 4 presents the historic water usage for Reeves County. Refer to Appendix F for the data table. TWDB data included in Appendix F do not differentiate between exempt and non-exempt use. Note that the numbers reported by TWDB do not include irrigation volumes for the year 2008.

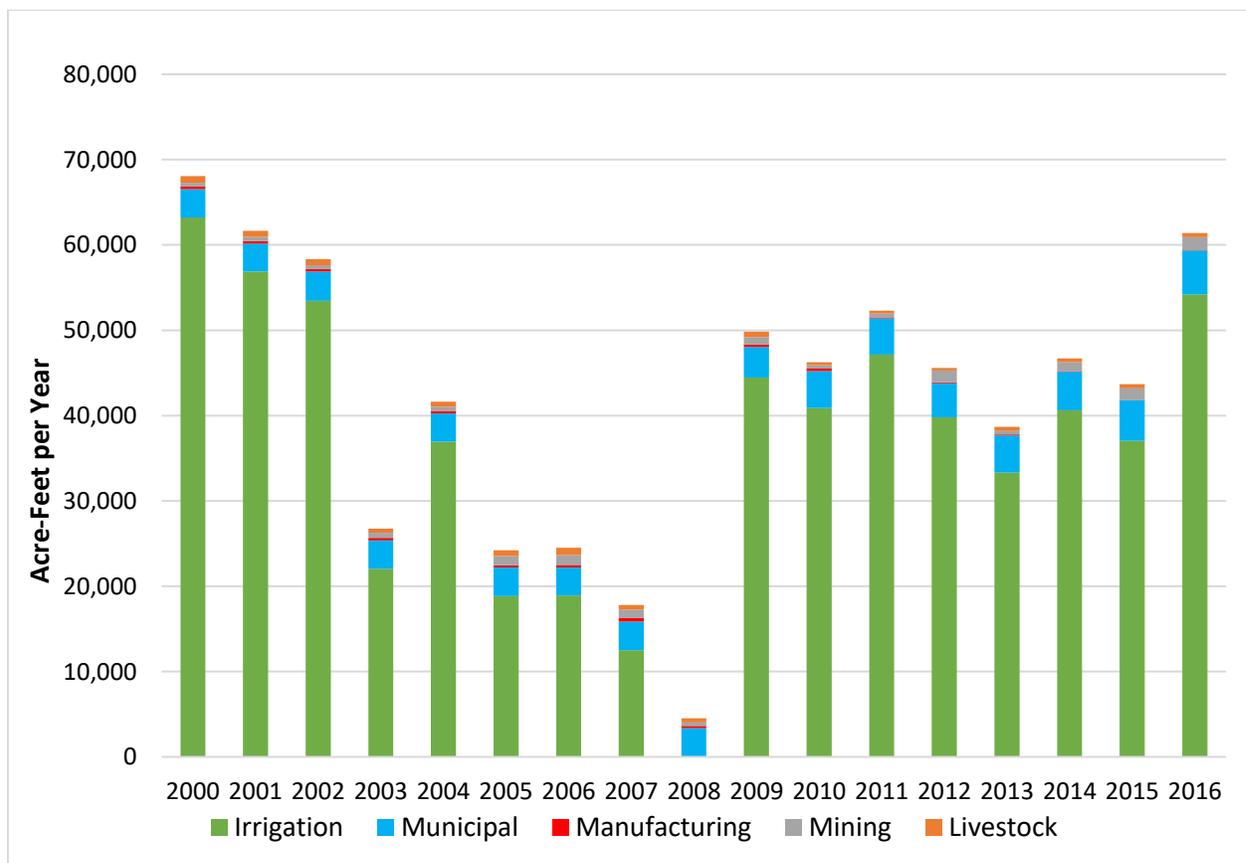


Figure 4. Historic Groundwater Use Estimate for Reeves County

### **8.3 Annual Amount of Recharge from Precipitation**

Recharge from precipitation falling on the outcrop of the aquifer (where the aquifer is exposed to the surface) within the Reeves County GCD was estimated by the TWDB in the GAM Run 18-001 dated May 11, 2018. Water budget values of recharge extracted for the transient model period indicate that precipitation accounts for 65,380 acre-feet per year of recharge to the Pecos Valley aquifer within the boundaries of the Reeves County GCD (Appendix E).

### **8.4 Annual Volume of Water that Discharges from the Aquifer to Springs and Surface Water Bodies**

The total water discharged from the aquifer to surface water features such as streams, reservoirs and springs is defined as the surface water outflow. Water budget values of surface water outflow within the Reeves County GCD were estimated by the TWDB in the GAM Run 18-001 (Appendix E). Modeled values are 51,531 acre-feet per year of discharge from the Pecos Valley aquifer to surface water bodies that are located within the Reeves County GCD.

### **8.5 Annual Volume of Flow In and Out of the District and Between Aquifers in the District**

Flow into and out of the District is defined as the lateral flow within an aquifer between the District and adjacent counties. Flow between aquifers is defined as the vertical flow between aquifers or confining units that occurs within the boundaries of the District. The flow is controlled by hydrologic properties as well as relative water levels in the aquifers and confining units. Water budget values of flow for the Reeves County GCD were estimated by the TWDB in the GAM Run 18-001 (Appendix E).

### **8.6 Projected Surface Water Supply within the District**

The 2017 Texas State Water Plan provides estimates of projected surface water supplies in Reeves County which are included in Appendix F. The estimated volume of surface water is 31,020 acre-feet per year through 2070. This supply is primarily from spring-fed Balmorhea Lake (21,844 acre-feet per year) and Red Bluff Reservoir (9,110 acre-feet per year). The remainder is local surface water used to provide water to livestock.

### **8.7 Projected Total Demand for Water within the District**

Appendix F contains an estimate of projected net water demand in Reeves County based on the 2017 Texas State Water Plan. The demand projections are primarily conducted in Texas as part of the regional water supply planning Texas Water Code § 36.1071(e)(3)(G) requires that a management plan include projections of the total demand for water (surface water and groundwater) from the most recently adopted state water plan. The projected total demand for

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the District decreases from 98,561 acre-feet per year in 2030 to 94,702 acre-feet per year in 2070 (Figure 5). The municipal demand numbers were adjusted for plumbing fixture savings.

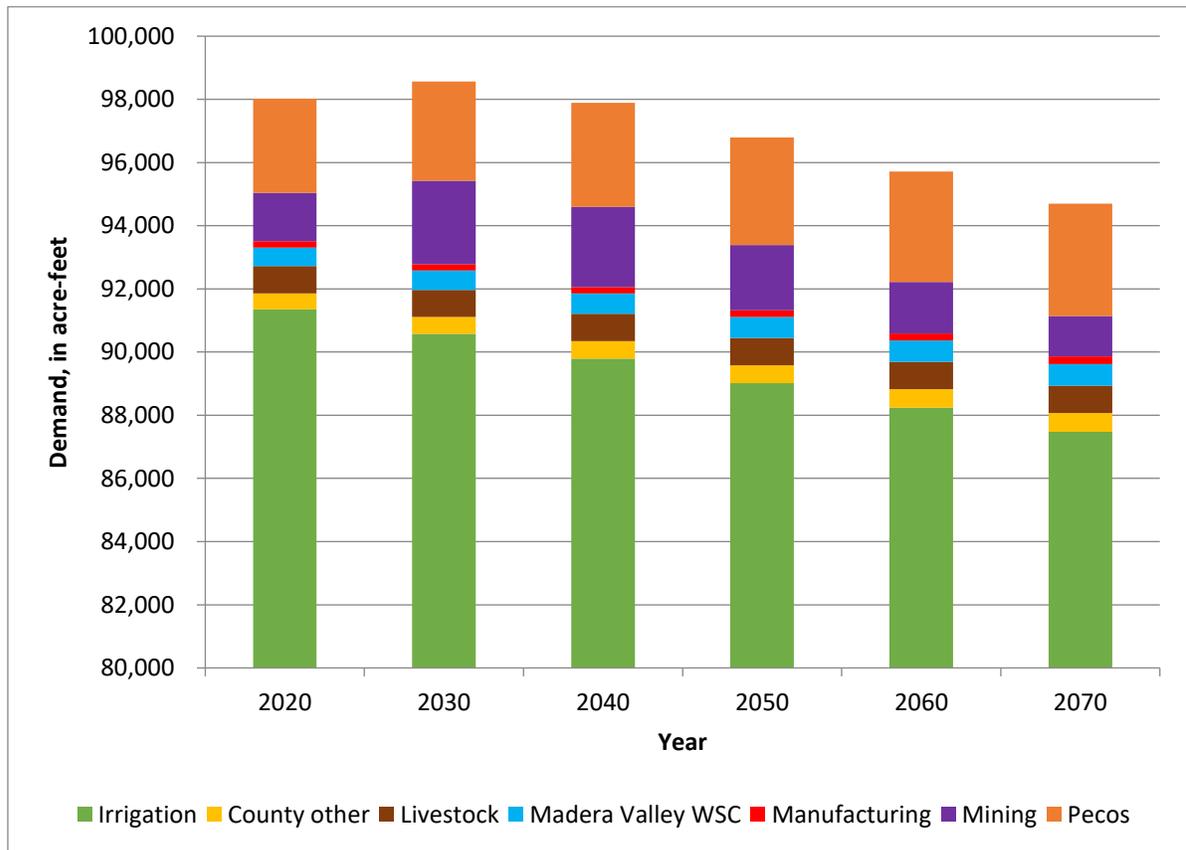


Figure 5. Total Projected Water Demand within the District

### 8.8 Projected Water Supply Needs

Projected water needs for the counties in the District were developed for the 2017 State Water Plan. Those needs reflect conditions when projected water demands exceed projected water supplies in the event of a drought of record. Appendix F lists the total water supply needs for Reeves County as adopted in the TWDB 2017 State Water Plan. Reeves County currently has no projected water supply needs.

### 8.9 Water Management Strategies

The 2017 State Water Plan assessed and recommended water management strategies to meet the identified needs for every decade from 2020 through 2070.

Potential strategies include municipal conservation, water audits and leak repair, irrigation conservation measures, mining conservation, and precipitation enhancement. Weather modification is a recommended strategy because Reeves County lies within the active precipitation

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enhancement area of the Trans Pecos Weather Modification Association (TPWMA). The projected water management strategies for the District from the 2017 State Water Plan are shown in Appendix F by water user group (WUG).

The sum of projected water management strategies ranges from 5,224 acre-feet in 2020 to 14,170 acre-feet in 2070.

## 9 Geology and Groundwater Resources of Reeves County

Reeves County is located west of the Central Basin Platform, which separates the Delaware Basin from the Midland Basin located further to the east (Figure 6). The Capitan Reef Aquifer defines the outer margins of the Delaware Basin, which contains very thick sequence of evaporites overlain by younger formations shown in Table 3. The western two-thirds of the county is located within the Pecos Trough. The trough is formed by large-scale solution and collapse processes that occur within the evaporitic formations (Salado/ Castile) that underlie the Pecos Valley Alluvium. A table of stratigraphic units and their water-bearing characteristics within Reeves County is included as Table 3. Regional cross sections are included as Figure 7.

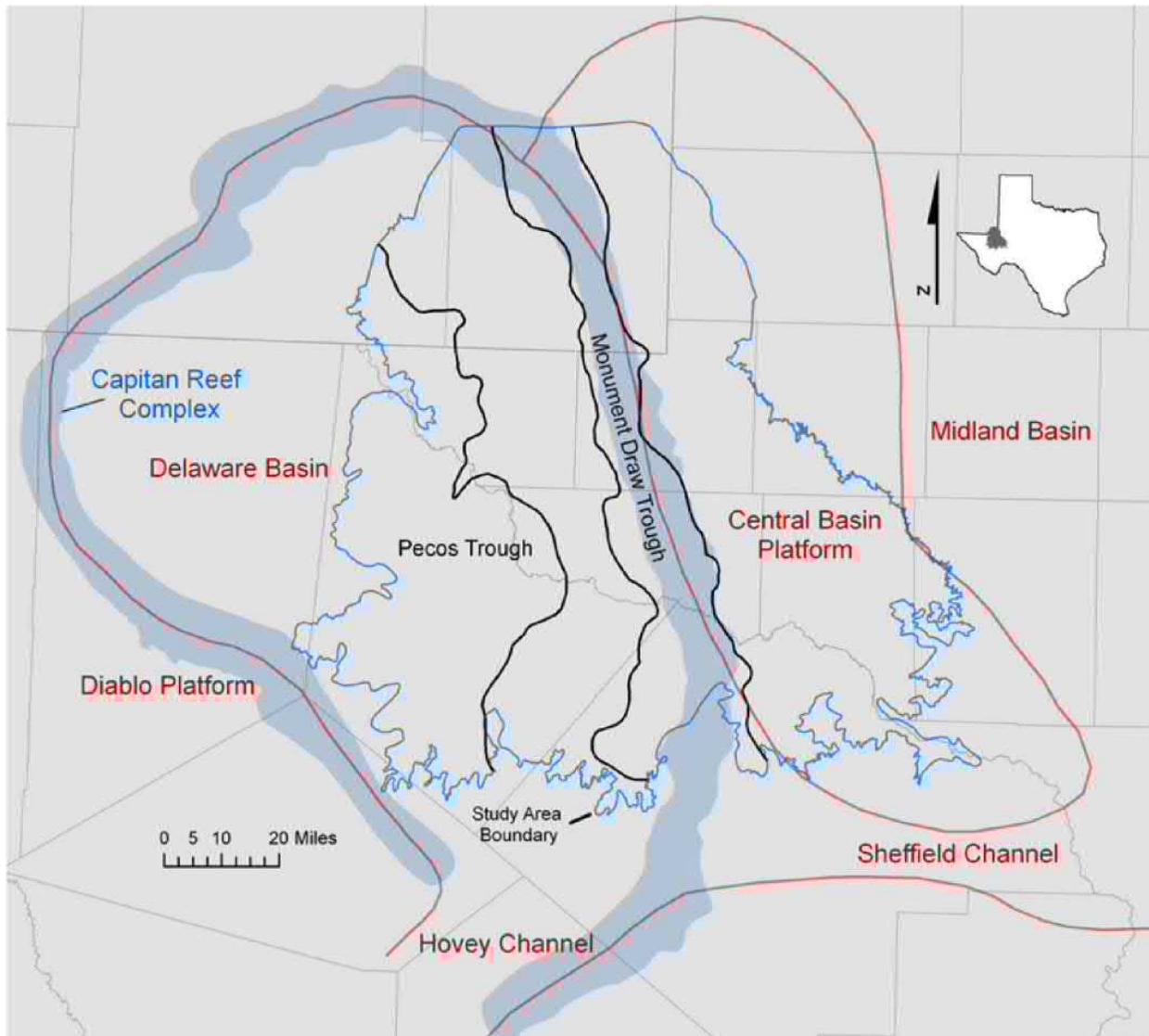


Figure 6. Regional structural features (source: TWDB Report 382).

**Table 3. Stratigraphic and Hydrologic Units in Reeves County**

System	Stratigraphic Unit	Maximum Thickness (feet)	Lithology	Water-Bearing Characteristics
Quaternary, Tertiary	Pecos Valley Alluvium	1,800	Fine to coarse-grained sand with gravel, typically mixed with clay and interbedded with clay layers	Yields small to large quantities of fresh to moderately saline water to wells
Tertiary	Volcanic Rocks	1,600	Lava, tuff, ash, breccia	Yields small amounts of fresh water to wells and springs in southern Reeves County
Cretaceous	undivided	1,425	Limestone, marl, clay, sand and sandstone	Yields small to moderate amounts of fresh to moderately saline water to wells in southern Reeves and western Pecos Counties
Triassic	Dockum undivided	420	Shale, siltstone, and fine to coarse-grained sandstone	Yields small to moderate amounts of fresh to moderately saline water to wells
Permian	Dewey Lake Redbeds	525	Siltstone	Does not yield water to wells
	Rustler	520	Dolomite, anhydrite, sandstone, conglomerate, and shale	Yields small to large amounts of slightly to moderately saline water to livestock and irrigation wells
	Salado	3,900	Halite, anhydrite	Does not yield water to wells
	Castile		Anhydrite and halite	
	Capitan Reef	1,750	Porous limestone and dolomite, bedded limestone, reef talus	Yields small to large amounts of moderately to very saline water to wells

Modified from TWDB Report 317 and TBWE Bulletin 6214.

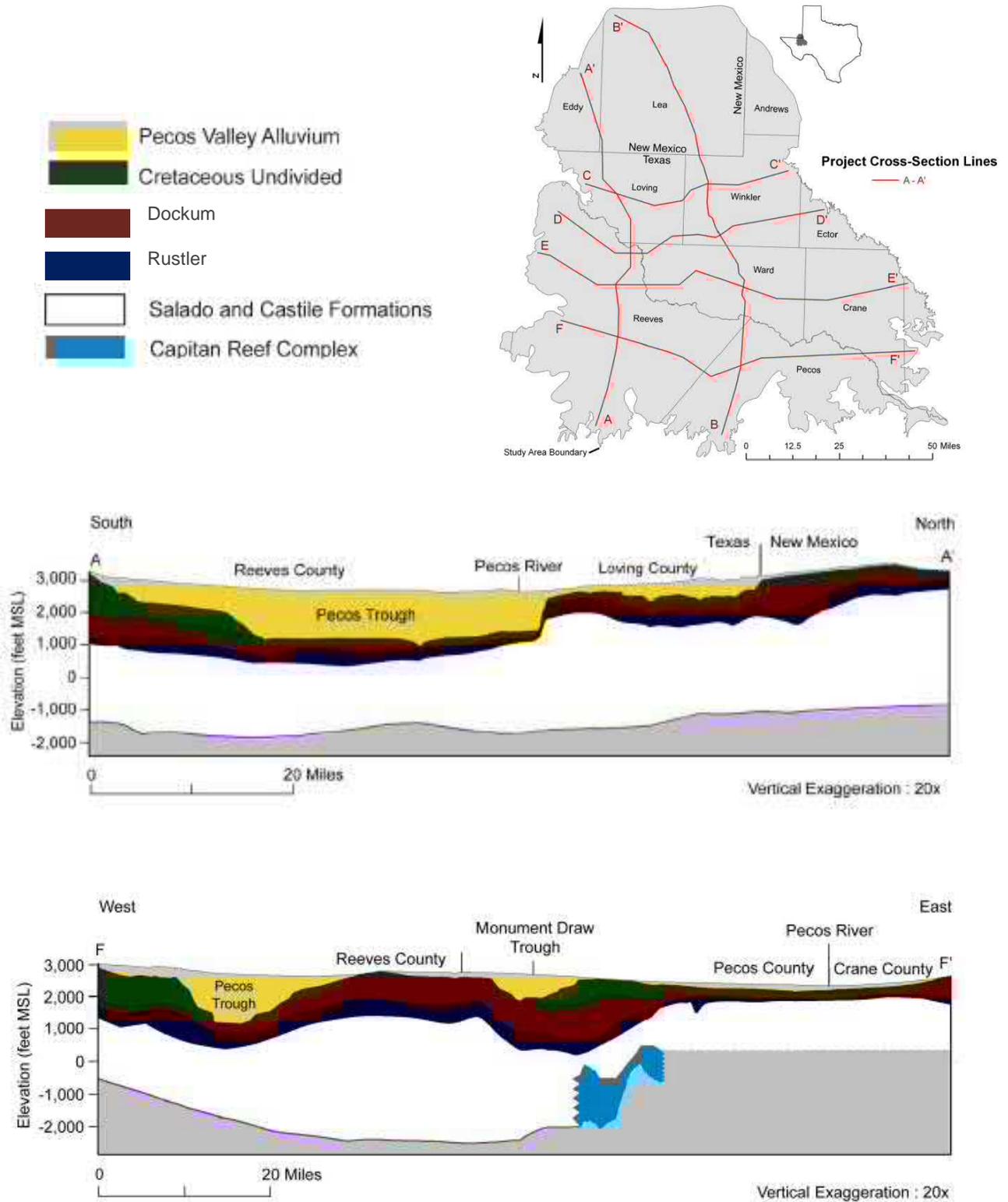
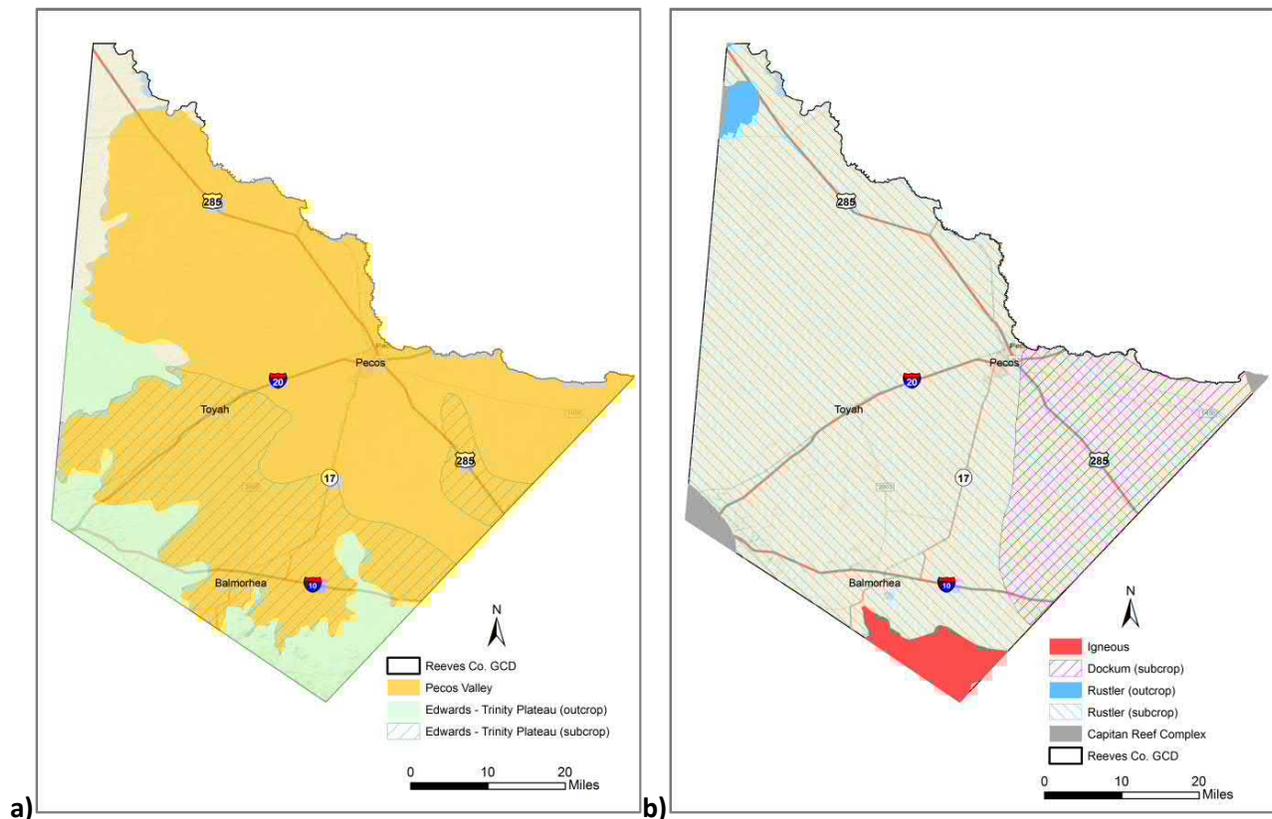


Figure 7. Cross sections (source: TWDB Report 382).

Major aquifers in Reeves County include the Pecos Valley and Edwards-Trinity Plateau; minor aquifers include the Rustler, Dockum, Igneous and Capitan Reef Complex. Maps showing the extent of the aquifers in the District are included as Figure 8. The extent of the Capitan Reef and Igneous aquifers within Reeves County is relatively limited, as shown in Figure 8b. Groundwater Availability Models have been created for all of the aquifers that underlie Reeves County. A summary of characteristics (well depths, well yields, depth to water and total dissolved solids concentrations) for water well completed in Reeves County aquifers is included in Table 4. The data used to compile the table is primarily from the TWDB interactive groundwater database.



**Figure 8. Reeves County a) Major Aquifers, and b) Minor Aquifers.**

**Pecos Valley**

The Pecos Valley aquifer is located in the upper part of the Pecos River Valley of West Texas in Andrews, Crane, Crockett, Ector, Loving, Pecos, Reeves, Upton, Ward and Winkler Counties. Consisting of up to 1,500 feet of alluvial fill, the Pecos Valley occupies two hydrologically separate basins: the Pecos Trough in the west and the Monument Draw Trough in the east. The aquifer is hydrologically connected to underlying water-bearing strata, including the Edwards-Trinity in Pecos and Reeves Counties, and the Rustler in Reeves County. The western basin (Pecos Trough) contains poorer quality water and is used most extensively for irrigation of salt-tolerant crops. The eastern basin (Monument Draw Trough) contains relatively good quality water that is used for a variety of

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purposes, including industrial use, power generation, and public water supply. Most pumping occurs in Pecos and Reeves Counties for irrigation. Lateral subsurface flow from the Rustler aquifer into the Pecos Valley has significantly affected the chemical quality of groundwater in the overlying western Pecos Trough aquifer. Most of this basin contains water with greater than 1,000 mg/l TDS, and a significant portion is above 3,000 mg/l TDS. The eastern Monument Draw Trough is underlain by the Dockum aquifer but is not as significantly affected by its quality difference (Freese and Nichols and LBG-Guyton, 2016).

Static water levels range between twelve feet below land surface to 355 feet below land surface in Reeves County. The saturated thickness of the Pecos Valley Aquifer ranges from zero feet thick near the edges of the outcrop to nearly 1,500 feet along the central axis of the Pecos Trough (Meyer and others, 2012).

### **Edwards-Trinity (Plateau)**

The Edwards-Trinity (Plateau) Aquifer in west Texas is the westernmost extension of a vast groundwater system that underlies the Edwards Plateau east of the Pecos River and the Stockton Plateau west of the River. Groundwater occurs under water-table conditions in the west Texas counties. The hydrogeology of the Edwards-Trinity (Plateau) Aquifer in west Texas is not understood as well as in areas to the east (LBG-Guyton Associates and others, 2016).

In Reeves County, the aquifer consists of saturated sediments of the Cretaceous age Trinity Group formations and the overlying carbonate rocks (limestone and dolomite) of the Fredericksburg and Washita Groups. The basal conglomerate (Yearwood Formation), and the Cox Sandstone (Antlers equivalent) are overlain by the Finlay, Boracho, and Buda limestones. These water-bearing Cretaceous formations are present only in the southwestern half of Reeves County (Ogilbee and Wesselman, 1962). Recent static water levels range between eight and 287 feet below land surface in the Edwards-Trinity (Plateau) Aquifer in Reeves County with depths to water increasing to the south.

### **Dockum**

The Dockum aquifer is used for water supply in several Counties, including Andrews, Crane, Ector, Howard, Loving, Mitchell, Reagan, Reeves, Scurry, Upton, Ward and Winkler Counties. The Dockum outcrops in Scurry and Mitchell Counties, and elsewhere underlie rock formations comprising the Ogallala, Edwards- Trinity, and Pecos Valley aquifers. Although the Dockum aquifer underlies much of the region, its low water yield and generally poor quality results in its classification as a minor aquifer. The primary water-bearing zone in the Dockum Group, commonly called the "Santa Rosa", consists of up to 700 feet of sand and conglomerate interbedded with layers of silt and shale. Recharge to the Dockum primarily occurs in Scurry and Mitchell Counties where the formation outcrops at the land surface. Recharge potential also occurs where water-bearing units of the

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Trinity and Pecos Valley directly overlies the Santa Rosa portion of the Dockum. Elsewhere, the Dockum is buried deep below the land surface, is finer grained, and receives very limited lateral recharge. Groundwater pumped from the aquifer in these areas will come directly from storage and will result in water level declines (Freese and Nichols and LBG-Guyton, 2016).

The Dockum underlies the eastern one-quarter to one-third of Reeves County. Most of the Dockum wells that are operating in Reeves County are used to provide water for livestock and municipal supply for the City of Pecos.

### **Rustler**

The Rustler Aquifer is located in eastern Culberson County, where it is exposed in a southwest-trending belt that begins at the northeast corner of the county. The aquifer dips toward the east, and is found in the subsurface in easternmost Culberson County and Jeff Davis County. Approximately 803 mi<sup>2</sup> of land in West Texas are underlain by the Rustler Aquifer. The Rustler Aquifer is a source of water for irrigation and livestock. High concentrations of dissolved solids render the formation unsuitable as a source of municipal and domestic supply. The Rustler Aquifer consists mainly of dolomite, limestone, and gypsum of the Rustler Formation (Permian age). Groundwater is produced primarily from solution channels, caverns and collapsed breccia zones. The aquifer is under water-table conditions in the outcrop recharge zone in eastern Culberson County and is under artesian conditions elsewhere (LBG-Guyton Associates and others, 2016).

The Rustler subcrop underlies nearly the entire county, however, a small portion of the Rustler Hills outcrop extends in to far northern Reeves County. There are several well reports for Rustler water wells in Reeves County that are no longer being used; however a few Rustler wells may still be used for irrigation.

### **Igneous**

The Igneous Aquifer system comprises all contiguous Tertiary igneous (volcanic) formations underlying the Davis Mountains and adjacent areas primarily in Brewster, Jeff Davis and Presidio Counties. Most of the aquifer's areal extent is underlain by a thickness ranging from 1,000 to 4,000 feet; however, most wells are less than 1,000 feet in depth. The aquifer is not a single homogeneous aquifer but rather a system of complex water-bearing formations that are in varying degrees of hydrologic communication. Groundwater is stored in the fissures and fractures of intrusive and extrusive rocks of volcanic origin. The chemical quality of the aquifer is generally good to excellent and well yields generally range from small to moderate. Over 40 separately named volcanic units have been identified, each of which are highly variable in nature. Water quality of the aquifer is relatively good and generally meets safe drinking water standards. Alpine, Marfa and Fort Davis, along with a growing rural population, derive their municipal supplies from this aquifer (LBG-Guyton Associates and others, 2016).

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There are only a few water wells completed in the Igneous Aquifer in the Barilla Mountains in extreme southern Reeves County.

**Capitan Reef Complex**

The Capitan Reef formed along the margins of the Delaware Basin, a Late Paleozoic sea. In Texas, the reef formed along the western and eastern edges of the basin in arcuate strips 10 to 14 miles wide. The reef is exposed in the Guadalupe and Apache Mountains of Culberson County and in the Glass Mountains of Brewster County. In other areas, the reef is found only in the subsurface. It extends northward into New Mexico, where it is a source of fresh water for the City of Carlsbad. The Capitan Reef Aquifer is composed of up to 2,000 feet of massive to cavernous dolomite and limestone, bedded limestone and reef talus. In many areas of Culberson and Hudspeth Counties, the yields of wells are commonly more than 1,000 gpm. Further to the south, in the Apache Mountains of Culberson County, well yields appear to be in the range of 400 gpm. There is no reported production data for the Glass Mountains portion of the Capitan Reef (LBG-Guyton Associates and others, 2016).

Only a small portion of the Capitan Reef Aquifer underlies far southwest Reeves County. No water well completion reports have been found in the Capitan Reef Aquifer in Reeves County, however, it will likely be the best source of water supply for oil and gas exploration in southern Reeves County, based on current available water volume estimates for the aquifers in southern Reeves County.

**Table 4. Summary of Reeves County Water Well Characteristics by Aquifer**

<b>Aquifer</b>	<b>Well Depths (feet bgl)</b>	<b>Historic Well Yields (gpm)</b>	<b>Historic Depth to Water (feet bgl)</b>	<b>Total Dissolved Solids (mg/L)</b>
Pecos Valley	11 - 1,595	125 - 1,780	0 - 330	100 – 10,000
Edwards-Trinity (Plateau)	43 - 1,581	30 - 1,000	0 - 596	492 - 3,888
Dockum	83 - 455	60 - 697	31 - 241	465 - 3,433
Capitan Reef Complex	1,500 – 2,500	N/A	~600	262 - 6,816 (Pecos Co)
Rustler	1,030 - 1,625	650 - 750	129 - 439	1,000 - 10,000
Igneous	85 - 139	3 - 700	8 - 517	164 - 3,230

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## 10 References

Ashworth, J.B., 1990. Evaluation of Groundwater resources in parts of Loving, Pecos, Reeves, Ward, and Winkler Counties, Texas, Texas Water Development Board Report 317, 51 p.

Freese and Nichols, Inc. and LBG-Guyton Associates, 2016. 2016 Region F Water Plan, prepared for the Region F Planning Group.

LBG-Guyton Associates, Inc. and Freese and Nichols, 2016. 2016 Far West Texas Water Plan, prepared for Far West Texas Water Planning Group.

Meyer, J.E. and others, 2012. Pecos Valley Aquifer, West Texas Structure and Brackish Groundwater, Texas Water Development Board Report 382, 95 p.

Ogilbee, W. and Wesselman, J.B., 1962. Geology and Groundwater Resources of Reeves County, Texas, Texas Water Development Board Bulletin 6214, Volume 1, coop report with the U.S. Geological Survey, the City of Pecos, and Reeves County, 196 p.

## **APPENDIX A**

### **RESOLUTION ADOPTING THE MANAGEMENT PLAN**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE REEVES COUNTY  
GROUNDWATER CONSERVATION DISTRICT ADOPTING A DISTRICT  
MANAGEMENT PLAN**

**THE STATE OF TEXAS   §  
                                  §  
COUNTY OF REEVES   §**

WHEREAS, Reeves County Groundwater Conservation District (District) is a duly created and existing groundwater conservation district created and operating under Chapter 8876 of the Texas Special District Laws Code and Chapter 36 of the Texas Water Code, as amended;

WHEREAS, the Management Plan of the District has been developed for the purpose of conserving, preserving, protecting, and recharging the aquifers in the District, and this action is taken under the District’s statutory authority to prevent waste and protect rights of owners of interest in groundwater;

WHEREAS, after notice and hearing the Board of Directors (“Board”) of the District adopted a Management Plan on July 31, 2018; and

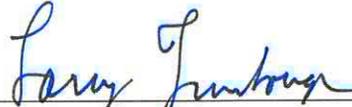
WHEREAS, the Management Plan meets the requirements of Texas Water Code § 36.1071 and § 36.1072 and 31 TAC § 356. 52.

**NOW THEREFORE, BE IT RESOLVED AND ORDERED BY THE BOARD OF  
DIRECTORS OF REEVES COUNTY GROUNDWATER CONSERVATION DISTRICT  
THAT:**

1. The facts and recitations found in the preamble of this Resolution are hereby found and declared to be true and correct, and are incorporated by reference herein and expressly made a part hereof, as if copied verbatim.
2. The Board of Directors of the District hereby adopts the Management Plan for the District, subject to those amendments necessary based on comments received from the public at the public hearing or Board meeting, recommendations from the District Board, General Manager, or legal counsel, or to incorporate information received from the Texas Water Development Board (TWDB) and/or District consultants.
3. The General Manager of the District is hereby authorized to take all steps necessary to implement this resolution and submit the Management Plan to TWDB for its approval.

4. The General Manager of the District is further authorized to take any and all action necessary to coordinate with the TWDB as may be required in furtherance of TWDB's approval pursuant to the provisions of Section 36.1072 of the Texas Water Code.

**PASSED AND APPROVED** this the 31st day of July, 2018.



\_\_\_\_\_  
President, Board of Directors

ATTEST:



\_\_\_\_\_  
Secretary, Board of Directors

## **APPENDIX B**

# **EVIDENCE THAT THE MANAGEMENT PLAN WAS ADOPTED**

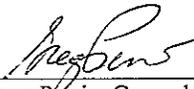
**NOTICE OF PUBLIC HEARING AND MEETING**  
**REEVES COUNTY GROUNDWATER CONSERVATION DISTRICT**  
119 South Cedar St.  
Pecos, Texas 79772  
Tuesday, July 31, 2018 at 5:00 p.m.  
Public Hearing and Meeting Agenda

1. Call to order and declare a quorum.
2. Public Comment.
3. Discussion and action on appointment of director, completion of sworn statement, administration of oath of office and approval of bond.
4. Discussion and action to approve minutes of the June 21, 2018 Board Meeting.
5. Discussion and action on financial statements/bank statements.
6. Discussion and action on payment of current bills.
7. Public hearing on proposed District Management Plan
8. Discussion and action on District Management Plan including adoption of resolution.
9. Discussion and action on proposed draft rules.
10. Discussion and action on FY 2019 Budget.
11. Discussion and action on amending Investment Policy including adoption of resolution.
12. Discussion and action on District website.
13. Discussion and action on method to pay Texas Workforce Commission for unemployment benefits.
14. Discussion and action on Annual Financial Audit engagement letter for year 2018.
15. General Manager's Report:
  - a. Texas Alliance of Groundwater Districts Symposium update
  - b. Current stakeholder meetings & correspondence
  - c. Office and vehicle update
16. Discussion and action on correspondence received.
17. Discussion and action on date and time of next Board Meeting.
18. Discussion and action on items to consider at next Board meeting.

19. Adjourn.

DATED this 27<sup>th</sup> day of July, 2018, and posted this 27<sup>th</sup> day of July, 2018 at 1:00  
p. m.

Reeves County Groundwater Conservation District

By:   
Greg Perrin, General Manager

POSTED  
1:00 o'clock p. M  
JUL 27 2018  
DANNIE O. FLORES  
REEVES COUNTY CLERK, REEVES COUNTY, TEXAS  
BY Myla Aranda COUNTY

# Affidavit of Publication

STATE OF TEXAS

COUNTY OF REEVES

Before me, the undersigned authority, on this day personally appeared

CHRISTINA BITOLAS, the ADVERTISING MANAGER of the  
(Name) (Title)

PECOS ENTERPRISE, a newspaper having general circulation in  
(Name of Newspaper)

REEVES County, Texas, who being by me duly sworn, deposes and

says that the foregoing attached notice was published in said newspaper on the following

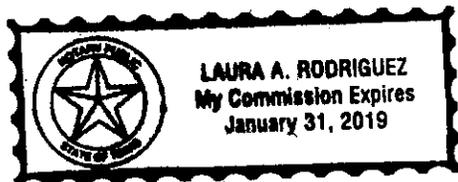
date(s), to wit: July 12, 2018

Christina Bitolas

Signature

Subscribed and sworn to before me this the 26 day of

July, 2018, to certify which witness my hand and seal of office.



Laura Rodriguez

Notary Public in and for

REEVES County, Texas

The Idle American

Rain on Priceline Parade...

Commentary by Dr. Don Newbury
The fingers of one hand are more than enough to count the disparaging columns I've written about online purchases that I feel warrant "red alert"

warnings. There's a current issue, however-intended to be a "let-the-buyer-beware" suggestion-that could save travelers both money and grief. It concerns a respected

company, Priceline®, best known for allowing us to bid on hotel rooms. It also dabbles in other ventures....
For the hotel side of Priceline®, I say "amen,"

having booked rooms more than 100 times during the company's first two decades of operation. I likely will continue to do so, having faced minimal problems while having considerable cash.

Priceline® also rents automobiles, and it's my hope that this practice becomes an aborted dabble, like several others in its history. While I am certain Priceline® demands that participating hotels meet certain standards for each "star level" claimed, such indices don't seem to apply to its car rental companies....

on Yelp," however, 767 times so far. The "Yelpers" cite numerous common shortcomings, and 599 offer just one "star," many indicating they would have cited "no star" if the provision were offered. ("Yelpers" suggest the fleet may resemble the one my late "Uncle Cecil" accumulated. He was an undertaker who often accepted used cars as partial payment for funerals. "Usually, the cars 'jumped naked' on me," he used to say.) I would be a "no star" respondent, too, had there been a place to check "ZERO."...

Capital Highlights

Paxton sends letters to cities that passed bag ban ordinances

By ED STERLING
AUSTIN — Texas Attorney General Ken Paxton on July 2 notified 11 Texas cities that their ordinances against plastic shopping bags had been knocked down by the Texas Supreme Court.

Paxton said he issued letters to the cities of Austin, Sunset Valley, Port Aransas, Laguna Vista, Fort Stockton, Eagle Pass, Corpus Christi, Brownsville, Kermit, Freer and South Padre Island "to ensure awareness of the recent ruling and waste management responsibilities Texas law places on municipalities."

In January, the state Supreme Court heard arguments in the City of Laredo v. Laredo Merchants Association and on June 22 the court struck down the bag ordinance. The city maintained it was not a bag ban but "an incremental implementation plan towards a cleaner city."

However, the Supreme Court upheld an appeals court ruling siding with the merchants association in finding that the state's Solid Waste Disposal Act preempts the city's ordinance, and no city ordinance may conflict with a state law.

Request for aid granted Gov. Greg Abbott's federal disaster request for individual assistance for Cameron and Hidalgo counties following recent severe weather and flooding has been granted, the governor's office announced July 6.

Abbott made the request to the Federal Emergency Management Agency on June 26 after visiting Edinburg, where local officials briefed him on the flooding and response and recovery efforts following a storm that hit South Texas June 18-22. The weather event and its aftermath are being referred to as "The Great June

2018 Flood." The National Weather Service has estimated that the event's breadth and impact could turn out to be greater than that of Hurricane Dolly in 2008.

"I thank the president and his administration for their swift response to aid Texans in the Rio Grande Valley as they continue to recover from these devastating floods. Going forward, the state of Texas will continue to work with local leaders to ensure the needs of those affected by the floods are being met," Abbott said.

Illnesses tied to parasite The Texas Department of State Health Services on July 2 announced some 56 cases of illness caused by the microscopic parasite Cyclospora had been identified since the beginning of May.

Cyclosporiasis is an intestinal illness caused by the consumption of food or water contaminated with Cyclospora. The main symptom of the illness is watery diarrhea lasting from a few days to a few months.

State and local health agencies are working to determine if there is a common source for the infections. They recommend thorough washing of all fresh produce.

Revenue total increases Texas Comptroller Glenn Hegar on July 3 announced state sales tax revenue totaled \$2.77 billion in June, an amount 13.7 percent more than reported for the month of June 2017.

Sales tax revenue increased for almost all major economic sectors, Hegar said. "The strong revenue growth was led by collections from the mining and manufacturing sectors. The construction, wholesale and retail trade sectors also saw strong gains," he added.

Also, total sales tax revenue

for the three months ending in June 2018 was up 12.4 percent compared to the same period a year ago.

Sales tax revenue is the largest source of state funding for the state budget, accounting for 58 percent of all tax collections. Revenue from other major taxes on motor vehicle sales and rentals, motor fuel and oil and natural gas production also rose in June 2018, Hegar said.

More details are available online via the Comptroller's Monthly State Revenue Watch at comptroller.texas.gov.

Inspection totals released The Texas Department of Public Safety announced some 7,980 commercial motor vehicles were inspected in Roadcheck 2018, a national commercial motor vehicle safety effort conducted June 5-7.

Commercial vehicle enforcement troopers, specially trained highway patrol troopers, civilian inspectors, compliance review investigators and local partner agencies participated in the effort, in which 1,975 of the 18-wheelers, buses and other commercial vehicles inspected were placed out of service for a variety of safety violations until appropriate repairs could be made. Issues with brakes and defective tires were among the most common infractions that led to out-of-service violations.

Drivers also were checked for compliance with state and federal laws, and 301 drivers were placed out of service. Among the violations were failing to have the proper type of driver license for the vehicle being driven and violation of hours-of-service limits.

In all, 1,258 citations and 18,178 warnings were issued, the DPS said.

I know. All that glitters isn't gold, and sometimes doesn't even save the couple of dollars expected when one falls for the allure in ads and ignores the fine print.

More than three months ago, I bought a Priceline® car rental at the Denver Airport. I was notified by Ace Rent A Car that my vehicle awaited. However, I learned the day before the scheduled pick-up that Ace was "no longer in business."

However, I was assured that "my contract would be honored by Fox Rent A Car." I should have checked Yelp ratings first. Renters rated Ace #167 among car rental locations in Denver, and Fox wasn't even to be found....

Fox Renters are "yelping" on Yelp, however, 767 times so far. The "Yelpers" cite numerous common shortcomings, and 599 offer just one "star," many indicating they would have cited "no star" if the provision were offered. ("Yelpers" suggest the fleet may resemble the one my late "Uncle Cecil" accumulated. He was an undertaker who often accepted used cars as partial payment for funerals. "Usually, the cars 'jumped naked' on me," he used to say.) I would be a "no star" respondent, too, had there been a place to check "ZERO."...

I spoke with a Priceline® customer relations guy. He was cordial and understanding—or seemed to be—but couldn't understand why I felt my multiple issues with Fox involved his company. He urged me to take it up with Fox. Unhappy "renters" cite many shortcomings. Many are repetitious, so surely Priceline® is aware of them. And if they're not, they should be. Shame on William Shatner, the company's ad guy said to earn millions annually for his ad endorsements.

Fox Rent A Car "hit" my Sam's MasterCard bill for a third straight month, assessing a charge of \$111.90 for "tolls and fines." No doubt, the Fox folks didn't expect my wife to give the bill (and all of our bills) the "fine-toothed-comb"

writing, my tongue is retracted, and my teeth are gritted over this ongoing miserable experience. This gloom is overshadowed, however, by the loss of our rescue dog, Sadie, who had to be put away last week. We'd had her 11 of her estimated 13-15 years, and are saddened that she had too many health issues to overcome. We still have one rescue canine, a dachshund named Sailor. He scrunches beside me in my lounge every day at naptime....

\*\*\*\*\* Dr. Newbury is a former educator who "commits speeches" round about. Comments/inquiries to: newbury@speakerdoc.com. Phone: 817-447-3872. Web site: www.speakerdoc.com. Twitter: @donnewbury. Facebook: don newbury.

Legal NOTICE OF PUBLIC HEARING
Notice is given that the Reeves County Groundwater Conservation District Board of Directors will hold a public hearing on the adoption of a Management Plan at its regularly scheduled public meeting on Tuesday, July 31, 2018, at 119 South Cedar Street, Pecos, Texas 79772. The public meeting will begin at 5:00 p.m. and the public hearing will take place during the public meeting and will begin about, but no earlier than 5:15 p.m.
A copy of the proposed Management Plan is available for inspection at the District office 119 South Cedar Street, Pecos, Texas 79772.

Legal NOTICE OF APPLICATION AND PUBLIC AUCTION
This notice is published by authority of the Texas Natural Resources Code 52.186(b)(2). All owners of the soil, known and unknown, are on notice that entities are attempting to enter into an oil and gas lease on the property mentioned herein: An undivided 20% of 301/968.5 Mineral Interest in Sections 6, 8, and 10, Block 143, T&ST. L. R.Y. Co. survey, Pecos County, Texas executed as appears in Volume 583, Page 457 of the county deed records, Pecos County, Texas.
An application has been submitted to the Texas General Land Office to deem the owner of said soil unavailable for purposes of entering into a mineral lease.
If the owner of the soil has not contacted the Texas General Land Office within 30 days after the completion of this notice, then the owner of the soil will be deemed unavailable to act as the state's leasing agent and the School Land Board may lease the state's mineral interest.
Individuals who believe they have title to the soil and / or minerals should contact:
Texas General Land Office, Mineral Leasing Division, 1700 N. Congress Ave., Ste. 840, Austin, Texas 78701-1495. (800) 998-4GLO (4456)
This posting serves as notice to all heirs, known and unknown, that all mineral rights in the property will be put up for lease by the Texas General Land Office at public auction on October 2nd at 9:00 a.m.
Date: June 11, 2018.
Scott Phillips
Scott Phillips
Corporate Legal Counsel
Optima Land Services, LLC
415 W. Wall Street, Suite 105
Midland, Texas 79701
Office: 432-355-3117

Legal NOTICE OF DRAWING FOR PLACE ON BALLOT
Notice is hereby given of a drawing to determine the order in which the names of candidates are to be printed on the ballot for the election to be held on JULY 5, 2018 in (date)
REEVES, Texas. The drawing will be held at 5 PM (noon) (p.m.) (name of political subdivision) (hour)
on JULY 5, 2018, at 100 S 4th ST, ROOM 100 (date) (address, including room number, if applicable)
PECOS, Texas. (city)
DIANNE O. FLOREZ, Officer Conducting Drawing
AVISO DEL SORTEO PARA UN LUGAR EN LA BOLETA
Por lo presente se da aviso que habrá un sorteo para determinar la orden en que aparecerán los nombres de los candidatos en la boleta para la elección que se celebrará el 3 DE JULIO 2018 (fecha)
en REEVES, Texas. El sorteo tendrá lugar a las 5 PM (noon) (p.m.) (nombre de la subdivisión política) (hora)
3 DE JULIO 2018 a 100 S 4TH ST. CUARTO 100 (fecha) (dirección, incluyendo el número del cuarto, si aplicable)
PECOS, Texas. (ciudad)
DIANNE O. FLOREZ, Oficial Manejando el Sorteo

**APPENDIX C**

**EVIDENCE THAT THE**

**DISTRICT COORDINATED DEVELOPMENT OF THE MANAGEMENT**

**PLAN WITH SURFACE WATER ENTITIES**

---

**From:** Greg <gjp1953@hotmail.com>  
**Sent:** Wednesday, August 1, 2018 11:15 AM  
**To:** manager@rcwid1.net; redbluff@windstream.net; lynn.wright@tpwd.texas.gov  
**Cc:** stephen.allen@twdb.texas.gov; Bill Dugat; Laughlin, Kristie  
**Subject:** Reeves County Groundwater Conservation District  
**Attachments:** Reeves County GCD Management Plan August 1 2018\_Optimized.pdf

To Whom It May Concern:

This email is to notify you of the recent adoption of the Reeves County Groundwater Conservation District (“District”) Management Plan, developed and adopted in accordance with Chapter 36 of the Texas Water Code and Title 31 Texas Administrative Code Chapter 356. The District’s boundaries are coextensive with the boundaries of Reeves County, Texas. The purpose of the District Management Plan is to identify the water supplies and demands within the District and to define the goals that the District will use to manage the groundwater resources in the District. The District Management Plan is the product of a public planning process that culminated in the adoption of the plan by the District’s board of directors after a public hearing held on July 31, 2018, following appropriate public notice. The District submits the Management Plan to you in accordance with Section 36.1071(a) of the Texas Water Code to coordinate with you on the District’s management goals.

Please feel free to contact me if you have any questions or comments regarding the District Management Plan or other District activities.

Greg Perrin  
General Manager

cc:  
Stephen Allen, Texas Water Development Board  
Bill Dugat, Bickerstaff Heath Delgado Acosta LLP  
Kristie Laughlin, WSP

## **APPENDIX D**

### **REEVES COUNTY GCD DRAFT RULES**

July 31, 2018  
DRAFT  
Subject to future notice and hearing

**RULES OF THE  
REEVES COUNTY  
GROUNDWATER CONSERVATION  
DISTRICT**

Amended:

Effective Date:

\_\_\_\_\_, 201X

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## **INTRODUCTION**

The Reeves County Groundwater Conservation District (“District”) was created by the 83rd Texas Legislature, Regular Session, in 2013 with the enactment of Senate Bill 890 (now codified as Chapter 8876 Texas Special District Local Laws Code) (“District Act”). The creation of the District was confirmed by the citizens located within the District’s boundaries in Reeves County at an election held in November 2015.

The District’s boundaries consist of the entire territory within Reeves County.

The District strives to preserve and protect the groundwater resources within its boundaries. The District recognizes that groundwater conservation districts are the state’s preferred method of groundwater management in order to protect private 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 will work with local stakeholders towards achieving its objectives. The District will accomplish its objectives by working to lessen interference between water wells, minimize drawdown of groundwater levels, prevent the waste of groundwater, and reduce the degradation of groundwater quality within the District while helping the local economies maintain and improve their current condition. The District will also use the authority granted it in Water Code Chapter 36, the District Act, and applicable state laws to protect and maintain the groundwater resources of the District.

## **RULE 1. DEFINITIONS AND GENERAL PROVISIONS**

### **RULE 1.1. DEFINITIONS**

In the administration of its duties, the District follows the definitions of terms set forth in the District Act, Chapter 36 of the Texas Water Code, and other definitions as follows:

1. “Abandoned well” means a well that is not in use. A well is considered to be in use if:
  - A. the well is not a deteriorated well and contains the casing, pump, and pump column in good condition;
  - B. the well is not a deteriorated well and has been capped;
  - C. the water from the well has been put to an authorized beneficial use, as defined by the Texas Water Code;
  - D. the well is used in the normal course and scope and with the intensity and frequency of other similar users in the general community; or
  - E. the owner is participating in the Conservation Reserve Program authorized by Sections 1231-1236, Food Security Act of 1985 (16 U.S.C. Sections 3831-3836), or a similar governmental program.

2. “Acre-foot” means the amount of water necessary to cover one acre of land one foot deep, or about 326,000 gallons of water.
3. “Agricultural use” means any use or activity involving agriculture, including irrigation.
4. “Agriculture” means any of the following activities:
  - A. Cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;
  - B. The practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, by a nursery grower;
  - C. Raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;
  - D. Planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure; and
  - E. Raising or keeping equine animals.
5. “Best available science” means conclusions that are logically and reasonable 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.
6. “Board” means the board of directors of the district.
7. “Commission” means the Texas Commission on Environmental Quality or TCEQ.
8. “Contiguous acreage” means an acre of land upon which a well that is the subject of an Operating or Historic Use Permit or permit application is located, and each additional acre of land:
  - A. for which the applicant has a legal right to produce groundwater;
  - B. believed to be located over the same aquifer as the aquifer from which the well will be producing groundwater, and
  - C. either:
    - i. located within the perimeter of the same surface estate plat, deed, or other legally recognized surface estate property description filed in the deed records of Reeves County as the acre on which the well is located;

- ii. located within the perimeter of an area of land on which the well is located that is under the same right to produce and use groundwater, as established by deed, lease, or otherwise as the land upon which the well is located, although the property may be described in separate plats or deeds; or
- iii. contiguous to acreage described under (A) or (B), but on a different tract of land that does not meet the description of acreage under (C)(i) or (C)(ii).

Acreage on separate tracts of land that would otherwise be contiguous under this definition but for the need to cross over to the other side of a strip or easement for roads, railroads, pipelines, or utilities or similar long, but narrow, strips shall be considered contiguous for the purposes of this definition. Separate tracts of land must share a common boundary of at least one-eighth of the length of the total tract perimeter of the tract without the well in order for the acreage on the separate tracts to be considered contiguous to the well. The acreage of the strip or easement for roads, railroads, pipelines, or utilities or similar long, but narrow, strips itself shall not be included for purposes of calculating the amount of total contiguous acreage unless the permit applicant has the right to produce groundwater from the strip or easement for roads, railroads, pipelines, or utilities or similar long, but narrow, strips. However, acreage on two otherwise non-contiguous tracts of land shall not be considered contiguous simply because they are joined by the length of a strip or easement for roads, railroads, pipelines, or utilities or similar long, but narrow, strips.

- 9. “Desired future condition” means a quantitative description, adopted in accordance with Water Code Section 36.108, of the desired condition of the groundwater resources in a management area at one or more specified future times.
- 10. “Deteriorated well” means a well that, because of its condition, will cause or is likely to cause pollution of any water in this state, including groundwater.
- 11. “Director” means a member of the board.
- 12. “Discharge” means the amount of water that leaves an aquifer by natural or artificial means.
- 13. “District” means the Reeves County Groundwater Conservation District created under Section 59, Article XVI, Texas Constitution.
- 14. “District Act” means the District’s enabling legislation now codified as Chapter 8876, Texas Special District and Local Laws Code.
- 15. “Domestic use” means:

- A. The use of groundwater by an individual or a household to support domestic activities, including the use of groundwater for:
    - 1. Drinking, washing, or culinary purposes;
    - 2. Irrigating a lawn or a family garden or orchard;
    - 3. Watering domestic animals; or
    - 4. Water recreation, including aquatic and wildlife enjoyment.
  - B. Does not include the use of water:
    - 1. To support an activity for which consideration is given or received or for which the product of the activity is sold; or
    - 2. By or for a public water system.
- 16. “Drilling Permit” means a permit issued by the District authorizing the drilling, and installation of a non-exempt well.
  - 17. “Executive administrator” means the executive administrator of the Texas Water Development Board.
  - 18. “Exempt well” means a water well that is not required to obtain an operating permit.
  - 19. “Existing Well” means any well in the District that was drilled or properly completed on or before the adoption of the Reeves County Groundwater Conservation District Rules.
  - 20. “Federal conservation program” means the Conservation Reserve Program of the United States Department of Agriculture, or any successor program.
  - 21. “Groundwater” means water percolating below the surface of the earth.
  - 22. “Groundwater reservoir” means a specific subsurface water-bearing reservoir having ascertainable boundaries containing groundwater.
  - 23. “Historic use” means production and beneficial use of groundwater from an aquifer during the period of time before the Effective Date of the rules.
  - 24. “Historic use permit” means a permit required by the District for the operation of any existing well or well system that is completed and not abandoned prior the Effective Date of the Rules.
  - 25. “Livestock use” means the use of groundwater for the open-range watering of livestock, exotic livestock, game animals, or fur-bearing animals. For purposes of this subdivision,

- “livestock” and “exotic livestock” have the meanings assigned by Sections 1.003 and 142.001, Agriculture Code, respectively, and “game animal” and “fur-bearing animal” have the meanings assigned by Sections 63.001 and 71.001, Parks and Wildlife Code, respectively. Livestock use does not include use by or for a public water system.
26. “Modeled available groundwater” means the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition.
  27. “Non-Exempt Well” means a water well that is required to obtain an operating permit.
  28. “Nursery grower” means a person who grows more than 50 percent of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, “grow” means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease and typically includes activities associated with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.
  29. “Owner” means any person, firm partnership or corporation that has the right to produce water from the land either by ownership, contract, lease, easement, or any other estate in the land.
  30. “Person” means any individual, partnership, firm, corporation, organization, government or governmental subdivision or agency, business trust, estate, trust, association, or any other legal entity.
  31. “Production Limit” means a numerical limitation on the annual amount of Groundwater authorized to be produced under an Operating Permit. The Production Limit is generally expressed in acre-feet per year or gallons per year.
  32. “Operating Permit” means a permit issued by the District authorizing the operation of and production from a non-exempt well.
  33. “Public water supply well” means a well that produces the majority of its water for use by a public water system.
  34. “Recharge” means the amount of water that infiltrates to the water table of an aquifer.
  35. “Small commercial well” means a well equipped with a pump rated at 1.5 horsepower or less used for commercial purposes.
  36. “Small privately-owned water system” means a system that is privately-owned, located on private property that has not been subdivided, and that is used to supply water service to the landowner, the landowner’s family, employees, or invitees solely for domestic and livestock purposes.

37. “Subdivision of a groundwater reservoir” means a definable part of a groundwater reservoir in which the groundwater supply will not be appreciably affected by withdrawing water from any other part of the reservoir, as indicated by known geological and hydrological conditions and relationships and on foreseeable economic development at the time the subdivision is designated or altered.
38. “Subsidence” means the lowering in elevation of the land surface caused by withdrawal of groundwater.
39. “Transport” means transferring or exporting out of the District Groundwater that is authorized by a District Permit. The Terms “transfer” or “export” of groundwater are used interchangeably within Chapter 36 and these Rules.
40. “Use for a beneficial purpose” means use described in Rule 2.2.
41. “Variance” means an authorized exception to requirements or provisions of the Rules that is approved by the District in accordance with Rule 1.2.
42. “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 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;
  - 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 unless such discharge is authorized by permit, rule, or order issued by the commission under Chapter 26;
  - 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; or
  - G. For water produced from an artesian well, “waste” has the meaning assigned by Section 11.205.

- 43. “Water” means groundwater.
- 44. “Water Well” or “Well” means an artificial excavation constructed to explore for or produce groundwater. It also includes an abandoned oil or gas well that can be conditioned for usable quality groundwater production. The term does not include a test or blast hole in a quarry or mine or a well or excavation constructed to explore for or produce oil, gas, or other minerals or an injection water source well associated with permitted oil and gas or other mineral extraction activities that penetrates the base of usable quality water.

**RULE 1.2. VARIANCE**

Any exceptions or variances to the requirements imposed by District Rules shall be considered on a case-by-case basis. A request for variance shall be submitted in writing and include reasons for the request. A variance from any requirements contained in a permit requires a permit amendment. A variance will not be granted unless approved by a two-thirds vote of the full membership of the Board.

**RULE 2. WASTE AND BENEFICIAL USE**

**RULE 2.1. WASTE PREVENTION**

- A. Groundwater shall not be produced within, or used within or outside of the District, in such a manner as to constitute waste as defined in these Rules.
- B. No person shall pollute or harmfully alter the character of the underground water reservoir of the District by means of salt water or other deleterious matter admitted from some other stratum or strata from the surface of the ground.
- C. No person shall commit waste as that term is defined in Section 1.1(42).

**RULE 2.2. USE FOR A BENEFICIAL PURPOSE**

- 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.
- C. Any other purpose that is nonspeculative, useful and beneficial to the user and approved by the board.

**RULE 2.3. ORDERS TO PREVENT WASTE/POLLUTION**

After providing notice to affected parties and opportunity for a hearing, the Board may adopt orders to prohibit or prevent waste or pollution. If the factual basis for the order is disputed, the Board shall direct that an evidentiary hearing be conducted prior to entry of the order. If the General Manager 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, the Board or the General Manager, subject to the review and direction of the Board, may enter a temporary order without notice and hearing provided, however, the temporary order shall continue in effect for the lesser of fifteen (15) days or until a hearing can be conducted.

### **RULE 3. RULEMAKING**

- A. The district may make and enforce rules, including rules limiting groundwater production based on tract size or the spacing of wells, to provide for conserving, preserving, protecting, and recharging of the groundwater or of a groundwater reservoir or its subdivisions in order to control subsidence, prevent degradation of water quality, or prevent waste of groundwater and to carry out the powers and duties provided by this chapter. In adopting a 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;
  - 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 from those groundwater reservoirs or their subdivisions, consistent with the objectives of Section 59, Article XVI, Texas Constitution;
  - 5. Consider the goals developed as part of the district's management plan; 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.
- B. Any rule of the district that discriminates between land that is irrigated for production and land that was irrigated for production and enrolled or participating in a federal conservation program is void.
- C. Not later than the 20th day before the date of a rulemaking hearing, the general manager or board shall:

1. Post notice in a place readily accessible to the public at the district office;
  2. Provide notice to the county clerk of each county in the district;
  3. Publish notice in one or more newspapers of general circulation in the counties in which the district is located;
  4. Provide notice by mail, facsimile, or electronic mail to any person who has requested notice under Subsection (H); and
  5. Make available a copy of all proposed rules at a place accessible to the public during normal business hours and, if the district has a website, post an electronic copy on a generally accessible Internet site.
- D. The notice provided under Subsection (C) must include:
1. The time, date, and location of the rulemaking hearing;
  2. A brief explanation of the subject of the rulemaking hearing; and
  3. A location or Internet site at which a copy of the proposed rules may be reviewed or copied.
- E. The Board President, or in his absence, a person appointed by the Board shall serve as the presiding officer who shall conduct a rulemaking hearing in the manner the presiding officer determines to be most appropriate to obtain information and comments relating to the proposed rule as conveniently and expeditiously as possible. Comments may be submitted orally at the hearing or in writing within any deadline established by the District. The presiding officer may hold the record open for a specified period after the conclusion of the hearing to receive additional written comments.
- F. Each person who participates in a rulemaking hearing to submit a hearing registration form stating:
1. The person's name;
  2. The person's address; and
  3. Whom the person represents, if the person is not at the hearing in the person's individual capacity.
- G. The presiding officer shall prepare and keep a record of each rulemaking hearing in the form of an audio or video recording or a court reporter transcription.

- H. 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, facsimile, or e-mail to the person in accordance with the information provided by the person is proof that notice was provided by the district.
- I. The District may use an informal conference or consultation to obtain the opinions and advice of interested persons about contemplated rules and may appoint advisory committees of experts, interested persons, or public representatives to advise the district about contemplated rules.
- J. Failure to provide notice under Subsection (C)(4) does not invalidate an action taken by the District at a rulemaking hearing.
- K. The presiding officer shall close the hearing record at the conclusion of the hearing.

**RULE 4. EMERGENCY RULES**

- A. The board may adopt an emergency rule without prior notice or hearing, or with an abbreviated notice and hearing, if the board:
  - 1. 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 days' notice; and
  - 2. Prepares a written statement of the reasons for its finding under Subsection A. 1.
- B. Except as provided by Subsection (C), a rule adopted under this rule may not be effective for longer than 90 days.
- C. If notice of a hearing on the final rule is given not later than the 90th day after the date the rule is adopted, the rule is effective for an additional 90 days.

**RULE 5. ENFORCEMENT OF RULES, ORDERS, PERMITS**

- A. The district may enforce its rules, orders and permits against any person by injunction, mandatory injunction, or other appropriate remedy in a court of competent jurisdiction.
- B. Any person who breaches any rule, order or permit of the District is subject to civil penalties not to exceed \$10,000 per day per violation, and each day of a continuing violation constitutes a separate violation.
- C. A penalty under this rule is in addition to any other penalty provided by the law of this state and may be enforced against any person by complaints filed in the appropriate court of jurisdiction in Reeves County.
- D. If the district prevails in any suit to enforce its rules, orders, and permits, the District may seek and the court shall grant against any person, in the same action, recovery for attorney's fees, costs for expert witnesses, and other costs incurred by the District before the court in accordance with Section 36.066 Texas Water Code. The amount of the attorney's fees shall be fixed by the court.
- E. In an enforcement action by the district against any person that is a governmental entity for a violation of district rules, the limits on the amount of fees, costs, and penalties that a district may impose under Sections 36.102, 36.122, or 36.205, Texas Water Code, or under the District Act, constitute a limit of liability of the governmental entity for the violation. This subsection shall not be construed to prohibit the recovery by a district of fees and costs in an action against any person that is a governmental entity.

**RULE 6. REGISTRATION, RECORDS, AND REPORTS**

- A. All water wells within the District must be registered. There is no fee for registering existing wells. Upon receipt of a completed application, the District will determine if the well is exempt or non-exempt. A non-exempt well shall not be drilled or operated prior to District approval of an operating permit, except as provided under Rule 9.
- B. Accurate drillers' logs must be kept of water wells and copies of drillers' logs and electric logs must be filed with the District.
- C. Registration shall include the following information, submitted on forms provided by the District, and any other information the General Manager may determine to be needed.
  - 1. Name, address, phone number, email, and fax number of the well owner. If the applicant is not the landowner, include the name, address, phone number, email and fax number of the landowner and documentation establishing the authority of the applicant to drill and operate the well;
  - 2. If known, the latitude and longitude of the well;
  - 3. Casing size, well depth, depth to screen bottom, pump size, and production capability; and
  - 4. Proposed use of well.

**RULE 7. PERMIT REQUIRED, PERMIT AMENDMENTS, APPLICATION**

- A. No person, firm, or corporation may drill a non-exempt well without first obtaining a drilling permit from the District.
- B. No person, firm, or corporation may alter the size of a non-exempt well or well pump such that it would bring that well under the jurisdiction of the district without first obtaining a permit from the District.
- C. No person, firm, or corporation may operate a non-exempt well without first obtaining an operating or historic use permit from the District.
- D. A violation occurs on the first day the drilling, alteration, or operation begins and continues each day thereafter until the appropriate permits are approved.
- E. Except as exempted under the rules, the District requires a permit for:

1. Drilling, which allows drilling a new well, expanding an existing well, re-drilling or re-equipping an existing well, or plugging a well;
  2. Operating or historic use, which allows water to be withdrawn from a non-exempt well;
  3. Multiple wells that are part of an aggregate system that are owned and operated by the same permittee and serve the same subdivision, facility, or area served by a TCEQ issued Certificate of Convenience and Necessity may be authorized under a single permit. Separate drilling authorization applications shall be submitted for each well and the District will require separate records of each well's location and characteristics. Geographic location of wells and integrated distribution systems will be considered in determining whether or not to allow aggregation. For the purpose of categorizing wells by the amount of groundwater production, when wells are permitted with an aggregate withdrawal, the aggregate value shall be assigned to the group, rather than allocating to each well its prorated share or estimated production;
  4. Transport, which allows groundwater to be transported outside the boundaries of the District; and,
  5. ASR recovery wells that are associated with an aquifer storage and recovery project if the amount of groundwater recovered from the wells exceeds the volume authorized by the TCEQ to be recovered under the project.
- F. Permit Amendments are classified as minor amendments or major amendments. Minor amendments include the type of permit amendment applications listed in Rule 13.C. A minor amendment may be processed in accordance with Rule 13.C without notice and hearing. All other amendments are major amendments and may be processed in accordance with Rule 13.D with notice and opportunity for hearing.
- G. The District does not require a permit or a permit amendment for maintenance, replacement, or repair of a well if the maintenance, replacement or repair does not increase the production capabilities of the well to more than its authorized or permitted production rate and for a replacement well, the existing well to be replaced is properly plugged and the replacement well is drilled and completed within \_\_\_\_ feet of the well being replaced.
- H. An application for a permit or a permit amendment must be in writing in a form provided by the District and sworn to.
- I. The following shall be included in the permit or permit amendment application:

1. The name, mailing address, phone and fax numbers, and email address of the applicant (if other than the owner) and the owner of the land on which the well will be located;
2. If the applicant is other than the owner of the property, documentation establishing the applicable authority to construct and operate a well for the proposed use;
3. Nature, purpose and location of use. Provide a detailed statement describing:
  - a. The nature and purpose of the proposed use including the amount of water to be used for each purpose and any proposed uses by persons other than the well owner;
  - b. The well location and the proposed receiving area for groundwater produced from the well (note any proposed transfer);
  - c. The location, purpose of any water to be resold, leased, or transported;
  - d. A projected quarterly timeline detailing the anticipated pumpage volumes for the first three years of pumpage;
  - e. A breakdown by types of use (domestic, commercial, irrigation, industrial, etc.); and
  - f. Conservation practices in effect or proposed.
4. A water conservation plan or a declaration that the applicant will comply with the District's management plan;
5. The location of each well, including county, latitude and longitude, address, and the estimated rate at which water will be withdrawn;
6. A water well closure plan or a declaration that the applicant will comply with well plugging guidelines and report closure to the District and all other appropriate agencies;
7. A drought contingency plan, if required by the Board; and
8. A statement of the projected effect of the proposed withdrawal on the aquifer or aquifer conditions, depletions, subsidence, or effects on existing permit holders or other groundwater users in the District.

- a. If the Board or the General Manager, subject to the review and direction of the Board, deems it necessary based upon the location of and the number of wells and the volume of requested pumpage, the applicant must submit a hydrogeological report prepared by a licensed geoscientist or engineer that evaluates the following parameters: rate of yield and drawdown, specific capacity, well efficiency, transmissivity, hydraulic conductivity, recharge or barrier boundaries, aquifer thickness, and any other information required by the District;
  - b. If a hydrological report is required, the following calculations will be included:
    - i. Time drawdown at the property boundary at five year intervals for a 30 year period;
    - ii. Distance drawdown. The distance from the pumped well to the outer edges of the cone of depression; and
    - iii. Well interference.
9. Name and addresses of well owners within ½ mile radius of the location of the proposed well.
10. Pumpage Volume. Provide a detailed statement describing:
  - a. The estimated pumping rate at which water will be withdrawn from each well; and,
  - b. The requested pumpage volume and how the volume was determined. The requested volume should demonstrate reasonable non-speculative demand.
11. If the groundwater is to be resold, leased, or otherwise transferred to others, provide the location to which the groundwater will be delivered, the purpose for which the groundwater will be used, and a copy of the legal documents establishing the right for the groundwater to be sold, leased, or otherwise transferred, including but not limited to any contract for sale, lease, or transfer of groundwater.
12. The name, mailing address, phone and fax numbers, and email of the drilling company and the name and license number of the driller who drilled the well.
13. A copy of all well logs.

14. The existing or proposed well depth, the aquifer in which the well is completed, the anticipated date the well will be drilled, the existing or proposed casing size and type, the proposed casing depth, the type of pump and pump size in horse power.
15. The power supply to the well.
16. The water bearing formation, maximum production capacity, estimated rate of withdrawal, estimated annual water production, and, if a meter is installed, meter type.
17. Number of contiguous acres associated with the well.
18. A declaration that the applicant will comply with the District rules and all groundwater use permits and plans promulgated pursuant to District rules.
19. A plat map showing location of the property location on property of the well, all existing wells within ½ mile of the proposed or existing well to be modified, and the property owners within ½ mile.
20. The names, mailing address, and physical address of the property owners within ½ mile radius if such landowners are not served by a retail water provider.
21. Mailing address of retail water providers (if applicable).
22. For new wells or well modifications, a proposed well design schematic to include: total depth, borehole diameter, casing diameter and depth, annular seal interval(s), annular sealing method, surface completion specifications, and any other pertinent well construction information.
23. In addition to the above information, the following information is required for transport permit applications:
  - a. Information describing the availability of water in the proposed receiving area during the period for which the water transport is requested;
  - b. Information describing the projected effect of the proposed transporting of water on aquifer conditions, including depletion, subsidence or effects on existing permit holders or other groundwater users within the District;

- c. A description of how the proposed transport is addressed in any approved regional water plan(s) and the certified District Management Plan;
  - d. A technical description of the facilities to be used for transportation of water and a time schedule for any construction thereof;
  - e. A detailed statement of the nature and purpose of the various proposed uses in the proposed receiving area, the amount of groundwater to be used for each purpose, and the requested annual volume to be transported outside the District; and
  - f. The feasibility of accessing alternative water supplies available to the applicant, including proximity to water sources.
24. All applications shall contain the following certification by the applicant:
- a. For a new well, this well will be drilled within 30 feet of the location specified and not elsewhere;
  - b. I will furnish the District with a copy of the completed driller's log, any electric log, the well completion report and any water quality test report within 60 days of completion of this well and prior to production of water there from (other than such production as may be necessary to the drilling and testing of such well);
  - c. In using this well, I will avoid waste, achieve water conservation, protect groundwater quality and the water produced from this well will be for a beneficial use;
  - d. I will comply with all District and State well plugging and capping guidelines in effect at the time of well closure;
  - e. I agree to abide by the terms of the District Rules, the District Management Plan and orders of the District Board of Directors currently in effect and as they may be modified, changed, and amended from time to time; and
  - f. I hereby certify that the information contained herein is true and correct to the best of my knowledge and belief.
- J. Notice of application is governed as provided within these Rules. Applicants must publish notice for any application described under Rule 13.D for which the District provides an opportunity for a hearing. Such notices shall be published by the Applicant, when directed by the District, in a newspaper designated by the

District for the publication of legal notices in Reeves County in a form and content approved by the District. All permit applications described above must provide notice by certified mail, return receipt requested, to all property owners within a half (1/2) mile radius of the well that is the subject of the application. Notification of any property owner served by a retail public water utility is not required of any applicant if notice is provided to the retail public water utility. Applicants may not publish notice until the Board or the General Manager, subject to the review and direction of the Board, determines the application is administratively complete.

**RULE 8. CRITERIA FOR ISSUANCE AND ELEMENTS OF PERMIT**

- A. Before granting or denying a permit or permit amendment, the District shall consider whether:
  - 1. The application conforms to the requirements prescribed by these rules and is accompanied by the prescribed fees;
  - 2. The proposed use of water unreasonably affects existing groundwater and surface water resources or existing permit holders;
  - 3. The proposed use of water is dedicated to beneficial use at all times including whether there are reasonable assurances of definite, non-speculative plans and intent to use the water for specific beneficial uses during the permit term;
  - 4. The proposed use of water is consistent with the District's approved management plan;
  - 5. The amount requested is consistent with allowable production;
  - 6. The well meets applicable spacing requirements;
  - 7. The applicant has agreed to avoid waste and achieve water conservation; and
  - 8. 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.
- B. A permit issued by the District to the applicant under these rules shall state the terms and provisions prescribed by the District.
- C. The permit will include:

1. The name and address of the person to whom the permit is issued;
2. The location of the well;
3. The date the permit is to expire if no well is drilled;
4. A statement of the purpose for which the well is to be used;
5. A requirement that the water withdrawn under the permit be put to beneficial use at all times;
6. The location of the use of the water from the well;
7. A water well closure plan or a declaration that the applicant will comply with well plugging guidelines and report closure to the District and other appropriate agencies;
8. The conditions and restrictions, if any, placed on the rate and amount of withdrawal;
9. Any conservation-oriented methods of drilling and operating prescribed by the district;
10. Any maximum allowable production;
11. A drought contingency plan prescribed by the district; and
12. Other terms and conditions as provided by the District rules.

#### **RULE 9. PERMITS FOR EXISTING WELLS**

- A. Any existing nonexempt well completed and not abandoned on or before the effective date of these rules \_\_\_\_\_, 201X is entitled to obtain an Historic Use Permit from the District in the manner provided by this Rule.
- B. Applications for an Historic Use Permit for existing nonexempt wells must be filed with the District by \_\_\_\_\_, 201X (two years after Effective Date of Rules). Failure of an owner of an existing nonexempt well to apply for an Historic Use Permit on or before \_\_\_\_\_, 201X (two years after Effective Date of Rules) shall preclude the owner from making any future claim or application to the District for an historic use under these rules. The failure of the well owner to file an application for an Historic Use Permit on or before \_\_\_\_\_, 201X (two years after Effective Date of Rules) shall cause the owner to forfeit the well owner's rights and ability to operate the well under these rules, unless the owner thereafter

applies for and obtains an Operating Permit that authorizes production from the well.

- C. For good cause shown, including a showing that the applicant for did not have notice of the filing requirement of this Rule 9, the Board may grant an extension of the filing two-year filing deadline.
- D. A sworn application for an Historic Use Permit shall include the well drilling and completion date, capacity, location, water use, legal description of the tract of land associated with the past production of the well, the maximum amount of water beneficially used without waste from the well in any twelve-month period before the Effective Date of the Rules, and such other information as may be required by the District under Rule 7.

#### **RULE 10. OPERATING PERMITS**

An Operating Permit is required for the operation of or production from any new, nonexempt well drilled after \_\_\_\_\_, 201X (the Effective Date of the Rules) and for any existing well with no Historic Use Permit. An Operating Permit is required for an amendment to increase an Historic Use Permit.

**RULE 11. MAXIMUM ALLOWABLE PRODUCTION**

- A. Unless a smaller amount is requested, the amount of annual maximum production specified in the Historic Use or Operating Permit for a non-exempt well for a particular aquifer may be up to \_\_\_\_\_ acre feet per contiguous acres owned or operated by the applicant. Applicants may request that greater amounts of production up to \_\_\_\_\_ acre feet per surface acre be authorized provided the applicant can demonstrate to the District’s satisfaction that local hydrogeological conditions will allow the withdrawal of a greater amount of groundwater per annum without negatively affecting water levels of adjoining properties or otherwise interfering with an adjacent landowner’s ability to withdraw and use groundwater. In establishing the maximum allowable production for a retail public water utility, the District will consider the service needs and service area within Reeves County of the retail public water utility in addition to or in lieu of surface area owned or operated by the retail public water utility.
- B. In issuing permits, the District shall manage total groundwater production on a long-term basis to achieve the desired future condition and the District will also consider:
1. The modeled available groundwater determined by the executive administrator of the Texas Water Development Board;
  2. The executive administrator's estimate of the current and projected amount of groundwater produced under exemptions granted by district rules;
  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.
- C. In order to protect the public health and welfare and to conserve and manage the groundwater resources in the District during times of drought, the District may pro-rate groundwater use, place special requirements on, modify, delay, or deny a permit for a new well during a District-declared drought.
- D. The District may impose more restrictive permit conditions on new permit applications and increased use by historic users if the limitations:
1. Apply to all subsequent new permit applications and increased use by historic users, regardless of type or location of use;

2. Bear a reasonable relationship to the existing District Management Plan; and
  3. Are reasonably necessary to protect existing use.
- E. If necessary, after notice and hearing the Board may adjust downward the maximum allowable production to achieve the desired future conditions. If the total amount of production for any aquifer or its subdivisions in the District, as applicable, is more than the total volume of exempt and permitted groundwater that exceeds the Model Available Groundwater associated with the desired future condition for an aquifer, then production amounts may be reduced proportionally among all holders of Historic Use and Operating Permits from such aquifer, if necessary to avoid the impairment of the desired future condition. Any necessary reductions will first be applied to Operating Permits, and subsequently, if production still exceeds the Modeled Available Groundwater associated with the desired future condition for an aquifer after reducing Operating Permits in their entirety, to Historic Use Permits.
- F. If the General Manager determines that production from a permitted well is unreasonably affecting an existing permitted well or groundwater resources, then the General Manger may, after notice and hearing, initiate a permit amendment before the Board for the Board to reduce the permit volume to a level that will reasonably avoid the recurrence of the unreasonable affect.

## **RULE 12. PERMIT TERM**

- A. A drilling permit for a well will automatically expire with one year from its issuance if the well is not significantly under development.
- B. Unless otherwise specified by the Board of Directors or these rules, an operating permit is effective for a period of five years from the issue date. An operating permit shall expire for a well, if within 24 months of the date the permitted well is completed, the permittee has not used the water from the permitted well for a purpose authorized in the operating permit. Before an operating permit automatically terminates under this rule, the operating permit holder may request in writing to the Board a 24-month extension of the time to operate the well. The request must include the reasons for the extension and the Board will take action under subsection D of this Rule 12. If renewed, operating permits shall thereafter be effective for five year terms from the initial expiration date unless otherwise specified by the Board. The permit terms will be shown in the permit. A permit applicant requesting a permit term longer than five years must substantiate its reason for the longer term and its need to put groundwater to beneficial use throughout the proposed permit term.

- C. The Board or General Manager, subject to the review and direction of the Board, will normally renew a permit for wells without an application for renewal or a hearing if:
1. The terms and conditions of the permit (including maximum authorized withdrawal) are not changed in a manner that requires a permit amendment under these rules;
  2. The permittee is in compliance or has a compliance agreement with all terms of the permit and paid any required civil penalties;
  3. The permittee has resolved all enforcement actions, if any, for the permit and the permit is not 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; and
  4. the permittee is not delinquent in paying any required fees in accordance with District rules.

Notwithstanding the above, all renewals remain subject to any new criteria or pumping limitations established by the Board of Directors.

If the District is not required to renew a permit because of a substantive violation under Subsection C(3). above, the permit remains in effect until the final settlement or adjudication on the matter of the substantive violation.

- D. After notice and an opportunity for a hearing, the Board may renew the permit with a reduced amount of the authorized production if the authorized withdrawal volume is no longer commensurate with reasonable non-speculative demand or actual production from a well is substantially less than the authorized permit amount for multiple years without any rationale that reasonably relates to efforts to utilize alternative water supplies, conserve, or improve water use efficiency.
- E. Changes in Permits.
1. If the holder of an operating or historic use permit, in connection with the renewal of a permit or otherwise, requests a change that requires an amendment to the permit under District rules, the permit as it existed before the permit amendment process remains in effect until the later of:
    - a. The conclusion of the permit amendment or renewal process, as applicable; or
    - b. Final settlement or adjudication on the matter of whether the change to the permit requires a permit amendment.

2. 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 Subsection C above without penalty, unless Subsection C(3) above applies to the applicant.
3. A district may initiate an amendment to an operating or historic use permit, in connection with the renewal of a permit or otherwise, in accordance with the District rules. If the District initiates an amendment to an operating or historic use 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 13. TIMING OF ACTION ON APPLICATION**

- A. An administratively complete application requires information set forth in accordance with these rules. The General Manager or Board will determine administrative completeness and an applicant will be notified when a well is administratively complete. The application will expire if the information requested in the application is not provided to the District within 60 days of written request.
- B. The District shall promptly consider and act on each administratively complete application for a permit or permit amendment or, if within 60 days after the date an administratively complete application is submitted, the application has not been acted on or set for a hearing on a specific date, the applicant may petition the district court of the county where the land is located for a writ of mandamus to compel the district to act on the application or set a date for a hearing on the application, as appropriate.
- C. The following permit or permit amendment applications shall be approved by the Board without notice and hearing under Rule 21 or further action by the Board:
  1. Non-substantive corrections or administrative amendments to any permit;
  2. Applications requesting maximum production rate for a well of 25 gallons per minute or less;
  3. Change in the name or address of the well owner or well operator;
  4. Decrease the maximum authorized withdrawal;
  5. Increase the maximum authorized withdrawal by ten percent or less of the total permitted production for users permitted for more than 25 gallons per minute so long as there have not been similar amendments in the past two years;

6. Increase the maximum authorized withdrawal by up to 5 gallons per minute for users permitted for 25 gallons per minute or less;
  7. Convert two or more wells individually permitted by the same permittee into an aggregate system under one permit so long as production amounts are not increased above the total volumes authorized under the individual permits;
  8. Change the depth of a water well;
  9. Change the depth of the bottom of the screen of a water well;
  10. Change the well pump if the change results in an increase in the production rate less than or equal to amounts described in Rule 13.C.(5) and 6 above;
  11. Change in purpose of use and no change in withdrawal amount or in connection with a change in withdrawal within the amounts described under Rule 13.C.(5) and (6) above; and,
  12. Permit an existing well under Rule 9.
- D. The following permit or permit amendment applications require an opportunity for a hearing:
1. Applications requesting a withdrawal rate of more than 25 gpm, except for applications to permit existing wells under Rule 9;
  2. Transport of water outside of the District in connection with a new well;
  3. Increase the maximum authorized withdrawal by ten percent or more of the total permitted production for users permitted for more than 25 gallons per minute;
  4. Applications requesting a variance from these Rules;
  5. Change in purpose of use in connection with a change in withdrawal within the amounts described under Rule 13D. (1) and (3) above;
  6. ASR recovery wells that are associated with an aquifer storage and recovery project if the amount of groundwater recovered from the wells exceeds the volume authorized by the TCEQ to be recovered under the project; and,

7. Any other application the Board determines should have an opportunity for a hearing.
- E. For permit and permit amendment applications requiring an opportunity for a hearing and the Board grants a hearing, the initial hearing shall be held within 35 days after the date the hearing is granted.
- F. The Board shall act on the application within 60 days after the date the final hearing on the application is concluded.
- G. The hearing shall be conducted in accordance with Rule 21.

#### **RULE 14. REGULATION OF SPACING**

- A. In order to minimize as far as practicable the drawdown of the water table or the reduction of artesian pressure, to control subsidence, to prevent interference between wells, to prevent degradation of water quality, or to prevent waste, the District regulates well spacing.
- B. All wells drilled prior to the effective date of these Rules, shall be drilled in accordance with state law in effect, if any, on the date such drilling commenced.
- C. All new wells drilled after the effective date of these rules must comply with the construction, spacing and location requirements set forth under the Texas Water Well Drillers and Pump Installers Administration Rules, Title 16, Part 4, Chapter 76, Texas Administrative Code, unless a written variance is granted by the Texas Department of Licensing and Regulation and a copy of the variance is forwarded to the District by the applicant or registrant.
- D. In addition to the requirements of Rule 14C above, all nonexempt wells drilled after \_\_\_\_\_, 201X (the Effective Date of these Rules) shall meet the following minimum spacing requirements:
  1. Well and Property Line Spacing

Well pumping rate	Spacing from existing wells completed within the same aquifer	Minimum distance from property line
20 gpm or less	Exempt	50 feet
21 gpm – 50 gpm	100	50 feet
51 gpm – 75 gpm	150	50 feet
76 gpm or 100 gpm	200	50 feet
101 gpm – 150 gpm	300	50 feet
151 gpm – 300 gpm	500	50 feet
301 gpm – 600 gpm	900	50 feet
Greater than 600 gpm	1200	50 feet

- E. After authorization to drill a well has been granted under a registration or a permit, the well, if drilled, must be drilled within ten (10) yards (30 feet) of the location specified in the permit, and not elsewhere. If the well should be commenced or 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, and these Rules.
- F. The Board may grant an exception to the spacing requirements of the District.
1. A person desiring an exception to the spacing requirements shall submit a written request explaining the circumstances justifying an exception.
    - a. The request shall include a plat or sketch, drawn to scale, one inch equaling 600 feet.
    - b. The plat or sketch must show the property lines of all lands that abut the land proposed for the well site within a distance of the proposed well equal to the minimum well spacing requirements for the projected maximum allowable production from which the well is to be permitted (Area Affected).
    - c. The plat or sketch must also show all registered and permitted wells within the Area Affected.

- d. The written request shall also contain the names and addresses of landowners and owners of registered and permitted wells within the Area Affected.
2. Notice and an opportunity for a hearing before the Board for the variance shall be as follows:
    - a. The District shall mail notice to the applicant and to landowners and owners of registered and permitted wells within the Area Affected at least 10 days prior to the Board meeting at which the Board will consider the variance.
    - b. The notice shall provide the proposed well location, the applicant's name and address, and the date, time, and location of the hearing.
    - c. The Board meeting at which the variance will be considered shall serve as the hearing on the variance.
    - d. The Board shall consider all relevant comments, including but not limited to the shape of the property, the local geology and hydrology, and any other information presented. The Board may require the applicant to demonstrate through a hydrogeological report that local hydrogeological conditions will allow wells to be drilled that do not meet the spacing requirements without negatively affecting water levels or interfering with adjoining landowner's wells.
    - e. If an applicant presents waivers signed by all adjoining landowners and owners of registered and permitted wells within the Area Affected stating that they have no objection to the new well site location, the Board may act on the variance upon notice to the applicant only.
  3. If the Board chooses to grant a permit to drill a well that does not meet the spacing requirements, the Board may require a meter and monitor production of the well and limit production to an amount necessary to avoid negatively affecting water levels or adjoining landowners or otherwise interfering with an adjacent landowner's ability to withdraw and use groundwater.

#### **RULE 15. EXEMPT WELLS**

- A. The District provides an exemption from the District requirement to obtain a permit for:

1. Drilling or operating a well that produces 20 gallons per minute or less and the well is used exclusively for domestic use or for providing water for livestock or poultry;
  2. Drilling or operating 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 or operating a water well authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, 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. Drilling or operating a small commercial well;
  5. Drilling or operating a well used for a privately-owned small water system; or,
  6. A water well drilled and completed solely for the purposes of aquifer testing or for monitoring water levels or water quality.
- B. The District may not restrict the production of water from any well described by Subsection (A)(1).
- C. The District may cancel a previously granted exemption, and may require an operating permit for or restrict production from a well, 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, Natural Resources Code; or
  3. The groundwater withdrawals that were exempted under Subsection (A)(1) are no longer used solely for domestic use or to provide water for livestock or poultry.

- D. An entity holding a permit issued by the Railroad Commission of Texas under Chapter 134, Natural Resources Code that authorizes the drilling of water well shall report monthly to the District:
  - 1. The total amount of water withdrawn during the month;
  - 2. The quantity of water necessary for mining activities; and
  - 2. The quantity of water withdrawn for other purposes.
- E. The owner or operator of a well that is exempt from permitting under Subsection (A)(2) shall report monthly to the District:
  - 1. The total amount of water withdrawn during the month;
  - 2. The quantity of water necessary to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas; and,
  - 3. The quantity of water withdrawn for other purposes.
- F. The District requires compliance with the District's well spacing rules for the drilling of any well except a well exempted under Subsection (A)(1).
- G. The District may not deny an application for a permit to drill and produce water for hydrocarbon production activities if the application meets all applicable rules as promulgated by the District.
- H. The district shall require the owner of a water well to:
  - 1. Register the well in accordance with rules promulgated by the District;
  - 2. Equip and maintain the well 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 or harmful alteration of the character of the water in any groundwater reservoir; and
- I. The driller of a well shall file with the District the well log required by Section 1901.251, Occupations Code, and, if available, the geophysical log.
- J. An exemption provided under Subsection (A) does not apply to a well if the groundwater withdrawn is used to supply water for a subdivision of land for which a plat approval is required by Chapter 232, Local Government Code.

- K. Groundwater withdrawn under an exemption provided in accordance with this rule and subsequently transported outside the boundaries of the district is subject to any applicable production and export fees provided under these rules and established by Board resolution. This provision does not apply to a well described by Subsection (A)(1) where water is transported outside the District for use on land owned by the same landowner who owns and operates the well located within the District.
- L. This rule applies to water wells, including water wells used to supply water for activities related to the exploration or production of hydrocarbons or minerals. This rule does not apply to production or injection wells drilled for oil, gas, sulphur, uranium, or brine, or for core tests, or for injection of gas, saltwater, or other fluids, under permits issued by the Railroad Commission of Texas.

**RULE 16. OPEN OR UNCOVERED WELLS**

- A. The owner or lessee of land on which an open or uncovered well is located is required to keep the well permanently closed or capped with a covering capable of sustaining weight of at least 400 pounds, except when the well is in actual use.
- B. As used in this rule, “open or uncovered well” means an artificial excavation dug or drilled for the purpose of exploring for or producing water from the groundwater reservoir and is not capped or covered as required by this rule.
- C. If the owner or lessee fails or refuses to close or cap the well in with District rules, any person, firm, or corporation employed by the District may go on the land and close or cap the well safely and securely.
- D. Reasonable expenses incurred by the District in closing or capping a well constitute a lien on the land on which the well is located.
- E. The lien arises and attaches upon recordation in the deed records of the county where the well is located 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 10 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.
- F. Nothing in this rule affects the enforcement of Subchapter A, Chapter 756, Health and Safety Code.

**RULE 17. TRANSFER OF GROUNDWATER OUT OF DISTRICT**

- A. If an application for a permit or an amendment to a permit under Rule 7 proposes the transfer of groundwater outside of the district's boundaries, the District may also consider the provisions of this rule in determining whether to grant or deny the permit or permit amendment.
- B. The District may impose a reasonable fee, set by resolution, for processing an application under this rule. The fee may not exceed fees that the District imposes for processing other applications for a permit. An application filed to comply with this rule shall be considered and processed under the same procedures as other applications for permits and shall be combined with applications filed to obtain a permit for in-district water use from the same applicant.
- C. The District may impose a fee or surcharge for an export fee pursuant to Water Code section 36.122, as set by resolution.
- D. Except as provide in Subsection (E) below, the District may not impose more restrictive permit conditions on transporters than the District imposes on existing in-district users.
- E. In reviewing a proposed transfer of groundwater out of the District, the District shall determine whether the proposed transfer would have a negative effect on:
  1. The availability of water in the District and the proposed receiving area during the period for which the water supply is requested;
  2. The projected effect of the proposed transfer on aquifer conditions, depletion, subsidence, or effects on existing permit holders or other groundwater users within the District; and,
  3. Any applicable approved regional water plan and approved District management plan.
- F. The District may not deny a Transport Permit based upon the fact that the applicant seeks to transfer groundwater outside the District but may limit a

Transport Permit issued under this section if the conditions in Subsection E warrant the limitation, subject to Subsection D.

- G. In addition to conditions provided by Rule 8, the permit shall specify:
  - 1. The amount of water that may be transferred out of the District; and
  - 2. The period for which the water may be transferred.
- H. The period specified in Subsection (G)(2) above shall be:
  - 1. At least three years if construction of a conveyance system has not been initiated prior to issuance of the permit; or,
  - 2. At least 30 years if construction of a conveyance system has been initiated prior to issuance of the permit.
- I. A term under Subsection H (1) shall automatically be extended to the terms agreed to under Subsection H (2) if construction of a conveyance system is begun before the expiration of the initial term
- J. The District may periodically review the amount of water that may be transferred under the permit and may limit the amount if additional factors considered in Subsection E warrant the limitation subject to Subsection C. The review described by this subsection may take place not more frequently than the period provided for the review or renewal of regular permits issued by the District. In its determination of whether to renew a permit issued under this rule, the District shall consider relevant and current data for the conservation of groundwater resources and shall consider the permit in the same manner it would consider any other permit in the District.
- K. The District is prohibited from using revenues obtained under Subsection C to prohibit the transfer of groundwater outside of a District. The District is not prohibited from using revenues obtained under Subsection C for paying expenses related to enforcement of Water Code Chapter 36 or District rules.
- L. In applying this rule, a district must be fair, impartial, and nondiscriminatory.

#### **RULE 18. METERS**

- A. A meter is not required to be installed on any well except as described herein.
  - 1. All nonexempt well owners must install a type of meter approved by the District within 60 days of written notice if the District is required to implement proportionate reductions as provided under Rule 11 E.

2. The Board may require any permittee who is granted a variance under these rules to install a meter on the well for which the District grants a variance. The type of meter must be approved by the General Manager.
  3. The Board may require a meter on any well that the General Manager concludes, based upon a reasonable investigation, is exceeding the maximum authorized production under Rule 11. The type of meter must be approved by the General Manager.
  4. The Board may require a meter on any well that is within a localized area that the General Manager concludes, based upon a reasonable investigation, is experiencing an unacceptable level of decline in water levels or water quality. The type of meter must be approved by the General Manager.
- B. The meter shall be read, and the meter reading and actual amount of pumpage recorded and reported each month on a form provided by the District. 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.
- C. When meters are required, the owner non-exempt well may apply to the District for 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 of a well who is using a District-approved alternative measuring method.

#### **RULE 19. RIGHT TO ENTER LAND**

- A. The directors, engineers, attorneys, agents, operators, and employees of the District may go on any land to inspect, make surveys, or perform tests to determine the condition, value, and usability of the property, with reference to the proposed location of works, improvements, plants, facilities, equipment, or appliances. The cost of restoration shall be borne by the District.
- B. District employees and agents are entitled to enter any public or private property within the boundaries of the District or adjacent to any reservoir or other property owned by the District at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state or the compliance with any rule, regulation, permit, or other order of the District. The District shall notify, coordinate, and schedule property access in advance with the consent of the property owner, his Agent, tenant, or other local contact. District

employees or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection and shall notify any occupant or management of their presence and shall exhibit proper credentials.

## **RULE 20. DISTRICT FEES**

- A. The district may set fees for administrative acts of the district, such as filing applications. Fees set by a district may not unreasonably exceed the cost to the district of performing the administrative function for which the fee is charged. Administrative fees will be set by resolution.
- B. The District shall set and collect fees for all services provided outside the boundaries of the district. The fees may not unreasonably exceed the cost to the District of providing the services outside the district. Fees for services provided outside the District will be set by resolution.
- C. The District may assess production fees based on the amount of water authorized by permit to be withdrawn from a well or the amount actually withdrawn. The District may assess the fees in conjunction with taxes otherwise levied by the District. The District may use revenues generated by the fees for any lawful purpose. Production fees, if any, will be set by resolution and shall not exceed:
  - 1. \$1 per acre-foot payable annually for water used for agricultural use; or
  - 2. \$10 per acre-foot payable annually for water used for any other purpose.

## **RULE 21. NOTICE AND HEARING PROCESS**

### **RULE 21.1. SCHEDULE OF HEARING**

- A. If after consideration of a request for hearing using the factors under Rule 21.13, the Board denies a hearing requested on an application noticed under Rule 7.J., the Board or the General Manager, subject to the review and direction of the Board, will grant the application and issue the permit or permit amendment.
- B. If the Board grants a hearing requested under an application noticed under Rule 7.J., the Board will notice the hearing in accordance with Rule 21.2.
- C. The general manager or board may schedule more than one permit or permit amendment application for consideration at a hearing.
- D. A hearing must be held at the District office or regular meeting location of the board unless the board provides for hearings to be held at a different location. For

a hearing conducted by SOAH, the District may hold the hearing in Travis County.

- E. A hearing may be held in conjunction with a regularly scheduled board meeting.

**RULE 21.2. NOTICE FOR HEARINGS SCHEDULED BY THE BOARD**

- A. If the general manager or board schedules a hearing on an application for a permit or permit amendment, the general manager or board shall give notice of the hearing as provided by this rule.
- B. The notice must include:
  - 1. The name of the applicant;
  - 2. The address or approximate location of the well or proposed well;
  - 3. 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;
  - 4. The time, date, and location of the hearing; and
  - 5. Any other information the general manager or board considers relevant and appropriate.
- C. Not later than the 10th day before the date of a hearing, the general manager or board shall:
  - 1. Post notice in a place readily accessible to the public at the District office;
  - 2. Provide notice to the county clerk of each county in the District; and
  - 3. Provide notice by:
    - a. Regular mail to the applicant;
    - b. Regular mail, facsimile, or electronic mail to any person who has requested notice under Subsection D below; and
    - c. Regular mail to any other person entitled to receive notice under the rules of the District.
- D. A person may request notice from the District of a hearing on a permit or a permit amendment application. The request must be 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, facsimile, or e-mail to the person in accordance with the information provided by the person is proof that notice was provided by the District.

- E. Failure to provide notice under Subsection C(3)(b) does not invalidate an action taken by the District at the hearing.

**RULE 21.3. HEARING REGISTRATION**

The District requires each person who participates in a hearing to submit a hearing registration form stating:

- A. The person's name;
- B. The person's address; and
- C. Whom the person represents, if the person is not there in the person's individual capacity.

**RULE 21.4. HEARING PROCEDURES**

- A. A hearing must be conducted by:
  - 1. A quorum of the board;
  - 2. An individual to whom the board has delegated in writing the responsibility to preside as a hearings examiner over the hearing or matters related to the hearing; or
  - 3. The State Office of Administrative Hearings under Rule 21.14.
- B. Except as provided by Subsection C or Rule 21.14, the board president or the hearings examiner shall serve as the presiding officer at the hearing.
- C. If the hearing is conducted by a quorum of the board and the board president is not present, the directors conducting the hearing may select a director to serve as the presiding officer.
- D. The presiding officer may:
  - 1. Convene the hearing at the time and place specified in the notice;
  - 2. Set any necessary additional hearing dates;

3. Designate the parties regarding a contested application;
  4. Establish the order for presentation of evidence;
  5. Administer oaths to all persons presenting testimony;
  6. Examine persons presenting testimony;
  7. Ensure that information and testimony are introduced as conveniently and expeditiously as possible without prejudicing the rights of any party;
  8. Prescribe reasonable time limits for testimony and the presentation of evidence;
  9. Exercise the procedural rules adopted by the District;
  10. Determine how to apportion among the parties the costs related to:
    - a. A contract for the services of a presiding officer; and
    - b. The preparation of the official hearing record.
- E. Except as otherwise provided, the District may allow any person, including the general manager or a district employee, to provide comments at a hearing on an uncontested application.
- F. The presiding officer may allow testimony to be submitted in writing and may require that written testimony be sworn to. On the motion of a party to the hearing, the presiding officer may exclude written testimony if the person who submits the testimony is not available for cross-examination by phone, a deposition before the hearing, or other reasonable means.
- G. If the board has not acted on the application, the presiding officer may allow a person who testifies at the hearing to supplement the testimony given at the hearing by filing additional written materials with the presiding officer not later than the 10th day after the date of the hearing. A person who files additional written material with the presiding officer under this subsection must also provide the material, not later than the 10th 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.
- H. The presiding officer, at the presiding officer's discretion, may, but is not required to, issue an order at any time before board action on a permit application that:

1. Refers parties to a contested hearing to an alternative dispute resolution procedure on any matter at issue in the hearing;
  2. Determines how the costs of the procedure shall be apportioned among the parties; and
  3. Appoints an impartial third party as provided by Section 2009.053, Government Code, to facilitate that procedure.
- I. In general, the burden of proof is on the moving party by a preponderance of the evidence, except in an enforcement proceeding, the General Manager has the burden of proving by a preponderance of the evidence the occurrence of any violation and the appropriateness of any proposed technical ordering provisions. The respondent in an enforcement proceeding has the burden of proving by a preponderance of the evidence all elements of any affirmative defense asserted. The permit applicant bears the burden of proof by a preponderance of the evidence in an application proceeding.

#### **RULE 21.5. EVIDENCE**

- A. The presiding officer shall admit evidence that is relevant to an issue at the hearing.
- B. The presiding officer may exclude evidence that is irrelevant, immaterial, or unduly repetitious.

#### **RULE 21.6. RECORDING**

- A. Except as provided by Subsection B, the presiding officer shall prepare and keep a record of each hearing in the form of an audio or video recording or a court reporter transcription. On the request of a party to a contested hearing, the presiding officer shall have the hearing transcribed by a court reporter. The presiding officer may assess any court reporter transcription costs against the party that requested the transcription or among the parties to the hearing. Except as provided by this subsection, the presiding officer may exclude a party from further participation in a hearing for failure to pay in a timely manner costs assessed against that party under this subsection. The presiding officer may not exclude a party from further participation in a hearing as provided by this subsection if the parties have agreed that the costs assessed against that party will be paid by another party.
- B. If a hearing is uncontested, the presiding officer may substitute minutes or the proposal for decision required under Rule 21.8 for a method of recording the hearing provided by Subsection A.

#### **RULE 21.7. CONTINUANCE**

The presiding officer may continue a hearing from time to time and from place to place without providing notice. If the presiding officer continues a hearing without announcing at the hearing the time, date, and location of the continued hearing, the presiding officer must provide notice of the continued hearing by regular mail to the parties.

**RULE 21.8. PROPOSAL FOR DECISION**

- A. Except as provided by Subsection E, the presiding officer shall submit a proposal for decision to the board not later than the 30th day after the date the evidentiary hearing is concluded.
- B. The proposal for decision must include:
  - 1. A summary of the subject matter of the hearing;
  - 2. A summary of the evidence or public comments received; and
  - 3. The presiding officer's recommendations for board action on the subject matter of the hearing.
- C. The presiding officer or general manager shall provide a copy of the proposal for decision to:
  - 1. The applicant; and
  - 2. Each designated party.
- D. A party may submit to the board written exceptions to the proposal for decision.
- E. If the hearing was conducted by a quorum of the board and if the presiding officer prepared a record of the hearing, the presiding officer shall determine whether to prepare and submit a proposal for decision to the board under this rule.
- F. The board shall consider the proposal for decision at a final hearing. Additional evidence may not be presented during a final hearing. The parties may present oral argument at a final hearing to summarize the evidence, present legal argument, or argue an exception to the proposal for decision. A final hearing may be continued as provided by Rule 21.7.

**RULE 21.9. BOARD ACTION**

- A. The board shall act on a permit or permit amendment application not later than the 60th day after the date the final hearing on the application is concluded. For a hearing conducted by the State Office of Administrative Hearings, the final hearing on the application concludes on the date the SOAH proposal for decision,

exceptions and replies to exceptions to the proposal for decision are presented the Board of Directors. In a proceeding for a permit application or amendment in which a district has contracted with the State Office of Administrative Hearings for a contested case hearing, the board has the authority to make a final decision on consideration of a proposal for decision issued by an administrative law judge consistent with Section 2001.058, Government Code.

- B. 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 judge, only if the board determines:
  - 1. That the administrative law judge did not properly apply or interpret applicable law, district rules, written policies provided under District Rule 21.14 E, or prior administrative decisions;
  - 2. That a prior administrative decision on which the administrative law judge relied is incorrect or should be changed; or
  - 3. That a technical error in a finding of fact should be changed.
- C. The Board may take action on an 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 public hearing may be held in conjunction with a regularly scheduled or special called board meeting. The Board action may occur at the same board meeting as the public hearing. The board may issue a written order to grant an application, grant the application with special conditions or deny the application.
- D. Following an uncontested hearing, an applicant may, not later than the 20<sup>th</sup> day after the date the board issues an order granting the application, demand in writing a contested case hearing if the order:
  - 1. Includes special conditions that were not a 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.

**RULE 21.10. REQUEST FOR REHEARING OR FINDINGS AND CONCLUSIONS**

- 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 and conclusions not later than the 20th day after the date of the board's 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 person who requested them, and to each designated party, not later than the 35th day after the date the board receives the request. A party to a contested hearing may request a rehearing before the board not later than the 20th day after the date the board issues the findings and conclusions.
- C. A request for rehearing must be filed in the District office and must state the grounds for the request. If the original hearing was a contested hearing, the party 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 schedule the rehearing not later than the 45th 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 day after the date the request is submitted is a denial of the request.

**RULE 21.11. DECISION; WHEN FINAL**

- A. 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; or
  - 2. If a request for rehearing is filed on time, on the date:
    - a. The board denies the request for rehearing; or
    - b. The board renders a written decision after rehearing.
- B. Except as provided by Subsection C, an applicant or a party to a contested hearing may file a suit against the District to appeal a decision on a permit or permit amendment application not later than the 60th day after the date on which the decision becomes final.
- C. An applicant or a party to a contested hearing may not file suit against the District under if a request for rehearing was not filed on time.

**RULE 21.12. CONSOLIDATED HEARING ON APPLICATIONS**

- A. Except as provided by Subsection B, the District shall process applications from a single applicant under consolidated notice and hearing procedures on written request by the applicant if the district requires a separate permit or permit amendment application for:
  - 1. Drilling, equipping, operating, or completing a well or substantially altering the size of a well or well pump;
  - 2. The spacing of water wells or the production of groundwater; or
  - 3. Transferring groundwater out of a district.
- B. The District is not required to use consolidated notice and hearing procedures to process separate permit or permit amendment applications from a single applicant if the board cannot adequately evaluate one application until it has acted on another application.

**RULE 21.13. CONTESTED CASE HEARING REQUEST AND AFFECTED PERSON DETERMINATION**

- A. Hearing Requests. The following may request a contested case hearing under these Rules:
  - 1. The Board;
  - 2. The General Manager;
  - 3. The applicant; and
  - 4. Affected persons (as determined in Subsection F below).
- B. Form of Request. A request for a contested hearing by an affected person (as determined in Subsection F below) must be in writing and be filed by United States mail, facsimile, e-mail, or hand delivery with the District within the time provided by subsection D. of this section.
- C. Requirements for Request. A contested case hearing request by an affected person (as determined in Subsection F below) must substantially comply with the following:
  - 1. Give the name, address, and daytime telephone number of the person who files the request. If the request is made by a group or association, the request must identify one person by name, address, daytime telephone number, and, where possible, fax number, who shall be responsible for receiving all official communications and documents for the group;

2. Identify the person's personal justiciable interest affected by the application, or District action including a brief, but specific, written statement explaining in plain language the requestor's location and distance relative to the activity that is the subject of the application or District action and how and why the requestor believes he or she will be affected by the activity in a manner not common to members of the general public;
  3. Request a contested hearing;
  4. If the party requesting a hearing desires for the hearing to be referred to and conducted by the State Office of Administrative Hearings, then the hearing request must include a statement "I/we request that the State Office of Administrative Hearings conduct the hearing." A party requesting a contested case hearing before SOAH shall pay all costs associated with the contract for a SOAH hearing in accordance with Rule 21.14; and,
  5. If applicable, provide any other information specified in the public notice of application.
- D. Deadline for hearing requests. A hearing request by an affected person (as determined in F. below) must be filed with the District within 20 days after the last publication of the notice of application.
- E. A request for a contested hearing:
1. May be granted by the Board if the request is made by the General Manager; and
  2. Shall be granted by the General Manager, if the request is made by the Board, and shall be granted by the Board, the Presiding Officer or hearings examiner, if the request is made by an affected person (as determined in Subsection F below). For a request by an affected person other than the applicant, the request must also satisfy the following:
    - a. Is based solely on concerns within the authority of the District;
    - b. Is supported by competent showing that the person requesting a hearing is likely to be impacted by the proposed regulated activity in a manner described under Subsection F. below;
    - c. Complies with all of the requirements of A through D above; and,
    - d. Is timely filed with the District.

- F. Determination of Affected Person and a Party's Right to participate in a Hearing to be made by the Presiding Officer in a preliminary hearing.

At a preliminary hearing conducted before the commencement of an evidentiary hearing, the Presiding Officer shall determine whether any person requesting a contested case hearing has standing to make the request, whether a personal justiciable issue related to an application has been raised, and a party's right to participate in a hearing. The preliminary hearing may be conducted as specified in accordance with Rule 21.4.A. Any "affected person," as determined under this section, may participate in a hearing.

1. For any application, an affected person is one who has a personal justiciable interest related to a legal right, duty, privilege, power, or economic interest affected by the application that is within the District's regulatory authority. An interest common to members of the general public does not qualify as a personal justiciable interest;
2. Governmental entities, including local governments and public agencies, with authority under state law over issues contemplated by the application may be considered affected persons;
3. Relevant factors shall be considered, including, but not limited to, the following:
  - a. Whether the interest claimed is one protected by the Act or Texas Water Code Chapter 36;
  - b. Distance between the regulated activity and the affected interest;
  - c. Whether a reasonable relationship exists between the interest claimed and the activity regulated;
  - d. Likely impact of the regulated activity on the use of groundwater interests of the person; and
  - e. For governmental entities, their statutory authority over or interest in the issues relevant to the application.
4. An applicant is an affected person.

- G. If it is determined at the preliminary hearing that no person who requested a contested case hearing had standing or that no justiciable issues were raised, the board may treat the matter as uncontested as described by Rule Bylaw 19.9.

**RULE 21.14. HEARINGS CONDUCTED BY STATE OFFICE OF ADMINISTRATIVE HEARINGS**

- A. If requested by an applicant or other party to a contested case, the District shall contract with the State Office of Administrative Hearings to conduct a hearing. A person opposing an application who requests a contested hearing under Rule 21.13 C must include in a timely hearing request the statement “I/we request that the State Office of Administrative Hearings conduct the hearing” in order for the hearing to be referred to and conducted by SOAH.
- B. An applicant desiring that the District refer a contested case to SOAH must make a written request for the SOAH referral at the same time that applicant requests a hearing or, when a hearing has been requested by a person other than the applicant, and the applicant desires for the District to contract with SOAH to conduct the contested case, the applicant must request a SOAH hearing in writing within no later than 5 business days after the determination that the District will grant a hearing under rule 21.13 E.
- C. A party requesting a hearing before SOAH shall pay all costs associated with the contract for a SOAH hearing and shall deposit with the District an amount determined by the District to pay the contract amount before the hearing begins. A party’s SOAH hearing request will be deemed withdrawn if the party fails to provide the required deposit within 5 days of the District’s request for the deposit. At the conclusion of the hearing, the District shall refund any excess money to the paying party.
- D. If the District contracts with the State Office of Administrative Hearings to conduct a hearing, the hearing shall be conducted as provided by Subchapters C, D, and F, Chapter 2001, Government Code.
- E. An administrative law judge who conducts a contest case hearing shall consider applicable district rules or policies in conducting the hearing, but the district deciding the case may not supervise the administrative law judge. The District shall provide the SOAH administrative law judge with a written statement of applicable rules and policies. The district may not attempt to influence the findings of fact or the administrative law judge’s application of the law in a contested case except by proper evidence and legal argument.

**RULE 21.15. DISCOVERY**

The presiding officer may issue subpoenas, require deposition and order other discovery consistent with the authority granted to a state agency under Subchapters C, D, and F, Chapter 2001, Texas Government Code.

**RULE 21.16. RULES; ALTERNATIVE DISPUTE RESOLUTION**

A district by rule may develop and use alternative dispute resolution procedures in the manner provided for governmental bodies under Chapter 2009, Government Code.

**RULE 21.17. APPLICABILITY OF ADMINISTRATIVE PROCEDURE ACT**

Except as provided by these rules and Water Code Sections 36.416 and 36.4165, Chapter 2001, Government Code, does not apply to a hearing under these Rules.

**RULE 21.18. NOTICE AND HEARING IN AN APPEAL OF DESIRED FUTURE CONDITIONS; JUDICIAL APPEAL OF DESIRED FUTURE CONDITIONS**

- A. An affected person may file a petition with the District requiring that the District contract with the SOAH to conduct a hearing appealing the reasonableness of the desired future condition. The petition must be filed not later than the 120<sup>th</sup> day after the date on which the District adopts a desired future condition under Water Code Section 36.108(d-4). The petition must provide evidence that the District did not establish a reasonable desired future condition of the groundwater resources in the management area.
  
- B. In this Rule, “affected person” means:
  - 1. An owner of land in Ground Water Management Area 3;
  - 2. A groundwater conservation district or subsidence district in or adjacent to Ground Water Management Area 3;
  - 3. A regional water planning group with a water management strategy in Ground Water Management Area 3;
  - 4. A person who holds or is applying for a permit from a district in Ground Water Management Area 3;
  - 5. A person with a legally defined interest in groundwater in Ground Water Management Area 3; or
  - 6. Any other person defined as affected by Texas Commission on Environmental Quality rule.
  
- C. Not later than the 10<sup>th</sup> day after receiving a petition, the District shall submit a copy of the petition to the Texas Water Development Board. The Texas Water Development Board shall conduct an administrative review and study required by Water Code section 36.1083(e), which must be completed and delivered to SOAH not later than 120 days after the date the Texas Water Development Board receives the petition. SOAH shall consider the study described and the desired future conditions explanatory report submitted to the development board under Water Code section 36.108(dd)(3) to be part of the administrative record in the SOAH hearing; and the Texas Water Development Board shall make available relevant staff as expert witnesses if requested by SOAH or a party to the hearing.

- D. Not later than 60 days after receiving a petition appealing the reasonableness of the desired future conditions filed under Water Code section 36.1083(b), the District will submit to SOAH a copy of the petition and contract with SOAH to conduct a contested case hearing.
- E. The petitioner shall pay the costs associated with the contract with SOAH and shall deposit with the District an amount determined by the District, after consultation with SOAH, that is sufficient to pay the contract amount. The deposit must be received within 15 days of written notification by the District to the petitioner specifying the amount of the deposit. Failure to timely pay the deposit may result in dismissal of the petition. After the hearing is completed and all costs paid to SOAH, the district shall refund any excess money to the petitioner.
- F. Unless provided by SOAH, the District shall provide notice of a hearing appealing the reasonableness of the desired future conditions. Not later than the 10th day before the date of a hearing the general manager or board shall provide notice as follows (unless notice provide by SOAH):
  - 1. General Notice:
    - a. Post notice in a place readily accessible to the public at the District office;
    - b. Provide notice to the county clerk of each county in the District; and
  - 2. Individual notice by regular mail, facsimile, or electronic mail to:
    - a. The petitioner;
    - b. Any person who has requested notice;
    - c. Each nonparty district and regional water planning group located in Groundwater Management Area 3;
    - d. The Texas Water Development Board; and
    - e. The Texas Commission on Environmental Quality.
- G. After the hearing and within 60 days of receipt of the administrative law judge's findings of fact and conclusions of law in a proposal for decision, including 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), 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 60<sup>th</sup> day after the date of the final order, the District shall reconvene in a joint planning meeting with the other districts in Groundwater Management Area 16 for the purpose of revising the desired future condition. The District and other districts in Groundwater Management Area 3 shall follow the procedures in Section 36.108 to adopt new desired future conditions applicable to the District.
- J. A final order by the District finding that desired future condition is unreasonable does not invalidate the adoption of a desired future condition by a district that did not participate as a party in the hearing conducted under this Rule.
- K. A final District order issued under this Rule may be appealed to a district court with jurisdiction over any part of the territory of the District. An appeal under this subsection must be filed with the district court not later than the 45<sup>th</sup> day after the date the District issues the final order. The case shall be decided under the substantial evidence standard of review as provided by Section 2001.174, Government Code. If the court finds that a desired future condition is unreasonable, the court shall strike the desired future condition and order the districts in the Groundwater Management Area 16 to reconvene not later than the 60<sup>th</sup> day after the date of the court order in a joint planning meeting for the purpose of revising the desired future condition. The District and other districts in the management area shall follow the procedures in Water Code Section 36.108 to adopt new desired future conditions applicable to the District. A court's finding under this Rule does not apply to a desired future condition that is not a matter before the court.

## **RULE 22. AQUIFER STORAGE AND RECOVERY PROJECTS**

### **22.1. DEFINITIONS**

In this Rule, "aquifer storage and recovery project," "ASR injection well," "ASR recovery well," and "project operator" have the meanings assigned by Water Code Section 27.151.

### **22.2. REGISTRATION AND REPORTING OF WELLS**

- A. A project operator shall:
  - 1. Register the ASR injection wells and ASR recovery wells associated with the aquifer storage and recovery project with the District;
  - 2. Each calendar month by the deadline established by the Texas Commission on Environmental Quality (TCEQ) for reporting to the TCEQ, provide the District with a copy of the written or electronic report required to be provided to the TCEQ under Water Code Section 27.155; and
  - 3. Annually by the deadline established by the TCEQ for reporting to the TCEQ, provide the District with a copy of the written or electronic report required to be provided to the TCEQ under Section 27.156.
- B. If an aquifer storage and recovery project recovers an amount of groundwater that exceeds the volume authorized by the 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 Subsection A.2.

### **22.3. PERMITTING, SPACING, AND PRODUCTION REQUIREMENTS**

- A. Except as provided by Subsection B, 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 the TCEQ.
- B. The ASR recovery wells that are associated with an aquifer storage and recovery project are subject to the permitting, spacing, and production requirements of the District if the amount of groundwater recovered from the wells exceeds the volume authorized by the TCEQ to be recovered under the project. A project operator must submit an operating permit application with the District in accordance with Rule 7 within 60 days of the time that the amount of groundwater recovered from the wells exceeds the volume authorized by the 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 wells that exceeds the volume authorized by the TCEQ to be recovered.
- C. A project operator may not recover groundwater by an aquifer storage and recovery project in an amount that exceeds the volume authorized by the TCEQ to be recovered under the project unless the project operator complies with the applicable requirements of the District as described by this section.

### **22.4. FEES AND SURCHARGES**

- A. The District may not assess a production fee or a transportation 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 aquifer storage and recovery project exceeds the volume authorized by the commission to be recovered.
- B. The District may assess a well registration fee or other administrative fee for an ASR recovery well in the same manner that the District assesses such a fee for other wells registered with the District.

## **22.5. CONSIDERATION OF DESIRED FUTURE CONDITIONS**

The District may consider hydrogeologic conditions related to the injection and recovery of groundwater as part of an aquifer storage and recovery 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.

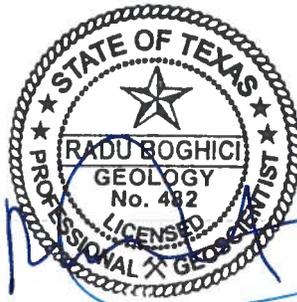
## **APPENDIX E**

### **GAM RUNS**

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**GAM RUN 16-027 MAG:  
MODELED AVAILABLE GROUNDWATER  
FOR THE AQUIFERS IN  
GROUNDWATER MANAGEMENT AREA 3**

Radu Boghici, P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Availability Modeling Department  
(512) 463-5808  
March 14, 2018



3/14/2018

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# **GAM RUN 16-027 MAG: MODELED AVAILABLE GROUNDWATER FOR THE AQUIFERS IN GROUNDWATER MANAGEMENT AREA 3**

Radu Boghici, P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Availability Modeling Department  
(512) 463-5808  
March 14, 2018

## ***EXECUTIVE SUMMARY:***

The modeled available groundwater for the relevant aquifers of Groundwater Management Area 3—the Capitan Reef Complex, Dockum, Edwards-Trinity (Plateau), Pecos Valley, and Rustler aquifers—are summarized by decade for use by the groundwater conservation districts (Tables 1, 3, 5, and 7) and by the regional water planning process (Tables 2, 4, 6, and 8). The modeled available groundwater estimates are: 381 acre-feet per year in the Capitan Reef Complex Aquifer; 17,378 acre-feet per year in the Dockum Aquifer; 420,541 acre-feet per year in the Edwards-Trinity (Plateau) and Pecos Valley aquifers; and 2,590 acre-feet per year in the Rustler Aquifer. The modeled available groundwater estimates were extracted from results of model runs using the following groundwater availability models: Eastern Arm of the Capitan Reef Complex, the alternative model for the Edwards-Trinity (Plateau) and Pecos Valley, High Plains Aquifer System, and Rustler aquifers. The explanatory report and other materials submitted to the Texas Water Development Board (TWDB) were determined to be administratively complete on December 8, 2017.

## ***REQUESTOR:***

Mr. Ty Edwards, coordinator of Groundwater Management Area 3.

***DESCRIPTION OF REQUEST:***

In a letter dated February 15, 2017, Dr. William R. Hutchison, on behalf of Groundwater Management Area 3, provided the TWDB with the desired future conditions of the Capitan Reef Complex, Dockum, Edwards-Trinity (Plateau), Pecos Valley, and Rustler aquifers adopted by the groundwater conservation districts in Groundwater Management Area 3. The groundwater conservation districts in Groundwater Management Area 3 proposed to adopt desired future conditions for these aquifers on April 26, 2016. The groundwater conservation districts in Groundwater Management Area 3 adopted the desired future conditions, described in Resolutions No. 16-01, 16-02, 16-03, 16-04, and 16-05, on October 20, 2016. On December 13, 2017, the groundwater conservation districts revised the desired future conditions for the Edwards-Trinity (Plateau) and Pecos Valley aquifers, described in Resolution No. 17-01. The final desired future conditions for the relevant aquifers in Groundwater Management Area 3 are listed below:

**Capitan Reef Complex Aquifer**

- Total net drawdown not to exceed 4 feet in Pecos County (Middle Pecos GCD) in 2070 as compared with aquifer levels in 2006 [...];
- Total net drawdown in Ward and Winkler Counties no (sic) to exceed 2 feet in 2070 as compared with in 2006 aquifer levels [...];
- The Capitan Reef Aquifer is not relevant for joint planning purposes in all other areas of Groundwater Management Area 3.

**Dockum Aquifer**

Total net drawdown in the following counties not to exceed drawdowns in 2070, as compared with aquifer levels in 2012 [...]:

<b>County (GCD)</b>	<b>No. Feet of Drawdown 2070</b>
Crane	0
Loving	5
Pecos (Middle Pecos GCD)	52
Reeves (Reeves County GCD)	20
Ward	30
Winkler	22

### Edwards-Trinity (Plateau) and Pecos Valley aquifers

Average drawdown in the following counties not to exceed drawdowns from 2010 to 2070 [...]:

County (GCD)	Average Drawdown 2010 to 2070
Crane	58
Loving	5
Pecos (Middle Pecos GCD)	14
Reeves (Reeves County GCD)	8
Ward	63
Winkler	161

### Rustler Aquifer

Total net drawdowns in the following counties not to exceed drawdowns in 2070, as compared with 2009 aquifer levels [...]:

County (GCD)	No. of Feet of Drawdown 2070
Loving	28
Pecos (Middle Pecos GCD)	69
Reeves (Reeves County GCD)	40
Ward	30
Winkler	31
The Rustler Aquifer is not relevant for joint planning purposes in Crane County	

In Resolution 16-05, Groundwater Management Area 3 declared the Igneous and Ogallala aquifers non-relevant for joint planning purposes.

TWDB staff reviewed the model files associated with the desired future conditions and received clarification on procedures and assumptions from the Groundwater Management Area 3 Technical Coordinator on March 13 and 15, 2017. Clarification requests included drawdown calculation methodologies, whether drawdown averages and modeled available groundwater values should be based on official aquifer extent or model extent, and whether to include pass-through layers in drawdown averaging for Dockum Aquifer.

On December 13, 2017, groundwater conservation districts changed the desired future conditions for the Edwards-Trinity (Plateau) and Pecos Valley aquifers from the values

adopted on February 15, 2017 to the values listed in the desired future conditions summary listed above. These changes were based on the analysis done by Dr. Hutchison in Technical Memorandum 17-01 (2017). In a response on November 6, 2017 to a request for clarifications from the TWDB, the consultant for Groundwater Management Area 3, Dr. Hutchison, explained how he had developed model files that computed average drawdowns and modeled available groundwater volumes for the Dockum Aquifer. To be consistent with this approach, the TWDB excluded the pass-through cells from drawdown averaging thereby reducing the modeled available groundwater volumes.

In another response on November 20, 2017 to a request for clarifications from the TWDB, Dr. Hutchison revised the model files to support the update of the desired future condition for the Edwards-Trinity (Plateau) and Pecos Valley aquifers by Groundwater Management Area 3. On December 14, 2017, Dr. Hutchison submitted an update to the Technical Memorandum 17-01 for the Edwards-Trinity (Plateau) and Pecos Valley aquifers reflecting the revised desired future conditions and associated pumping volumes.

### ***METHODS:***

The TWDB attempted to replicate the predictive modeling scenarios submitted by Groundwater Management Area 3 that achieved the adopted desired future conditions. As part of this investigation, the TWDB used the same models used by Dr. Hutchison to extract simulated water levels for the baseline year (2006, 2009, 2010, and 2012 depending on each aquifer's desired future condition statement) and for year 2070, and drawdown was calculated as the difference between water levels in the start year and water levels in 2070.

The individual drawdowns in all active model cells were averaged by aquifer for each county and groundwater conservation district. Any dry model cells (that is, cells where simulated water levels dropped below the base of the cells) were included in the averaging. The calculated drawdown averages were compared with the desired future conditions to verify that the pumping scenario achieved the desired future conditions within one foot. The calculated drawdown averages compared well with the desired future conditions and verified that the desired future conditions adopted by the districts can be achieved within the assumptions and limitations associated with each groundwater availability model. Modeled available groundwater volumes were determined by extracting pumping rates by decade from the model results using ZONEBUDGET Version 3.01 (Harbaugh, 2009). Annual pumping rates by aquifer are presented by county and groundwater conservation district, subtotaled by groundwater conservation district, and then summed for Groundwater Management Area 3 (Tables 1, 3, 5, and 7). Annual pumping rates by aquifer are also

presented by county, river basin, and regional water planning area within Groundwater Management Area 3 (Tables 2, 4, 6, and 8).

### **Modeled Available Groundwater and Permitting**

As defined in Chapter 36 of the Texas Water Code, “modeled available groundwater” is the estimated average amount of water that may be produced annually to achieve a desired future condition. Groundwater conservation districts are required to consider modeled available groundwater, along with several other factors, when issuing permits in order to manage groundwater production to achieve the desired future condition(s). The other factors districts must consider include annual precipitation and production patterns, the estimated amount of pumping exempt from permitting, existing permits, and a reasonable estimate of actual groundwater production under existing permits.

### ***PARAMETERS AND ASSUMPTIONS:***

#### **Capitan Reef Complex Aquifer**

- Version 1.01 of the groundwater availability model of the eastern arm of the Capitan Reef Complex Aquifer was used. See Jones (2016) for assumptions and limitations of the groundwater availability model. See Hutchison (2016a) for details on the assumptions used for predictive simulations.
- The model has five layers: Layer 1, the Edwards-Trinity (Plateau) and Pecos Valley aquifers; Layer 2, the Dockum Aquifer and the Dewey Lake Formation; Layer 3, the Rustler Aquifer; Layer 4, a confining unit made up of the Salado and Castile formations, and the overlying portion of the Artesia Group; and Layer 5, the Capitan Reef Complex Aquifer, part of the Artesia Group, and the Delaware Mountain Group. Layers 1 through 4 are intended to act solely as boundary conditions facilitating groundwater inflow and outflow relative to the Capitan Reef Complex Aquifer (Layer 5).
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).
- The model was run for the interval 2006 through 2070 for a 64-year predictive simulation. Drawdowns were calculated by subtracting 2006 simulated water levels from 2070 simulated water levels, which were then averaged over the portion of the aquifer in Groundwater Management Area 3.
- During predictive simulations, there were no cells where water levels were below the base elevation of the cell (“dry” cells). Therefore, all drawdowns were included in the averaging.

## **Dockum Aquifer**

- Version 1.01 of the groundwater availability model for the High Plains Aquifer System by Deeds and Jigmond (2015) was used to construct the predictive model simulation for this analysis. See Hutchison (2016b) for details of the initial assumptions.
- The model has four layers which represent the Ogallala and Pecos Valley Alluvium aquifers (Layer 1), the Edwards-Trinity (High Plains) and Edwards-Trinity (Plateau) aquifers (Layer 2), the Upper Dockum Aquifer (Layer 3), and the Lower Dockum Aquifer (Layer 4). Pass-through cells exist in layers 2 and 3 where the Dockum Aquifer was absent but provided pathway for flow between the Lower Dockum and the Ogallala or Edwards-Trinity (High Plains) aquifers vertically. These pass-through cells were excluded from the calculations of drawdowns and modeled available groundwater.
- The model was run with MODFLOW-NWT (Niswonger and others, 2011). The model uses the Newton formulation and the upstream weighting package which automatically reduces pumping as heads drop in a particular cell as defined by the user. This feature may simulate the declining production of a well as saturated thickness decreases. Deeds and Jigmond (2015) modified the MODFLOW-NWT code to use a saturated thickness of 30 feet as the threshold (instead of percent of the saturated thickness) when pumping reductions occur during a simulation.
- The model was run for the interval 2012 through 2070 for a 58-year predictive simulation. Drawdowns were calculated by subtracting 2012 simulated water levels from 2070 simulated water levels, which were then averaged over the portion of the aquifer in Groundwater Management Area 3.
- During predictive simulations, there were no cells where water levels were below the base elevation of the cell ("dry" cells). Therefore, all drawdowns were included in the averaging.

Drawdown averages and modeled available groundwater volumes are based on the model boundaries within Groundwater Management Area 3.

## **Edwards-Trinity (Plateau) and Pecos Valley Alluvium Aquifers**

- The single-layer numerical groundwater flow model for the Edwards-Trinity (Plateau) and Pecos Valley aquifers used for this analysis. This model is an update to the previously developed groundwater availability model documented

in Anaya and Jones (2009). See Hutchison and others (2011) and Anaya and Jones (2009) for assumptions and limitations of the model. See Hutchison (2016c) for details on the assumptions used for predictive simulations.

- The groundwater model has one layer representing the Pecos Valley Aquifer and the Edwards-Trinity (Plateau) Aquifer. In the relatively narrow area where both aquifers are present, the model is a lumped representation of both aquifers.
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).
- The model was run for the interval 2005 through 2070 for a 65-year predictive simulation. Drawdowns were calculated by subtracting 2010 simulated water levels from 2070 simulated water levels, which were then averaged over the portion of the aquifer in Groundwater Management Area 3. We are unable to verify that water levels in the model for 2010 were compared to measured water levels.
- Drawdowns for cells with water levels below the base elevation of the cell (“dry” cells) were included in the averaging.

### **Rustler Aquifer**

- Version 1.01 of the groundwater availability model for the Rustler Aquifer by Ewing and others (2012) was used to construct the predictive model simulation for this analysis. See Hutchison (2016d) for details of the initial assumptions.
- The model has two layers, the top one representing the Rustler Aquifer, and the other representing the Dewey Lake Formation and the Dockum Aquifer.
- The model was run with MODFLOW-NWT (Niswonger and others, 2011).
- The model was run for the interval 2009 through 2070 for a 61-year predictive simulation. Drawdowns were calculated by subtracting 2009 simulated water levels from 2070 simulated water levels, which were then averaged over the portion of the aquifer in Groundwater Management Area 3. During predictive simulations, there were no cells where water levels were below the base elevation of the cell (“dry” cells). Therefore, all drawdowns were included in the averaging.

### ***RESULTS:***

Tables 1 through 8 show the combination of modeled available groundwater for relevant aquifers in Groundwater Management Area 3 summarized (1) by county, river basin, and

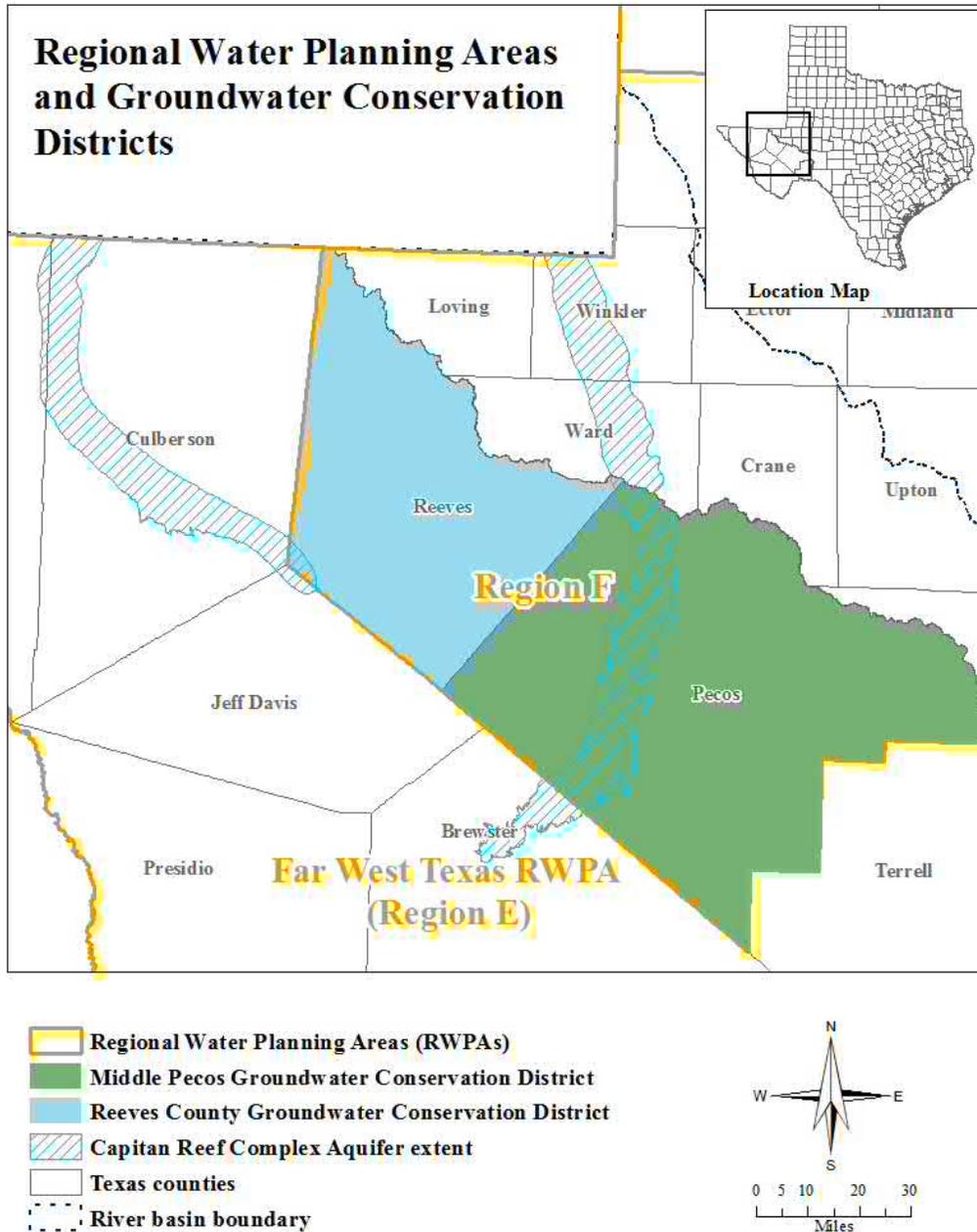
regional water planning area for use in the regional water planning process; and (2) by groundwater conservation district and county.

The modeled available groundwater for the Capitan Reef Complex Aquifer that achieves the adopted desired future conditions is 381 acre-feet per year between 2020 and 2070 (Tables 1 and 2).

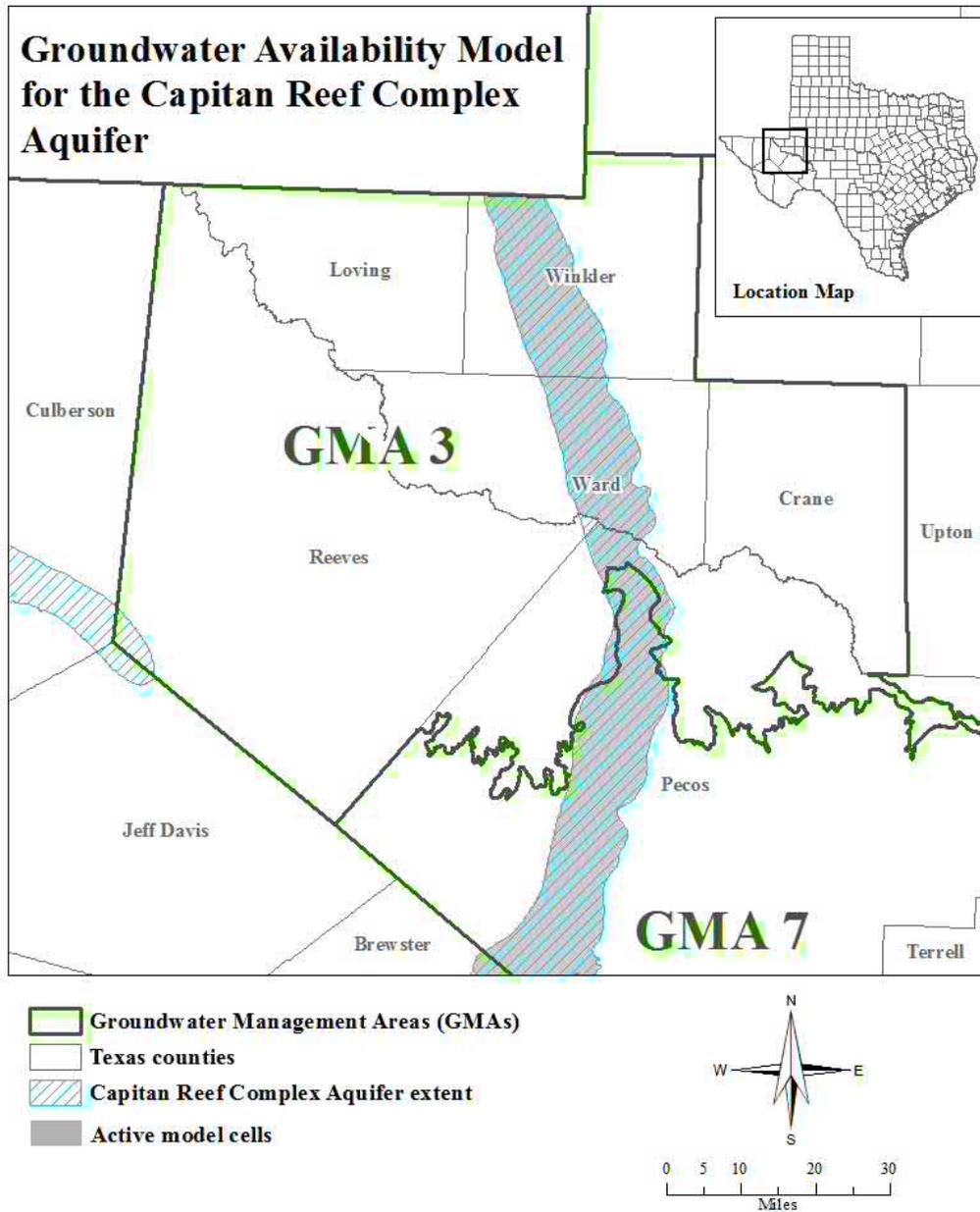
The modeled available groundwater for the Dockum Aquifer that achieves the adopted desired future conditions is 17,378 acre-feet per year between 2020 and 2070 (Tables 3 and 4).

The modeled available groundwater for the Edwards-Trinity (Plateau) and Pecos Valley Alluvium aquifers that achieves the adopted desired future conditions is 420,541 acre-feet per year between 2020 and 2070 (Tables 5 and 6).

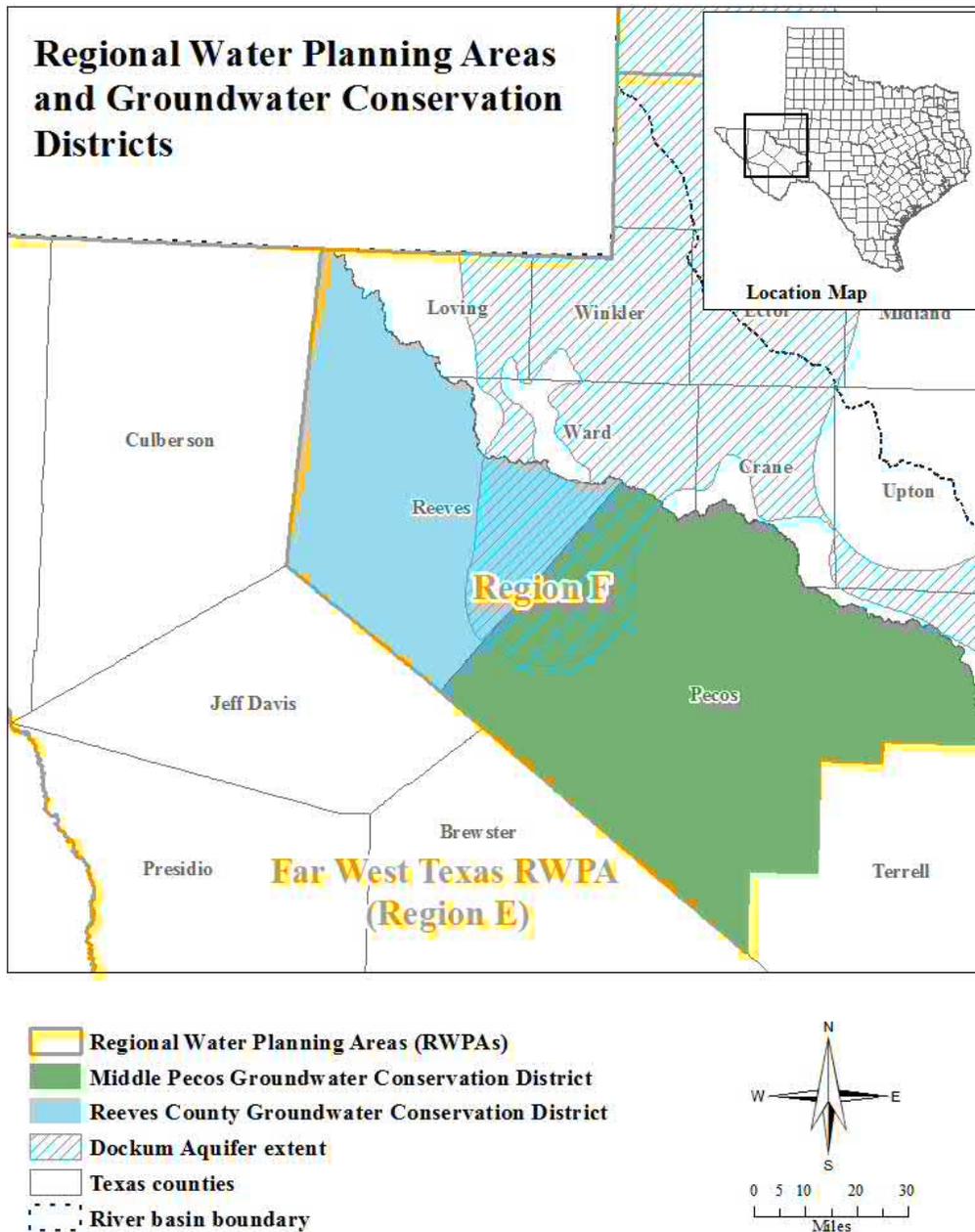
The modeled available groundwater for the Rustler Aquifer that achieves the adopted desired future conditions is 2,590 acre-feet per year between 2020 and 2070 (Tables 7 and 8).



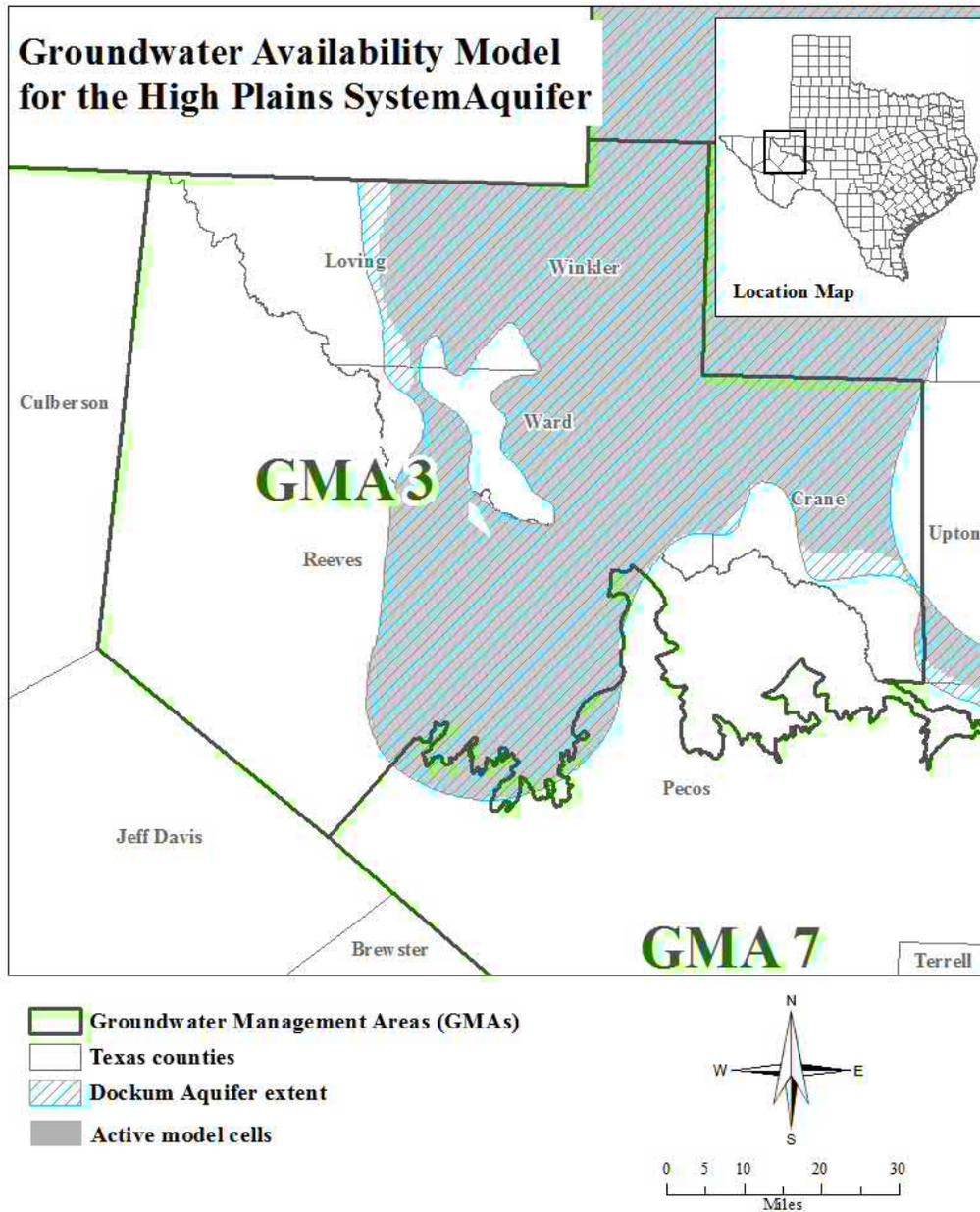
**FIGURE 1. MAP SHOWING REGIONAL WATER PLANNING AREAS (RWPAS), GROUNDWATER CONSERVATION DISTRICTS (GCDs), AND COUNTIES IN THE VICINITY OF THE CAPITAN REEF COMPLEX AQUIFER IN GROUNDWATER MANAGEMENT AREA 3.**



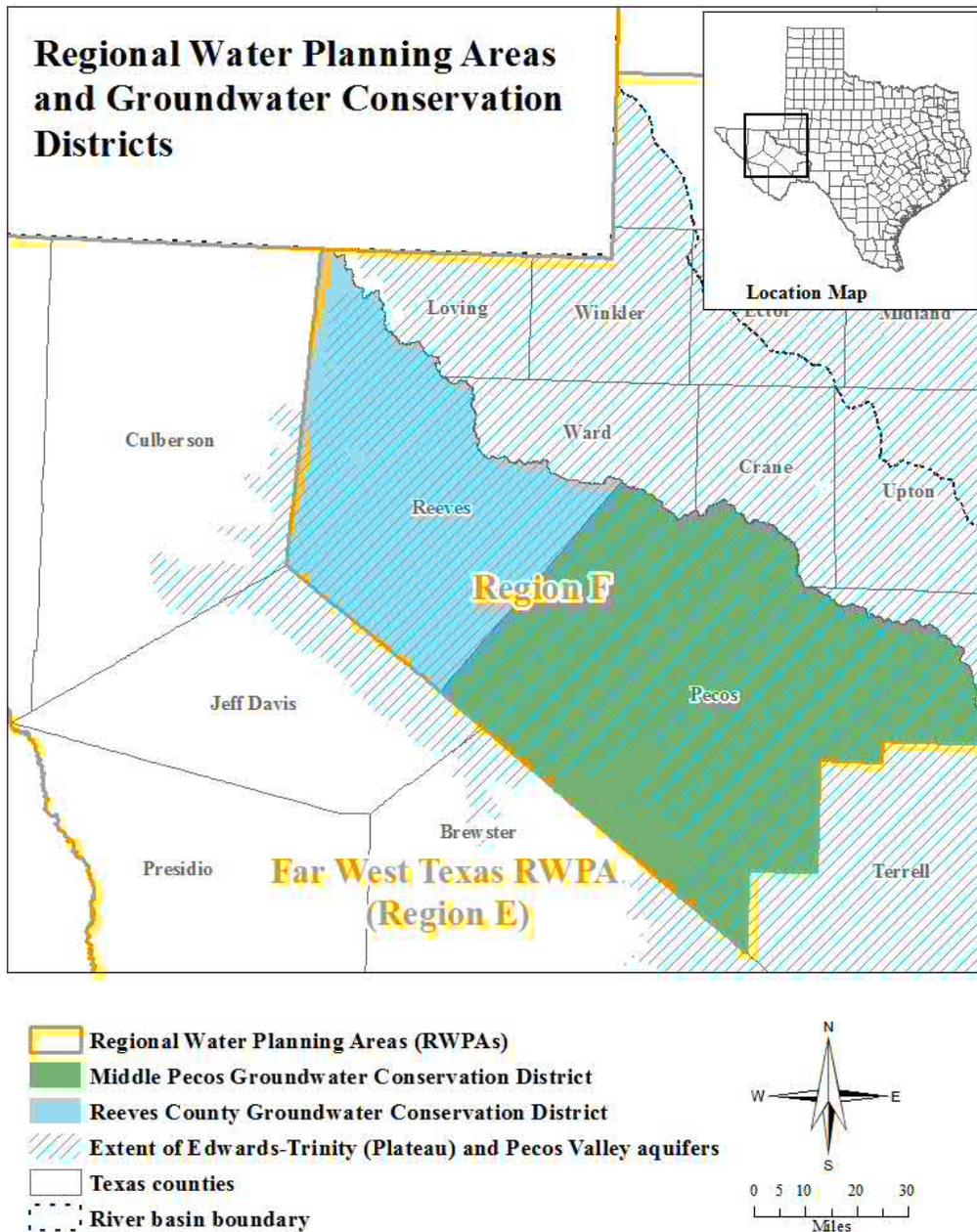
**FIGURE 2. MAP SHOWING THE AREAS COVERED BY THE GROUNDWATER AVAILABILITY MODEL FOR CAPITAN REEF COMPLEX AQUIFER IN GROUNDWATER MANAGEMENT AREA 3.**



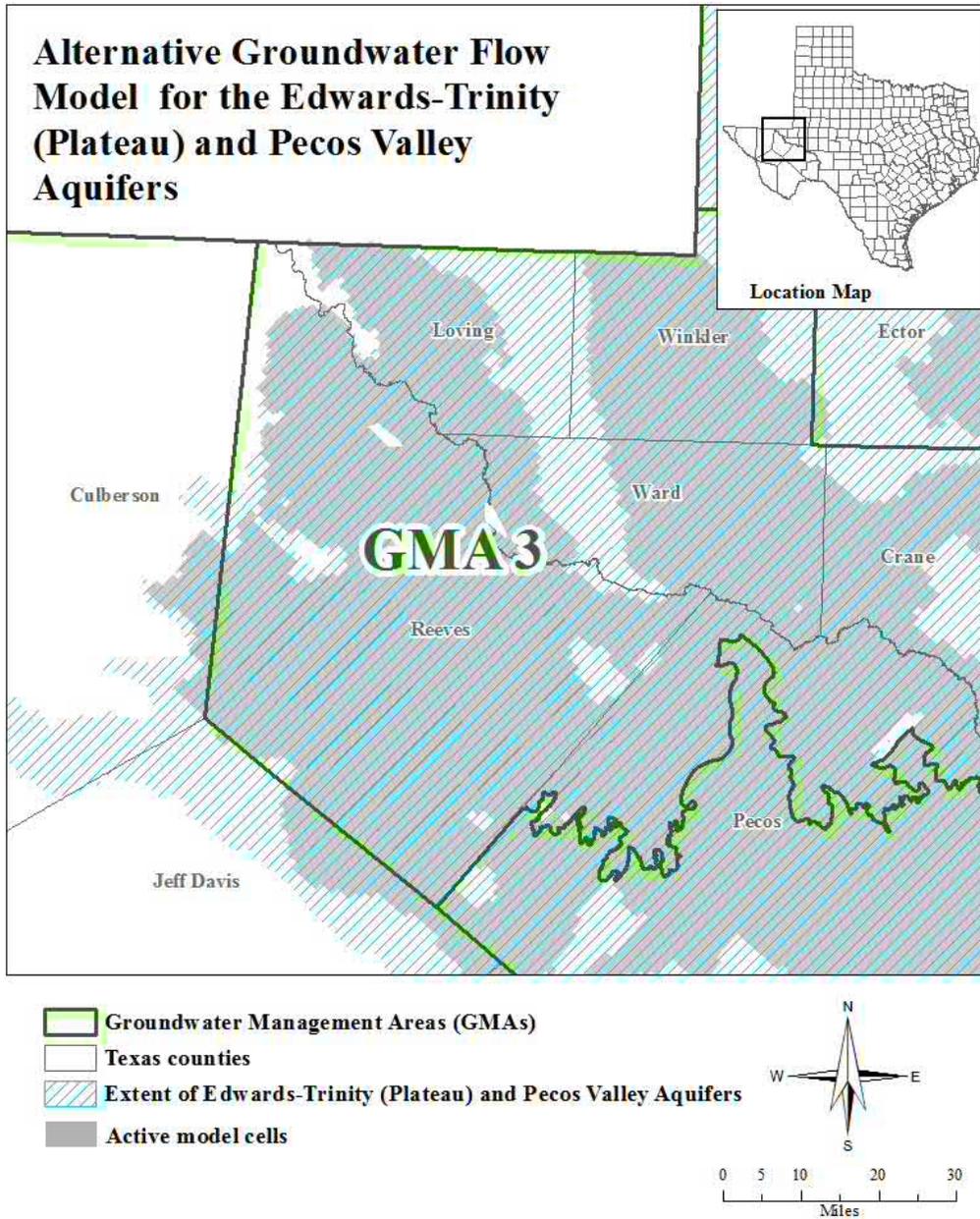
**FIGURE 3. MAP SHOWING REGIONAL WATER PLANNING AREAS (RWPAS), GROUNDWATER CONSERVATION DISTRICTS (GCDs), AND COUNTIES IN THE VICINITY OF THE DOCKUM AQUIFER IN GROUNDWATER MANAGEMENT AREA 3.**



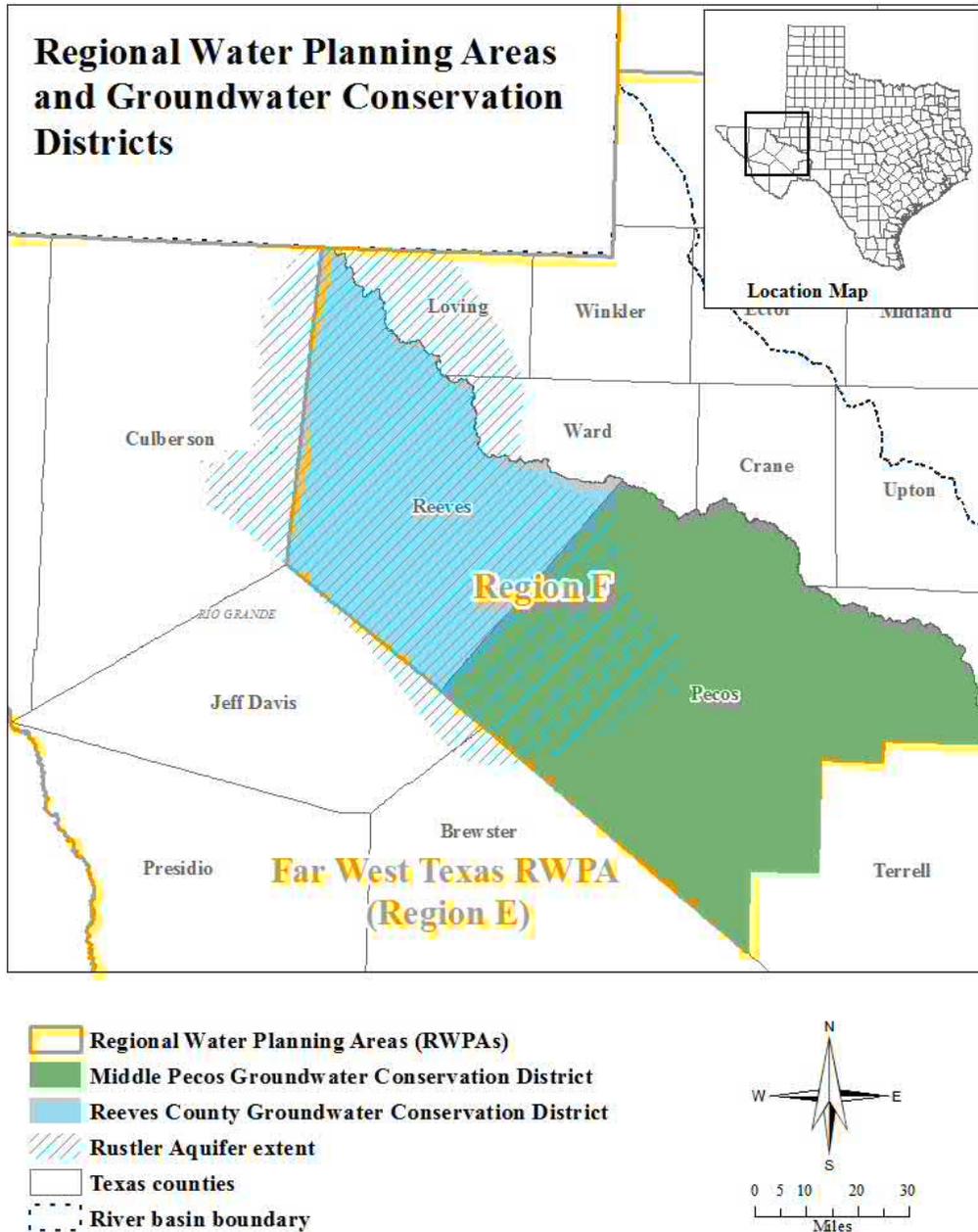
**FIGURE 4. MAP SHOWING THE AREAS COVERED BY THE GROUNDWATER AVAILABILITY MODEL FOR THE HIGH PLAINS AQUIFER SYSTEM, INCLUDING THE DOCKUM AQUIFER, IN GROUNDWATER MANAGEMENT AREA 3.**



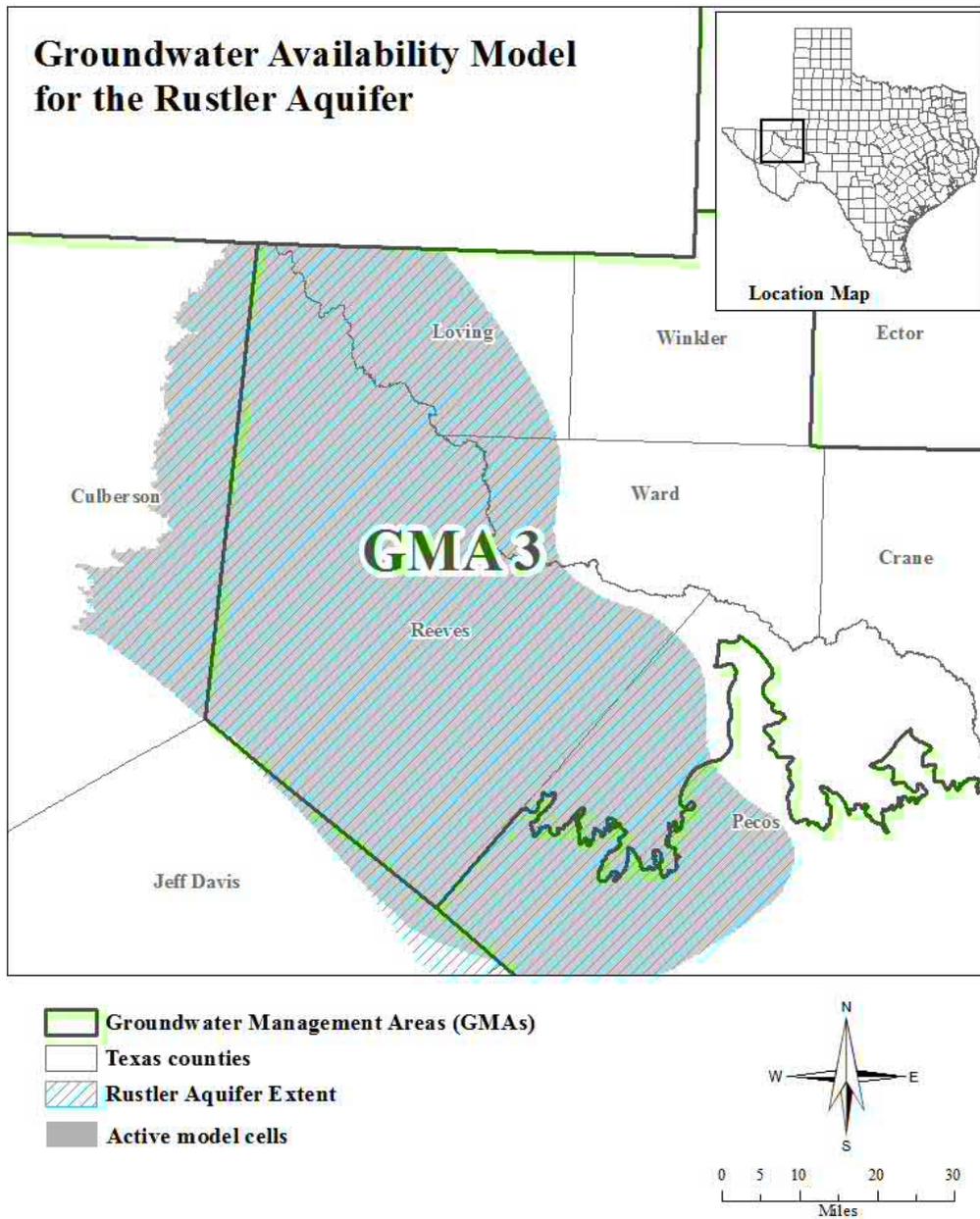
**FIGURE 5. MAP SHOWING REGIONAL WATER PLANNING AREAS (RWPAS), GROUNDWATER CONSERVATION DISTRICTS (GCDs), AND COUNTIES IN THE VICINITY OF THE EDWARDS-TRINITY (PLATEAU) AND PECOS VALLEY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 3.**



**FIGURE 6. MAP SHOWING THE AREAS COVERED BY THE GROUNDWATER AVAILABILITY MODEL FOR THE EDWARDS-TRINITY (PLATEAU) AND PECOS VALLEY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 3.**



**FIGURE 7. MAP SHOWING REGIONAL WATER PLANNING AREAS (RWPAS), GROUNDWATER CONSERVATION DISTRICTS (GCDs), AND COUNTIES IN THE VICINITY OF THE RUSTLER AQUIFER IN GROUNDWATER MANAGEMENT AREA 3.**



**FIGURE 8. MAP SHOWING THE AREAS COVERED BY THE GROUNDWATER AVAILABILITY MODEL FOR THE RUSTLER AQUIFER IN GROUNDWATER MANAGEMENT AREA 3.**









***LIMITATIONS:***

The groundwater model 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 streamflow are specific to a particular historic time period.

Because the application of the groundwater model was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations relating 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 groundwater levels in 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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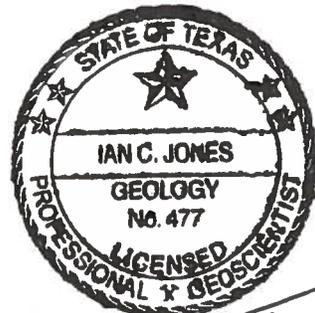
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# GAM RUN 18-001: REEVES COUNTY GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN

Ian C. Jones, Ph.D., P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Availability Modeling Department  
512-463-6641  
May 11, 2018



*I. C. Jones*  
5/10/18

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# GAM RUN 18-001: REEVES COUNTY GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN

Ian C. Jones, Ph.D., P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Availability Modeling Department  
512-463-6641  
April 30, 2018

## ***EXECUTIVE SUMMARY:***

Texas State Water Code, Section 36.1071, Subsection (h) (Texas Water Code, 2015), 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 Reeves County 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](mailto: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 Reeves County Groundwater Conservation District should be adopted by the district on or before August 5, 2018, and submitted to the Executive Administrator of the TWDB on or before September 4, 2018. The management

plan for the Reeves County Groundwater Conservation District must be approved by the TWDB on or before November 3, 2018.

We used four groundwater availability models to estimate the management plan information for the aquifers within the Reeves County 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). 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 southern tip of Reeves County, the model for Igneous Aquifer does not extend into Reeves County. For more information concerning this aquifer, please contact Mr. Stephen Allen at 512-463-7317 or [stephen.allen@twdb.texas.gov](mailto:stephen.allen@twdb.texas.gov).

Tables 1 through 5 summarize the groundwater availability model data required by statute and Figures 1 through 4 show the area of the models from which the values in the tables were extracted. If, after review of the figures, the Reeves County 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 for the aquifer mentioned above were used to estimate information for the Reeves County Groundwater Conservation District management plan. Water budgets were extracted for the historical model period using ZONEBUDGET Version 3.01 (Harbaugh, 2009). The historical model periods used were 1981 through 2000 for the Edwards-Trinity (Plateau) and Pecos Valley aquifers, 1980 through 2012 for the Dockum Aquifer, 1980 through 2008 for the Rustler Aquifer, and 1980 through 2005 for the Capitan Reef Complex Aquifer. The average annual water budget values for recharge, surface-water outflow, inflow to the district, and outflow from the district for the aquifers within the district are summarized in this report.

## ***PARAMETERS AND ASSUMPTIONS:***

### ***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 Edwards-Trinity (Plateau) and Pecos Valley aquifers model includes two active layers; however, in the area underlying the district, Layer 1 represents the Pecos Valley alluvium, the Edwards Group and equivalent limestone hydrostratigraphic units, and the undifferentiated Trinity Group hydrostratigraphic units. We assumed certain model cells are assigned to the Pecos Valley Aquifer and the remaining cells are assigned to the Edwards-Trinity (Plateau) Aquifer.
- The model was run with MODFLOW-96 (Harbaugh and McDonald, 1996).

### ***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.
- The groundwater availability model for the High Plains Aquifer System contains four layers:
  - Layer 1—the Ogallala Aquifer and the Pecos Valley Alluvium Aquifer.
  - Layer 2—the Rita Blanca Aquifer, the Edwards-Trinity (High Plains) Aquifer, the Edwards-Trinity (Plateau) Aquifer.
  - Layer 3—the upper Dockum Group.
  - Layer 4—the lower Dockum Group.
- While the model for the High Plains Aquifer System includes the Pecos Valley Alluvium and Edwards-Trinity (Plateau) aquifers, the focus of the model run was to extract information for the Dockum Aquifer.
- The model was run with MODFLOW-NWT (Niswonger and others, 2011).

### ***Rustler Aquifer***

- We used version 1.01 of the groundwater availability model for the Rustler Aquifer Groundwater Availability Model (Ewing and Others, 2012). 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. Thus, Model Layer 2 was used for the management plan analysis.
- The model was run with MODFLOW-2000 (Harbaugh and Others, 2000).

### ***Capitan Reef Complex Aquifer***

- We used version 1.01 of the groundwater availability model for the Capitan Reef Complex Aquifer Groundwater Availability Model (Jones, 2016). 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 (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 Alluvium, 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. It should be noted that the model for the Capitan Reef Complex Aquifer only includes the eastern “arm” of the aquifer and does not include the small aquifer extent at the end of the western “arm” located within the district boundary.
- The model was run with MODFLOW-2005 (Harbaugh, 2005).

## ***RESULTS:***

A groundwater budget summarizes the amount of water entering and leaving the aquifers according to the groundwater availability model. Selected groundwater budget components listed below were extracted from the groundwater availability model results for the Pecos Valley, Edwards-Trinity (Plateau), Dockum, Rustler, and Capitan Reef

Complex aquifers located within Reeves County Groundwater Conservation District and averaged over the historical calibration periods, as shown in Tables 1 through 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 through 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 PECOS VALLEY AQUIFER FOR REEVES COUNTY GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.**

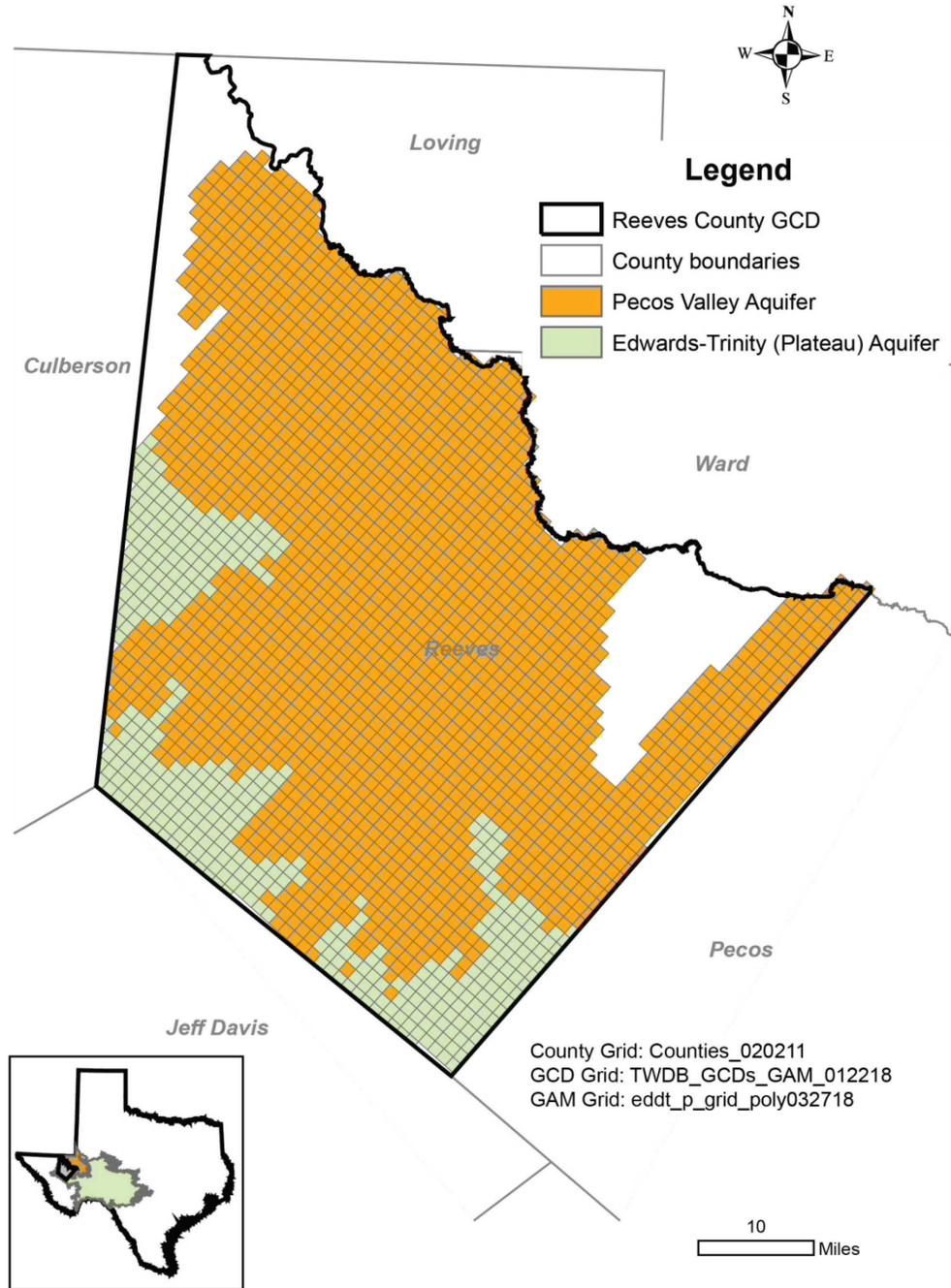
<b>Management Plan requirement</b>	<b>Aquifer or confining unit</b>	<b>Results</b>
Estimated annual amount of recharge from precipitation to the district	Pecos Valley Aquifer	65,380
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Pecos Valley Aquifer	51,531
Estimated annual volume of flow into the district within each aquifer in the district	Pecos Valley Aquifer	12,033
Estimated annual volume of flow out of the district within each aquifer in the district	Pecos Valley Aquifer	18,111
Estimated net annual volume of flow between each aquifer in the district	Flow from Edwards-Trinity (Plateau) Aquifer to the Pecos Valley Aquifer	44,055
	Flow from the Rustler Aquifer to the Pecos Valley Aquifer	979*

\* - From the groundwater availability model for the Rustler Aquifer.

**TABLE 2. SUMMARIZED INFORMATION FOR THE EDWARDS-TRINITY (PLATEAU) AQUIFER FOR REEVES COUNTY 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	16,343
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	0
Estimated annual volume of flow into the district within each aquifer in the district	Edwards-Trinity (Plateau) Aquifer	29,335
Estimated annual volume of flow out of the district within each aquifer in the district	Edwards-Trinity (Plateau) Aquifer	6
Estimated net annual volume of flow between each aquifer in the district	Flow from Edwards-Trinity (Plateau) Aquifer to the Pecos Valley Aquifer	44,055
	Flow from the Rustler Aquifer to the Edwards-Trinity (Plateau) Aquifer	522*

\* - From the groundwater availability model for the Rustler Aquifer.

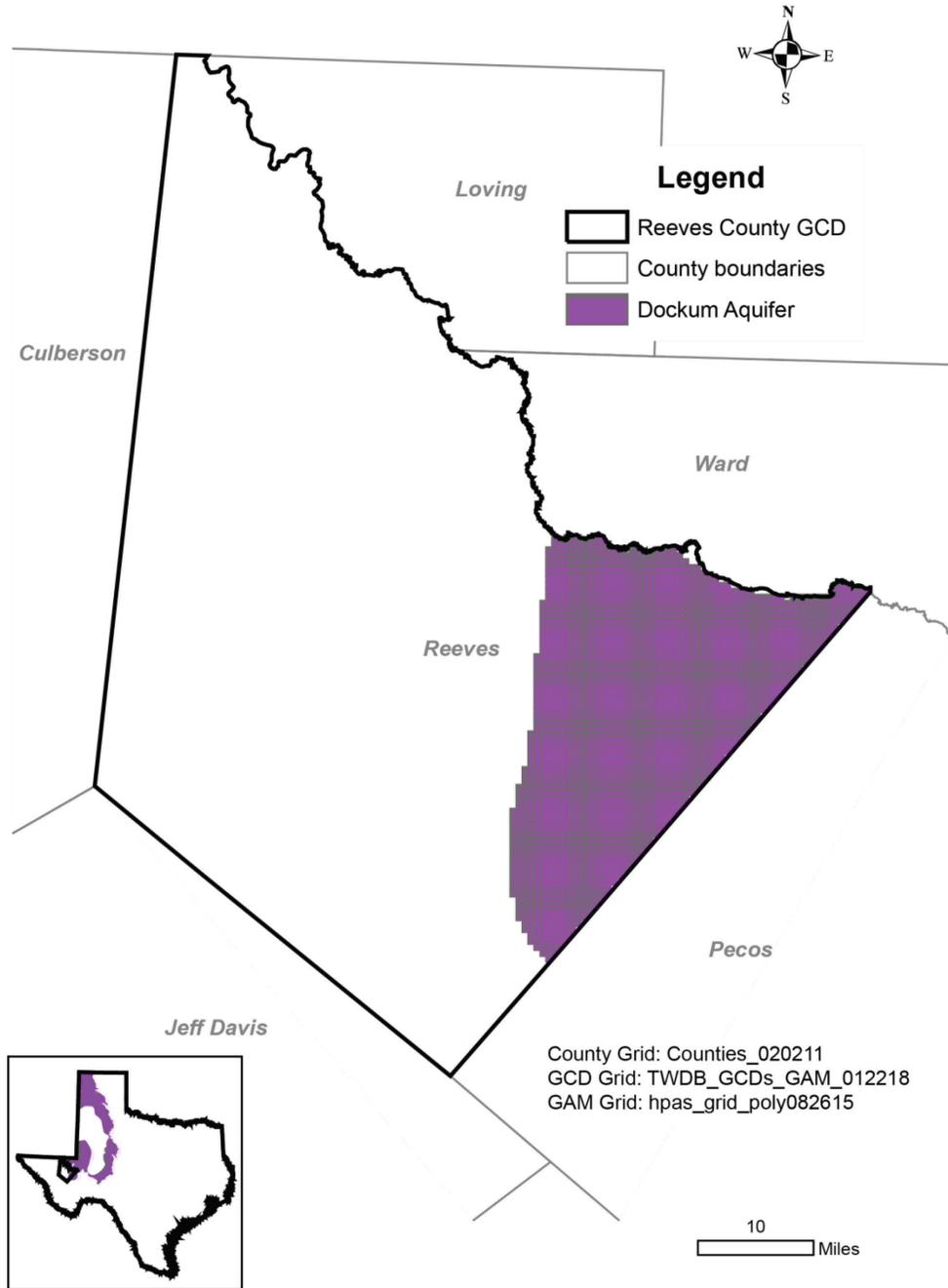


**FIGURE 1. AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE EDWARDS-TRINITY (PLATEAU) AND PECOS VALLEY AQUIFERS FROM WHICH THE INFORMATION IN TABLES 1 AND 2 WAS EXTRACTED (THE EDWARDS-TRINITY (PLATEAU) AND PECOS VALLEY AQUIFERS EXTENT WITHIN THE DISTRICT BOUNDARY).**

**TABLE 3. SUMMARIZED INFORMATION FOR THE DOCKUM AQUIFER FOR REEVES COUNTY 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	648
Estimated annual volume of flow out of the district within each aquifer in the district	Dockum Aquifer	490
Estimated net annual volume of flow between each aquifer in the district	Flow from Edwards-Trinity (Plateau) and Pecos Valley aquifers to underlying Dockum Aquifer	72
	Flow from Rustler Aquifer to Dockum Aquifer	1,446*

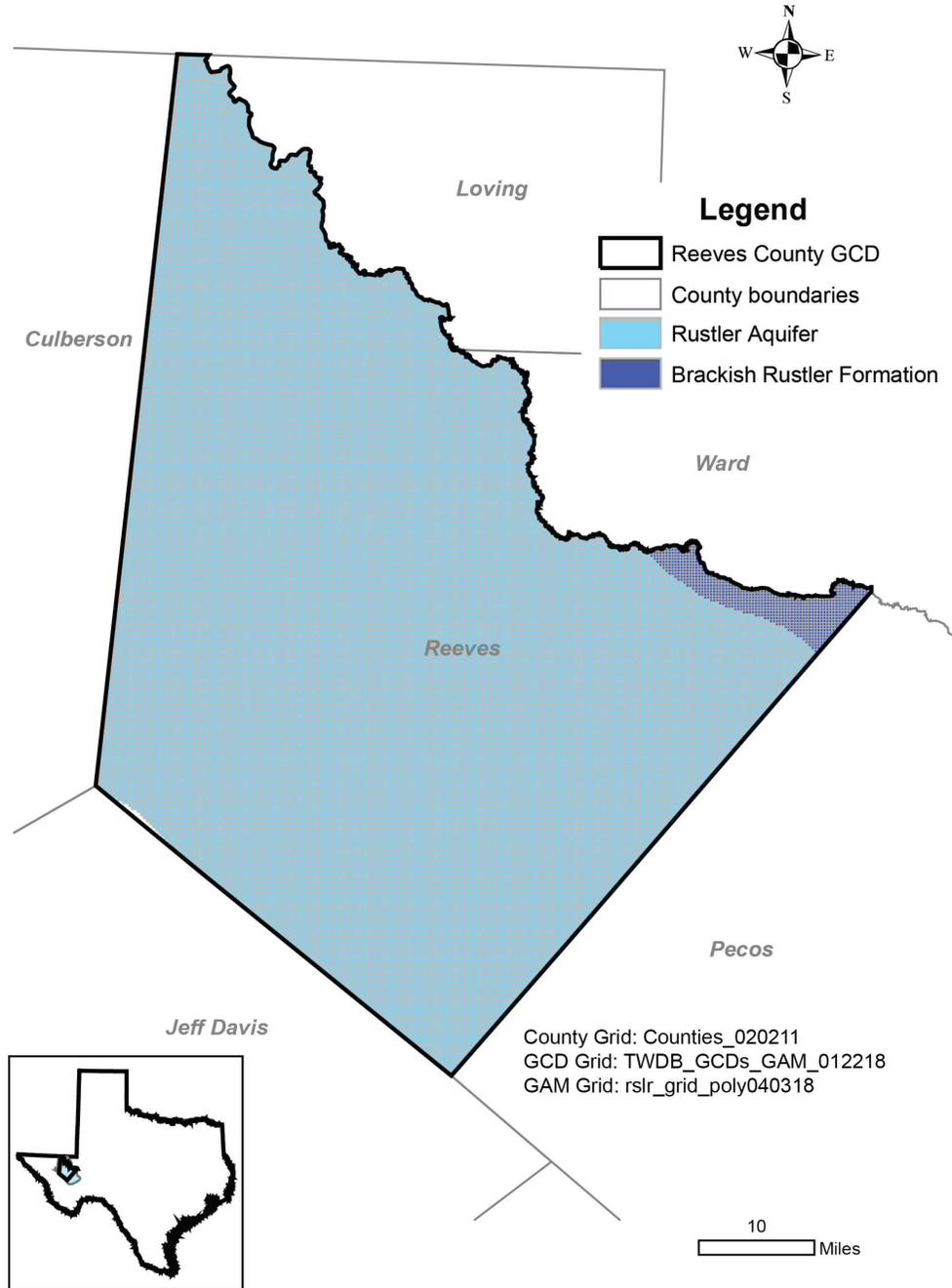
\* - From the groundwater availability model for the Rustler Aquifer.



**FIGURE 2. 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 RUSTLER AQUIFER FOR REEVES COUNTY 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	146
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	1,498
Estimated annual volume of flow out of the district within each aquifer in the district	Rustler Aquifer	281
Estimated net annual volume of flow between each aquifer in the district	Flow from Rustler Aquifer to Dockum Aquifer	1,446
	Flow from Rustler Aquifer to Edwards-Trinity (Plateau) Aquifer	522
	Flow from Rustler Aquifer to Pecos Valley Aquifer	979
	Flow from overlying stratigraphic units to Rustler Aquifer	163
	From Rustler Aquifer to saline Rustler Formation	38



**FIGURE 3. AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE RUSTLER AQUIFER FROM WHICH THE INFORMATION IN TABLE 4 WAS EXTRACTED (THE RUSTLER AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).**

**TABLE 5. SUMMARIZED INFORMATION FOR THE CAPITAN REEF COMPLEX AQUIFER FOR REEVES COUNTY 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	0
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	859
Estimated annual volume of flow out of the district within each aquifer in the district	Capitan Reef Complex Aquifer	755
Estimated net annual volume of flow between each aquifer in the district	Flow from Capitan Reef Complex Aquifer to overlying stratigraphic units	114
	From Capitan Reef Complex Aquifer to Delaware Mountain Group	1



### ***LIMITATIONS:***

The groundwater models used in completing this analysis are the best available scientific tools 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 F**

### **ESTIMATED HISTORICAL WATER USE**

### **AND 2017 STATE WATER PLANS**

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# Estimated Historical Water Use And 2017 State Water Plan Datasets: Reeves County Groundwater Conservation District

by Stephen Allen  
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Groundwater Division  
Groundwater Technical Assistance Section  
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(512) 463-7317  
July 19, 2018

## ***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 7/19/2018. 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 2017. TWDB staff anticipates the calculation and posting of these estimates at a later date.

### REEVES COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2016	GW	5,145	6	1,558	0	54,206	476	61,391
	SW	0	0	0	0	11,217	0	11,217
2015	GW	4,741	41	1,371	0	37,049	467	43,669
	SW	0	0	0	0	12,201	0	12,201
2014	GW	4,515	52	1,065	0	40,633	445	46,710
	SW	0	0	0	0	13,712	0	13,712
2013	GW	4,372	96	401	0	33,318	486	38,673
	SW	0	0	0	0	42,382	0	42,382
2012	GW	3,980	114	1,381	0	39,811	285	45,571
	SW	0	0	0	0	13,797	0	13,797
2011	GW	4,227	121	464	0	47,161	319	52,292
	SW	0	0	192	0	5,500	0	5,692
2010	GW	4,331	286	429	0	40,894	303	46,243
	SW	0	0	178	0	17,475	0	17,653
2009	GW	3,592	286	875	0	44,465	633	49,851
	SW	0	0	114	0	13,484	0	13,598
2008	GW	3,366	286	383	0	0	482	4,517
	SW	0	0	50	0	26,968	0	27,018
2007	GW	3,348	409	972	0	12,521	545	17,795
	SW	27	571	0	0	65,673	0	66,271
2006	GW	3,295	289	1,144	0	18,925	862	24,515
	SW	33	0	0	0	70,000	0	70,033
2005	GW	3,352	291	1,054	0	18,837	693	24,227
	SW	32	0	0	0	73,300	0	73,332
2004	GW	3,313	298	495	0	36,928	601	41,635
	SW	33	0	0	0	52,131	32	52,196
2003	GW	3,347	291	595	0	22,038	492	26,763
	SW	276	0	0	0	11,913	26	12,215
2002	GW	3,426	289	449	0	53,458	713	58,335
	SW	226	0	0	0	10,182	38	10,446
2001	GW	3,309	306	449	0	56,867	723	61,654
	SW	233	0	0	0	19,695	38	19,966



# Projected Surface Water Supplies

## TWDB 2017 State Water Plan Data

### REEVES COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
F	COUNTY-OTHER, REEVES	RIO GRANDE	RIO GRANDE OTHER LOCAL SUPPLY	0	0	0	0	0	0
F	IRRIGATION, REEVES	RIO GRANDE	BALMORHEA LAKE/RESERVOIR	21,844	21,844	21,844	21,844	21,844	21,844
F	IRRIGATION, REEVES	RIO GRANDE	RED BLUFF LAKE/RESERVOIR	9,110	9,110	9,110	9,110	9,110	9,110
F	LIVESTOCK, REEVES	RIO GRANDE	RIO GRANDE LIVESTOCK LOCAL SUPPLY	66	66	66	66	66	66
<b>Sum of Projected Surface Water Supplies (acre-feet)</b>				<b>31,020</b>	<b>31,020</b>	<b>31,020</b>	<b>31,020</b>	<b>31,020</b>	<b>31,020</b>

# 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.

### REEVES COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
F	COUNTY-OTHER, REEVES	RIO GRANDE	503	530	553	570	583	594
F	IRRIGATION, REEVES	RIO GRANDE	91,357	90,577	89,795	89,015	88,242	87,475
F	LIVESTOCK, REEVES	RIO GRANDE	862	862	862	862	862	862
F	MADERA VALLEY WSC	RIO GRANDE	586	616	644	665	682	694
F	MANUFACTURING, REEVES	RIO GRANDE	197	201	205	208	220	233
F	MINING, REEVES	RIO GRANDE	1,531	2,632	2,537	2,068	1,632	1,288
F	PECOS	RIO GRANDE	2,990	3,143	3,296	3,407	3,491	3,556
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>98,026</b>	<b>98,561</b>	<b>97,892</b>	<b>96,795</b>	<b>95,712</b>	<b>94,702</b>

# Projected Water Supply Needs

## TWDB 2017 State Water Plan Data

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

### REEVES COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
F	COUNTY-OTHER, REEVES	RIO GRANDE	0	0	0	0	0	0
F	IRRIGATION, REEVES	RIO GRANDE	0	0	0	0	0	0
F	LIVESTOCK, REEVES	RIO GRANDE	1	1	1	1	1	1
F	MADERA VALLEY WSC	RIO GRANDE	0	0	0	0	0	0
F	MANUFACTURING, REEVES	RIO GRANDE	0	0	0	0	0	0
F	MINING, REEVES	RIO GRANDE	0	0	0	0	0	0
F	PECOS	RIO GRANDE	0	0	0	0	0	0
<b>Sum of Projected Water Supply Needs (acre-feet)</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

# Projected Water Management Strategies

## TWDB 2017 State Water Plan Data

### REEVES COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>COUNTY-OTHER, REEVES, RIO GRANDE (F )</b>							
MUNICIPAL CONSERVATION - REEVES COUNTY OTHER	DEMAND REDUCTION [REEVES]	19	20	22	23	24	25
		<b>19</b>	<b>20</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
<b>IRRIGATION, REEVES, RIO GRANDE (F )</b>							
IRRIGATION CONSERVATION - REEVES COUNTY	DEMAND REDUCTION [REEVES]	4,568	9,058	13,469	13,469	13,469	13,469
WEATHER MODIFICATION	WEATHER MODIFICATION [ATMOSPHERE]	240	240	240	240	240	240
		<b>4,808</b>	<b>9,298</b>	<b>13,709</b>	<b>13,709</b>	<b>13,709</b>	<b>13,709</b>
<b>MADERA VALLEY WSC, RIO GRANDE (F )</b>							
MUNICIPAL CONSERVATION - MADERA VALLEY WSC	DEMAND REDUCTION [REEVES]	11	12	12	13	13	14
WATER AUDITS AND LEAK - MADERA VALLEY WSC	DEMAND REDUCTION [REEVES]	69	73	76	78	80	82
		<b>80</b>	<b>85</b>	<b>88</b>	<b>91</b>	<b>93</b>	<b>96</b>
<b>MINING, REEVES, RIO GRANDE (F )</b>							
MINING CONSERVATION - REEVES COUNTY	DEMAND REDUCTION [REEVES]	107	184	178	145	114	90
		<b>107</b>	<b>184</b>	<b>178</b>	<b>145</b>	<b>114</b>	<b>90</b>
<b>PECOS, RIO GRANDE (F )</b>							
MUNICIPAL CONSERVATION - PECOS	DEMAND REDUCTION [REEVES]	53	56	59	62	63	64
WATER AUDITS AND LEAK - PECOS	DEMAND REDUCTION [REEVES]	157	165	173	178	183	186
		<b>210</b>	<b>221</b>	<b>232</b>	<b>240</b>	<b>246</b>	<b>250</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>5,224</b>	<b>9,808</b>	<b>14,229</b>	<b>14,208</b>	<b>14,186</b>	<b>14,170</b>