GUADALUPE COUNTY GROUNDWATER CONSERVATION DISTRICT

MANAGEMENT PLAN

2018

Effective: 01/23/2018

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APPENDICES

1.0 District Mission

The Mission of the Guadalupe County Groundwater Conservation District (GCGCD) is to conserve, preserve, protect, and prevent waste of groundwater resources. It shall be the policy of the Board of Directors that the most efficient use of groundwater in the District is to provide for the needs of the citizens and ensure growth for future generations. The Board of Directors, with the cooperation of the citizens of the District, shall implement this management plan (Plan) and its accompanying rules to achieve this goal. GCGCD shall also establish, as part of this Plan, the policies of water conservation, public information and technical research by cooperation and coordination with the citizens of the District and equitable enforcement of the Plan and its accompanying rules.

2.0 Time Period of this Plan

This Plan will become effective, after notice and hearing, and upon adoption by the GCGCD Board of Director, and approval as administratively complete by the Texas Water Development Board (TWDB). The Plan will remain in effect for five (5) years after the date of approval or until a revised Plan is adopted and certified.

3.0 Statement of Guiding Principles

The GCGCD recognizes that the groundwater resources of the region are of vital importance to the continued economic well-being of landowners, agriculture, citizens, economy, environment and long-term use of the resource within the District. This Plan addresses the following management goals:

a. Providing the most efficient use of groundwater
b. Controlling and preventing waste of groundwater
c. Controlling and preventing subsidence
d. Addressing conjunctive surface water management issues
e. Addressing natural resource issues
f. Addressing drought conditions
g. Addressing conservation, recharge enhancement, rainwater, precipitation enhancement, or brush control where appropriate and cost effective
h. Addressing the desired future condition (DFC) of groundwater resources

This Plan is intended as a guide or blueprint for action of those individuals charged with the responsibility for the execution of District activities.

4.0 Background

The GCGCD was first created in 1997 by Acts of the 75th Legislature, Chapter 1066 and was then amended in 1999 by House Bill 3817 which created the District with seven directors elected from seven single member districts and limited the District to only a portion of Guadalupe County outside of the boundaries of the Edwards Aquifer Authority in Guadalupe County.

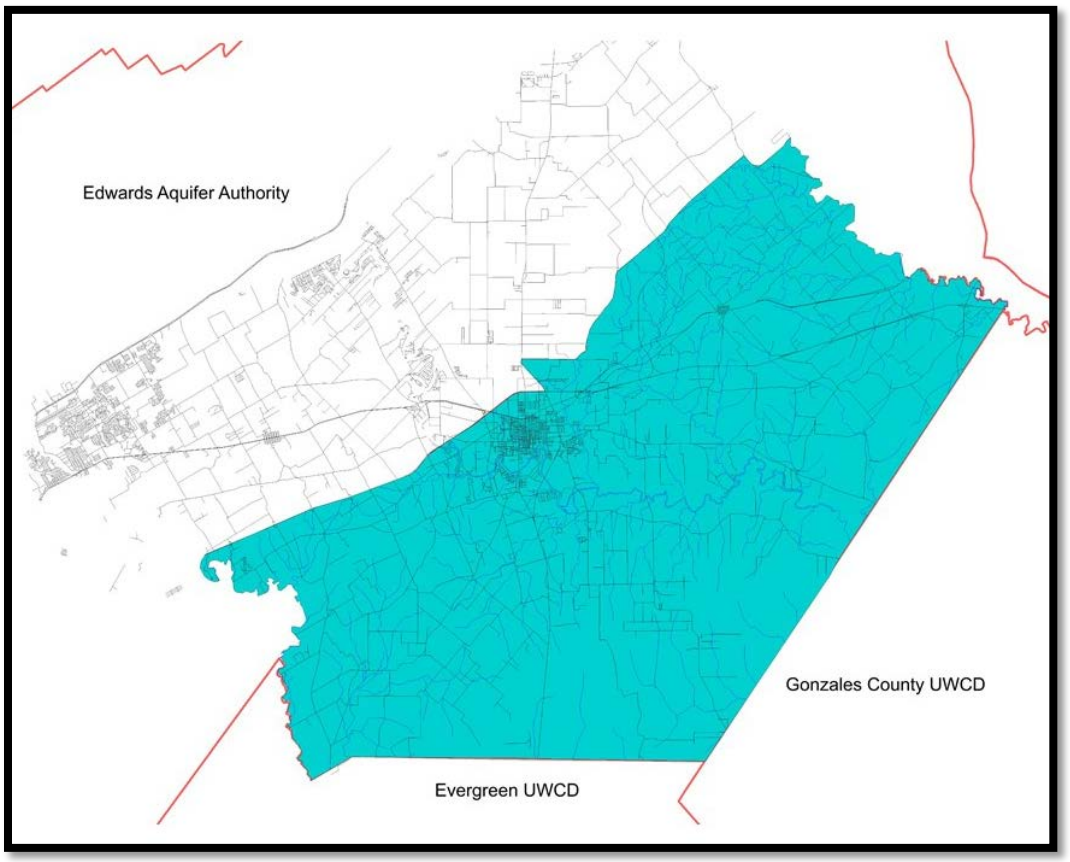


Figure 1. Guadalupe County GCD boundary The District does not have the authority to tax. The District receives all its income from fees imposed on municipal/commercial producers of groundwater and industrial or irrigation production of groundwater. A confirmation election was held on November 2, 1999 confirming the District and elected seven initial directors from single member districts. The District has adopted rules and held public hearings in accordance with Texas Water Code §36.001 et. Seq.

Figures 2 and 3. GCGCD is a part of South Central Texas Regional Water Planning Area (RWPA) L – Region L.

Figure 4. GCGCD belongs to Groundwater Management Area 13 (GMA 13).

Figure 2.

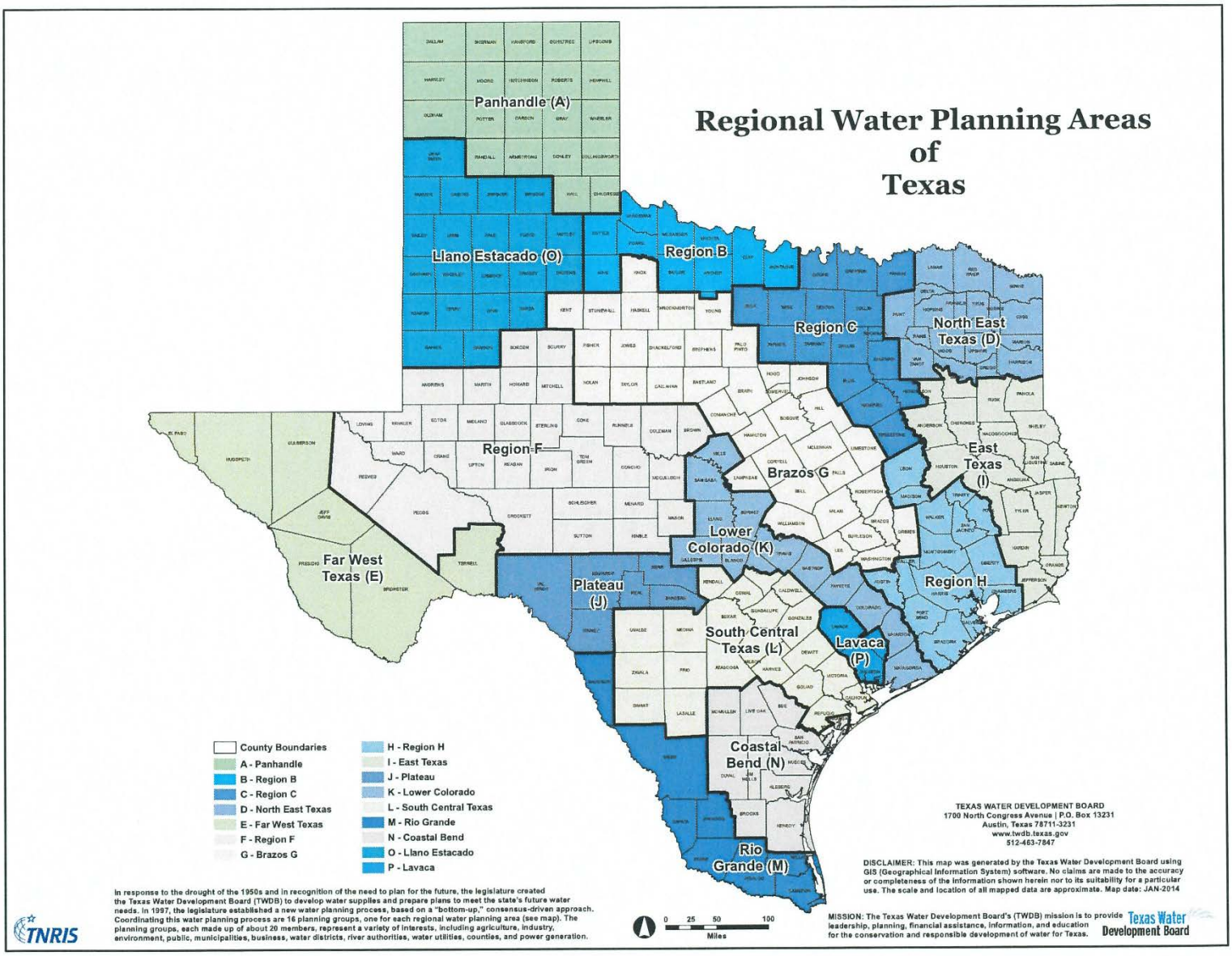

Regional Water Planning Areas of Texas
Panhandle (A)
Llano Estacado (O)
Region B
Region C
North East Texas (D)
Region F
Brazos G
East Texas (I)
Lower Colorado (K)
Far West Texas (E)
Plateau (J)
Region H
South Central Texas (L)
Lavaca (P)
Coastal Bend (N)
Rio Grande (M)
County Boundaries
A - Panhandle
B - Region B
C - Region C
D - North East Texas
E - Far West Texas
F - Region F
G - Brazos G
H - Region H
I - East Texas
J - Plateau
K - Lower Colorado
L - South Central Texas
M - Rio Grande
N - Coastal Bend
O - Llano Estacado
P - Lavaca
TEXAS WATER DEVELOPMENT BOARD
1700 North Congress Avenue | P.O. Box 13231
Austin, Texas 78711-3231
www.twdb.texas.gov
512-463-7847
DISCLAIMER: This map was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate. Map date: JAN-2014
In response to the drought of the 1950s and in recognition of the need to plan for the future, the legislature created the Texas Water Development Board (TWDB) to develop water supplies and prepare plans to meet the state's future water needs. In 1997, the legislature established a new water planning process, based on a "bottom-up," consensus-driven approach. Coordinating this water planning process are 16 planning groups, one for each regional water planning area (see map). The planning groups, each made up of about 20 members, represent a variety of interests, including agriculture, industry, environment, public, municipalities, business, water districts, river authorities, water utilities, counties, and power generation.
0 25 50 100
Miles
MISSION: The Texas Water Development Board's (TWDB) mission is to provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas.
Texas Water Development Board
TNRIS

Figure 3.

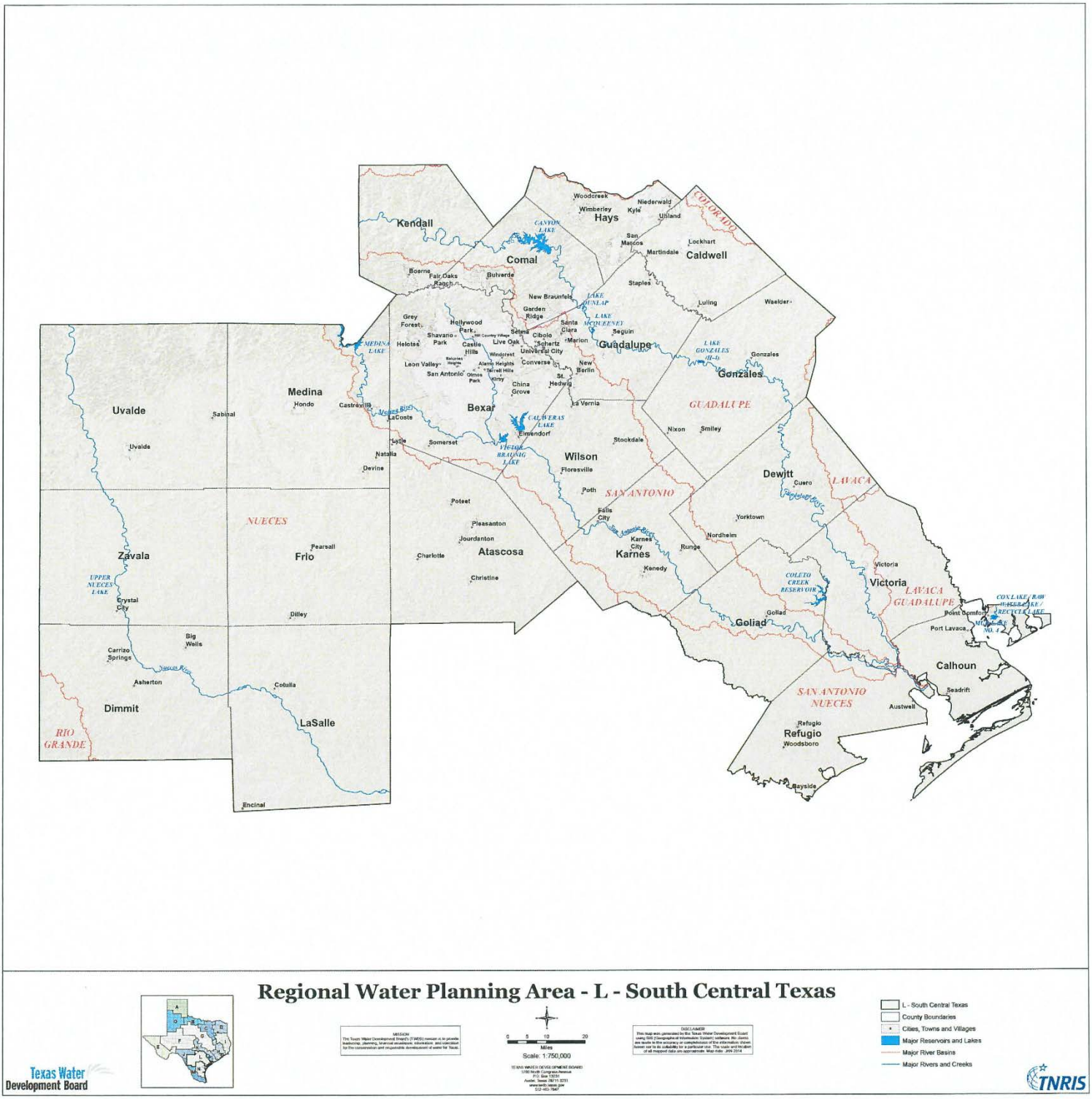
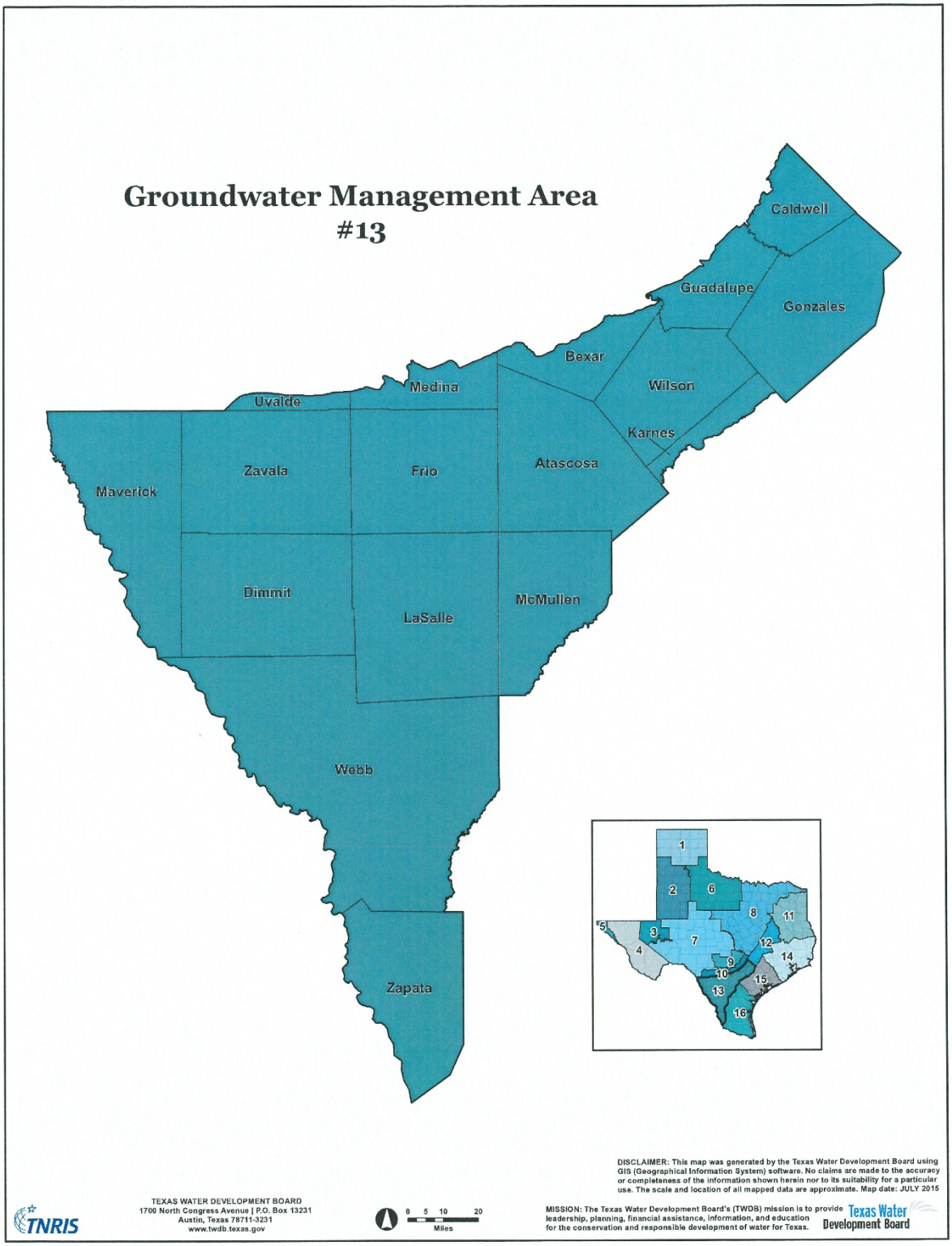

Regional Water Planning Area - L - South Central Texas
Kendall
Comal
Hays
Caldwell
Guadalupe
Gonzales
Medina
Uvalde
Bexar
Wilson
Dewitt
Zavala
Frio
Atascosa
Karnes
Victoria
Goliad
Refugio
Calhoun
Dimmit
LaSalle
Atascosa
Encinal
Scale: 1:750,000
L - South Central Texas
County Boundaries
Cities, Towns and Villages
Major Reservoirs and Lakes
Major River Basins
Major Rivers and Creeks
Texas Water Development Board
TNRIS

Figure 4.


Groundwater Management Area
#13
Caldwell
Guadalupe
Gonzales
Bexar
Wilson
Medina
Uvalde
Karnes
Zavala
Frio
Atascosa
Maverick
Dimmit
LaSalle
McMullen
Webb
Zapata
1
2
6
8
11
5
3
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12
14
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16
DISCLAIMER: This map was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate. Map date: JULY 2015
TNRIS
TEXAS WATER DEVELOPMENT BOARD
1700 North Congress Avenue | P.O. Box 13231
Austin, Texas 78711-3231
www.twdb.texas.gov
0 5 10 20
Miles
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Texas Water Development Board

5.0 Groundwater Resources

The GCGCD has the Carrizo and Wilcox aquifers and the Leona Gravels within its boundaries. The Carrizo and Wilcox aquifers have sufficient capacity for municipal, commercial, or irrigation type production. The Carrizo and Wilcox aquifers are recharged in Guadalupe County and both water-table and artesian conditions are found within the boundaries of the District. A substantial amount of recharge to the Carrizo and Wilcox aquifers located in Gonzales County originates in Guadalupe County. For additional information regarding the aquifers in Guadalupe County, see Texas Water Development Board Report 19 and Report 380. Additional information about the District can be found on the District's website www.gcgcd.org.

6.0 Modeled Available Groundwater (MAG)

Texas Water Code §36.108 requires joint planning among the groundwater conservation districts within GMA 13. A key component of joint planning is to determine the "desired future conditions" (DFCs) that are used to calculate the "modeled available groundwater" (MAG). See Appendix H.

**September 8, 2017 TWBD determined the desired future conditions explanatory report and other materials for Groundwater Management Area 13 required by TWC §36.108(d-3) are administratively complete in accordance with 31 TAC §356.33. See Appendix D*

7.0 Estimated Historical Groundwater Use and 2017 State Water Plan Datasets – See Appendix G

31 TAC §356.52(a)(5)(B); §356.10(2) and TWC §36.1071(e)(3)(B)

8.0 Projected Surface Water Supplies - See Appendix G

31 TAC §356.52(a)(5)(F) and TWC §36.1071(e)(3)(F)

9.0 Projected Water Demands - See Appendix G

31 TAC §356.52(a)(5)(G) and TWC §36.1071(e)(3)(G)

10.0 Projected Water Supply Needs - See Appendix G

TWC §36.1071(e)(4)

11.0 Projected Water Management Strategies - From the 2017 Texas State Water Plan (SWP) - See Appendix G

TWC §36.1071(e)(4)

12.0 Groundwater Availability Model (GAM) – See Appendix H (GAM RUN 11-017 MAG)

31 TAC §356.52(a)(5)(C); TWC §36.1071(e)(3)(C); 31 TAC §356.52(a)(5)(D); TWC §36.1071(e)(3)(D); 31 TAC §356.52(a)(5)(E); TWC §36.1071(e)(3)(E)

The Groundwater Availability Model (GAM) is used to estimate the Modeled Available Groundwater (MAG) from the Desired Future Conditions (DFC).

13.0 Actions, Procedures, Performance, Plan Implementation and Management of Groundwater Supplies

TWC §36.1071(e)(2)

The District will implement the provisions of this Plan and will utilize the provisions of this Plan as a guidepost for on-going evaluation determining the direction or priority for all District activities. 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 authority. All operations of the District, all agreements entered into by the District, and any additional planning efforts in which the District may participate will be consistent with the provisions of this plan. The District encourages public cooperation and shall treat all citizens equally. All meetings are noticed and open to the public and conducted in accordance with the Texas Open Meetings Act.

The District will manage groundwater resources consistent with the intent and purpose of the District to conserve, preserve, protect and prevent waste of groundwater resources so that the economy of the areas within the District will be ensured growth for future generations.

The District will monitor water levels in selected observation wells across the District at least three times a year and maintain a database of water levels for comparison. Water level changes will be calculated and shared with the Board and the public via the District website www.gcgcd.org.

The District has adopted Rules relating to the permitting of wells and the production of groundwater as provided under the authority of Texas Water Code §36.101. These Rules may be amended to reflect changes in TWC §36 and to ensure the best management of the groundwater within the District.

The District Rules are used 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. These Rules may be used as guides in the exercise of discretion, where discretion is vested. 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 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 promulgation of the District Management Plan, or amendments to these Rules.

Current Rules (Adopted July 14, 2016) available on District website www.gcgcd.org
See Appendix I.

Public cooperation is essential for this plan to accomplish its objectives. The District will work with the public and local and state governments to achieve the goals set forth in this plan. The District will coordinate with public water suppliers, private groundwater users, industrial and agricultural users to help them conserve groundwater. The District will work with other groundwater conservation districts within GMA 13 to best achieve the desired future conditions set forth by TWC §36.108.

14.0 Methodology to Track District Progress in Achieving Management Goals

In Accordance with 31 TAC §356.52(a)(4), the General Manager of the District will prepare and present an annual report to the Board of Directors on the performance of the District with respect to achieving the District's management goals and objectives. The Annual Manager's Report will be delivered to the board on or before March 31st of each new year. A copy of the Annual Manager's Report will be kept on file at the District and made available to the public after adoption by the board.

15.0 Plan Elements: Management Goal, Objectives & Performance Standards

A. Providing the Most Efficient Use of Groundwater: 31 TAC 356.52(a)(1)(A); TWC §36.1071(a)(1)

The District's goal is to provide the most efficient use of groundwater.

Management Objective 1:

The District will gather water production data from the municipal groundwater producers monthly to better project the needs of the District.

Performance:

The District will gather water production data from the municipal groundwater producers monthly and will compile a report to be presented to the board at each regularly scheduled board meeting and will be made available to the public on the District's website www.gcgcd.org or by request.

B. Controlling and Preventing Waste of Groundwater: 31 TAC 356.52(a)(1)(B); TWC §36.1071(a)(2)

The District's goal is to control and prevent waste of groundwater within its District's boundaries.

Management Objective 1:
The District will discuss and report on the problems of controlling and preventing waste of groundwater once a year. Focus will be on municipal water providers within the District controlling leakage from water transmission lines and reports of unnecessary or over-watering of lawns during drought conditions or other important topics relating to waste of groundwater.
Performance:
The District will record the date of the discussion and report to the Board at the next regularly scheduled meeting.
Management Objective 2:
The District will provide educational resources to the citizens within the District on ways to control and prevent waste of groundwater at least once a calendar year.
Performance:
The District, at least annually, will post educational resources on controlling groundwater waste and groundwater waste prevention on its website www.gcgcd.org and will at least one a year publish educational resources via its District quarterly newsletter, also to be made available on the District's website.

C. Controlling and Preventing Subsidence: 31 TAC 356.52(a)(1)(C); TWC §36.1071(a)(3)
Due to a well compacted and rigid geologic framework, subsidence is not an issue within Guadalupe County Groundwater Conservation District and therefore not applicable.

D. Addressing Conjunctive Surface Water Management: 31 TAC 356.52(a)(1)(D); TWC §36.1071(a)(4)
The District's goal is to maximize the efficient use of groundwater and surface water for the benefit of the residents of the District.

Management Objective 1:
The District will meet with the staff of the Guadalupe-Blanco River Authority (GBRA) at least once a year to share information updates about conjunctive use potential.
Performance:
Record the date and number of meetings with GBRA and report to the District's Board a summary of the meeting(s) at regularly scheduled board meetings.
Management Objective 2:
The District will attend at least one Regional Water Planning Group (RWPG) meeting annually to share the information updates about potential conjunctive use potential with its Board of Directors.
Performance:
Record the date and number of meetings with Regional Water Planning Group and report to the District's Board a summary of the meeting(s) at regularly scheduled board meetings.

E. Addressing Natural Resource Issues: 31 TAC 356.52(a)(1)(E); TWC §36.1071(a)(5)

The District's goal is to protect the natural resources of the GCGCD. Addressing natural resource issues that impact the use and availability of groundwater is of upmost importance to the District.

Management Objective 1:

The District will meet with the Natural Resources Conservation Service (NRCS) representatives at least once a year to exchange information regarding groundwater availability, irrigation demands and NRCS programs relating to groundwater.

Performance:

The District will record the date(s) of the meetings and report to the Board a summary of the discussion at the next regular board meeting.

Management Objective 2:

The District will meet with representatives of the Texas Railroad Commission (RRC) at least once a year to discuss abandoned oil/gas wells, plugging of such wells and locations and construction details of proposed salt-water injection wells within the GCGCD boundary.

Performance:

The District will record the date(s) of the meetings and report to the Board a summary of the discussion at the next regular board meeting.

F. Addressing Drought Conditions: 31 TAC 356.52(a)(1)(F); TWC §36.1071(a)(6)

The District's goal is to keep the public well informed of the drought conditions across the region. Links to TWDB drought page https://waterfortexas.org/drough can be found on District's website at http://gcgcd.org/drought.html

Management Objective 1:

The District's manager will at least once a year review/discuss the District's Drought Management Plan.

Performance:

The District will review the drought maps provided by TWDB at each regularly scheduled board meeting.

1. **Conservation**

   Management Objective 1:

   The District will provide educational information to the public on a variety of water conservation methods.

   Performance:

   The District, via its website and/or Newsletter, will provide water conservation tools to the public at least once a year.

2. **Recharge Enhancement**

   Management Objective 1:

   The District shall review published reports to stay informed on advances in recharge enhancement.

Performance:
The District, via its website and/or Newsletter, will provide to the public at least once a year, updated information on the subject of recharge enhancement.

3. **Rainwater Harvesting**
   This goal is not applicable to the District due to limited value and does not pertain to the management of the aquifers within the District.
4. **Precipitation Enhancement**
   This goal is not applicable to the District due to limited value and does not pertain to the management of the aquifers within the District.
5. **Brush Control**
   This goal is not applicable to the District due to limited value and does not pertain to the management of the aquifers within the District.

G. Desired Future Conditions established under TWC §36.108 31TAC 356.52(a)(1)(H); TWC §36.107(a)(8)

DFC is defined as "the desired, quantified condition of groundwater resources (such as water levels, spring flows, or volumes) within a management area at one or more specified future times as defined by participating groundwater conservation districts within a groundwater management area as part of the joint planning process"
The District's goal is to manage its aquifers within the established desired future conditions.

Management Objective 1:
The District's Manager shall attend and participate in the GMA 13 meetings, at least once a year, to obtain updates, share information with the other Districts and participate in the DFC planning process.

Performance:
Record date of meeting(s) and update Board at regular board meetings.

Management Objective 2:
The District will obtain water level measurements in both the Carrizo and Wilcox aquifers at least twice a year and compile the data into a report.

Performance:
Compile a report of water level measurements and report to the Board at regular board meetings and make the data available to public via the District's website and/or Newsletter.

Appendix A

Certified Copy of GCGCD Resolution

Adopting the Management Plan

GUADALUPE COUNTY GROUNDWATER CONSERVATION DISTRICT

RESOLUTION 111417-2 ADOPTING REVISED MANAGEMENT PLAN FOR GCGCD

November 14, 2017

WHERE AS, TEXAS WATER CODE §36.1071 - §36.1073 Requires a confirmed District to develop a Management Plan that using the best available science addresses:

1. Providing the most efficient use of groundwater
2. Controlling and preventing waste of groundwater
3. Controlling and preventing subsidence
4. Conjunctive surface water management issues
5. Natural resource issues
6. Drought conditions
7. Conservation, recharge enhancement, rainwater harvesting, precipitation enhancement or brush control where appropriate and cost-effective
8. Desired future conditions

WHERE AS, TWC §36.1072(e), requires each groundwater conservation district to review and readopt the Plan at least once every five years.

WHERE AS, after consideration and following notice of public hearing, the elected board of directors of the Guadalupe County Groundwater Conservation District has determined the submitted Management Plan is a proper guide and blueprint for the rules and management activities of the District.

NOW THEREFORE BE IT RESOLVED that the Board of Directors of the GCGCD, following proper notice and hearing, hereby adopt this Management Plan; to become effective January 23, 2018 upon adoption and authorizes its agents, officers and representatives to file same with the Texas Water Development Board for certification as administratively complete.

ADOPTED this 14th day of November, 2017. Motion to adopt made by Hilmar Blumberg

Second by Charlie Willman

Record Vote: 4-0

Guadalupe County Groundwater Conservation District

Ronald A. Naumann, President

Hilmar D. Blumberg, Secretary

Office 830/379-5969 • gcgcd@gcgcd.org • www.gcgcd.org
PO Box 1221 • 113 South River St., Ste. 209 • Seguin, Texas 78156-1221

Appendix B

Public Notices for Adoption of Management Plan

000564

GUADALUPE COUNTY
GROUNDWATER
CONSERVATION DISTRICT

NOTICE OF PUBLIC HEARING

Take Notice that the Guadalupe County Groundwater Conservation District (GCGCD) will hold a public hearing to consider and take action on the adoption of an updated Management Plan as required by TWC §36.1071.

The hearing will be held at 10:00 AM on November 14, 2017 at the GCGCD office located at 113 South River Street, Suite 209, Seguin, Texas, Guadalupe County.

RECEIVED
2017 NOV -9 AM 11:06
TERESA KIEL
GUADALUPE COUNTY CLERK
BY

Office 830/379-5969 • gcgcd@sbcglobal.net • www.gcgcd.org
PO Box 1221 • 113 South River St., Ste. 209 • Seguin, Texas 78156-1221

Appendix C

Proof of Notice to Surface Water Management Entities

September 29, 2017

Ms. Kelley A. Vickers, Executive Administrator

Guadalupe County Groundwater Conservation District

Po Box 1221

Seguin, Texas 78156

Dear Ms. Vickers,

The Guadalupe-Blanco River Authority (GBRA) has received the Guadalupe County Groundwater Conservation District's 2018 Management Plan (Plan). GBRA has no comments on the Plan at this time, however, we thank you for the opportunity to review it.

Best Regards,

Todd H. Votteler, Ph.D

Executive Manager of Resource Policy & Stewardship

RECEIVED
OCT 03 2017
BY: KV

Main Office: 933 East Court Street ~ Seguin, Texas 78155
830-379-5822 ~ 800-413-4130 ~ 830-379-9718 fax ~ www.gbra.org

GBRA Guadalupe-Blanco River Authority
flowing solutions

From:	Kelley Vickers
To:	"Tramirez@gbra.org"
Subject:	2018 GCGCD Management Plan - Adopted
Date:	Thursday, November 16, 2017 10:39:00 AM
Attachments:	GCGCD_MANAGEMENT_PLAN_2018.pdf image001.png

Ms. Ramirez,

Attached please find the recently adopted Management Plan for the Guadalupe County Groundwater Conservation District for 2018. Thank you.

Kelley Vickers

Kelley Vickers
PO Box 1221
Seguin, TX 78156
www.gcgcd.org
830-379-5969

Appendix D

TWDB letter of Administratively Complete
DFC Explanatory Report

Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

September 8, 2017

Mr. Greg Sengelmann
General Manager
Gonzales County Underground Water Conservation District
P.O. Box 1919
Gonzales, TX 78629

Dear Mr. Sengelmann:

The purpose of this letter is to notify you that the desired future conditions explanatory report and other materials for Groundwater Management Area 13 required by Texas Water Code §36.108(d-3) are administratively complete in accordance with 31 Texas Administrative Code §356.33.

On February 28, 2017, we received the final explanatory report and additional materials for desired future conditions adopted by groundwater conservation district representatives in Groundwater Management Area 13. Your submission included: (1) the explanatory report and the adopted desired future conditions for the relevant aquifers; (2) the signed resolution; (3) the postings, minutes, and voting record for the public meeting in which the desired future conditions were adopted; (4) model files; and (5) contact information for the groundwater management area consultant. On March 20, 2017, we requested clarifications regarding several items required to evaluate the materials for administrative completeness. We received final clarifications regarding these items on August 25, 2017.

We will provide you with modeled available groundwater values for these aquifers no later than 180 days after the date of this letter in accordance with 31 Texas Administrative Code §356.35. Please contact Natalie Ballew of our Groundwater Availability Modeling staff at 512-463-2779 or natalie.ballew@twdb.texas.gov if you have any questions or need any further information.

Respectfully,

Jeff Walker
Executive Administrator

c w/o enc: Matt Nelson, Water Supply & Infrastructure
Larry French, Groundwater Division
Temple McKinnon, Water Use, Projections, & Planning
Sarah Backhouse, Water Use, Projections, & Planning

Appendix E

Water Planning Data Definitions

Data Definitions*

1. Projected Water Demands*

From the 2012 State Water Plan Glossary: "**WATER DEMAND** Quantity of water projected to meet the overall necessities of a water user group in a specific future year." (See 2012 State Water Plan Chapter 3 for more detail.)

Additional explanation: These are water demand volumes as projected for specific Water User Groups in the 2011 Regional Water Plans. This is NOT groundwater pumpage or demand based on any existing water source. This demand is how much water each Water User Group is projected to require in each decade over the planning horizon.

2. Projected Surface Water Supplies*

From the 2012 State Water Plan Glossary: "**EXISTING *[surface]* WATER SUPPLY -** Maximum amount of *[surface]* water available from existing sources for use during drought of record conditions that is physically and legally available for use." (See 2012 State Water Plan Chapter 5 for more detail.)

Additional explanation: These are the existing surface water supply volumes that, without implementing any recommended WMSs, could be used during a drought (in each planning decade) by Water User Groups located within the specified geographic area.

3. Projected Water Supply Needs*

From the 2012 State Water Plan Glossary: "**NEEDS -**Projected water demands in excess of existing water supplies for a water user group or a wholesale water provider." (See 2012 State Water Plan Chapter 6 for more detail.)

Additional explanation: These are the volumes of water that result from comparing each Water User Group's projected existing water supplies to its projected water demands. If the volume listed is a negative number, then the Water User Group shows a projected need during a drought if they do not implement any water management strategies. If the volume listed is a positive number, then the Water User Group shows a projected surplus. Note that if a Water User Group shows a need in any decade, then they are considered to have a potential need during the planning horizon, even if they show a surplus elsewhere.

4. Projected Water Management Strategies*

From the 2012 State Water Plan Glossary: "**RECOMMENDED WATER MANAGEMENT STRATEGY -** Specific project or action to increase water supply or maximize existing supply to meet a specific need." (See 2012 State Water Plan Chapter 7 for more detail.)

Additional explanation: These are the specific water management strategies (with associated water volumes) that were recommended in the 2011 Regional Water Plans.

**Terminology used by TWDB staff in providing data for 'Estimated Historical Water Use And 2012 State Water Plan Datasets' reports issued by TWDB.*

Appendix F

Texas Water Use Estimates – 2014 Summary

Texas Water Use Estimates

2014 Summary

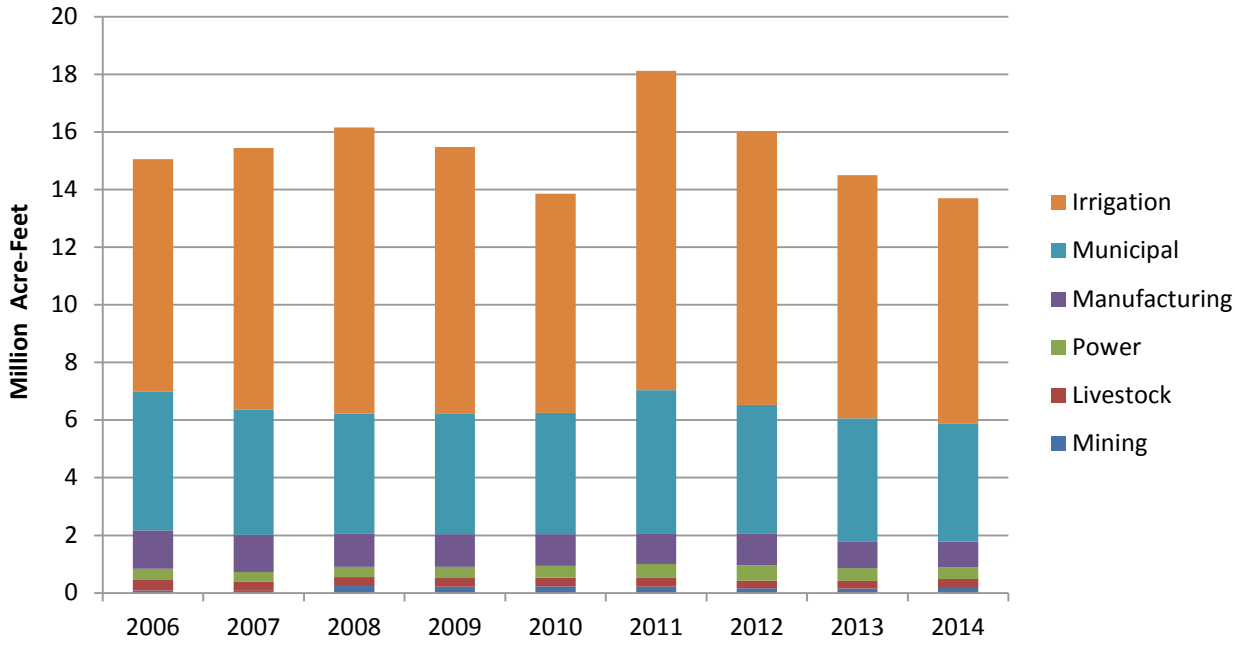
Updated September 6, 2016

The Texas Water Development Board Water Use Survey program conducts an annual survey of about 4,300 public water systems and 2,000 industrial facilities. The water use survey collects the volume of both ground and surface water used, the source of the water, water sales, and other pertinent data from the users. This data provides an important source of information in helping guide water supply studies as well as regional and state water planning that is dependent upon the accuracy and completeness of the information water users provide.

Of the approximately 6,300 systems/facilities surveyed, 84% submitted their water use survey for 2014 water use. This represents about 90% of the total surveyed water use in the state. For those systems/facilities that did not submit their survey, estimates were carried-over from the most current available year. Estimates are also revised as additional or more accurate data becomes available through survey responses.

2014 Estimated Annual Statewide Water Use

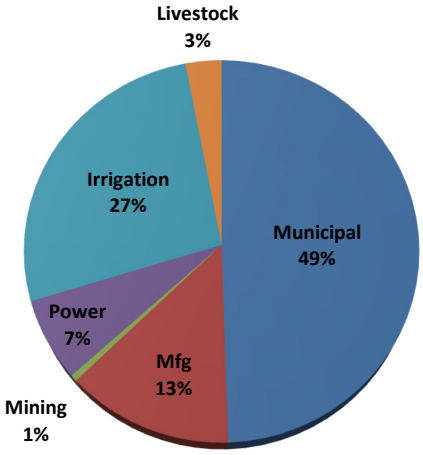
Total estimated water use for 2014 was about 13.70 million acre-feet *(1 acre-foot = 325,851 gallons)* and was down from 2013 which was estimated at about 14.49 million acre-feet. Compared with 2013, the total 2014 estimated municipal water use decreased from 4.28 million acre-feet to 4.09 million acre-feet. Below is a breakdown of the categorical estimated uses from 2006 to 2014. Irrigation water use **(58%)** topped the largest water use category in the State in 2014 with an estimated 7.83 million acre-feet. Municipal water use **(30%)** was the second largest water use category with an estimated 4.09 million acre-feet. Manufacturing **(6%)**, Power **(3%)**, Livestock **(2%)**, and Mining **(1%)** estimated water use collectively comprised about 1.78 million acre-feet.



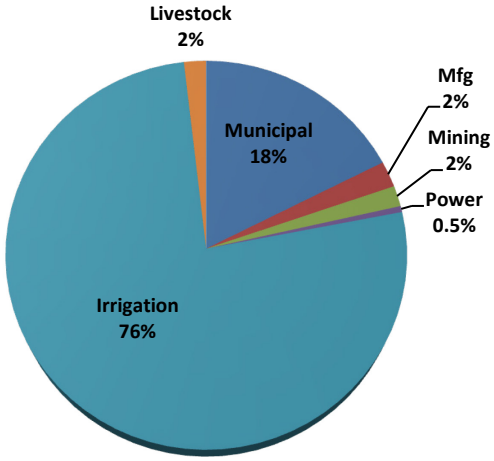
2014 Surface & Groundwater Use Estimates

Approximately **62%** of the 2014 estimated water use in Texas was from **groundwater** sources (about 8.42 million acre-feet) with the remaining **38%** from **surface water** sources (about 5.27 million acre-feet). The two graphs below illustrate the categorical differences in use between surface water and groundwater sources.

2014 Surface Water Estimates by Category



2014 Groundwater Estimates by Category



Detailed reports of historical water use estimates and historical groundwater pumpage in Texas can be found at:

http://www.twdb.texas.gov/waterplanning/waterusesurvey/estimates/index.asp

http://www.twdb.texas.gov/waterplanning/waterusesurvey/historical-pumpage.asp

Appendix G

Estimated Historical Groundwater Use &
2017 State Water Plan Datasets

Estimated Historical Groundwater Use And 2017 State Water Plan Datasets:

Guadalupe County Groundwater Conservation District

by Stephen Allen
Texas Water Development Board
Groundwater Division
Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
May 2, 2017

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 Groundwater 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 5/2/2017. 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).

The values presented in the data tables of this report are county-based. In cases where groundwater conservation districts cover only a portion of one or more counties the data values are modified with an apportioning multiplier to create new values that more accurately represent conditions within district boundaries. The multiplier used in the following formula is a land area ratio: (data value * (land area of district in county / land area of county)). For two of the four SWP tables (Projected Surface Water Supplies and Projected Water Demands) only the county-wide water user group (WUG) data values (county other, manufacturing, steam electric power, irrigation, mining and livestock) are modified using the multiplier. WUG values for municipalities, water supply corporations, and utility districts are not apportioned; instead, their full values are retained when they are located within the district, and eliminated when they are located outside (we ask each district to identify these entity locations).

The remaining SWP tables (Projected Water Supply Needs and Projected Water Management Strategies) are not modified because district-specific values are not statutorily required. Each district needs only "consider" the county values in these tables.

In the WUS table every category of water use (including municipal) is apportioned. Staff determined that breaking down the annual municipal values into individual WUGs was too complex.

TWDB recognizes that the apportioning formula used is not perfect but it is the best available process with respect to time and staffing constraints. If a district believes it has data that is more accurate it can add those data to the plan with an explanation of how the data were derived. Apportioning percentages that the TWDB used are listed above each applicable table.

For additional questions regarding this data, please contact Stephen Allen (stephen.allen@twdb.texas.gov or 512-463-7317) or Rima Petrossian (rima.petrossian@twdb.texas.gov or 512-936-2420).

Estimated Historical Water Use
TWDB Historical Water Use Survey (WUS) Data

Groundwater and surface water historical use estimates are currently unavailable for calendar year 2016. TWDB staff anticipates the calculation and posting of these estimates at a later date.

GUADALUPE COUNTY

60.89% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2015	GW	7,526	108	0	1	325	303	8,263
	SW	4,734	1,112	0	2,228	147	302	8,523
2014	GW	7,536	98	0	0	453	293	8,380
	SW	4,848	1,122	0	0	98	289	6,357
2013	GW	7,177	639	0	0	422	271	8,509
	SW	4,662	1,597	0	0	111	269	6,639
2012	GW	7,363	769	1	0	625	245	9,003
	SW	5,029	1,833	0	0	181	242	7,285
2011	GW	7,188	793	53	0	1,079	594	9,707
	SW	5,510	2,009	115	0	127	591	8,352
2010	GW	5,628	682	59	0	312	584	7,265
	SW	4,934	1,684	127	0	50	581	7,376
2009	GW	6,763	807	53	0	361	297	8,281
	SW	4,555	1,542	118	0	0	297	6,512
2008	GW	6,760	847	50	0	164	295	8,116
	SW	4,554	1,396	107	0	86	295	6,438
2007	GW	5,350	720	0	0	44	359	6,473
	SW	3,602	1,344	0	0	86	359	5,391
2006	GW	7,015	59	0	0	365	315	7,754
	SW	5,165	991	0	0	0	314	6,470
2005	GW	11,345	205	0	0	180	328	12,058
	SW	4,341	1,036	0	0	122	327	5,826
2004	GW	5,813	117	0	0	167	42	6,139
	SW	2,853	1,147	0	0	124	642	4,766
2003	GW	6,260	116	0	0	142	41	6,559
	SW	3,376	1,065	0	0	217	622	5,280
2002	GW	4,125	115	0	0	227	39	4,506
	SW	4,899	1,178	0	0	404	591	7,072
2001	GW	4,240	116	0	0	191	39	4,586
	SW	4,158	1,047	0	0	340	594	6,139
2000	GW	4,170	115	18	0	196	64	4,563
	SW	4,520	1,145	0	0	337	580	6,582

Projected Surface Water Supplies
TWDB 2017 State Water Plan Data

GUADALUPE COUNTY

60.89% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
L	CIBOLO	SAN ANTONIO	CANYON LAKE/RESERVOIR	2,526	2,526	2,526	2,526	2,526	2,526
L	COUNTY-OTHER, GUADALUPE	GUADALUPE	CANYON LAKE/RESERVOIR	395	464	477	504	534	563
L	COUNTY-OTHER, GUADALUPE	GUADALUPE	GUADALUPE RUN-OF-RIVER	37	37	37	37	37	37
L	COUNTY-OTHER, GUADALUPE	SAN ANTONIO	CANYON LAKE/RESERVOIR	259	197	202	214	225	238
L	CRYSTAL CLEAR WSC	GUADALUPE	CANYON LAKE/RESERVOIR	824	834	837	831	824	813
L	EAST CENTRAL SUD	SAN ANTONIO	CANYON LAKE/RESERVOIR	49	50	50	50	49	48
L	GONZALES COUNTY WSC	GUADALUPE	CANYON LAKE/RESERVOIR	10	11	12	13	13	14
L	GREEN VALLEY SUD	GUADALUPE	CANYON LAKE/RESERVOIR	521	525	528	531	533	536
L	GREEN VALLEY SUD	SAN ANTONIO	CANYON LAKE/RESERVOIR	380	383	386	387	389	392
L	IRRIGATION, GUADALUPE	GUADALUPE	CANYON LAKE/RESERVOIR	205	205	205	205	205	205
L	IRRIGATION, GUADALUPE	GUADALUPE	GUADALUPE RUN-OF-RIVER	261	261	261	261	261	261
L	LIVESTOCK, GUADALUPE	GUADALUPE	GUADALUPE LIVESTOCK LOCAL SUPPLY	318	318	318	318	318	318
L	MANUFACTURING, GUADALUPE	GUADALUPE	CANYON LAKE/RESERVOIR	600	600	600	600	600	600
L	MANUFACTURING, GUADALUPE	GUADALUPE	GUADALUPE RUN-OF-RIVER	888	888	888	888	888	888
L	MARION	SAN ANTONIO	CANYON LAKE/RESERVOIR	208	208	208	208	208	208
L	NEW BERLIN	SAN ANTONIO	CANYON LAKE/RESERVOIR	34	40	47	53	60	66
L	NEW BRAUNFELS	GUADALUPE	CANYON LAKE/RESERVOIR	1,648	1,596	1,562	1,532	1,513	1,502
L	NEW BRAUNFELS	GUADALUPE	GUADALUPE RUN-OF-RIVER	219	212	208	204	201	200
L	SEGUIN	GUADALUPE	CANYON LAKE/RESERVOIR	1,160	1,171	1,200	1,263	1,329	1,397
L	SPRINGS HILL WSC	GUADALUPE	CANYON LAKE/RESERVOIR	3,011	2,972	2,869	2,645	2,409	2,170
L	SPRINGS HILL WSC	GUADALUPE	GUADALUPE RUN-OF-RIVER	79	79	79	79	79	79

Projected Surface Water Supplies
TWDB 2017 State Water Plan Data

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
L	SPRINGS HILL WSC	SAN ANTONIO	CANYON LAKE/RESERVOIR	405	402	387	357	325	292
L	SPRINGS HILL WSC	SAN ANTONIO	GUADALUPE RUN-OF-RIVER	11	11	11	11	11	11
L	STEAM ELECTRIC POWER, GUADALUPE	GUADALUPE	CANYON LAKE/RESERVOIR	4,165	4,165	4,165	4,165	4,165	4,165
L	STEAM ELECTRIC POWER, GUADALUPE	GUADALUPE	GUADALUPE RUN-OF-RIVER	3,410	3,410	3,410	3,410	3,410	3,410
	Sum of Projected Surface Water Supplies (acre-feet)			**21,623**	**21,565**	**21,473**	**21,292**	**21,112**	**20,939**

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.

GUADALUPE COUNTY

60.89% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
L	CIBOLO	SAN ANTONIO	5,343	7,823	9,148	10,447	11,773	13,075
L	COUNTY-OTHER, GUADALUPE	GUADALUPE	390	422	530	638	748	857
L	COUNTY-OTHER, GUADALUPE	SAN ANTONIO	260	181	228	274	320	367
L	CRYSTAL CLEAR WSC	GUADALUPE	1,612	1,883	2,167	2,457	2,766	3,071
L	EAST CENTRAL SUD	SAN ANTONIO	97	113	129	145	164	182
L	GONZALES COUNTY WSC	GUADALUPE	32	38	45	51	49	54
L	GREEN VALLEY SUD	GUADALUPE	892	1,004	1,128	1,265	1,421	1,577
L	GREEN VALLEY SUD	SAN ANTONIO	651	733	824	924	1,038	1,152
L	IRRIGATION, GUADALUPE	GUADALUPE	206	183	160	153	152	142
L	IRRIGATION, GUADALUPE	SAN ANTONIO	45	40	35	33	33	31
L	LIVESTOCK, GUADALUPE	GUADALUPE	573	573	573	573	573	573
L	LIVESTOCK, GUADALUPE	SAN ANTONIO	64	64	64	64	64	64
L	LULING	GUADALUPE	4	4	5	6	6	7
L	MANUFACTURING, GUADALUPE	GUADALUPE	1,823	2,003	2,176	2,325	2,526	2,744
L	MANUFACTURING, GUADALUPE	SAN ANTONIO	5	6	7	7	7	9
L	MARION	SAN ANTONIO	164	189	216	245	275	305
L	MINING, GUADALUPE	GUADALUPE	208	251	292	345	404	476
L	MINING, GUADALUPE	SAN ANTONIO	69	84	97	115	135	159
L	NEW BERLIN	SAN ANTONIO	102	120	140	159	179	198
L	NEW BRAUNFELS	GUADALUPE	2,528	2,987	3,468	3,949	4,447	4,940
L	SANTA CLARA	GUADALUPE	15	17	20	23	25	28
L	SANTA CLARA	SAN ANTONIO	90	105	121	136	154	171
L	SCHERTZ	GUADALUPE	478	626	731	835	942	1,047
L	SCHERTZ	SAN ANTONIO	5,970	7,828	9,136	10,438	11,779	13,099
L	SEGUIN	GUADALUPE	4,707	5,494	6,326	7,175	8,077	8,970
L	SELMA	SAN ANTONIO	376	816	813	812	811	810
L	SPRINGS HILL WSC	GUADALUPE	1,249	1,428	1,626	1,833	2,059	2,286
L	SPRINGS HILL WSC	SAN ANTONIO	168	193	219	247	278	308
L	STEAM ELECTRIC POWER, GUADALUPE	GUADALUPE	3,644	3,009	3,127	3,401	4,576	5,097
L	WATER SERVICES INC	SAN ANTONIO	40	47	53	61	68	76
	Sum of Projected Water Demands (acre-feet)		**31,805**	**38,264**	**43,604**	**49,136**	**55,849**	**61,875**

Projected Water Supply Needs
TWDB 2017 State Water Plan Data

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

GUADALUPE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
L	CIBOLO	SAN ANTONIO	-1,417	-3,897	-5,222	-6,521	-7,847	-9,149
L	COUNTY-OTHER, GUADALUPE	GUADALUPE	1,506	1,648	1,532	1,490	1,453	1,417
L	COUNTY-OTHER, GUADALUPE	SAN ANTONIO	377	342	293	274	257	242
L	CRYSTAL CLEAR WSC	GUADALUPE	217	-32	-310	-613	-937	-1,265
L	EAST CENTRAL SUD	SAN ANTONIO	17	6	-8	-21	-39	-56
L	GONZALES COUNTY WSC	GUADALUPE	8	5	2	-1	2	-1
L	GREEN VALLEY SUD	GUADALUPE	-39	-146	-265	-398	-549	-700
L	GREEN VALLEY SUD	SAN ANTONIO	-30	-107	-193	-291	-401	-511
L	IRRIGATION, GUADALUPE	GUADALUPE	548	587	624	635	637	654
L	IRRIGATION, GUADALUPE	SAN ANTONIO	1	9	17	20	20	24
L	LIVESTOCK, GUADALUPE	GUADALUPE	0	0	0	0	0	0
L	LIVESTOCK, GUADALUPE	SAN ANTONIO	0	0	0	0	0	0
L	LULING	GUADALUPE	1	0	-1	-2	-2	-3
L	MANUFACTURING, GUADALUPE	GUADALUPE	662	366	82	-163	-493	-851
L	MANUFACTURING, GUADALUPE	SAN ANTONIO	2	1	0	0	-1	-3
L	MARION	SAN ANTONIO	168	143	116	87	57	27
L	MINING, GUADALUPE	GUADALUPE	0	0	0	0	0	0
L	MINING, GUADALUPE	SAN ANTONIO	0	0	0	0	0	0
L	NEW BERLIN	SAN ANTONIO	0	0	0	0	0	0
L	NEW BRAUNFELS	GUADALUPE	422	-130	-672	-1,206	-1,740	-2,251
L	SANTA CLARA	GUADALUPE	6	3	0	-2	-5	-8
L	SANTA CLARA	SAN ANTONIO	33	19	3	-13	-30	-47
L	SCHERTZ	GUADALUPE	0	0	-70	-226	-389	-545
L	SCHERTZ	SAN ANTONIO	0	0	-872	-2,835	-4,867	-6,828
L	SEGUIN	GUADALUPE	0	0	0	0	0	0
L	SELMA	SAN ANTONIO	166	-8	-47	-83	-112	-138
L	SPRINGS HILL WSC	GUADALUPE	3,272	3,017	2,613	1,958	1,259	555
L	SPRINGS HILL WSC	SAN ANTONIO	440	408	353	265	170	74
L	STEAM ELECTRIC POWER, GUADALUPE	GUADALUPE	7,808	8,851	8,656	8,207	6,277	5,421
L	WATER SERVICES INC	SAN ANTONIO	24	22	19	15	11	6
	Sum of Projected Water Supply Needs (acre-feet)		**-1,486**	**-4,320**	**-7,660**	**-12,375**	**-17,412**	**-22,356**

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

GUADALUPE COUNTY

WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
CIBOLO, SAN ANTONIO (L)							
CIBOLO VALLEY LGC CARRIZO PROJECT	CARRIZO-WILCOX AQUIFER [WILSON]	0	0	1,118	4,740	5,196	5,196
CIBOLO VALLEY LGC CARRIZO PROJECT (DEMAND REDUCTION)	CARRIZO-WILCOX AQUIFER [WILSON]	0	2,116	2,323	0	0	0
CRWA WELLS RANCH PROJECT PHASE II	CARRIZO-WILCOX AQUIFER [GUADALUPE]	0	0	0	0	261	2,172
DROUGHT MANAGEMENT - CIBOLO	DEMAND REDUCTION [GUADALUPE]	267	0	0	0	0	0
HAYS/CALDWELL PUA PROJECT	CARRIZO-WILCOX AQUIFER [CALDWELL]	1,781	1,781	1,781	1,781	1,781	1,781
MUNICIPAL WATER CONSERVATION (SUBURBAN)	DEMAND REDUCTION [GUADALUPE]	0	0	48	297	609	975
		2,048	**3,897**	**5,270**	**6,818**	**7,847**	**10,124**
COUNTY-OTHER, GUADALUPE, GUADALUPE (L)							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	0	0	0	0	19	55
		0	**0**	**0**	**0**	**19**	**55**
COUNTY-OTHER, GUADALUPE, SAN ANTONIO (L)							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	0	0	0	0	8	24
		0	**0**	**0**	**0**	**8**	**24**
CRYSTAL CLEAR WSC, GUADALUPE (L)							
CRWA WELLS RANCH PROJECT PHASE II	CARRIZO-WILCOX AQUIFER [GUADALUPE]	191	686	830	0	0	0
HAYS/CALDWELL PUA PROJECT	CARRIZO-WILCOX AQUIFER [CALDWELL]	315	777	637	1,457	1,444	1,426
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	0	0	0	0	0	51
		506	**1,463**	**1,467**	**1,457**	**1,444**	**1,477**
EAST CENTRAL SUD, SAN ANTONIO (L)							
HAYS/CALDWELL PUA PROJECT	CARRIZO-WILCOX AQUIFER [CALDWELL]	0	32	34	35	39	56
		0	**32**	**34**	**35**	**39**	**56**
GONZALES COUNTY WSC, GUADALUPE (L)							
LOCAL CARRIZO AQUIFER DEVELOPMENT	CARRIZO-WILCOX AQUIFER [GONZALES]	0	0	0	1	1	1
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	4	7	11	15	17	22

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
		4	**7**	**11**	**16**	**18**	**23**
GREEN VALLEY SUD, GUADALUPE (L)							
BRACKISH WILCOX GROUNDWATER FOR CRWA	CARRIZO-WILCOX AQUIFER [WILSON]	0	0	0	0	0	312
CRWA SIESTA PROJECT	DIRECT REUSE [BEXAR]	0	0	0	182	0	1,415
CRWA SIESTA PROJECT	SAN ANTONIO RUN-OF-RIVER [WILSON]	0	0	0	148	0	1,125
CRWA WELLS RANCH PROJECT PHASE II	CARRIZO-WILCOX AQUIFER [GUADALUPE]	1,710	2,214	2,229	3,907	3,821	2,850
DROUGHT MANAGEMENT - GREEN VALLEY SUD	DEMAND REDUCTION [GUADALUPE]	45	0	0	0	0	0
		1,755	**2,214**	**2,229**	**4,237**	**3,821**	**5,702**
GREEN VALLEY SUD, SAN ANTONIO (L)							
BRACKISH WILCOX GROUNDWATER FOR CRWA	CARRIZO-WILCOX AQUIFER [WILSON]	0	0	0	0	0	228
CRWA SIESTA PROJECT	DIRECT REUSE [BEXAR]	0	0	0	133	0	1,034
CRWA SIESTA PROJECT	SAN ANTONIO RUN-OF-RIVER [WILSON]	0	0	0	108	0	822
CRWA WELLS RANCH PROJECT PHASE II	CARRIZO-WILCOX AQUIFER [GUADALUPE]	1,248	1,616	1,628	2,854	2,791	2,082
DROUGHT MANAGEMENT - GREEN VALLEY SUD	DEMAND REDUCTION [GUADALUPE]	33	0	0	0	0	0
		1,281	**1,616**	**1,628**	**3,095**	**2,791**	**4,166**
LULING, GUADALUPE (L)							
GBRA - MBWSP - SURFACE WATER W/ ASR (OPTION 3C)	GUADALUPE RUN-OF-RIVER [GONZALES]	7	6	6	7	6	7
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	0	0	0	0	0	0
		7	**6**	**6**	**7**	**6**	**7**
MANUFACTURING, GUADALUPE, GUADALUPE (L)							
GBRA - MBWSP - SURFACE WATER W/ ASR (OPTION 3C)	GUADALUPE RUN-OF-RIVER [GONZALES]	0	0	0	163	493	851
		0	**0**	**0**	**163**	**493**	**851**
MANUFACTURING, GUADALUPE, SAN ANTONIO (L)							
GBRA - MBWSP - SURFACE WATER W/ ASR (OPTION 3C)	GUADALUPE RUN-OF-RIVER [GONZALES]	0	0	0	0	1	3
		0	**0**	**0**	**0**	**1**	**3**
NEW BERLIN, SAN ANTONIO (L)							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	4	6	9	13	19	24
		4	**6**	**9**	**13**	**19**	**24**

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
NEW BRAUNFELS, GUADALUPE (L)							
MUNICIPAL WATER CONSERVATION (SUBURBAN)	DEMAND REDUCTION [GUADALUPE]	109	357	681	886	1,079	1,289
NEW BRAUNFELS UTILITY - ASR	TRINITY AND/OR BRACKISH EDWARDS AQUIFER ASR [COMAL]	1,407	1,363	1,333	1,308	1,292	1,282
NEW BRAUNFELS UTILITY - TRINITY DEVELOPMENT	TRINITY AQUIFER [COMAL]	0	657	643	630	623	618
REUSE - NEW BRAUNFELS	DIRECT REUSE [COMAL]	1,191	1,297	1,377	1,515	1,667	1,809
		2,707	**3,674**	**4,034**	**4,339**	**4,661**	**4,998**
SANTA CLARA, GUADALUPE (L)							
CRWA WELLS RANCH PROJECT PHASE II	CARRIZO-WILCOX AQUIFER [GUADALUPE]	0	0	0	2	5	8
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	0	0	0	0	0	0
		0	**0**	**0**	**2**	**5**	**8**
SANTA CLARA, SAN ANTONIO (L)							
CRWA WELLS RANCH PROJECT PHASE II	CARRIZO-WILCOX AQUIFER [GUADALUPE]	0	0	0	13	30	47
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	0	0	0	0	0	1
		0	**0**	**0**	**13**	**30**	**48**
SCHERTZ, GUADALUPE (L)							
CIBOLO VALLEY LGC CARRIZO PROJECT	CARRIZO-WILCOX AQUIFER [WILSON]	0	0	0	0	146	311
MUNICIPAL WATER CONSERVATION (SUBURBAN)	DEMAND REDUCTION [GUADALUPE]	17	25	41	64	92	125
REGIONAL CARRIZO FOR SSLGC PROJECT EXPANSION	CARRIZO-WILCOX AQUIFER [GONZALES]	35	61	70	227	243	235
		52	**86**	**111**	**291**	**481**	**671**
SCHERTZ, SAN ANTONIO (L)							
CIBOLO VALLEY LGC CARRIZO PROJECT	CARRIZO-WILCOX AQUIFER [WILSON]	0	0	0	0	1,830	3,887
MUNICIPAL WATER CONSERVATION (SUBURBAN)	DEMAND REDUCTION [GUADALUPE]	206	316	518	796	1,151	1,566
REGIONAL CARRIZO FOR SSLGC PROJECT EXPANSION	CARRIZO-WILCOX AQUIFER [GONZALES]	431	766	872	2,835	3,036	2,941
		637	**1,082**	**1,390**	**3,631**	**6,017**	**8,394**
SEGUIN, GUADALUPE (L)							
MUNICIPAL WATER CONSERVATION (SUBURBAN)	DEMAND REDUCTION [GUADALUPE]	0	0	0	65	257	494
		0	**0**	**0**	**65**	**257**	**494**

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
SELMA, SAN ANTONIO (L)							
MUNICIPAL WATER CONSERVATION (SUBURBAN)	DEMAND REDUCTION [GUADALUPE]	19	51	67	84	100	118
REGIONAL CARRIZO FOR SSLGC PROJECT EXPANSION	CARRIZO-WILCOX AQUIFER [GONZALES]	0	8	47	83	112	138
		19	**59**	**114**	**167**	**212**	**256**
WATER SERVICES INC, SAN ANTONIO (L)							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [GUADALUPE]	1	1	1	3	4	7
		1	**1**	**1**	**3**	**4**	**7**
Sum of Projected Water Management Strategies (acre-feet)		**9,021**	**14,143**	**16,304**	**24,352**	**28,173**	**37,388**

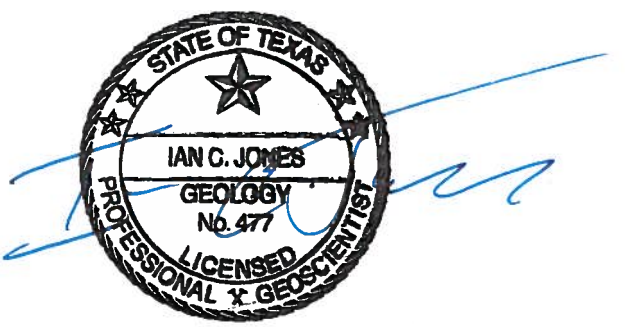
Appendix H

TWDB GAM RUN 11-017

TWDB GAM RUN 17-027 MAG

GAM Run 11-017: Guadalupe County Groundwater Conservation District Management Plan

by Ian C. Jones, Ph.D., P.G.
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-6641
November 29, 2011



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GAM RUN 11-017: GUADALUPE COUNTY GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

by Ian C. Jones, Ph.D., P.G.
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-6641
November 29, 2011

EXECUTIVE SUMMARY:

Texas State Water Code, Section 36.1071, Subsection (h), states that, in developing its groundwater management plan, groundwater conservation districts shall use groundwater availability modeling information provided by the Executive Administrator of the Texas Water Development Board in conjunction with any available site-specific information provided by the district for review and comment to the Executive Administrator. Information derived from groundwater availability models that shall be included in the groundwater management plan includes:

- the annual amount of recharge from precipitation to the groundwater resources within the district, if any;
- 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
- the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The purpose of this report is to provide Part 2 of a two-part package of information from the Texas Water Development Board to Guadalupe County Groundwater Conservation District for its groundwater management plan. The groundwater management plan for Guadalupe County Groundwater Conservation District is due for approval by the Executive Administrator of the Texas Water Development Board before January 16, 2013.

This report discusses the method, assumptions, and results from model runs using the groundwater availability model for the southern part of the Carrizo-Wilcox and Queen City aquifers. Tables 1 and 2 summarize the groundwater availability model data

required by the statute, and Figures 1 and 2 show the area of each model from which the values in the respective tables were extracted. This model run replaces the results of GAM Run 07-25. GAM Run 11-017 meets current standards set after GAM Run 07-25. Slight differences in the results of the two model runs are due to differences in the method of extracting data from the model. The Guadalupe County Groundwater Conservation District can use either GAM Run 07-25 or GAM Run 11-017 in their groundwater management plan. If after review of the figures, Guadalupe County Groundwater Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the Texas Water Development Board immediately.

METHODS:

The groundwater availability model for the southern part of the Carrizo-Wilcox and Queen City aquifers (1980 through 1999) was run for this analysis. Water budgets for each year of the transient model period were extracted and the average annual water budget values for recharge, surface water outflow, inflow to the district, outflow from the district, net inter-aquifer flow (upper), and net inter-aquifer flow (lower) for the portions of the aquifers located within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

Carrizo-Wilcox and Queen City Aquifers

- Version 2.01 of the groundwater availability model for the southern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers was used for this analysis. See Deeds and others (2003) and Kelley and others (2004) for assumptions and limitations of the groundwater availability model for the southern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers.
- This groundwater availability model includes eight layers, which generally correspond to (from top to bottom):
    1. the Sparta Aquifer,
    2. the Weches Confining Unit,
    3. the Queen City Aquifer,

4. the Reklaw Confining Unit,
5. the Carrizo Aquifer,
6. the Upper Wilcox Aquifer,
7. the Middle Wilcox Aquifer, and
8. the Lower Wilcox Aquifer.

- Of the eight layers listed above, individual water budgets for the district were determined for the Queen City Aquifer (Layer 3), and the combined layers of the Carrizo-Wilcox Aquifer (Layers 5 through 8).
- The root mean square error (a measure of the difference between simulated and actual water levels during model calibration) in the groundwater availability model is 23 feet for the Sparta Aquifer, 18 feet for the Queen City Aquifer, and 33 feet for the Carrizo Aquifer for the calibration period (1980 to 1990) and 19, 22, and 48 feet for the same aquifers, respectively, in the verification period (1991 to 1999) (Kelley and others, 2004). These root mean square errors are between seven and ten percent of the range of measured water levels (Kelley and others, 2004).
- Groundwater in the Carrizo-Wilcox, Queen City, and Sparta aquifers ranges from fresh to brackish in composition (Kelley and others, 2004). Groundwater with total dissolved solids of less than 1,000 milligrams per liter are considered fresh and total dissolved solids of 1,000 to 10,000 milligrams per liter are considered brackish.
- Groundwater Vistas Version 5 (Environmental Simulations, Inc. 2007) was used as the interface to process model output.

RESULTS:

A groundwater budget summarizes the amount of water entering and leaving the aquifer according to the groundwater availability model. Selected components were extracted from the groundwater budget for the aquifers located within the district and averaged over the duration of the calibration and verification portion of the model runs in the district, as shown in Tables 1 and 2. The components of the modified budget shown in Tables 1 and 2 include:

- 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.
- Surface water outflow—The total water discharging from the aquifer (outflow) to surface water features such as streams, reservoirs, and drains (springs).
- Flow into and out of district—The lateral flow within the aquifer between the district and adjacent counties.
- Flow between aquifers—The net vertical flow between aquifers or confining units. This flow is controlled by the relative water levels in each aquifer or confining unit and aquifer properties of each aquifer or confining unit that define the amount of leakage that occurs. "Inflow" to an aquifer from an overlying or underlying aquifer will always equal the "Outflow" from the other aquifer.

The information needed for the District's management plan is summarized in Tables 1 and 2. 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 (see Figures 1 and 2).

TABLE 1: SUMMARIZED INFORMATION FOR THE QUEEN CITY AQUIFER THAT IS NEEDED FOR GUADALUPE 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. THESE FLOWS INCLUDE BRACKISH WATERS.

Management Plan requirement	*Aquifer or confining unit*	*Results*
Estimated annual amount of recharge from precipitation to the district	Queen City Aquifer	39
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Queen City Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Queen City Aquifer	3
Estimated annual volume of flow out of the district within each aquifer in the district	Queen City Aquifer	2
Estimated net annual volume of flow between each aquifer in the district	From Queen City Aquifer into the underlying Reklaw Formation confining unit	3

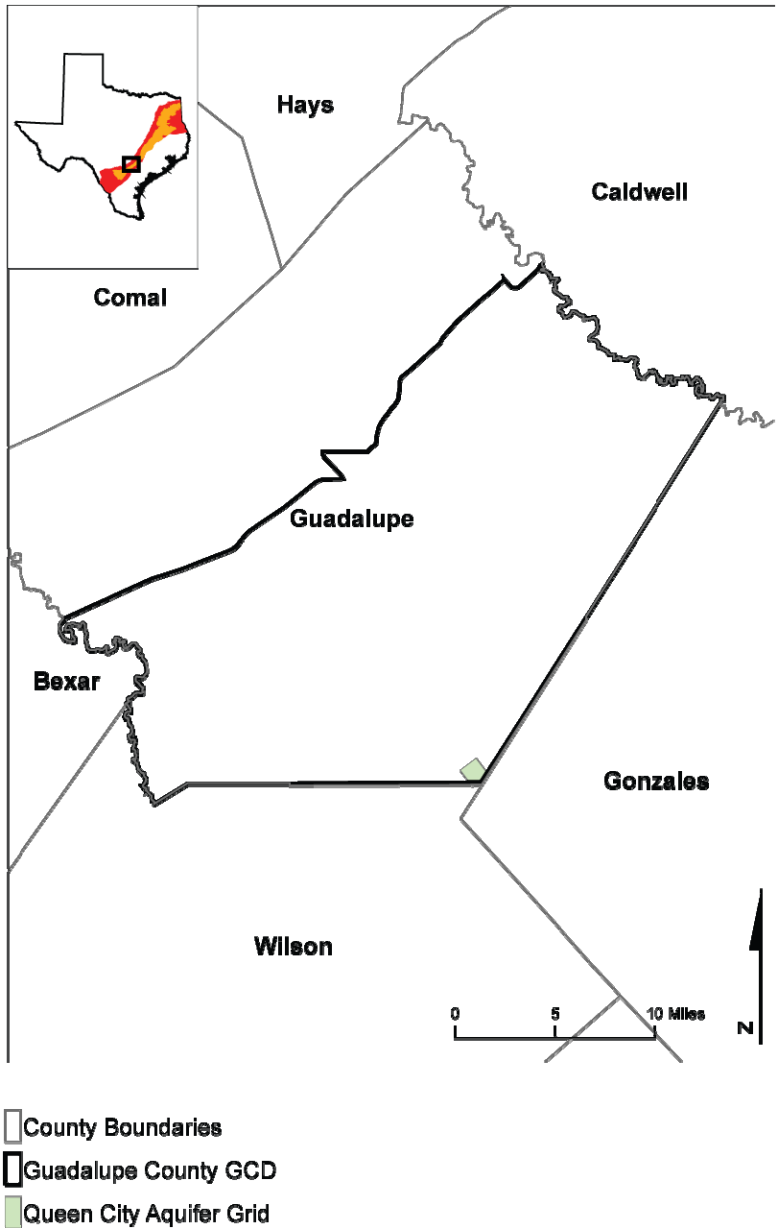

FIGURE 1: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE SOUTHERN PORTION OF THE QUEEN CITY AQUIFER FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 2: SUMMARIZED INFORMATION FOR THE CARRIZO-WILCOX AQUIFER THAT IS NEEDED FOR GUADALUPE COUNTY GROUNDWATERCONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT. THESE FLOWS MAY INCLUDE FRESH AND BRACKISH WATERS.

Management Plan requirement	*Aquifer*	*Results*
Estimated annual amount of recharge from precipitation to the district	Carrizo-Wilcox Aquifer	17,610
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Carrizo-Wilcox Aquifer	4,854
Estimated annual volume of flow into the district within each aquifer in the district	Carrizo-Wilcox Aquifer	1,259
Estimated annual volume of flow out of the district within each aquifer in the district	Carrizo-Wilcox Aquifer	15,967
Estimated net annual volume of flow between each aquifer in the district	From the Reklaw Formation confining unit into the Carrizo-Wilcox Aquifer	382

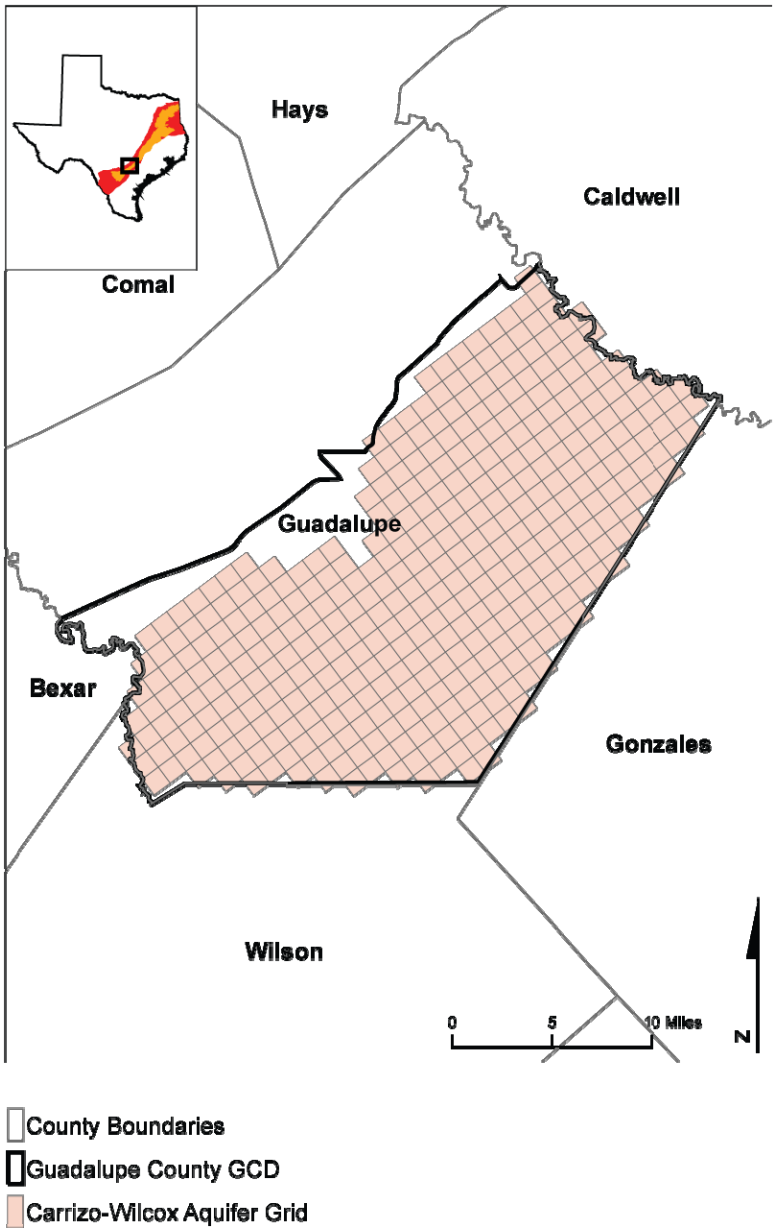

FIGURE 2: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE SOUTHERN CARRIZO-WILCOX AQUIFER FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

LIMITATIONS

The groundwater model(s) used in completing this analysis is the best available scientific tool that can be used to meet the stated objective(s). 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 model 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.

REFERENCES:

Deeds, N., Kelley, V., Fryar, D., Jones, T., Whallon, A.J., and Dean, K.E., 2003, Groundwater Availability Model for the Southern Carrizo-Wilcox Aquifer: Contract report to the Texas Water Development Board, 451 p., http://www.twdb.state.tx.us/gam/czwx_s/CZWX_s_Full_Report.pdf .

Environmental Simulations, Inc., 2007, Guide to Using Groundwater Vistas Version 5, 381 p.

Kelley, V.A., Deeds, N.E., Fryar, D.G., and Nicot, J.P., 2004, Groundwater availability models for the Queen City and Sparta aquifers: Contract report to the Texas Water Development Board, 867 p., http://www.twdb.state.tx.us/gam/qc_sp/qc_sp.htm.

National Research Council, 2007, Models in Environmental Regulatory Decision Making. Committee on Models in the Regulatory Decision Process, National Academies Press, Washington D.C., 287 p.

GAM RUN 17-027 MAG:
MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX, QUEEN CITY, SPARTA, AND YEGUA-JACKSON AQUIFERS IN GROUNDWATER MANAGEMENT AREA 13

Shirley C. Wade, Ph.D., P.G.
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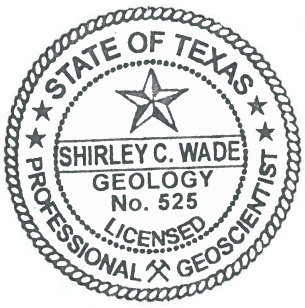
(512) 936-0883
October 27, 2017



Shirley C. Wade
10/27/17

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GAM Run 17-027 MAG: Modeled Available Groundwater for the Carrizo-Wilcox, Queen City, Sparta, and Yegua-Jackson aquifers in Groundwater Management Area 13

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Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Department
(512) 936-0883
October 27, 2017

EXECUTIVE SUMMARY:

The modeled available groundwater for Groundwater Management Area 13 for the Carrizo-Wilcox, Queen City, Sparta, and Yegua-Jackson aquifers is summarized by decade for the groundwater conservation districts (Tables 1 through 4 respectively) and for use in the regional water planning process (Tables 5 through 8 respectively). The modeled available groundwater estimates for the Carrizo-Wilcox Aquifer range from approximately 626,000 acre-feet per year in 2012 to approximately 589,000 acre-feet per year in 2070 (Table 1). The modeled available groundwater estimates for the Queen City Aquifer range from approximately 19,000 acre-feet per year in 2012 to approximately 15,000 acre-feet per year in 2070 (Table 2). The modeled available groundwater estimates for the Sparta Aquifer range from approximately 7,000 acre-feet per year in 2012 to approximately 6,000 acre-feet per year in 2070 (Table 3). The estimates were extracted from results of a model run using the groundwater availability model for the southern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers (version 2.01). The model run files, which meet the secondary desired future condition adopted by district representatives of Groundwater Management Area 13 for the Carrizo-Wilcox, Queen City, and Sparta Aquifers, were submitted to the Texas Water Development Board (TWDB) on February 28, 2017, as part of the Desired Future Conditions Explanatory Report for Groundwater Management Area 13. The modeled available groundwater estimates for the Yegua-Jackson Aquifer are approximately 7,000 acre-feet per year from 2010 to 2070 (Table 4). The estimates were extracted from results of a model run using the groundwater availability model for the

Yegua-Jackson Aquifer version 1.01. The model run files, which meet the desired future conditions adopted by district representatives of Groundwater Management Area 13 for the Yegua-Jackson Aquifer, were submitted to the TWDB on March 29, 2017 as supplemental information for the original February 28, 2017 submittal. The explanatory reports and other materials submitted to the TWDB were determined to be administratively complete on September 8, 2017.

REQUESTOR:

Mr. Greg Sengelmann, coordinator of Groundwater Management Area 13.

DESCRIPTION OF REQUEST:

In a letter dated February 24, 2017, Dr. William R. Hutchison, on behalf of Groundwater Management Area 13, provided the TWDB with the desired future conditions of the Carrizo-Wilcox, Queen City, Sparta, and Yegua-Jackson aquifers adopted by the groundwater conservation districts in Groundwater Management Area 13. The desired future conditions for the Carrizo-Wilcox, Queen City, and Sparta aquifers described in Resolution 16-01 from Groundwater Management Area 13, adopted November 21, 2016 are:

- *"The first proposed desired future condition for the Carrizo-Wilcox, Queen City and Sparta aquifers in Groundwater Management Area 13 is that 75 percent of the saturated thickness in the outcrop at the end of 2012 remains in 2070. This desired future condition is considered feasible despite model predictions to the contrary as detailed in GMA 13 Technical Memorandum 16-08", and*
- *"In addition, a secondary proposed desired future condition for the Carrizo-Wilcox, Queen City, and Sparta aquifers in Groundwater Management Area 13 is an average drawdown of 48 feet for all of GMA 13. The drawdown is calculated from the end of 2012 conditions to the year 2070. This desired future condition is consistent with Scenario 9 as detailed in GMA 13 Technical Memorandum 16-01 and GMA 13 Technical Memorandum 16-08."*

The desired future conditions for the Yegua-Jackson Aquifer described in Resolution 16-02 from Groundwater Management Area 13, adopted November 21, 2016 are:

- *"For Gonzales County, the average drawdown from 2010 to 2070 is 3 feet*
- *For Karnes County, the average drawdown from 2010 to 2070 is 1 foot*
- *For all other counties in GMA 13, the Yegua-Jackson is classified as not relevant for purposes of joint planning."*

TWDB staff reviewed the model files associated with the desired future conditions and received clarification on procedures and assumptions from the Groundwater Management Area 13 Technical Coordinator on April 4, 2017, and on September 21, 2017. Groundwater Management Area 13 adopted two desired future conditions for the Carrizo-Wilcox, Queen City, and Sparta Aquifers and they were not mutually compatible in the groundwater availability model. The technical coordinator for the groundwater management area confirmed that their intention was for the modeled available groundwater values to be based on the secondary desired future condition and Pumping Scenario 9 (Hutchison, 2017a). The first proposed desired future condition was not intended for the calculation of modeled available groundwater. Other questions included whether drawdown averages and modeled available groundwater values were based on official aquifer extent or model extent, whether to include dry cells in drawdown averaging, which stress periods to use for drawdown calculation, and whether to provide modeled available groundwater separately for the Carrizo-Wilcox, Queen City, and Sparta aquifers or as a combined value for all three aquifers .

In addition, TWDB staff requested and received supplemental model files for the Yegua-Jackson Aquifer on March 29, 2017, and supplemental documentation (Hutchison, 2017d) related to initial conditions for modeling the Carrizo-Wilcox, Queen City, and Sparta aquifers from Dr. William R. Hutchison on August 25, 2017, on behalf of Groundwater Management Area 13. All clarifications are included in the Parameters and Assumptions Section of this report.

METHODS:

The groundwater availability model for the southern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers (Figures 1 through 4) was run using the model files submitted with the explanatory reports (Hutchison, 2017c). Model-calculated drawdowns were extracted for the year 2070. An overall drawdown average was calculated for the entire Groundwater Management Area 13 using all aquifer layers in the average. Based on clarifications, the reference year for drawdown calculations was the end of 2011 (or the beginning of 2012). As specified in the clarifications, drawdowns for cells that became dry during the simulation (water level dropped below the base of the cell) were excluded from the averaging. The calculated drawdown average was compared with the desired future condition of 48 feet to verify that the pumping scenario (Hutchison, 2017a) achieved the desired future conditions within one foot.

The groundwater availability model for the Yegua-Jackson Aquifer (Figures 5 and 6) was run using the model files submitted on March 29, 2017, as supplemental information and drawdowns were calculated for the year 2070. County-wide average drawdowns were

calculated for Gonzales and Karnes counties within Groundwater Management Area 13 using all model layers in the average. Based on clarifications, the reference year for drawdown calculation was the end of 2009 (or the beginning of 2010). As specified in the clarifications, drawdowns for cells that became dry during the simulation (water level dropped below the base of the cell) were excluded from the averaging. The calculated drawdown averages were compared with the desired future conditions for Gonzales and Karnes counties to verify that the pumping scenario (Hutchison, 2017b) achieved the desired future conditions within one foot.

The modeled available groundwater values 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 13 (Tables 1 through 4). Annual pumping rates by aquifer are also presented by county, river basin, and regional water planning area within Groundwater Management Area 13 (Tables 5 through 8). Additional tables are provided in Appendix A which summarize the total modeled available groundwater for the Carrizo-Wilcox, Queen City, and Sparta aquifers by regional water planning area, county, river basin, and groundwater conservation district. Tables are provided in Appendix B which split the Carrizo-Wilcox, Queen City, and Sparta aquifers modeled pumping by model layer for each groundwater conservation district.

Modeled Available Groundwater and Permitting

As defined in Chapter 36 of the Texas Water Code (2011), "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:

The parameters and assumptions for the modeled available groundwater estimates are described below:

Carrizo-Wilcox, Queen City, and Sparta aquifers

- We used Version 2.01 of the groundwater availability model for the southern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers. See Deeds and others (2003) and Kelley and others (2004) for assumptions and limitations of the groundwater availability model for the southern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers.
- This groundwater availability model includes eight layers, which generally represent the Sparta Aquifer (Layer 1), the Weches Confining Unit (Layer 2), the Queen City Aquifer (Layer 3), the Reklaw Confining Unit (Layer 4), the Carrizo (Layer 5), the Upper Wilcox (Layer 6), the Middle Wilcox (Layer 7), and the Lower Wilcox (Layer 8). Parts of the Upper Wilcox do not exist in Groundwater Management Area 13 and the official extent of the Queen City and Sparta aquifers end around the Frio River. Layers represent equivalent geologic units outside of the official aquifer extents.
- The model was run with MODFLOW-96 (Harbaugh and others, 1996).
- The end of the calibration period was extended from 1999 to 2011 (Hutchison, 2017e) and the reference year for drawdown calculations was the end of 2011.
- Drawdown averages and modeled available groundwater values were based on the extent of the model area rather than the official aquifer boundaries.
- Drawdowns for cells where water levels dropped below the base elevation of the cell causing the cell to become inactive (dry cells) were excluded from the averaging.
- A tolerance of one foot was assumed when comparing desired future conditions (Table 1, average drawdown values per county) to model drawdown results.
- Estimates of modeled available groundwater from the model simulation were rounded to whole numbers.
- Although the desired future condition for the Carrizo-Wilcox, Queen City, and Sparta aquifers is a combined value for all three aquifers, the modeled available groundwater values will be provided individually for each aquifer per clarification from the Groundwater Management Area 13 Technical Coordinator on September 21, 2017.

Yegua-Jackson Aquifer

- We used version 1.01 of the groundwater availability model for the Yegua-Jackson Aquifer. See Deeds and others (2010) for assumptions and limitations of the groundwater availability model.
- This groundwater availability model includes five layers which represent the outcrop of the Yegua-Jackson Aquifer and younger overlying units—the Catahoula Formation (Layer 1), the upper portion of the Jackson Group (Layer 2), the lower portion of the Jackson Group (Layer 3), the upper portion of the Yegua Group (Layer 4), and the lower portion of the Yegua Group (Layer 5).
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).
- The end of the calibration period was extended from 1997 to 2009 (Oliver, 2010) and the reference year for drawdown calculations was the end of 2009.
- Drawdown averages and modeled available groundwater values were based on the extent of the model area rather than the official aquifer boundaries.
- Drawdown for cells where water levels dropped below the base elevation of the cell causing the cell to become inactive (dry cells) were excluded from the averaging.
- A tolerance of one foot was assumed when comparing desired future conditions (Table 1, average drawdown values per county) to model drawdown results.
- Estimates of modeled available groundwater from the model simulation were rounded to whole numbers.

RESULTS:

The modeled available groundwater estimates for the Carrizo-Wilcox Aquifer range from approximately 626,000 acre-feet per year in 2012 to approximately 589,000 acre-feet per year in 2070 (Table 1). The modeled available groundwater estimates for the Queen City Aquifer range from approximately 19,000 acre-feet per year in 2012 to approximately 15,000 acre-feet per year in 2070 (Table 2). The modeled available groundwater estimate for the Sparta Aquifer ranges from approximately 7,000 acre-feet per year in 2012 to approximately 6,000 acre-feet per year in 2070 (Table 3). The modeled available groundwater is summarized by groundwater conservation district and county for the Carrizo-Wilcox, Queen City, and Sparta aquifers (Tables 1, 2, and 3 respectively). The modeled available groundwater has also been summarized by county, river basin, and regional water planning area for use in the regional water planning process for the Carrizo-Wilcox, Queen City, and Sparta aquifers (Tables 5, 6, and 7 respectively). Small differences

in values between table summaries are due to rounding. Additional tables are provided in Appendix A which summarize the total modeled available groundwater for all three aquifers by regional water planning area, county, river basin, and groundwater conservation district. Tables are provided in Appendix B which split the modeled pumping by each model aquifer layer for each groundwater conservation district.

The modeled available groundwater estimate for the Yegua-Jackson Aquifer is approximately 7,000 acre-feet per year from 2010 to 2070 (Table 4). The modeled available groundwater for the Yegua-Jackson Aquifer is summarized by groundwater conservation district and county (Table 4) and by county, river basin, and regional water planning area for use in the regional water planning process (Table 8). Small differences of values between table summaries are due to rounding.

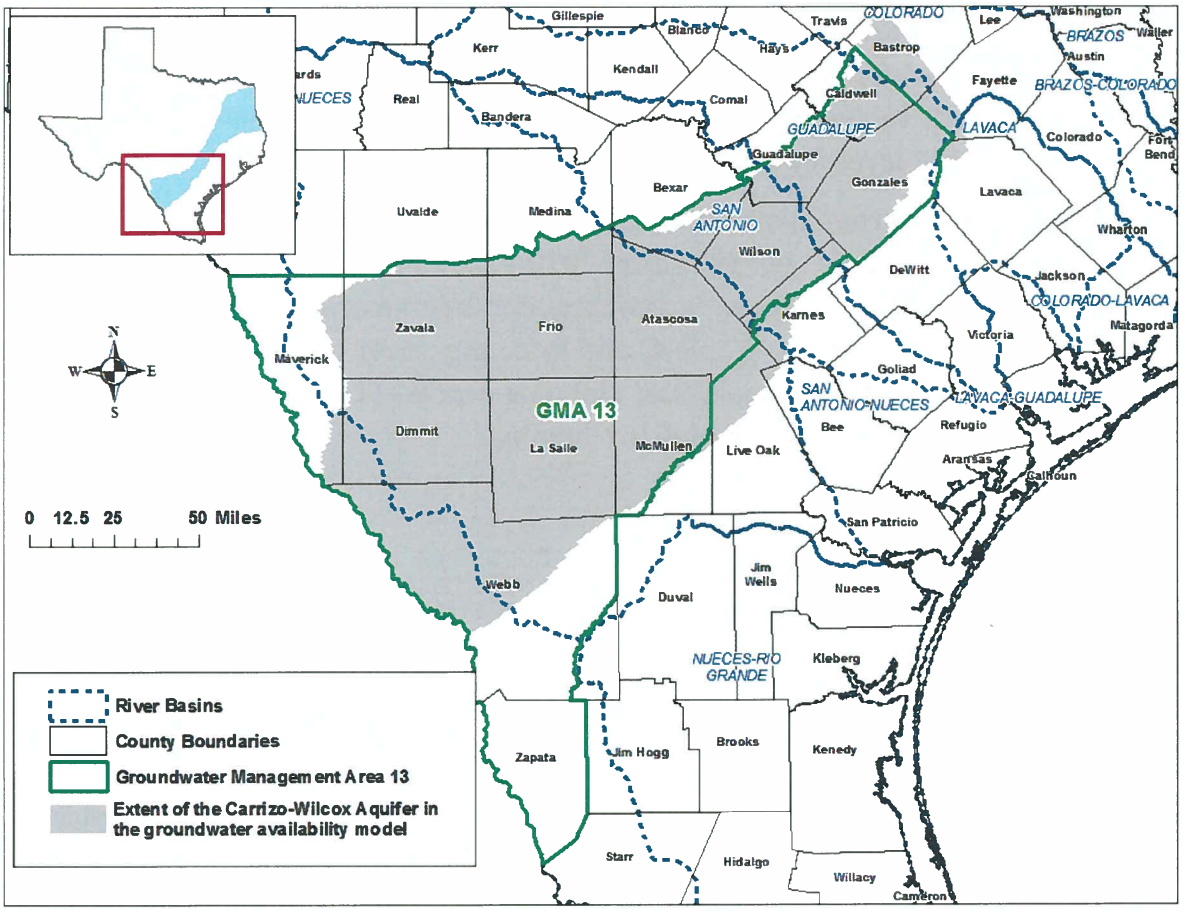

FIGURE 1. **GROUNDWATER MANAGEMENT AREA (GMA) 13 BOUNDARY, RIVER BASINS, AND COUNTIES OVERLAIN ON THE EXTENT OF THE CARRIZO-WILCOX AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE SOUTHERN PORTION OF THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS.**

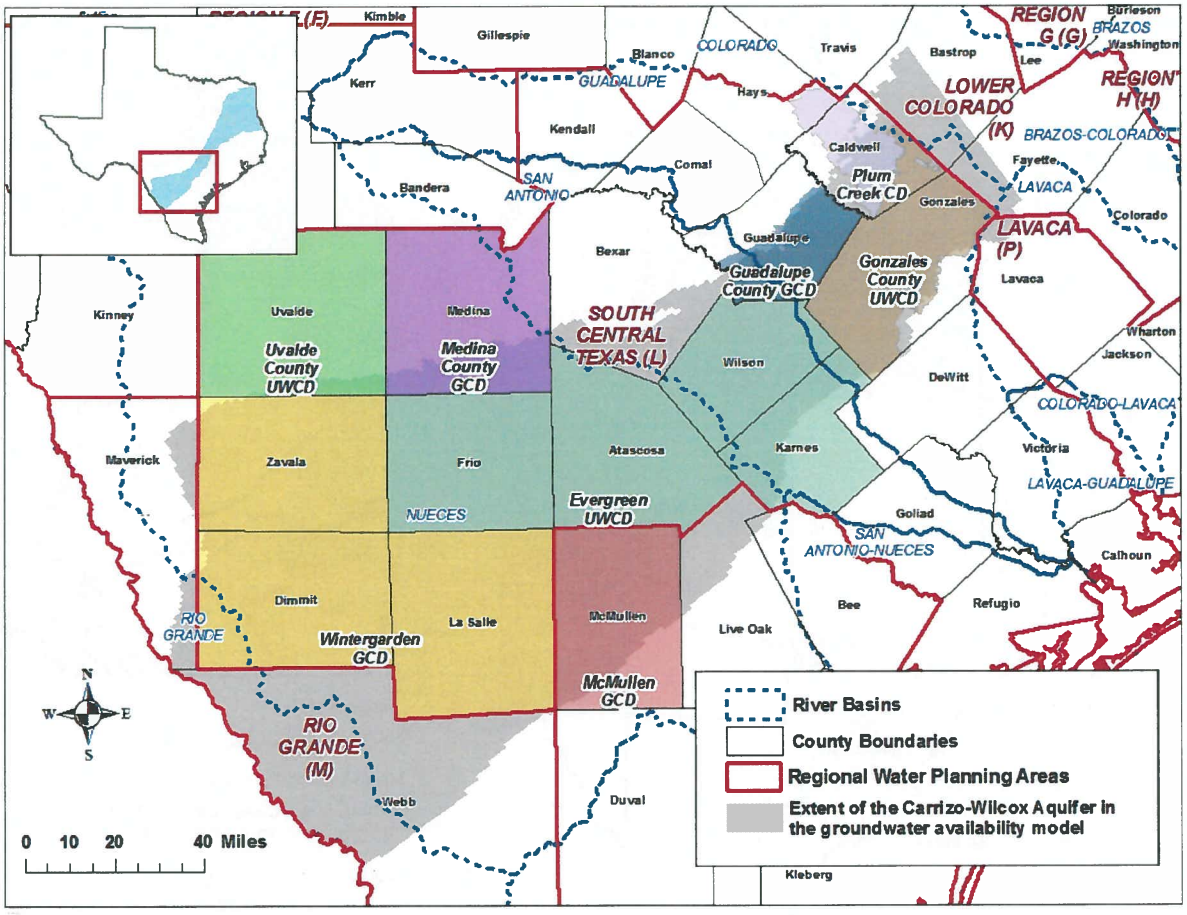

FIGURE 2. **REGIONAL WATER PLANNING AREAS (RWPAS), RIVER BASINS, GROUNDWATER CONSERVATION DISTRICTS (GCDS), AND COUNTIES OVERLAIN ON THE EXTENT OF THE CARRIZO-WILCOX AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE SOUTHERN PORTION OF THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS.**

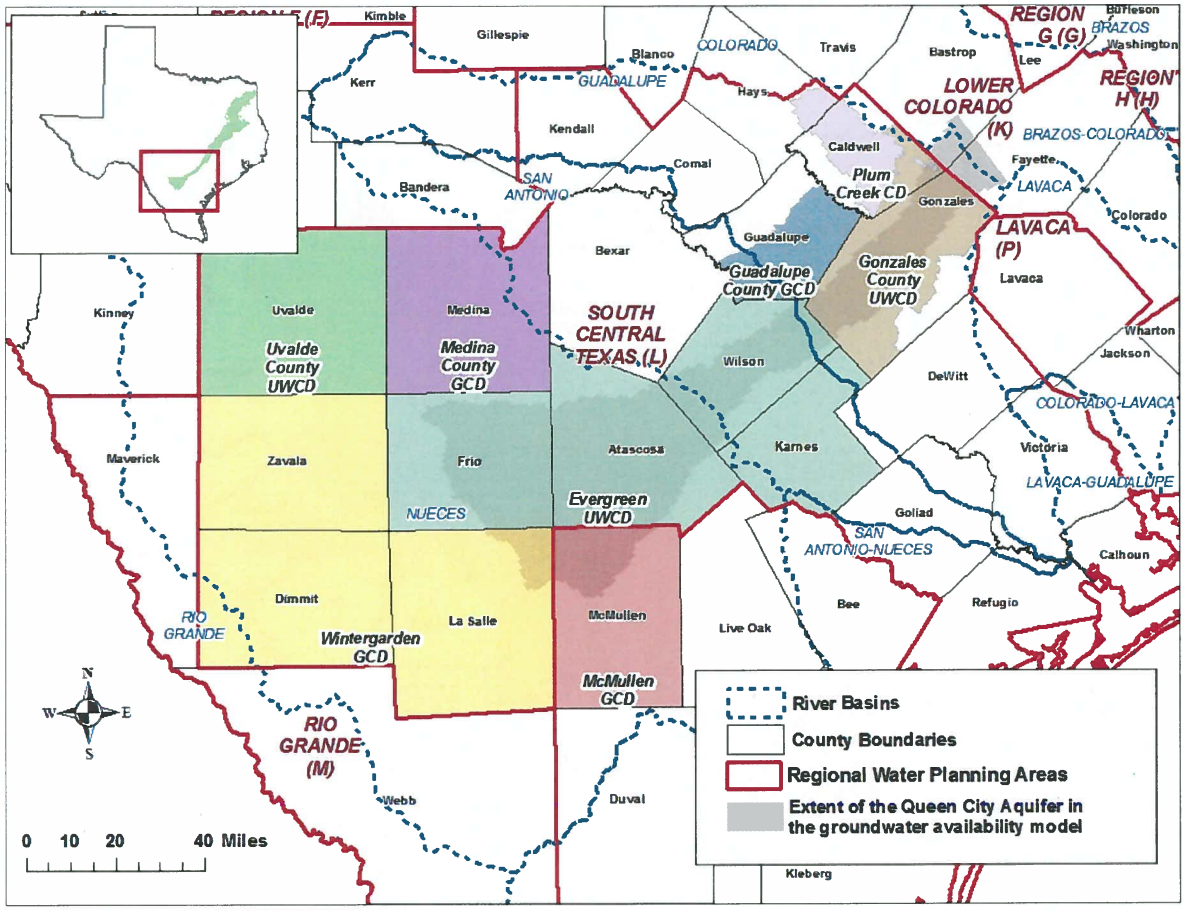

FIGURE 3. REGIONAL WATER PLANNING AREAS (RWPAS), RIVER BASINS, GROUNDWATER CONSERVATION DISTRICTS (GCDS), AND COUNTIES OVERLAIN ON THE EXTENT OF THE QUEEN CITY AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE SOUTHERN PORTION OF THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS.

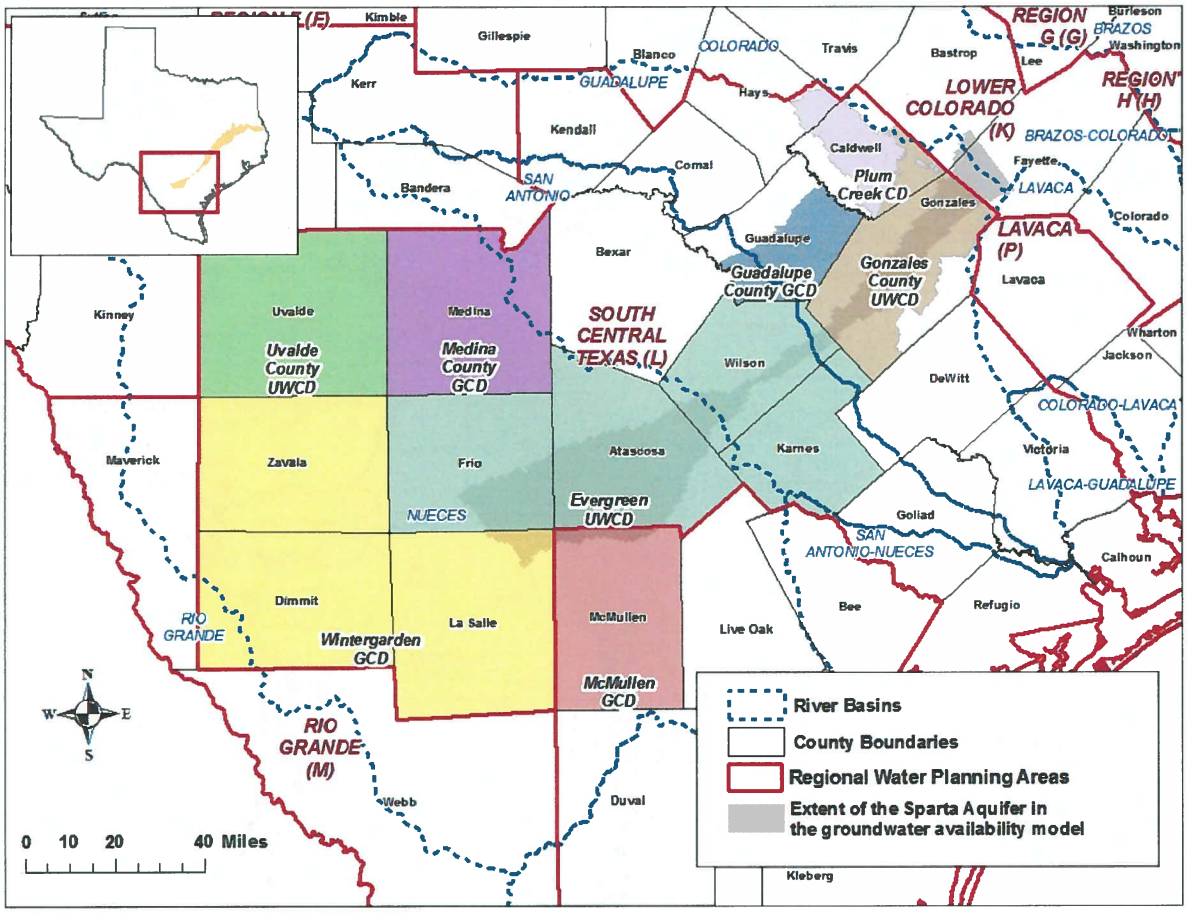

FIGURE 4. **REGIONAL WATER PLANNING AREAS (RWPAS), RIVER BASINS, GROUNDWATER CONSERVATION DISTRICTS (GCDS), AND COUNTIES OVERLAIN ON THE EXTENT OF THE SPARTA AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE SOUTHERN PORTION OF THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS.**

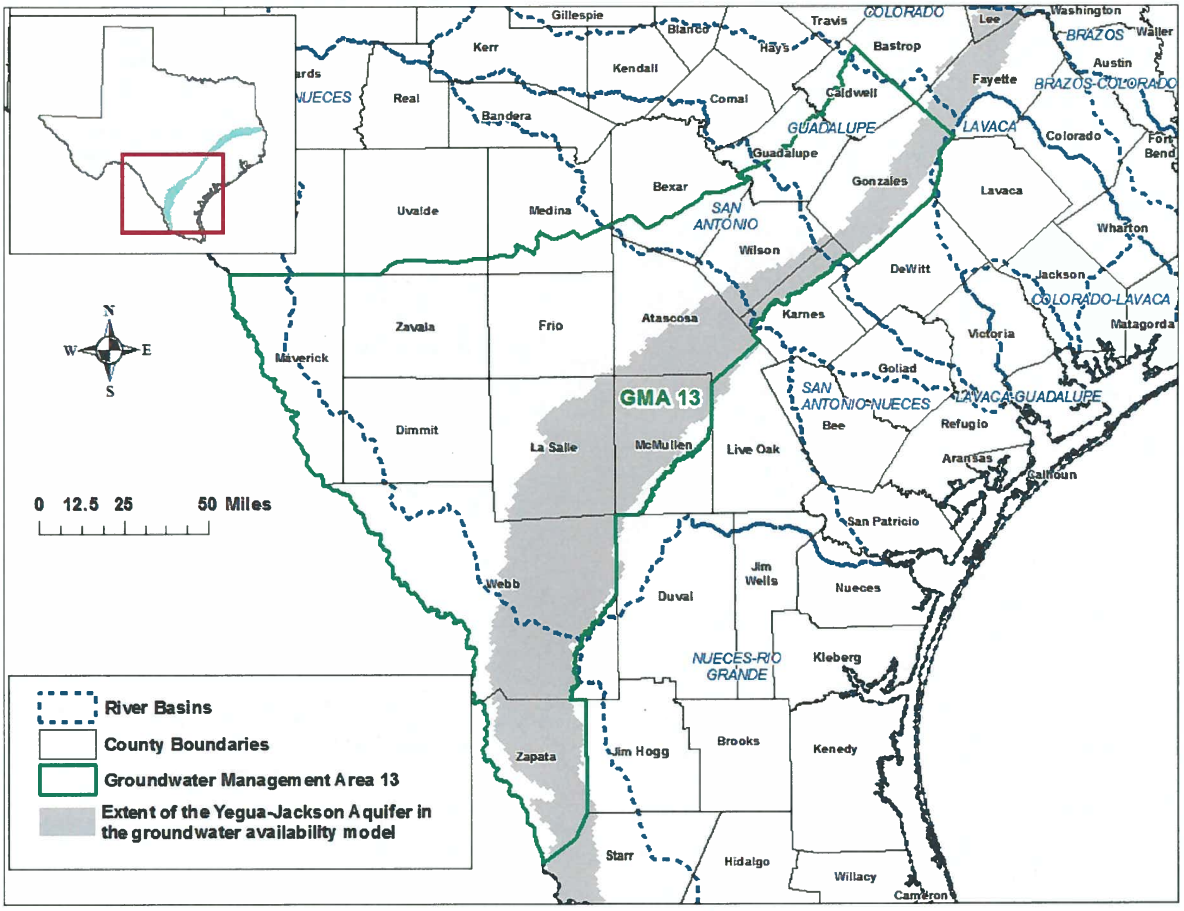

FIGURE 5. GROUNDWATER MANAGEMENT AREA (GMA) 13 BOUNDARY, RIVER BASINS, AND COUNTIES OVERLAIN ON THE EXTENT OF THE YEGUA-JACKSON AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL.

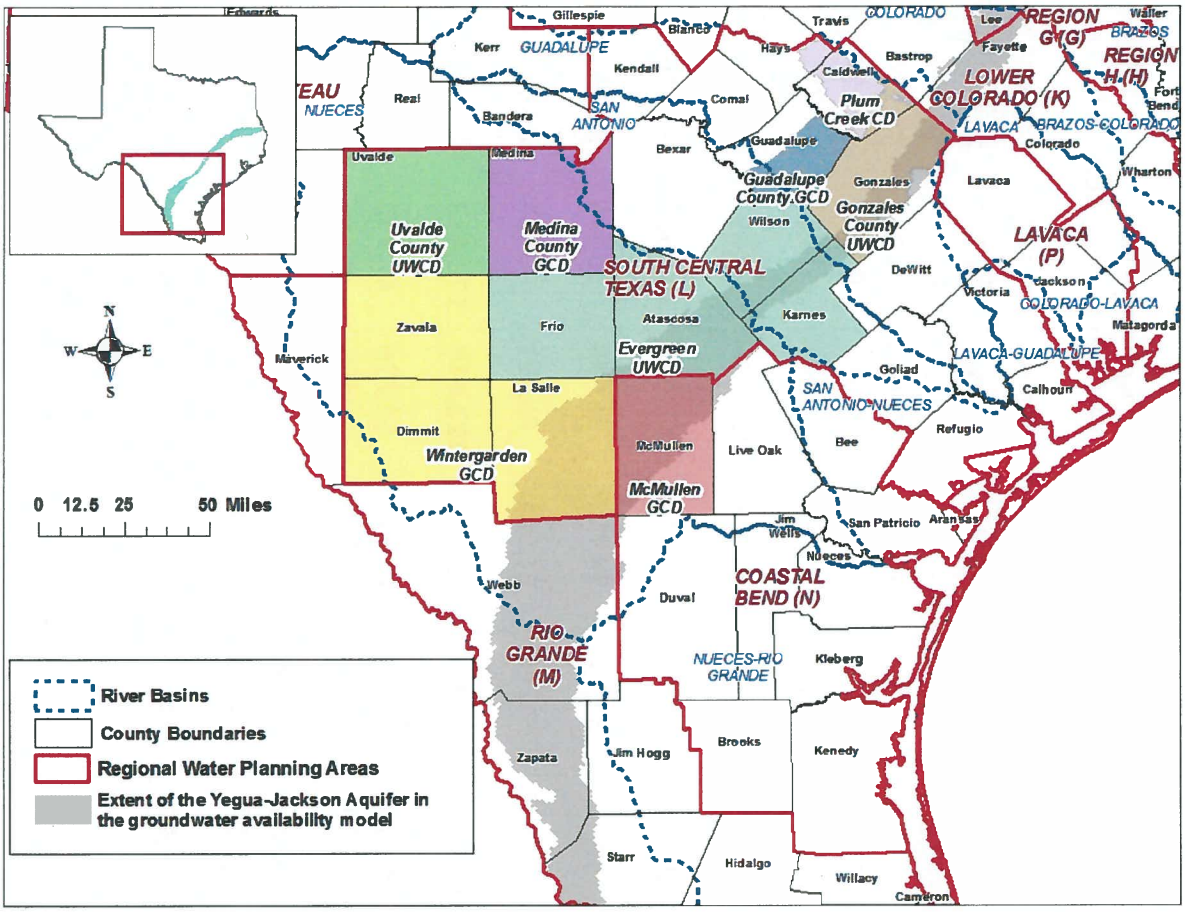

FIGURE 6. REGIONAL WATER PLANNING AREAS (RWPAS), RIVER BASINS, GROUNDWATER CONSERVATION DISTRICTS (GCDS), AND COUNTIES OVERLAIN ON THE EXTENT OF THE YEGUA-JACKSON AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL.

TABLE 1. MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX AQUIFER IN GROUNDWATER MANAGEMENT AREA 13 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2012 AND 2070. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2012	2020	2030	2040	2050	2060	2070
Evergreen UWCD	Atascosa	Carrizo-Wilcox	67,668	67,668	70,286	71,066	72,718	74,298	75,874
Evergreen UWCD	Frio	Carrizo-Wilcox	111,920	111,920	85,036	82,999	81,083	79,197	77,353
Evergreen UWCD	Karnes	Carrizo-Wilcox	1,042	1,042	1,085	1,146	1,212	1,264	1,296
Evergreen UWCD	Wilson	Carrizo-Wilcox	108,465	108,465	104,918	106,196	107,653	109,358	111,093
Evergreen UWCD Total		**Carrizo-Wilcox**	**289,096**	**289,096**	**261,325**	**261,406**	**262,666**	**264,116**	**265,616**
Gonzales County UWCD	Caldwell	Carrizo-Wilcox	39,713	39,713	39,713	36,678	36,678	33,643	33,643
Gonzales County UWCD	Gonzales	Carrizo-Wilcox	81,594	81,594	81,594	85,371	85,735	85,987	85,996
Gonzales County UWCD Total		**Carrizo-Wilcox**	**121,307**	**121,307**	**121,307**	**122,049**	**122,413**	**119,630**	**119,638**
Guadalupe County GCD	**Guadalupe**	**Carrizo-Wilcox**	**48,032**	**52,528**	**47,844**	**45,776**	**47,995**	**47,965**	**47,833**
McMullen GCD	**McMullen**	**Carrizo-Wilcox**	**7,002**	**7,056**	**7,056**	**4,405**	**4,405**	**4,405**	**4,405**
Medina County GCD	**Medina**	**Carrizo-Wilcox**	**2,657**	**2,657**	**2,648**	**2,647**	**2,647**	**2,646**	**2,646**
Plum Creek CD	**Caldwell**	**Carrizo-Wilcox**	**21,073**	**20,610**	**20,610**	**20,202**	**20,202**	**19,625**	**19,625**
Uvalde County UWCD	**Uvalde**	**Carrizo-Wilcox**	**4,451**	**2,975**	**1,231**	**828**	**828**	**828**	**828**

Groundwater Conservation District	County	Aquifer	2012	2020	2030	2040	2050	2060	2070
Wintergarden GCD	Dimmit	Carrizo-Wilcox	4,129	4,129	4,129	4,129	4,129	4,129	4,129
Wintergarden GCD	La Salle	Carrizo-Wilcox	6,863	6,863	6,863	6,863	6,863	6,863	6,863
Wintergarden GCD	Zavala	Carrizo-Wilcox	35,653	35,653	35,305	35,171	35,071	34,750	34,695
Wintergarden GCD Total		**Carrizo-Wilcox**	**46,645**	**46,645**	**46,297**	**46,163**	**46,063**	**45,742**	**45,687**
No District-County	Bexar	Carrizo-Wilcox	81,992	81,474	80,817	80,348	79,470	78,977	78,807
No District-County	Caldwell	Carrizo-Wilcox	921	921	921	921	921	921	921
No District-County	Gonzales	Carrizo-Wilcox	59	59	59	59	59	59	59
No District-County	Maverick	Carrizo-Wilcox	2,203	2,042	2,042	2,001	1,914	1,570	1,531
No District-County	Webb	Carrizo-Wilcox	916	916	916	916	916	916	916
No District-County Total		**Carrizo-Wilcox**	**86,091**	**85,412**	**84,755**	**84,245**	**83,280**	**82,443**	**82,235**
Total for GMA 13		**Carrizo-Wilcox**	**626,354**	**628,284**	**593,072**	**587,722**	**590,498**	**587,400**	**588,514**

TABLE 2. MODELED AVAILABLE GROUNDWATER FOR THE QUEEN CITY AQUIFER IN GROUNDWATER MANAGEMENT AREA 13 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2012 AND 2070. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2012	2020	2030	2040	2050	2060	2070
Evergreen UWCD	Atascosa	Queen City	4,075	4,075	4,543	4,543	4,513	4,407	4,302
Evergreen UWCD	Frio	Queen City	6,759	6,759	4,745	4,573	4,429	4,257	4,113
Evergreen UWCD	Wilson	Queen City	2,780	2,780	1,508	1,339	1,191	1,059	945
Evergreen UWCD Total		**Queen City**	**13,614**	**13,614**	**10,797**	**10,455**	**10,133**	**9,723**	**9,359**
Gonzales County UWCD	**Caldwell**	**Queen City**	284	284	284	284	284	284	284
Gonzales County UWCD	**Gonzales**	**Queen City**	5,067	5,067	5,067	5,067	5,067	5,067	5,067
Gonzales County UWCD Total		**Queen City**	**5,351**	**5,351**	**5,351**	**5,351**	**5,351**	**5,351**	**5,351**
Guadalupe County GCD	**Guadalupe**	**Queen City**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
McMullen GCD	**McMullen**	**Queen City**	**134**	**134**	**134**	**134**	**134**	**134**	**134**
Plum Creek CD	**Caldwell**	**Queen City**	**22**	**22**	**22**	**22**	**22**	**22**	**22**
Wintergarden GCD	**La Salle**	**Queen City**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Total for GMA 13		**Queen City**	**19,123**	**19,123**	**16,307**	**15,965**	**15,643**	**15,233**	**14,869**

TABLE 3. MODELED AVAILABLE GROUNDWATER FOR THE SPARTA AQUIFER IN GROUNDWATER MANAGEMENT AREA 13 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2012 AND 2070. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2012	2020	2030	2040	2050	2060	2070
Evergreen UWCD	Atascosa	Sparta	1,219	1,215	1,188	1,129	1,083	1,044	1,013
Evergreen UWCD	Frio	Sparta	1,045	1,045	728	702	674	651	624
Evergreen UWCD	Wilson	Sparta	462	462	251	224	198	176	156
Evergreen UWCD Total		**Sparta**	**2,726**	**2,723**	**2,166**	**2,056**	**1,955**	**1,870**	**1,792**
Gonzales County UWCD	**Gonzales**	**Sparta**	**3,554**	**3,554**	**3,554**	**3,554**	**3,554**	**3,554**	**3,554**
McMullen GCD	**McMullen**	**Sparta**	**89**	**89**	**89**	**89**	**89**	**89**	**89**
Wintergarden GCD	**La Salle**	**Sparta**	**983**	**983**	**983**	**983**	**983**	**983**	**983**
Total for GMA 13		**Sparta**	**7,353**	**7,349**	**6,793**	**6,682**	**6,582**	**6,497**	**6,419**

TABLE 4. MODELED AVAILABLE GROUNDWATER FOR THE YEGUA-JACKSON AQUIFER IN GROUNDWATER MANAGEMENT AREA 13 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2010	2020	2030	2040	2050	2060	2070
Evergreen UWCD	Karnes	Yegua-Jackson	2,059	2,059	2,059	2,059	2,059	2,059	2,059
Gonzales County UWCD	Gonzales	Yegua-Jackson	4,140	4,140	4,140	4,140	4,140	4,140	4,140
No District-County	Gonzales	Yegua-Jackson	573	573	573	573	573	573	573
Total for GMA 13		**Yegua-Jackson**	**6,771**	**6,771**	**6,771**	**6,771**	**6,771**	**6,771**	**6,771**

TABLE 5. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE CARRIZO-WILCOX AQUIFER IN GROUNDWATER MANAGEMENT AREA 13. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), RIVER BASIN, AND AQUIFER.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070
Atascosa	L	Nueces	Carrizo-Wilcox	67,548	70,166	70,946	72,598	74,178	75,754
Atascosa	L	San Antonio	Carrizo-Wilcox	120	120	120	120	120	120
Bexar	L	Nueces	Carrizo-Wilcox	48,152	48,152	48,152	48,152	48,152	48,176
Bexar	L	San Antonio	Carrizo-Wilcox	33,322	32,665	32,196	31,318	30,825	30,631
Caldwell	L	Colorado	Carrizo-Wilcox	593	593	593	593	593	593
Caldwell	L	Guadalupe	Carrizo-Wilcox	60,652	60,652	57,208	57,208	53,596	53,596
Dimmit	L	Nueces	Carrizo-Wilcox	4,022	4,022	4,022	4,022	4,022	4,022
Dimmit	L	Rio Grande	Carrizo-Wilcox	107	107	107	107	107	107
Frio	L	Nueces	Carrizo-Wilcox	111,920	85,036	82,999	81,083	79,197	77,353
Gonzales	L	Guadalupe	Carrizo-Wilcox	81,438	81,438	85,216	85,579	85,832	85,840
Gonzales	L	Lavaca	Carrizo-Wilcox	215	215	215	215	215	215
Guadalupe	L	Guadalupe	Carrizo-Wilcox	36,180	32,150	29,767	31,569	31,793	31,744
Guadalupe	L	San Antonio	Carrizo-Wilcox	16,347	15,693	16,008	16,426	16,172	16,089
Karnes	L	Guadalupe	Carrizo-Wilcox	177	185	195	207	215	220
Karnes	L	Nueces	Carrizo-Wilcox	83	87	92	97	101	103
Karnes	L	San Antonio	Carrizo-Wilcox	783	813	859	909	948	972
La Salle	L	Nueces	Carrizo-Wilcox	6,863	6,863	6,863	6,863	6,863	6,863
Medina	L	Nueces	Carrizo-Wilcox	2,652	2,643	2,643	2,642	2,641	2,641
Medina	L	San Antonio	Carrizo-Wilcox	5	5	5	5	5	5
Uvalde	L	Nueces	Carrizo-Wilcox	2,975	1,231	828	828	828	828
Wilson	L	Guadalupe	Carrizo-Wilcox	20,287	20,186	20,340	20,452	20,783	20,923

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070
Wilson	L	Nueces	Carrizo-Wilcox	7,652	7,154	7,317	7,510	7,709	7,938
Wilson	L	San Antonio	Carrizo-Wilcox	80,526	77,577	78,538	79,691	80,865	82,232
Zavala	L	Nueces	Carrizo-Wilcox	35,653	35,305	35,171	35,071	34,750	34,695
Maverick	M	Nueces	Carrizo-Wilcox	777	777	777	777	472	472
Maverick	M	Rio Grande	Carrizo-Wilcox	1,265	1,265	1,224	1,137	1,097	1,059
Webb	M	Nueces	Carrizo-Wilcox	92	92	92	92	92	92
Webb	M	Rio Grande	Carrizo-Wilcox	824	824	824	824	824	824
McMullen	N	Nueces	Carrizo-Wilcox	7,056	7,056	4,405	4,405	4,405	4,405
GMA 13 Total			**Carrizo-Wilcox**	**628,284**	**593,072**	**587,722**	**590,498**	**587,400**	**588,514**

TABLE 6. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE QUEEN CITY AQUIFER IN GROUNDWATER MANAGEMENT AREA 13. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), RIVER BASIN, AND AQUIFER.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070
Atascosa	L	Nueces	Queen City	4,075	4,543	4,543	4,513	4,407	4,302
Caldwell	L	Guadalupe	Queen City	307	307	307	307	307	307
Frio	L	Nueces	Queen City	6,759	4,745	4,573	4,429	4,257	4,113
Gonzales	L	Guadalupe	Queen City	5,032	5,032	5,032	5,032	5,032	5,032
Gonzales	L	Lavaca	Queen City	35	35	35	35	35	35
Guadalupe	L	Guadalupe	Queen City	0	0	0	0	0	0
La Salle	L	Nueces	Queen City	2	2	2	2	2	2
Wilson	L	Guadalupe	Queen City	236	128	114	101	90	80
Wilson	L	Nueces	Queen City	273	148	132	117	104	93
Wilson	L	San Antonio	Queen City	2,271	1,232	1,094	973	865	772
McMullen	N	Nueces	Queen City	134	134	134	134	134	134
GMA 13 Total			**Queen City**	**19,123**	**16,307**	**15,965**	**15,643**	**15,233**	**14,869**

TABLE 7. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE SPARTA AQUIFER IN GROUNDWATER MANAGEMENT AREA 13. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), RIVER BASIN, AND AQUIFER.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070
Atascosa	L	Nueces	Sparta	1,215	1,188	1,129	1,083	1,044	1,013
Frio	L	Nueces	Sparta	1,045	728	702	674	651	624
Gonzales	L	Guadalupe	Sparta	3,531	3,531	3,531	3,531	3,531	3,531
Gonzales	L	Lavaca	Sparta	23	23	23	23	23	23
La Salle	L	Nueces	Sparta	983	983	983	983	983	983
Wilson	L	Guadalupe	Sparta	42	23	20	18	16	14
Wilson	L	Nueces	Sparta	102	55	49	44	39	34
Wilson	L	San Antonio	Sparta	319	173	154	137	121	108
McMullen	N	Nueces	Sparta	89	89	89	89	89	89
GMA 13 Total			**Sparta**	**7,349**	**6,793**	**6,682**	**6,582**	**6,497**	**6,419**

TABLE 8. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE YEGUA-JACKSON AQUIFER IN GROUNDWATER MANAGEMENT AREA 13. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), RIVER BASIN, AND AQUIFER.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070
Atascosa	L	Nueces	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
Frio	L	Nueces	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
Gonzales	L	Guadalupe	Yegua-Jackson	4,694	4,694	4,694	4,694	4,694	4,694
Gonzales	L	Lavaca	Yegua-Jackson	19	19	19	19	19	19
Karnes	L	Guadalupe	Yegua-Jackson	327	327	327	327	327	327
Karnes	L	Nueces	Yegua-Jackson	91	91	91	91	91	91
Karnes	L	San Antonio	Yegua-Jackson	1,641	1,641	1,641	1,641	1,641	1,641
La Salle	L	Nueces	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
Wilson	L	Guadalupe	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
Wilson	L	Nueces	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
Wilson	L	San Antonio	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
Webb	M	Nueces	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
Webb	M	Rio Grande	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
Zapata	M	Rio Grande	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
McMullen	N	Nueces	Yegua-Jackson	NULL	NULL	NULL	NULL	NULL	NULL
GMA 13 Total			**Yegua-Jackson**	**6,771**	**6,771**	**6,771**	**6,771**	**6,771**	**6,771**

NULL: Groundwater Management Area 13 declared the Yegua-Jackson Aquifer not relevant in these areas.

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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Appendix A

Modeled Available Groundwater for the Carrizo-Wilcox, Queen City, and Sparta Aquifers Summarized by County, River Basin, Regional Water Planning Area, and Groundwater Conservation District in Groundwater Management Area 13

TABLE A.1 MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS SUMMARIZED BY COUNTY IN GROUNDWATER MANAGEMENT AREA 13. RESULTS ARE IN ACRE-FEET PER YEAR.

County	2020	2030	2040	2050	2060	2070
Atascosa	72,959	76,017	76,739	78,315	79,749	81,189
Bexar	81,474	80,817	80,348	79,470	78,977	78,807
Caldwell	61,551	61,551	58,108	58,108	54,495	54,495
Dimmit	4,129	4,129	4,129	4,129	4,129	4,129
Frio	119,724	90,509	88,274	86,185	84,104	82,089
Gonzales	90,273	90,273	94,051	94,415	94,667	94,675
Guadalupe	52,528	47,844	45,776	47,995	47,965	47,833
Karnes	1,042	1,085	1,146	1,212	1,264	1,296
La Salle	7,848	7,848	7,848	7,848	7,848	7,848
Maverick	2,042	2,042	2,001	1,914	1,570	1,531
McMullen	7,279	7,279	4,629	4,629	4,629	4,629
Medina	2,657	2,648	2,647	2,647	2,646	2,646
Uvalde	2,975	1,231	828	828	828	828
Webb	916	916	916	916	916	916
Wilson	111,707	106,677	107,759	109,041	110,593	112,193
Zavala	35,653	35,305	35,171	35,071	34,750	34,695
GMA 13 Total	**654,757**	**616,172**	**610,369**	**612,723**	**609,130**	**609,802**

TABLE A.2 MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS SUMMARIZED BY RIVER BASIN IN GROUNDWATER MANAGEMENT AREA 13. RESULTS ARE IN ACRE-FEET PER YEAR.

River Basin	2020	2030	2040	2050	2060	2070
Colorado	593	593	593	593	593	593
Guadalupe	207,880	203,631	201,729	204,002	201,193	201,286
Lavaca	273	273	273	273	273	273
Nueces	310,122	281,200	276,645	276,208	275,121	274,730
Rio Grande	2,196	2,196	2,155	2,068	2,028	1,990
San Antonio	133,693	128,278	128,974	129,578	129,922	130,929
GMA 13 Total	**654,757**	**616,172**	**610,369**	**612,723**	**609,130**	**609,802**

TABLE A.3 MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS SUMMARIZED BY REGIONAL WATER PLANNING AREA IN GROUNDWATER MANAGEMENT AREA 13. RESULTS ARE IN ACRE-FEET PER YEAR.

Regional Water Planning Area	2020	2030	2040	2050	2060	2070
L	644,520	605,934	602,823	605,264	602,016	602,726
M	2,958	2,958	2,917	2,829	2,485	2,447
N	7,279	7,279	4,629	4,629	4,629	4,629
GMA 13 Total	**654,757**	**616,172**	**610,369**	**612,723**	**609,130**	**609,802**

TABLE A.4 MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT IN GROUNDWATER MANAGEMENT AREA 13. RESULTS ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	2020	2030	2040	2050	2060	2070
Evergreen UWCD	305,432	274,288	273,917	274,754	275,710	276,768
Gonzales County UWCD	130,212	130,212	130,954	131,318	128,535	128,543
Guadalupe County GCD	52,528	47,844	45,776	47,995	47,965	47,833
McMullen GCD	7,279	7,279	4,629	4,629	4,629	4,629
Medina County GCD	2,657	2,648	2,647	2,647	2,646	2,646
Plum Creek CD	20,633	20,633	20,224	20,224	19,647	19,647
Uvalde County UWCD	2,975	1,231	828	828	828	828
Wintergarden GCD	47,630	47,282	47,149	47,048	46,727	46,673
No District-Bexar County	81,474	80,817	80,348	79,470	78,977	78,807
No District-Caldwell County	921	921	921	921	921	921
No District-Gonzales County	59	59	59	59	59	59
No District-Maverick County	2,042	2,042	2,001	1,914	1,570	1,531
No District-Webb County	916	916	916	916	916	916
GMA 13 Total	**654,757**	**616,172**	**610,369**	**612,723**	**609,130**	**609,802**

Appendix B

Total Pumping Associated with Modeled Available Groundwater Run for the Carrizo-Wilcox, Queen City, and Sparta Aquifers Split by Model Layers for Groundwater Conservation Districts in Groundwater Management Area 13

TABLE B.1 TOTAL PUMPING BY MODEL LAYER ASSOCIATED WITH THE MODELED AVAILABLE GROUNDWATER RUN FOR THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 13 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD).

Groundwater Conservation District	Model Layer (Aquifer)	2012	2020	2030	2040	2050	2060	2070
Evergreen UWCD	1 (Sparta)	2,726	2,723	2,166	2,056	1,955	1,870	1,792
Evergreen UWCD	3 (Queen City)	13,614	13,614	10,797	10,455	10,133	9,723	9,359
Evergreen UWCD	5 (Carrizo)	199,165	199,165	171,394	171,475	172,735	174,186	175,686
Evergreen UWCD	6 (Upper Wilcox)	374	374	374	374	374	374	374
Evergreen UWCD	7 (Middle Wilcox)	370	370	370	370	370	370	370
Evergreen UWCD	8 (Lower Wilcox)	89,186	89,186	89,186	89,186	89,186	89,186	89,186
Evergreen UWCD Total		**305,436**	**305,432**	**274,288**	**273,917**	**274,754**	**275,710**	**276,768**
Gonzales County UWCD	1 (Sparta)	3,554	3,554	3,554	3,554	3,554	3,554	3,554
Gonzales County UWCD	3 (Queen City)	5,351	5,351	5,351	5,351	5,351	5,351	5,351
Gonzales County UWCD	5 (Carrizo)	83,284	83,284	83,284	84,026	84,390	81,607	81,615
Gonzales County UWCD	6 (Upper Wilcox)	0	0	0	0	0	0	0
Gonzales County UWCD	7 (Middle Wilcox)	12,187	12,187	12,187	12,187	12,187	12,187	12,187
Gonzales County UWCD	8 (Lower Wilcox)	25,836	25,836	25,836	25,836	25,836	25,836	25,836
Gonzales County UWCD Total		**130,212**	**130,212**	**130,212**	**130,954**	**131,318**	**128,535**	**128,543**

Groundwater Conservation District	Model Layer (Aquifer)	2012	2020	2030	2040	2050	2060	2070
Guadalupe County GCD	5 (Carrizo)	25,143	25,143	20,771	16,367	16,470	16,783	16,862
Guadalupe County GCD	6 (Upper Wilcox)	0	0	0	0	0	0	0
Guadalupe County GCD	7 (Middle Wilcox)	3,299	6,290	5,978	7,377	8,700	8,435	8,224
Guadalupe County GCD	8 (Lower Wilcox)	19,590	21,094	21,094	22,031	22,825	22,747	22,747
Guadalupe County GCD Total		**48,032**	**52,528**	**47,844**	**45,776**	**47,995**	**47,965**	**47,833**
McMullen GCD	1 (Sparta)	89	89	89	89	89	89	89
McMullen GCD	3 (Queen City)	134	134	134	134	134	134	134
McMullen GCD	5 (Carrizo)	7,002	7,056	7,056	4,405	4,405	4,405	4,405
McMullen GCD	6 (Upper Wilcox)	0	0	0	0	0	0	0
McMullen GCD	7 (Middle Wilcox)	0	0	0	0	0	0	0
McMullen GCD	8 (Lower Wilcox)	0	0	0	0	0	0	0
McMullen GCD Total		**7,226**	**7,279**	**7,279**	**4,629**	**4,629**	**4,629**	**4,629**
Medina County GCD	5 (Carrizo)	545	545	537	536	535	535	534
Medina County GCD	6 (Upper Wilcox)	0	0	0	0	0	0	0
Medina County GCD	7 (Middle Wilcox)	1,248	1,248	1,248	1,248	1,248	1,248	1,248

Groundwater Conservation District	Model Layer (Aquifer)	2012	2020	2030	2040	2050	2060	2070
Medina County GCD	8 (Lower Wilcox)	864	864	864	864	864	864	864
Medina County GCD Total		**2,657**	**2,657**	**2,648**	**2,647**	**2,647**	**2,646**	**2,646**
Plum Creek CD	3 (Queen City)	22	22	22	22	22	22	22
Plum Creek CD	5 (Carrizo)	6,057	6,057	6,057	6,057	6,057	6,057	6,057
Plum Creek CD	6 (Upper Wilcox)	0	0	0	0	0	0	0
Plum Creek CD	7 (Middle Wilcox)	5,301	4,838	4,838	4,838	4,838	4,261	4,261
Plum Creek CD	8 (Lower Wilcox)	9,714	9,714	9,714	9,306	9,306	9,306	9,306
Plum Creek CD Total		**21,095**	**20,633**	**20,633**	**20,224**	**20,224**	**19,647**	**19,647**
Uvalde County UWCD	5 (Carrizo)	828	828	828	828	828	828	828
Uvalde County UWCD	6 (Upper Wilcox)	3,622	2,147	402	0	0	0	0
Uvalde County UWCD	7 (Middle Wilcox)	0	0	0	0	0	0	0
Uvalde County UWCD	8 (Lower Wilcox)	0	0	0	0	0	0	0
Uvalde County UWCD Total		**4,451**	**2,975**	**1,231**	**828**	**828**	**828**	**828**
Wintergarden GCD	1 (Sparta)	983	983	983	983	983	983	983
Wintergarden GCD	3 (Queen City)	2	2	2	2	2	2	2
Wintergarden GCD	5 (Carrizo)	32,962	32,962	32,615	32,481	32,381	32,060	32,005
Wintergarden GCD	6 (Upper Wilcox)	9,261	9,261	9,261	9,261	9,261	9,261	9,261

Groundwater Conservation District	Model Layer (Aquifer)	2012	2020	2030	2040	2050	2060	2070
Wintergarden GCD	7 (Middle Wilcox)	4,006	4,006	4,006	4,006	4,006	4,006	4,006
Wintergarden GCD	8 (Lower Wilcox)	416	416	416	416	416	416	416
Wintergarden GCD Total		**47,630**	**47,630**	**47,282**	**47,149**	**47,048**	**46,727**	**46,673**

Appendix I

GCGCD Rules amended and adopted

July 14, 2016

RULES OF THE

GUADALUPE COUNTY GROUNDWATER CONSERVATION DISTRICT

Effective August 1, 2016
as set forth in the Resolution of the Board of Directors
adopted July 14, 2016

113 South River Street, Suite 209
P.O. Box 1221, Seguin Texas 78156
(830) 379-5969

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SECTIONS 2 (BOARD) AND 3 (GENERAL MANAGER) HAVE BEEN REPEALED. SOME OF THE PROVISIONS IN THESE FORMER SECTIONS HAVE BEEN RELOCATED WITHIN THE CURRENT RULES.

SECTION 1. DEFINITIONS AND CONCEPTS

RULE 1.1 DEFINITIONS OF TERMS:

In the administration of its duties, the Guadalupe County Groundwater Conservation District follows the definitions of terms set forth in Chapter 36, Water Code, and other definitions as follows:

a. "Affected Person" means, for any permit application, a person who has a personal justiciable interest related to a legal right, duty, privilege, power, or economic interest that is within the District's regulatory authority and affected by the application. An interest common to members of the general public does not qualify as a personal justiciable interest.

"Affected Person" means, with respect to a petition over the reasonableness of a Desire Future Condition:

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

b. "Aquifer" or "Groundwater Reservoir" shall mean a specific subsurface water-bearing reservoir having ascertainable boundaries containing groundwater.

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

d. "Artesian Well" shall mean a water well completed in the confined portion of an aquifer such that, when properly cased, water will rise in the well, by natural pressure, above an overlying impermeable stratum.

e. "ASR" means aquifer storage and recovery.

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

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

h. "Beneficial Use" or "Use for a Beneficial Purpose" shall mean use for:

1. agricultural, gardening, domestic, stock raising, municipal, mining, manufacturing, industrial, commercial, recreational or pleasure purposes;
2. exploring for, producing, handling, or treating oil, gas, sulfur, or other minerals; or
3. any other purpose that is useful and beneficial to the user that does not commit waste as defined in this rule.

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

j. "Board" means the Board of Directors of the District.

k. "Casing" means a tubular watertight structure installed in the excavated or drilled hole to maintain the well opening and, along with cementing, to confine the groundwaters to their zones of origin and prevent the entrance of surface pollutants.

l. "Cement" means a neat Portland or construction cement mixture of not more than seven gallons of water per ninety-four (94) pound sack of dry cement, or a cement slurry which contains cement along with bentonite, gypsum, or other additives. All manufacturers' recommendations regarding water content for the mix must be strictly adhered to.

m. "Desired Future Condition(s)" means the desired, quantified condition(s) of groundwater resources, including water levels, water quality, spring flows, or volumes, for a specified aquifer within a management area at a specified time or times in the future. Desired Future Conditions are defined by the District in conjunction with other districts within the same groundwater management area as part of the joint planning process required by the TWDB.

n. "Deteriorated Well" means a well, the condition of which will cause, or is likely to cause, pollution of any water in the District.

o. "District" means the Guadalupe County Groundwater Conservation District.

p. "District Act" means the District's enabling legislation, Act of May 29, 1997, 75th Legislature, Regular Session, Chapter 1066, as amended by Act of May 26, 1999, 76th Legislature, Regular Session, Ch. 1141, and Act of

May 11 2011, 82nd Legislature, Regular Session, Ch. 70, and as codified in Texas Special Districts Local Laws Code Chapter 8833.

q. "District office" means the office and headquarters of the District. The location of the District office may be changed from time to time by resolution of the Board.

r. "District Potable Water Purveyor" means any Municipality, City, or Water Supply Corporation, investor owned or non-profit, whose sole purpose is to supply potable water to a customer base with no less than 95% of its service area within the boundaries of the District.

s. "Drilling Permit" means a permit for a water well to be drilled, or an existing well that is to be reworked, re-drilled, or re-equipped to increase production.

t. "Emergency Multiple Systems Interconnects" means that a District Potable Water Purveyor whose lines interconnected with a system or systems outside of the District for the sole purpose of *temporary* assistance during an emergency situation. All interconnects shall be valved and metered at the District boundary lines. The District shall be provided with written notification immediately as to the nature of the emergency, the estimated time of assistance required and the current meter reading. Emergency assistance to an entity with more than 5% of its service area outside of the District is subject to District transportation Permitting Requirements and Fees.

u. "Groundwater" means water percolating beneath the earth's surface within the District.

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

w. "Hearings Examiner" means a person whom the Board has delegated in writing the responsibility to preside over a hearing or matters related to the hearing, and who has the authority vested in a Presiding Officer under Chapter 36 of the Texas Water Code and these rules.

x. "Historic Use" is an amount of groundwater produced and beneficially used during any consecutive 12-month period during the Historic Use Period, for a nonexempt purpose or in a nonexempt amount.

y. "Historic Use Period" is defined as November 5, 1977 through August 11, 2004.

z. "Managed Available Groundwater" means the amount of water that may be permitted by the District for beneficial use in accordance with the

Desired Future Condition of a particular aquifer and is a statutory term used in some literature but that was replaced by the term "Modeled Available Groundwater."

aa. "Modeled Available Groundwater" means the amount of water that the TWDB Executive Administrator determines may be produced on an average annual basis to achieve a Desired Future Condition established for the groundwater resources in the District.

bb. "Mud" means a relatively homogeneous, relatively viscous fluid produced by the suspension of clay-size particles in water.

cc. "New well application" means an application for a permit for a well that has not been drilled.

dd. "Person" includes corporation, individual, organization, government or governmental subdivision or agency, business trust, estate, trust, partnership, association, or any other legal entity.

ee. "PFD" means a Proposal for Decision issued by SOAH or the District's Hearings Examiner or Presiding Officer.

ff. "Pollution" means the alteration of the physical, thermal, chemical, or biological qualify of, or the contamination of, any water in the District, that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or impairs the usefulness or public enjoyment of the water for any lawful or reasonable purpose.

gg. "Presiding officer" means the President, Vice President, Secretary, or other Board member presiding at any hearing, meeting, workshop, or other proceeding, or a Hearings Examiner conducting any hearing or other proceeding related to the hearing.

hh. "Production" means groundwater actually pumped from percolating waters or aquifer and put to a proven beneficial use authorized by Texas law.

ii. "Production Permit" means a permit for a water well issued or to be issued by the District allowing the withdrawal of a specified amount of groundwater for a beneficial use for a designated period.

jj. "Project Operator" means a person holding an authorization under this subchapter to undertake an aquifer storage and recovery project.

kk. "Pumper" means a person authorized to produce groundwater as provided in these Rules.

ll. "Rules" means the rules of the District compiled in this document as it may be supplemented, repealed or otherwise amended from time to time.

mm. "SOAH" means the State Office of Administrative Hearings.

nn. "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.

oo. "TCEQ" means the Texas Commission on Environmental Quality.

pp. "TDLR" means the Texas Department of Licensing and Regulation.

qq. "Texas Open Meetings Act" means Chapter 551, Government Code.

rr. "Texas Public Information Act" means Chapter 552, Government Code.

ss. "Texas Rules of Civil Procedure" and "Texas Rules of Evidence" mean the procedural and evidentiary rules in effect at the time of the District's action, hearing, or proceeding.

tt. "Transportation Facility" means any facility constructed for the purpose of exporting groundwater beyond the District's boundaries.

uu. "TWDB" means the Texas Water Development Board.

vv. "Waste" as used herein shall mean any one or more of the following:

1. The 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;
2. The flowing or producing of wells from a groundwater reservoir if the water produced is not used for a beneficial purpose;
3. The escape of groundwater from a groundwater reservoir to any other reservoir or geologic strata that does not contain groundwater;
4. The pollution or harmful alteration of groundwater in a groundwater reservoir by saltwater, other deleterious matter admitted from another stratum or from the surface of the ground;
5. 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 Texas Commission on Environmental Quality under Chapter 26 of the Texas Water Code;

6. 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
7. For water produced from artesian well, "waste" has the meaning assigned by Section 11.025 of the Texas Water Code.

ww. "Well" means any facility, device, or method used to withdraw groundwater from within the District.

xx. "Well operator" means the person who operates a well or a water distribution system supplied by a well.

yy. "Well owner" means the person who holds a possessory interest in: (1) the land upon which a well is located or to be located, and who has authority to and who may lawfully produce groundwater from this land and/or (2) the well itself as long as this person has the authority to produce groundwater from the land on which the well is located, as evidenced by written documentation that establishes the consent of the landowner to this person's ownership and operation of the well.

zz. "Withdraw" means the act of extracting or producing groundwater by pumping or some other method.

RULE 1.2 PURPOSE OF RULES:

These Rules are adopted pursuant to Section 36.101 of the Texas Water Code and Section 5 of the District Act for the purpose of conserving, preserving, protecting and recharging the groundwater in the District, and these rules are adopted under the District's statutory authority to prevent waste of groundwater, protect rights of owners of interests in groundwater, prevent degradation of water quality, and to carry out the powers and duties of Chapter 36, Texas Water Code. The District's orders, resolutions, policies, guidelines, and other actions have been enacted and implemented to fulfill these objectives.

RULE 1.3 USE AND EFFECT OF RULES:

These Rules are used by the District as a guide in the exercise of the powers conferred by law and in the accomplishment of the purposes of the District Act. They may not be construed as a limitation or restriction on the exercise of any discretion nor may they be construed to deprive the District or Board of the exercise of any powers, duties or jurisdiction conferred by law, nor may they be construed to limit or restrict the amount

and character of data or information that may be required to be collected for the proper administration of the District Act.

RULE 1.4 AMENDING OF RULES:

The Board may, following notice and hearing as provided in these rules and Chapter 36 of the Texas Water Code, amend these Rules or adopt new Rules from time to time.

RULE 1.5 HEADINGS AND CAPTIONS:

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

RULE 1.6 CONSTRUCTION:

A reference to a title, chapter or section without further identification is a reference to a title, chapter or section of the Water Code. Construction of words and phrases are governed by the Code Construction Act, Subchapter B, Chapter 311, Government Code.

RULE 1.7 METHODS OF SERVICE UNDER THE RULES:

Except as otherwise expressly provided in these Rules, any notice or document required by these Rules to be served or delivered may be delivered to the recipient, or the recipient's authorized representative, in person, by agent, by courier receipted delivery, by certified mail sent to the recipient's last known address, or by telephonic document transfer to the recipient's current telecopier number. Service by mail is complete upon deposit in a post office or other official depository of the United States Postal Service. Service by telephonic document transfer is complete upon transfer, except that any transfer occurring after 5:00 p.m. shall be deemed complete the following business day. If service or delivery is by mail, and the recipient has the right, or is required, to do some act within a prescribed period of time after service, three days will be added to the prescribed period. Where service by other methods has proved impossible, the service may be complete upon publication of the notice in a newspaper with general circulation in the District, or by such other method as may be approved by the Board. The person or person's attorney or authorized representative shall certify compliance with this rule in writing over signature and on the filed document. A certificate by a person or the person's attorney of record, or the return of an officer, or the affidavit of any person showing service of a document, shall be prima facie evidence of the fact of service.

RULE 1.8 SEVERABILITY:

If any one or more of the provisions contained in these Rules is for any reason held to be invalid, illegal, or unenforceable in any respect, the invalidity, illegality, or unenforceability may not affect any other Rules or provisions of these Rules and these Rules will be construed as if such invalid, illegal or unenforceable rule or provision had never been contained in these Rules.

RULE 1.9 COMPUTING TIME:

In computing any period of time prescribed or allowed by these Rules, order of the Board, provided by a Presiding Officer, or any applicable statute, the day of the act, event, or default from which the designated period of time begins to run is not included, but the last day of the period so computed is included, unless it is a Saturday, Sunday, or legal holiday, in which event the period runs until the end of the next day which is neither a Saturday, Sunday, or legal holiday.

RULE 1.10 TIME LIMITS:

Applications, requests, or other papers or documents required or permitted to be filed under these Rules or by law must be received for filing in the District office within the time limit for filing, if any. The date of receipt, not the date of posting, is determinative of the time of filing. Time periods set forth in these rules shall be measured by calendar days, unless otherwise specified.

SECTIONS 2 AND 3 HAVE BEEN REPEALED. SOME OF THE PROVISIONS IN THESE FORMER SECTIONS HAVE BEEN RELOCATED WITHIN THE CURRENT RULES.

SECTION 4. DISTRICT

RULE 4.1 MINUTES AND RECORDS OF THE DISTRICT:

All documents, reports, records, and minutes of the District will be available for public inspection and copying in accordance with the Texas Public Information Act (the "TPIA"). Upon written request of any person, the District will furnish copies of its public records in accordance with the TPIA. Persons who are furnished copies may be assessed a copying charge, pursuant to policies established by the Board and consistent with the TPIA and regulations of the Office of the Attorney General of the State of Texas.

RULE 4.2 CERTIFIED COPIES:

Requests for certified copies must be in writing. Certified copies will be made under the direction of the General Manager and will be affixed with the seal of the District. Persons furnished certified copies may be assessed a certification charge, in addition to the copying charge, pursuant to policies established by the Board.

RULE 4.3 OFFICE HOURS:

The District will maintain business hours as designated from time to time by the Board of Directors.

RULE 4.4 MEETINGS:

The Board will hold a regular meeting at least once each quarter and may meet more frequently as the Board may establish from time to time. At the request of the President, or by written request of at least two members, the Board may hold special meetings. All Board meetings will be held in accordance with the Texas Open Meetings Act.

SECTION 5. PERMITS

RULE 5.1 STANDARD PERMIT PROVISIONS:

All permits are granted subject to the District Act, these Rules, the District Management Plan, Drought Management Plan, orders of the Board, and the laws of the State of Texas. In addition to any special provisions or other requirements incorporated into the permit, each permit issued shall contain the following standard permit provisions:

a. This permit is granted in accordance with the provisions of the District Act, Water Code, and the Rules, Management Plan, Drought Management Plan and orders of the District, and acceptance of this permit constitutes an acknowledgment and agreement that the permittee will comply with the Texas Water Code, the District Act, the District Rules, Management Plan, Drought Management Plan, orders of the District Board, and all the terms, provisions, conditions, requirements, limitations and restrictions embodied in this permit.

b. This permit confers no vested rights in the holder, and it may be revoked or suspended, or its terms may be modified or amended pursuant to the provisions of the District Act.

c. The operation of the well for the authorized withdrawal must be conducted in a non-wasteful manner. In the event that groundwater is to be transported a distance greater than one-half (1/2) mile from the well, it must be transported by a pipeline or truck to prevent waste caused by evaporation and percolation.

d. To ensure regular production monitoring, all permitted wells used for industrial, commercial irrigation and municipal purposes shall be equipped with approved metering devices accessible to District employees at any time during normal business hours. The District may require the permit holder, at the permit holder's expense, to test the accuracy of the meter and submit a certificate of the test results. This requirement is in addition to the requirement for meter calibration in District Rule 5.10. If the tests reveal that a meter is not registering within an accuracy of 95%-105% of actual flow, or is not properly recording the total flow of groundwater withdrawn from the well or well system, the permit holder must take

appropriate steps to remedy the problem, and to retest the meter within 90 days from the date the problem is discovered. This subsection does not apply to wells used for non-commercial irrigation.

e. In addition, the permittee must keep records of the amount of groundwater produced and the purpose of the production and agrees to make those records available for District inspection, if requested by the District. Immediate written notice must be given to the District by the permittee in the event the well is either polluted or causing pollution of the aquifer.

f. The well site must be accessible to District representatives for inspection, and the permittee agrees to cooperate fully in any reasonable inspection of the well and well site by District representatives.

g. The application pursuant to which this permit has been issued is incorporated in this permit, and this permit is granted on the basis of and contingent upon the accuracy of the information supplied in that application and in any amendments to the application. A finding that false information has been supplied is grounds for immediate revocation of the permit. In the event of conflict between the provisions of this permit and the contents of the application, the provisions of this permit shall control.

h. Violation of this permit's terms, conditions, requirements, or special provisions shall subject the permit holder to civil penalties, injunction from further well operation and production, and other legal action as provided by the District Rules.

i. Wherever special provisions are inconsistent with other provisions or District Rules, the special provisions prevail.

RULE 5.2 WELL PERMIT EXEMPTIONS:

a. Well drilling and operating permits are not required for:

1. a well used solely for domestic use or for providing water for livestock or poultry that is either drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater a day;

2. the drilling of 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 well is located on the same lease or field associated with the drilling rig; or

3. the drilling of a water well authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, Natural Resources Code, or for production from such a well to the extent the withdrawals are required for mining activities regardless of any subsequent use of the water.

4. a well used for an aquifer storage and recovery project, except as provided under District Rule 6.8.

b. Notwithstanding Subsection (a), the District may require a well to be permitted by the District and to comply with all District rules if:

1. the purpose of a well exempted under Subsection (b)(2) is no longer 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; or

2. the withdrawals from a well exempted under Subsection (b)(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.

3. the groundwater withdrawals that were exempted under Subsection (a)(4) exceed the amount specified in the permit issued by Texas Commission on Environmental Quality.

c. A person holding a permit issued by the Railroad Commission of Texas under Chapter 134, Natural Resources Code, that authorizes the drilling of a 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

3. the quantity of water withdrawn for other purposes.

d. A water well exempt under this rule shall be registered in accordance with rules promulgated by the District; and be equipped and maintained so as to conform to the District's rules requiring installation of casing, pipe, and fittings to prevent the escape of groundwater from a groundwater reservoir to any reservoir not containing groundwater and to prevent the pollution or harmful alteration of the character of the water in any groundwater reservoir. The driller of a well exempted under Subsection (a) or (b) shall file the drilling log with the District.

e. A well to supply water for a subdivision of land for which a plat approval is required by Chapter 232, Local Government Code, is not exempted under Subsection (b).

RULE 5.3 WELL DRILLING AND PRODUCTION PERMIT:

a. **Permits Required:**

1. Every person, unless exempted by Rule 5.2, must obtain a permit from the District for the drilling of a water well and production of water.

2. The requirement for a permit under this Rule shall also apply to any well currently in operation located within the District prior to the effective date of this rule, before the well may be altered or re-equipped to increase production, and prior to a change in the intended use of the water that is to be produced from the well.

b. **Permit Application:**

1. The permit application provided for herein must be filed with the District in the form or forms promulgated by the District and such permit must be obtained from the District prior to the drilling of water wells and proposed production of water, all in accordance with the provisions of this rule.

2. Before submitting an application for a well permit, prospective applicants may meet with District representatives to have District rules and application procedures explained in complete detail.

3. The applicant shall identify the depth of the water-bearing formation which the applicant proposes to drill, complete, and produce the well.

4. An application for the production of water for which a permit is required under this Rule shall:

(i) be in writing and sworn to;
(ii) contain the name, post-office address and place of residence or principal office of the applicant;
(iii) identify the actual or anticipated location, pump size, and production capacity of the well from which the water is to be produced;
(iv) identify the location and description of the well site, the property on which the well is to be situated, the pump size, the production capacity of the well, and the aquifer from which the water is to be produced;

(v) the number of contiguous acres of land that the well is to be constructed upon.

(vi) include the number and location of the enabling water rights contractually committed to the well.

(vii) state the nature and purpose of the proposed use and the anticipated amount of water to be used;

(viii) state the anticipated time within which the proposed construction or alteration is to begin;

(ix) state the presently anticipated duration required for the proposed use of the water;

(x) provide information showing the anticipated effect of the proposed production on the quantity and quality of water available for future use both inside and outside the District;

(xi) provide information showing the anticipated effect of the proposed production on the quantity and quality of water available for future use within the affected area; if the proposed production is to exceed 200 ac.-ft./yr., then the producer must, at a minimum, provide information showing the anticipated effects after twenty-five (25) and fifty (50) years; if there is any existing water production, or any planned production of which the applicant is aware, of more than 200 ac.-ft./yr. within five (5) miles of the proposed well which may affect, or be affected by, the applicant's proposed production, such effects must be included in the applicant's required studies;

(xii) identify any other presently owned sources of water, the availability of which is both technically feasible and economically reasonable for the permittee, that could be reasonably used for the stated purposes, including quality and quantity of such alternate sources;

(xiii) identify any other liquids, the availability of which is both technically feasible and economically reasonable for the permittee, that could be reasonably substituted for the fresh ground water and possible sources of such liquid including quantity and quality;

(xiv) provide information showing what water conservation measures permittee has adopted, what water conservation goals permittee has established, and what measures and time frames are necessary to achieve the permittee's established water conservation goals;

(xv) if the water is to be resold to others, provide a description of the permittee's service area, permittee's metering and leak detection and repair program for its water storage, delivery and distribution system, permittee's drought or emergency water management plan; and

(xvi) identify well(s) producing from the same formation within the proposed well's applicable "area of influence", as well as the owner(s) of said well(s).

5. The application must be accompanied by a map or plat drawn on a scale that adequately details the proposed project, showing:

(i) the location of the existing or proposed well(s);
(ii) the location of the existing or proposed production monitoring device(s) for compliance with Subsection 5.1(d) of these Rules;
(iii) the location of the existing or proposed water use facilities; and
(iv) the location of the proposed or increased use or uses.

6. The Rule 5.3 permit application must be accompanied by an application fee as required by District Rule 10.2. This application fee shall be used to cover the cost of considering and processing the application.

7. The District shall determine whether the application, maps, and other materials comply with the requirements of this rule. The District may require amendment of the application, maps, or other materials to achieve necessary compliance.

8. Before construction of any wells associated with a Production project may be commenced, a Rule 5.3 applicant or permittee must apply for and obtain a drilling permit for each proposed well as required by Rules 5.1 and this rule. An application or application for drilling permit(s) must be submitted concurrently with a Rule 5.3 application for Production. Applications submitted concurrently will be considered together by the Board according to the standards and rules applicable to each.

9. Applicants who intend to produce more than 200 ac.-ft./yr. must submit a drought management plan with its application. Final issue of a production permit by the District to the applicant is contingent upon District approval of the submitted drought management plan.

10. Notice of filing of an application: All permit applicants must provide notice by publication in a newspaper of general circulation in the District, and by mailing notice by certified mail, return receipt requested, to all property owners within the "area of influence" as described in these rules.

(i) All public notices covered by this section must include the following information and be approved by the District prior to issuance:

(A) name and address of the applicant;
(B) date the application was filed;
(C) location and a description of the well that is the subject of the application;
(D) a brief summary of the information in the application; and
(E) a brief statement provided by the District setting forth generally that:

(I) a hearing will be set on the application;
(II) notice of the hearing will be published and posted at a future date, and such notice will include information on the location, date, and time of the hearing and the method by which a person can contest the application;
(III) the notice described in paragraph (II) will not be mailed to the person unless requested under these rules and that it will be the individual responsibility of the person to review the District's postings and publications of notices of hearings if the person wishes to contest the application or otherwise participate in the hearing; and
(IV) any other information deemed relevant by the District.

(ii) The applicant must include in the notices mailed to property owners within the "area of influence" a statement recommending that any such owner immediately register with the District any unregulated well within the proposed well's applicable "area of influence"; and

(iii) The applicant must provide the District with the following information for the District to declare that the application is administratively complete:

(A) Information contained in this rule;
(B) proof of publication of public notice;
(C) proof by certified mail receipt that notice was sent by certified mail to the property owners and well owners to whom notice is required under this Subsection (proof of actual receipt by the owner is not required of the applicant); and

(D) a list of the names and addresses of the property owners notified by certified mail.

c. **Permit Hearing**:

1. Notice of Hearing: Once the District has received an administratively complete application for a water well permit or production permit, a major permit amendment, or a minor permit amendment for which the Board President and General Manager decides that a hearing is required, and associated fees, the General Manager, with the Board President's approval, will issue written notice of hearing on the application in accordance with these rules.

(i) Notices of all hearings of the District shall be prepared by the General Manager, with the Board President's approval, and shall, at a minimum, state the following information:

(A) the name and address of the applicant;
(B) the name or names of the owner or owners of the land if different from the applicant;
(C) the time, date, and location of the hearing;
(D) the address or approximate proposed location of the well, if different than the address of the applicant; and
(E) 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;
(F) a general explanation of the manner by which a person may contest the application, including information regarding the need to appear at the hearing or submit a motion for continuance on good cause under these rules; and
(G) any other information the Board or General Manager deems relevant and appropriate to include in the notice.

(ii) Not later than the tenth day prior to the date of the hearing, notice shall be:

(A) posted by the General Manager, with the Board President's approval, at a place readily accessible to the public in the District Office;
(B) provided by the General Manager, with the Board President's approval, to the County Clerk of Guadalupe County, whereupon the County Clerk shall post the notice on a bulletin board at a place

convenient to the public in the county courthouse annex;

(C) provided to the applicant by regular mail;

(D) provided to any person who has requested notice under subsection (iii) of this rule by regular mail, facsimile, or electronic mail; and

(E) provided to property owners within the "area of influence" by regular mail, facsimile, or electronic mail.

(iii) 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.

(iv) Failure to provide notice under subsection (iii) does not invalidate an action taken by the District at the hearing.

(v) All hearings shall be held at the location set forth in the notice.

(vi) The General Manager, with the Board President's approval, shall set a permit hearing date within 60 days after the date the administratively complete application is submitted. The permit hearing shall be held within 35 days after the setting of the date. Within this same time frame, the General Manager, with the Board President's approval, shall post notice and set a hearing on the application before the District Board. The General Manager may schedule as many applications at one hearing as the General Manager deems necessary, with the Board President's approval.

2. Registration of Unregulated Wells for Remediation: Notwithstanding the presence of unregulated wells of record in a proposed well's applicable "area of influence", the District may grant a requested permit if, among other things, all setback and production rules are complied with. However, remediation of all unregulated Carrizo wells of record within the proposed well's applicable "area of influence" when the production permit is issued remains the responsibility of the producer, and the producer must submit with its application a written guarantee to the District that the applicant will fulfill that responsibility. Furthermore, retention of the production permit is contingent upon timely fulfillment of the producer's commitment to remediate all such pre-qualified

unregulated wells, as necessary. Every notified owner of property within the applicable "area of influence" of the applicant's proposed well who wishes to register an unregulated well with the District so as to be eligible for future well remediation must do so on or before the date of issue of the applicant's production permit. Well registration material to be submitted to the District should include, but not necessarily be limited to, all well completion records (including driller's log and any electric logs), aquifer(s) produced, type of casing, year completed, water chemistry (conductivity), pump capacity, average amount of water produced, and average static water level above mean sea level.

d. **Permit Evaluation:**

In deciding whether or not to issue a permit, and in setting the terms of the permit, the Board will consider the purpose of the District Act and all other relevant factors, including, but not limited to, (1) the District Management Plan and Drought Management Plan; (2) the quality, quantity, and availability of alternative water supplies; (3) the impact on other landowners' rights in groundwater and on the equitable distribution of the resource resulting from a grant or denial of the permit; and (4) the Desired Future Condition(s) and Modeled Available Groundwater of the aquifer at issue, as soon as each is final and any respective challenges and appeals have been exhausted. In evaluating whether an application shall be approved, the Board of Directors shall consider whether the proposed use will either constitute waste or that such use will constitute a "use for a beneficial purpose" as those terms are defined under Chapter 36 of the Texas Water Code, as amended, whether the use is otherwise inconsistent with the statutory purposes of the District, and the other considerations in this section. The Board, before issuing a permit, must also find and determine that all other presently owned sources of water, the availability of which are both technically feasible and economically reasonable to the permittee, have been considered and that no other liquid, the availability of which is both technically feasible and economically reasonable for the permittee, could be reasonably substituted for the use of fresh groundwater. In evaluating the application, the District shall consider the quantity of water proposed to be produced; the term for which production is requested; the safety of the proposed production with respect to the contamination of the aquifer; the actual or anticipated number, location, pump size and production capacity of the wells from which water is to be produced; the nature of the proposed use; the effect of the proposed use of the water on municipal, agricultural, industrial, recreational and other categories of use, and such other factors expressly set forth in Texas Water Code Section 36.113 and as are consistent with the purposes of the District.

e. **Permit Limitations:**

On approval of an application, the District shall issue a Production Permit to the applicant. The permittee's right to produce shall be limited to the extent and purposes stated in the permit. The permit shall be valid for a period not to exceed five (5) years, at which time the permit may be renewed. A permit shall not be transferable except as provided in Rule 5.7.

f. **Permit Information:**

The permit shall be in writing and attested by the seal of the District and it shall contain substantially the following information:

The permit is issued subject to the rules of the District and to the continuing right of the District to manage the aquifers within the District's boundaries as authorized by Chapter 36, Texas Water Code, as amended. The permit shall be in writing and attested by the seal of the District and it shall contain substantially the following information:

1. the name of the person to whom the permit is issued;

2. the date the permit is issued;

3. the term for which the permit is issued;

4. the date the original application was filed;

5. the aquifer to be produced, and the actual or anticipated number, location, pump size and production capacity of the wells from which water is to be produced;

6. the legal description of the land that the well is to be constructed upon;

7. the maximum quantity of water to be produced annually and the destination and use or purpose for which the water is to be produced;

8. The permit is issued subject to the rules of the District and to the continuing right of the District to manage the aquifer within the District's boundaries as authorized by Chapter 36, Texas Water Code, as amended;

9. a list of sufficient contractual commitments of water rights within each aquifer to be produced for the well to be produced; and

10. any other information the District prescribes.

g. **Renewal:**

1. The District shall, without a hearing, renew or approve an application to renew a permit issued under Rule 5.3 before the date on which the permit expires, provided that:

   (i) the application is submitted in a timely manner and accompanied by any required fees; and
   (ii) the permit holder is not requesting a change to the permit along with the renewal that would otherwise require a major or minor amendment under Rule 5.7(c) and (d).

2. The District is not required to renew a permit under Rule 5.3(g)(1) if the applicant:

   (i) is delinquent in paying a fee required by the District;
   (ii) is subject to a pending enforcement action for a substantive violation of a District permit, order, or rule that has not been settled by agreement with the District or a final adjudication; or
   (iii) has not paid a civil penalty or has otherwise failed to comply with an order resulting from a final adjudication of a violation of a District permit, order, or District Rule.

3. If the District is not required to renew a permit under Rule 5.3(g)(2), the permit remains in effect until the final settlement or adjudication on the matter of the substantive violation.

4. If the holder of a permit issued under Rule 5.3, in connection with the renewal of a permit or otherwise, requests a change that requires an amendment to the permit under Rule 5.7, the permit as it existed before the permit amendment process remains in effect until the later of:

   (i) the conclusion of the permit amendment or renewal process, as applicable; or
   (ii) a final settlement or adjudication on the matter of whether the change to the permit requires a permit amendment.

5. 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 Rule 5.3(g)(1) without penalty, unless subsection (2) of Rule 5.3(g) applies to the applicant.

6. The District may initiate an amendment to a permit issued under Rule 5.3, in connection with the renewal of a permit or otherwise,

in accordance with Rule 5.7. If the District initiates an amendment to a permit issued under Rule 5.3, 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.

h. **Reporting:**

A permittee authorized to produce water for an agricultural or livestock use shall file with the District annual reports describing the amount of water produced and used for the permitted purpose. Such report shall be filed on the appropriate form or forms provided by the District within 15 days of December 31 next following commencement of production and annually thereafter. Permittees authorized to produce water for other purposes of use shall file with the District monthly reports describing the amount of water produced and used for the permitted purpose. Such report shall be filed on the appropriate from or forms provided by the District within 15 days of the first of each month.

i. **Fees:**

See Section 10 below.

RULE 5.4 SPACING AND PRODUCTION REQUIREMENTS:

a. Carrizo Well Spacing: The dip of the Carrizo beds is defined as having an orientation of 140° true. The strike, being perpendicular to the dip, is defined as having an orientation of 050° true. Around every regulated Carrizo well, existing or proposed, an ellipse (see depiction #1) whose major and minor radii are correlated to the average projected g.p.m. productive capacity of the well is defined as the well's Carrizo formation "area of influence". The major axis of the ellipse is parallel to the dip of the Carrizo beds, while the minor axis of the ellipse is parallel to the strike of the Carrizo beds (see depiction #2). The major radius of the ellipse (the radius along the major axis) is three (3) lateral feet times the average projected g.p.m. productive capacity of the well. The minor radius of the ellipse (the radius along the minor axis) is two (2) lateral feet times the average projected g.p.m. productive capacity of the well. The "areas of influence" of adjacent Carrizo wells, unless they are both existing wells when these rules are approved, may touch, but not overlap (see depiction #2).

b. Wilcox Wells Spacing: Around any proposed or existing Wilcox well, a circle with a radius of four (4) lateral feet times the average projected productive g.p.m. capacity of the proposed well is defined as the well's Wilcox formation "area of influence". The "areas of influence" of

adjacent Wilcox wells, unless they are both existing wells when these rules are approved, may touch, but not overlap.

c. Well Setbacks: Every well must be set back from any adjacent property line no less than one quarter (1/4) foot per g.p.m. of the well's average projected g.p.m. productive rate, but no less than one hundred feet (100 ft.), in any case, unless the owner of the affected adjacent property gives written permission to the producer to do otherwise. A copy of this written permission, if it is necessary, must be submitted to the District with the producer's application. Example: a proposed 1000 g.p.m. well must be set back a minimum of 250 feet from any adjacent property line. A proposed 1000 g.p.m. well must be set back a minimum of 100 ft. from any adjacent property line.

d. Carrizo Aquifer Water Rights: The District is responsible for calculating, and regularly updating, by employing a computer program using the most reliable hydrological data available, the approximate total volume of saturated Carrizo sand within the District. The District is also responsible for calculating and regularly updating, by employing a computer program using the most reliable hydrological data available, the relative percentage of the total volume of the Carrizo sand within the District beneath every individual property in the District. The District has the responsibility to set, and continually adjust to changing conditions, the total amount of water that may be annually withdrawn from the Carrizo aquifer within the District ("the annual production cap"). The relative percentage of the total amount of saturated Carrizo sand within the District which is attributed to any individual property times the annual production cap equals that individual property's annual Carrizo water right. All water rights transferred within the District to regulated wells shall be scaled to the property saturation index (the average thickness of the saturated Carrizo sand under a specific piece of property) of the acreage around the well or to the saturation index of the point of origin of said water rights, whichever is less.

e. All existing Carrizo production within the District that requires it by the stipulations of the production sunsetting provisions in these rules, as well as all proposed new Carrizo production within the District, must be supported by a sufficient amount of water rights as defined above. Proof of contractual commitments from the owners of water rights to producers verifying this sufficiency must be submitted to the District for its consideration and approval with any applications for new, renewed, or augmented production permits. Furthermore, this sufficiency must be reconfirmed on a regular basis to the District for production permits to remain in force.

f. Wilcox Aquifer Water Rights: Wilcox water rights are linearly correlated to the surface acreage above the Wilcox aquifer, up to a maximum of one-

half (1/2) ac.-ft./yr. A producer may be permitted to produce a Wilcox well for which a person may show possession of adequate water rights. Cumulative annual production shall be computed and confirmed by District personnel according to the number and location of acres of groundwater rights attached to the specific well by the applicant at the time the application is filed. All Wilcox water rights within four (4) lateral feet times the average projected g.p.m. productive capacity of the proposed well must be contractually committed to that well. Furthermore, at least 60% of all Wilcox water rights within R lateral feet of the proposed well but not within four (4) lateral feet times the average projected g.p.m. productive capacity of the proposed well must be contractually committed to that well, where R = the square root of the difference between 74550.6 times the average projected g.p.m. capacity of the proposed well and 10.6667 times the square of the average projected g.p.m. capacity of the proposed well (see depiction #3). Please note formula below, where X = average projected g.p.m. productive capacity of the proposed well,

$$R = 74550.6\,X - 10.6667\,X^2$$

g. All existing Wilcox production that requires it by the stipulations of the sunsetting provision in these rules, as well as all proposed new Wilcox production within the District, must be supported by a sufficient amount of attached water rights as defined above. Proof of contractual commitments from the owners of water rights to producers verifying this sufficiency must be submitted to the District for its consideration and approval with any applications for new, renewed, or augmented production permits. Furthermore, this sufficiency must be reconfirmed on a regular basis to the District for production permits to remain in force.

h. Sunsetting of Historic Use Permits: "Historic use" permits are to be sunsetted (phased out) according to the following schedule. The approved production amount shall be permitted to the producer without the requirements for attached water rights until January 1, 2025. For every year thereafter, the producer must possess a production permit obtained from the District for any water produced. In order to obtain a production permit for such a well, the producer must submit to the District a sufficient amount of attached water rights and must also meet every other rule requirement of this District concerning well production, except for rules concerning spacing and setbacks.

i. Permitted wells, regardless of the formation produced or of the stipulations of the relevant permit, shall never, in any case, be produced at instantaneous rates of more than 1200 g.p.m. or at average rates of more than 1000 g.p.m.

j. No well may produce from both the Carrizo and the Wilcox aquifers simultaneously, and all necessary preventative measures must also be taken by the producer to prevent any aquifer-to aquifer transmission or leakage.

k. Only wells with permits in force retain the protection from new well encroachment afforded by the applicable "area of influence" that is granted to that well by the production permit. If a producer loses all or part of the water rights attached to a producing well, the producer is given a grace period of twelve (12) months from the date of loss to re-acquire sufficient water rights, before having to forfeit due to that insufficiency the production permit and all of the well protections afforded thereof. Notwithstanding, if a producer loses water rights attached to a permitted well, the producer must immediately cease any water production based on those lost rights until such time that sufficient replacement water rights are required.

l. For the purpose of preventing waste or confiscation of property, the Board reserves the right in particular subterranean water zones and/or reservoirs to enter special orders increasing or decreasing distances provided by this requirement

m. In applying this requirement, no subdivision of property made subsequent to the adoption of the original spacing requirement will be considered in determining whether or not any property is being confiscated within the terms of such spacing requirement.

n. Requirements for spacing between wells under this rule shall not apply as between wells that are drilled and completed in different aquifers, except that any such wells shall be separated from one another by a distance of at least 100 (one hundred) linear feet, on-center.

RULE 5.5 EXCEPTION TO SPACING AND PRODUCTION RULE:

a. In order to protect property rights, to prevent waste, or confiscation of property, the Board may grant exception to the above spacing and production rules. This rule shall not be construed so as to limit the power of the Board, and the powers stated are cumulative only of all other powers possessed by the Board.

b. If an exception to the spacing or production rules is desired, the application shall be submitted by the applicant in writing to the District office on forms furnished by the District. The application accompanied by a plat or sketch, drawn to the scale of 1:24,000, which shows accurately the property lines in the immediate area and the location of all existing wells within the applicant's wells applicable "area of influence". The application shall also contain the names and addresses of the owners of all

such wells. Such application and plat shall be certified by some person acquainted with the facts who shall state that all the facts therein are true and correct.

c. Hearing notices shall state that the application does not meet the spacing requirements of the District, and an exception is requested by the applicant.

RULE 5.6 REWORKING OR REPLACING EXISTING WELLS:

a. No person shall rework, re-drill, or re-equip a well in a manner that would increase the maximum rate of production of water from such well beyond any previous rate of production of such well, or change the intended use of a well, if the production from the well will be greater than 25,000 gallons per day or 17.5 gallons per minute, without first having made an application to the District and having been granted a permit by the District to do so. Any proposed augmentation of a well's capacity requires the applicant to apply for new completion and production permits in the normal way. This process includes, among other things, all necessary notifications, hearings, attachments of sufficient water rights, and commitments of remediation to any additional unregulated well owners of record within the new enlarged applicable "area of influence" of the well proposed to be augmented. If a proposed modified well of augmented capacity would not comply with spacing, setback, or production rules for a new well of the identical capacity, such an application for well modification may be granted only after those rules are completely complied with by the applicant.

b. Replacement Wells:
No person shall replace a well without a permit unless the well is exempted as provided for in Rule 5.2. A replacement well, in order to be considered as such, must be used for the same purpose, watering the same acreage as the well it is replacing. A replacement well must be completed in the same aquifer as the well it replaces, and shall not be drilled, completed, or equipped so as to increase the rate of production of water from the well it replaces. A replacement well must not be located toward any other well or authorized well site unless the new location compiles with the minimum spacing and production rules set out in Rule 5.5 herein; otherwise the replacement well shall be considered to be a new well for which an application must be made under Rule 5.4 herein. The District may grant a permit for a replacement well without notice or hearing if the well meets the spacing and production requirements of Rule 5.5, and the applicant agrees to the terms of Rule 5.4.

c. The location of the well being replaced shall be protected in accordance with the spacing and production rules of the District until the replacement well is drilled and tested. The owner must, within 60 days of the issuance

of the permit, indicate in writing to the District which one of these two wells he desires to produce and must submit a completed registration form and driller's log, and any mechanical log which may have been made, on the replacement well. Immediately after determining which well will be retained for production, the other well shall be:

1. plugged according to Rule 6.4 herein;

2. if the well is not deteriorated, as defined in Rule 1.1 herein, the well maybe capped according to Rule 6.4 herein; or

3. properly equipped in such a manner that it cannot produce more than 25,000 gallons per day, or 17.5 gallons per minute.

RULE 5.7 PERMIT AMENDMENTS:

a. A permit amendment is required prior to any deviation from the permit terms regarding the maximum amount of groundwater to be produced from a well, ownership of a well or permit, the location of a proposed well, the purpose of use of the water, the location of use of the groundwater, or the drilling and operation of additional wells, even if aggregate withdrawals under an existing permit remain the same.

b. An application for a permit amendment must be made on a form provided by the District. Permit amendment application fees shall be established by the Board.

c. A major permit amendment includes, but is not limited to, a change that would substantially alter the size or capacity of a well, a request to increase the annual quantity of groundwater authorized to be withdrawn, a change in the purpose of use of the water, a change in the location of groundwater withdrawal, except for a replacement well authorized under Rule 5.6b, and a change in the ownership of the well or permit. A major permit amendment may not be made prior to notice and hearing.

d. Amendments that are not major, as determined by the General Manager and these Rules, including an amendment sought by a permittee for a decrease in the quantity of groundwater authorized for withdrawal, are minor amendments and may be made by the General Manager with the approval of the Board President. The General Manager, with approval from the Board President, is authorized to deny or grant in full or in part a minor permit amendment and may grant minor amendments without public notice and hearing. Such decision by the General Manager may be appealed to the Board. This appeal is a prerequisite to filing suit against the District to overturn the General Manager's decision. Any minor amendment sent to the Board for consideration shall be set on the Board's

agenda and shall comply with the notice requirements of the Texas Open Meetings Act.

RULE 5.8 TEMPORARY OR EMERGENCY PERMITS:

a. **Basis for Temporary or Emergency Permit**: Upon application, the General Manager, with the Board President's approval, may grant a Temporary or Emergency Permit that authorizes the withdrawal of water from a well not currently drilled or permitted.

1. An application for a Temporary Permit must present sufficient evidence that:

(i) no suitable alternative water supply is immediately available to the applicant; and
(ii) the well usage will not impair the rights of any other owner of interest in groundwater.

2. An applicant for an Emergency Permit must present sufficient evidence that:

(i) no suitable alternative water supply is immediately available to the applicant; and
(ii) an emergency need for the groundwater exists.

b. **Action on Requests**: The General Manager, with the Board President's approval, may grant any application for a Temporary or Emergency Permit without notice, hearing, or further action by the Board. The General Manager may deny an application for a Temporary or Emergency Permit on any reasonable ground including, but not limited to, a determination that the applicant is currently in violation of the District Act or these rules, or that the applicant has a previous unresolved violation on record with the District. Notice of the General Manager's action will be served upon the applicant. Any affected party may appeal the General Manager's action by filing, within 20 days of that action, a written request for a hearing before the Board. The Board will hear the applicant's appeal at the next available regular Board meeting. The General Manager must inform the Board of any Temporary or Emergency Permits granted. On the motion of any Board member, and a majority concurrence in the motion, the Board may overrule the action of the General Manager.

c. **Term of Temporary or Emergency Permit**: No Temporary or Emergency Permit may be issued unless an application for a permit issued under Rule 5.1 has been filed with the District. The term of any Temporary or Emergency Permit granted by the General Manager under this Rule extends only until the Board makes a final decision on the application for the permit under Rule 5.3. Emergency permits for

replacement wells may not require a hearing if there is substantial proof that the replacement well will have a reduced impact upon the aquifer than the well it is to replace.

RULE 5.9 HISTORIC USE PRODUCTION:

a. Production of groundwater within the boundaries of the District shall be authorized in an amount determined by the District Board after consideration of the evidence of historic use presented by a well owner who has timely filed a notice and application for a historic use permit as provided in Subsection (b) of this Rule, subject to the sunsetting provisions of District Rule 5.4(h).

b. Any person may make a historic use claim by filing a notice and application for a historic use permit with the District stating the date the use began, the amount of groundwater that was put to a beneficial use during any consecutive 12-month period during the Historic Use Period ending on August 11, 2004, the purpose for which the groundwater was used, the method(s) used to produce and use the groundwater, and the method(s) of determining or measuring the historic use claim. A person that files a notice and application of historic use with the District may produce evidence of the maximum annual production during any consecutive 12-month period prior to August 11, 2004. Proof of production prior to November 6, 1978 shall be too remote to be considered for a claim of historic use. The notice and application for a historic use claim shall be filed with the District no later than September 30, 2011, or a claim to such historic use shall be waived, in which case the permitting requirements under Rule 5.3 shall apply.

RULE 5.10 METER CALIBRATION:

a. Recognizing that TCEQ's regulations impose a mandatory obligation on some well owners within the District to test their water meters at least once every three years to confirm meter accuracy, these well owners subject to TCEQ's regulations, as well as all other well owners within the District, shall report to the District at least once every three years the result of testing the accuracy of their meters.

b. The verification required by Subsection (a) of this Rule shall be made by submitting to the District a notarized affidavit certifying that the meter has been tested, providing the results of the meter test, disclosing the accuracy of the meter calibration, and providing any additional information that the General Manager determines is required to verify that the meter is satisfactorily calibrated and otherwise properly functioning.

c. All meters required by District rules must be calibrated to measure water withdrawals with an accuracy deviation of not more than five percent (+/- 5%).

d. Except as otherwise provided by Subsection (f) of this Rule, each verification, including all necessary testing and calibrating, is to be conducted at the expense of the permit holder.

e. At its expense, the District may at any time test any meter required by District rules for purposes of verifying whether a meter is calibrated in a manner that satisfies this rule and is otherwise properly functioning.

f. If the verification conducted by the District demonstrates that the meter is not measuring groundwater withdrawals with an accuracy deviation of not more than five percent (+/- 5%), the permit holder:

1. must reimburse the District for the costs it incurred in undertaking the verification, including staff time;

2. must immediately repair the meter so that it complies with this rule or immediately replace the device with a meter that complies with this rule; and

3. may be subject to a civil penalty for violation of this rule.

SECTION 6. OTHER DISTRICT ACTIONS AND DUTIES

RULE 6.1 DISTRICT MANAGEMENT PLAN:

The District Plan specifies the acts, procedures, and performance necessary to prevent waste and protect rights of owners or interest in groundwater, and forms the basis of permitting decisions and permit requirements imposed by the Board. The Board will review the plan as necessary and no later than the fifth anniversary from the TWDB's approval of any amended plan, and when the Board considers a new plan necessary or desirable, a new plan will be adopted and submitted to TWDB to meet the statutory deadline for amendment. A plan, once adopted, remains in effect until the adoption of a new plan.

RULE 6.2 REGISTRATION OF NEW WELLS:

All new wells must be registered by the well owner, well operator, or water well driller. Registration may be by mail or telephonic document transfer, using a form provided by the District. Registration may also accompany the District-required Well Log. There will not be a fee for well registration other than a Well Log Deposit.

RULE 6.3 LOCATION OF WELLS:

a. After an application for a well permit has been granted, the well, if drilled, must be drilled within five percent (5%) of the distance used to determine the location of the well in the permit or thirty (30) feet of the location specified in the permit, whichever is greater.

b. Location of ALL wells including those exempt under Rule 5.2, must meet specifications defined in Chapters 32 and 33 of the Texas Water Code, Administrative Rules of TDLR, 16, Texas Administrative Code Chapter 76, and the TCEQ.

RULE 6.4 MINIMUM STANDARDS OF WELL COMPLETION:

The minimum standards for well completion are to be those determined and defined by the State of Texas in Chapters 32 and 33 of the Texas Water Code, the Administrative Rules of TDLR, 16, Texas Administrative Code Chapter 76, and the TCEQ.

RULE 6.5 MINIMUM STANDARDS FOR SEALING, CAPPING, AND PLUGGING OF WELLS:

The minimum standards for sealing, capping, and plugging of wells are to be those determined by the State of Texas in Chapters 32 and 33 of the Texas Water Code, the Administrative Rules of the TDLR, 16, Texas Administrative Code Chapter 76, and the TCEQ.

RULE 6.6 DRILLER'S LOG, CASING AND PUMP DATA:

Complete records must be kept and reports thereof made to the District concerning the drilling, maximum production potential, equipping and completion of all wells drilled in the District. Such records must include an accurate Driller's log, any mechanical log that may have been made and a registration of the well correctly furnishing all available information required on the forms furnished by the District or on forms furnished by the Texas Department of Licensing and Regulation. Such reports must be filed within 60 days after completion of the well.

RULE 6.7 WELL MONITORING:

The District will place or lease a strategic number of monitoring / test wells throughout the District in order to monitor water levels of the aquifers within the District. The District may from time to time use information from the monitoring wells to conserve water for pumping limits. These monitoring wells will be used when making determinations on permits submitted for approval or during times of drought.

RULE 6.8 AQUIFER STORAGE AND RECOVERY (ASR):

a. As a general matter, TCEQ has exclusive jurisdiction over the regulation and permitting of ASR Injection Wells. However, the District has concurrent jurisdiction over an ASR Injection Well that also functions as an ASR Recovery Well. The District is entitled to notice of and may seek to participate in an ASR permitting matter pending at TCEQ and, if the District qualifies as a party, in a contested hearing on an ASR application.

b. The provisions of District Rule 6.8 apply to an ASR recovery well that also functions as an ASR injection well.

c. A project operator shall:

1. Register an ASR injection well and ASR recovery well associated with the aquifer storage and recovery project if a well is located in the District;

2. Submit to the District the monthly report required to be provided to TCEQ under Section 27.155, Texas Water Code, at the same time the report is submitted to TCEQ; and

3. Submit to the District the annual report required to be provided to TCEQ under Section 27.156, Texas Water Code, at the same time the report is submitted to TCEQ.

d. If an aquifer storage and recovery project recovers an amount of groundwater that exceeds the volume authorized by TCEQ to be recovered under the project, the project operator shall report to the District the volume of groundwater recovered that exceeds the volume authorized to be recovered in addition to providing the report required by District Rule 6.8(c)(2).

e. Except as provided by District Rule 18.1(e), the District may not require a permit for the drilling, equipping, operation, or completion of an ASR injection well or an ASR recovery well that is authorized by TCEQ.

f. Each ASR recovery well that is associated with an aquifer storage and recovery project is 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 TCEQ to be recovered under the project. The requirements of the District apply only to the portion of the volume of groundwater recovered from the ASR recovery well that exceeds the volume authorized by TCEQ to be recovered.

g. A project operator may not recover groundwater from an aquifer storage and recovery project in an amount that exceeds the volume authorized by

TCEQ to be recovered under the project unless the project operator complies with the applicable requirements of the District as described by this rule.

h. The District may not assess a production fee or export fee or surcharge for groundwater recovered from an ASR recovery well, except to the extent that the amount of groundwater recovered under the aquifer storage and recovery project exceeds the volume authorized by TCEQ to be recovered.

i. 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 those fees under Section 10 of its rules.

j. 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.

SECTION 7. HEARINGS

RULE 7.1 TYPES OF HEARINGS:

The District conducts two general types of hearings: hearings involving permit matters, in which the rights, duties, or privileges of a party are determined after an opportunity for an adjudicative hearing, and rulemaking hearings involving matters of general applicability that implement, interpret, or prescribe the law or District policy, or that describe the procedure or practice requirements of the District. Any matter designated for hearing before the Board may be conducted by a Presiding Officer and quorum of the Board or referred by the Board for hearing before a Hearings Examiner or, if timely requested by a party qualified to participate in a contested hearing, a SOAH Administrative Law Judge.

Permit Hearings: **Permit Applications, Amendments and Revocations**: The District may hold hearings on original permit applications, applications for permit renewals or amendments and permit revocations or suspensions or other types of enforcement proceedings. Notice of permit hearings will be given in accordance with Rule 5.3(c). Hearings involving permit matters or any other proceeding may be scheduled before a Hearings Examiner or Presiding Officer.

RULE 7.2 NOTICE AND SCHEDULING OF RULEMAKING HEARINGS:

The General Manager, with the Board President's approval, is responsible for giving notice of all hearings in the following manner:

a. Not less than 20 days prior to the date of the hearing, the General Manager shall issue written notice of a hearing. The notice shall include a brief explanation of the subject of the hearing; the time, date, and location of the hearing; the location or Internet site at which a copy of the proposed rules may be reviewed or copied; and any other information deemed relevant by the General Manager or the Board. The notice shall be posted and distributed as follows:

1. notice posted in a place readily accessible to the public at the District office;
2. notice provided to the county clerk of Guadalupe County with instructions to post at the county courthouse;
3. notice published in one or more newspapers of general circulation in the District;
4. notice provided by mail, facsimile, or electronic mail to any person who has requested notice under Subsection (b) of this rule; and
5. notice provided by mail, facsimile, or electronic mail to the County and each water supply corporation, municipality, and all other retail public utilities within the District.

A copy of all proposed rules shall be made at a place accessible to the public during normal business hours, with an electronic copy posted on the District's Internet site.

b. 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.

RULE 7.3 GENERAL PROCEDURES:

a. **Authority of Presiding Officer**: The Presiding Officer may conduct the hearing or other proceeding in the manner the Presiding Officer deems most appropriate for that particular proceeding. The Presiding Officer has the authority to:

1. set hearing dates, other than the initial hearing date for permit matters set by the General Manager in accordance with Rule 7.1;
2. convene the hearing at the time and place specified in the notice for public hearing;
3. establish the jurisdiction of the District concerning the subject matter under consideration;

4. rule on motions and on the admissibility of evidence and amendments to pleadings;
5. designate and align parties and establish reasonable time limits and the order for testimony and presentation of evidence;
6. administer oaths to all persons presenting testimony;
7. examine witnesses;
8. issue subpoenas when required to compel the attendance of witnesses or the production of papers and documents;
9. require the taking of depositions and compel other forms of discovery under these Rules;
10. ensure that information and testimony are introduced as conveniently and expeditiously as possible, without prejudicing the rights of any party to the proceeding;
11. conduct public hearings in an orderly manner in accordance with these Rules;
12. recess any hearing from time to time and place to place;
13. reopen the record of a hearing for additional evidence when necessary to make the record more complete; and
14. exercise any other appropriate powers necessary or convenient to effectively carry out the responsibilities of Presiding Officer.

b. **Registration Forms**: Each individual attending a hearing or other proceeding of the District must submit a form providing the person's name and address, whether the person plans to testify; and any other information relevant to the hearing or other proceeding.

c. **Appearance; Representative Capacity**: Only parties designated under Subsection (d) of this rule may formally participate in a hearing, although the Presiding Officer may allow sworn testimony or evidence to be submitted by a nonparty if the Presiding Officer determines that the testimony or evidence is relevant, noncumulative, and useful to the Presiding Officer's and Board's review and decision on the application. A party may appear in person or may be represented by counsel, engineer, or other representative, provided the representative is fully authorized to speak and act for the party. A duly authorized partner may appear on behalf of the partnership. A duly authorized officer or agent of a public or private corporation, political subdivision, governmental agency, municipality, association, firm, or other entity may appear for the entity. A fiduciary may appear for a ward, trust, or estate. A person appearing in a representative capacity may be required to prove proper authority.

d. **Determination of Party Status; Alignment of Parties; Number of Representatives Heard**: A person desiring to protest a permit application shall appear before the District at the initial, preliminary permit hearing and offer sworn testimony to demonstrate that the person is an Affected Person. The Board may take sworn testimony and shall deliberate and take official action at the hearing to determine whether the protestant has

sufficiently demonstrated that they qualify as an Affected Person. If the Board finds that a person is not an Affected Person, then that person shall not be allowed to participate in the hearing as a party. The District's General Manager and applicant are automatically qualified as parties. Persons other than the General Manager or a person specifically named must, in order to be admitted as a party, appear at the proceeding in person or by representative and seek to be designated. After parties are designated, no other person may be admitted as a party unless, in the judgment of the Hearings Examiner or Presiding Officer, there exists good cause and the hearing will not be unreasonably delayed. Participants in a proceeding may be aligned according to the nature of the proceeding and their relationship to it. The Presiding Officer may require the participants of an aligned class to select one or more persons to represent them in the proceeding or on any particular matter or ruling and may limit the number of representatives heard, but must allow at least one representative of an aligned class to be heard in the proceeding or on any particular matter or ruling.

e. **Appearance by Applicant or Movant**: The applicant, movant or party requesting the hearing or other proceeding or a representative should be present at the hearing or other proceeding. Failure to so appear may be grounds for withholding consideration of a matter and dismissal without prejudice or may require the rescheduling or continuance of the hearing or other proceeding if the Presiding Officer deems it necessary in order to fully develop the record.

f. **Reporting**: Hearings and other proceedings will be recorded on audio cassette tape or, at the discretion of the Presiding Officer, may be recorded by a certified shorthand reporter. The District does not prepare transcriptions for the public of hearings or other proceedings recorded on audio cassette tape on District equipment, but will arrange for a party in interest to have access to the recording. Subject to availability of space, any party at interest may, at its own expense, arrange for a reporter to report the hearing or other proceeding or for recording of the hearing or other proceeding. The cost of reporting or transcribing a permit hearing may be assessed in accordance with Rule 7.5(b). If a proceeding other than a permit hearing is recorded by a reporter, and a copy of the transcript of testimony is ordered by any person, the testimony will be transcribed and the original transcript filed with the papers of the proceeding at the expense of the person requesting the transcript of testimony. Copies of the transcript of testimony of any hearing or other proceeding thus reported may be purchased from the reporter. 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. If a hearing is uncontested, the Presiding Officer may substitute minutes or the hearing report required under these rules and Section 36.410 of the Texas Water Code for a method of recording the hearing provided by Subsection 36.410(a).

g. **Continuance**: The Presiding Officer may continue hearings or other proceedings from time to time and from place to place without the necessity of publishing, serving, mailing or otherwise issuing a new notice. If a hearing or other proceeding is continued and a time and place (other than the District Office) for the hearing or other proceeding to reconvene are not publicly announced at the hearing or other proceeding by the Presiding Officer before it is recessed, a notice of any further setting of the hearing or other proceeding must be delivered at a reasonable time to all parties, persons who have requested notice of the hearing pursuant to Rule 7.1, and any other person the Presiding Officer deems appropriate, but it is not necessary to post at the county courthouses or publish a newspaper notice of the new setting.

h. **Filing of Documents; Time Limit**: Applications, motions, exceptions, communications, requests, briefs or other papers and documents required to be filed under these Rules or by law must be received in hand at the District's Office within the time limit, if any, set by these Rules or by the Presiding Officer for filing. Mailing within the time period is insufficient if the submissions are not actually received by the District within the time limit.

i. **Affidavit**: Whenever the making of an affidavit by a party to a hearing or other proceeding is necessary, it may be made by the party or the party's representative or counsel. This Rule does not dispense with the necessity of an affidavit being made by a party when expressly required by statute.

j. **Broadening the Issues**: No person will be allowed to appear in any hearing or other proceeding that in the opinion of the Presiding Officer is for the sole purpose of unduly broadening the issues to be considered in the hearing or other proceeding.

k. **Conduct and Decorum**: Every person, party, representative, witness, and other participant in a proceeding must conform to ethical standards of conduct and will exhibit courtesy and respect for all other participants. No person may engage in any activity during a proceeding that interferes with the orderly conduct of District business. If in the judgment of the Presiding Officer, a person is acting in violation of this provision, the Presiding Officer will first warn the person to refrain from engaging in

such conduct. Upon further violation by the same person, the Presiding Officer may exclude that person from the proceeding for such time and under such conditions as the Presiding Officer deems necessary.

RULE 7.4 UNCONTESTED PERMIT HEARINGS PROCEDURES:

a. **Informal Hearings**: Permit hearings may be conducted informally when, in the judgment of the Hearings Examiner or Presiding Officer, the conduct of a proceeding under informal procedures will result in a savings of time or cost to the parties, lead to a negotiated or agreed settlement of facts or issues in controversy, and not prejudice the rights of any party.

b. **Agreement of Parties**: If all parties qualified to participate in a contested hearing reach a negotiated or agreed settlement that settles the facts or issues in controversy, the proceeding will be considered an uncontested case and the General Manager will summarize the evidence, including findings of fact and conclusions of law based on the existing record and any other evidence submitted by the parties at the hearing.

c. **Decision to Proceed as Uncontested or Contested Case**: If the parties do not reach a negotiated or agreed settlement of the facts and issues in controversy, the Hearings Examiner or Presiding Officer may declare the case to be contested and convene a pre-hearing conference as set forth in Rule 7.5. The Hearings Examiner or Presiding Officer may also recommend issuance of a temporary permit for a period not to exceed four (4) months, with any special provisions the Hearings Examiner or Presiding Officer deems necessary, for the purpose of completing the contested case process. Any case not declared a contested case under this provision will be an uncontested case.

d. **Board Action on Uncontested Permit Application:**

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

   (i) grant the application;
   (ii) grant the application with special conditions; or
   (iii) deny the application.

2. An applicant may, not later than the 20th day after the date the board issues an order granting the application, demand a contested case hearing if the order:

   (i) includes one or more special conditions that were not part of the application as finally submitted; or

(ii) grants a maximum amount of groundwater production that is less than the amount requested in the application.

3. If, during a contested case hearing, all interested persons contesting the application withdraw their protests or are found by the Board not to have a justiciable interest affected by the application, or the parties reach a negotiated or agreed settlement which, in the judgment of the Board, settles the facts or issues in controversy, the proceeding will be considered an uncontested hearing and the Board may take any action authorized under District Rule 7.4(d).

RULE 7.5 CONTESTED PERMIT HEARINGS PROCEDURES:

a. **Request for SOAH hearing**: If an application is contested, any party to the hearing may request that the District contract with SOAH to conduct further proceedings in the hearing. A request for a SOAH hearing under this rule must be made to the Board at the initial, preliminary hearing and is untimely if submitted after the conclusion of the initial, preliminary hearing.

b. **Pre-hearing Conference**: A pre-hearing conference may be held to consider any matter that may expedite the hearing or otherwise facilitate the hearing process.

1. **Matters Considered**: Matters that may be considered at a pre-hearing conference include, but are not limited to, (1) alignment of parties; (2) formulation and simplification of issues; (3) necessity or desirability of amending applications or other pleadings; (4) possibility of making admissions or stipulations; (5) scheduling discovery; (6) identification of and specification of the number of witnesses; (7) filing and exchange of prepared testimony and exhibits; and (8) procedure at the hearing.

2. **Notice**: A pre-hearing conference may be held at a date, time, and place stated in a separate notice given in accordance with Rule 7.1, or at the date, time, and place for hearing stated in the notice of public hearing, and may be continued from time to time and place to place, at the discretion of the Hearings Examiner or Presiding Officer.

3. **Conference Action**: Action taken at a pre-hearing conference may be reduced to writing and made a part of the record or may be stated on the record at the close of the conference.

c. **Assessing Reporting and Transcription Costs**: Upon the timely request of any party, or at the discretion of the Hearings Examiner or Presiding

Officer, the Hearings Examiner or Presiding Officer may assess reporting and transcription costs to one or more of the parties. The Hearings Examiner or Presiding Officer will consider the following factors in assessing reporting and transcription costs:

1. the party who requested the transcript;
2. the financial ability of the party to pay the costs;
3. the extent to which the party participated in the hearing;
4. the relative benefits to the various parties of having a transcript;
5. the budgetary constraints of a governmental entity participating in the proceeding; and
6. any other factor that is relevant to a just and reasonable assessment of costs.

In any proceeding where the assessment of reporting or transcription costs is an issue, the Hearings Examiner or Presiding Officer will provide the parties an opportunity to present evidence and argument on the issue. A recommendation regarding the assessment of costs will be included in the Hearings Examiner's or Presiding Officer's report to the Board.

d. **Rights of Designated Parties**: Subject to the direction and orders of the Hearings Examiner or Presiding Officer, parties have the right to conduct discovery, present a direct case, cross-examine witnesses, make oral and written arguments, obtain copies of all documents filed in the proceeding, receive copies of all notices issued by the District concerning the proceeding, and otherwise fully participate in the proceeding, subject to the Presiding Officer's limitation of discovery procedures and time limits that will apply equally to all parties.

e. **Persons Not Designated Parties**: At the discretion of the Hearings Examiner or Presiding Officer, persons not designated as parties to a proceeding may submit comments or statements, orally or in writing. Comments or statements submitted by non-parties may be included in the record, but may not be considered by the Hearings Examiner or Presiding Officer as evidence.

f. **Furnishing Copies of Pleadings**: After parties have been designated, a copy of every pleading, request, motion, or reply filed in the proceeding must be provided by the author to every other party or the party's representative. A certification of this fact must accompany the original instrument when filed with the District. Failure to provide copies may be grounds for withholding consideration of the pleading or the matters set forth therein.

g. **Interpreters for Deaf Parties and Witnesses**: If a party or subpoenaed witness in a contested case is deaf, the District will provide an interpreter whose qualifications are approved by the State Commission for the Deaf

and Hearing Impaired to interpret the proceedings for that person. "Deaf person" means a person who has a hearing impairment, whether or not the person also has a speech impairment that inhibits the person's comprehension of the proceedings or communication with others.

h. **Agreements to be in Writing**: No agreement between parties or their representatives affecting any pending matter will be considered by the Hearings Examiner or Presiding Officer unless it is in writing, signed, and filed as part of the record, or unless it is announced at the hearing and entered of record.

i. **Discovery**: Discovery will be conducted upon such terms and conditions, and at such times and places, as directed by the Hearings Examiner or Presiding Officer. Unless specifically modified by these Rules or by order of the Hearings Examiner or Presiding Officer, discovery will be governed by, and subject to the limitations set forth in, the Texas Rules of Civil Procedure. In addition to the forms of discovery authorized under the Texas Rules of Civil Procedure, the parties may exchange informal requests for information, either by agreement or by order of the Hearings Examiner or Presiding Officer.

j. **Discovery Sanctions**: If the Hearings Examiner or Presiding Officer finds a party is abusing the discovery process in seeking, responding to, or resisting discovery, the Hearings Examiner or Presiding Officer may:

1. suspend processing of the application for a permit if the applicant is the offending party;
2. disallow any further discovery of any kind or a particular kind by the offending party;
3. rule that particular facts be regarded as established against the offending party for the purposes of the proceeding, in accordance with the claim of the party obtaining the discovery ruling;
4. limit the offending party's participation in the proceeding;
5. disallow the offending party's presentation of evidence on issues that were the subject of the discovery request; and
6. recommend to the Board that the hearing be dismissed with or without prejudice.

k. **Ex Parte Communications**: The Hearings Examiner or Presiding Officer may not communicate, directly or indirectly, in connection with any issue of fact or law with any agency, person, party, or their representatives, except on notice and opportunity for all parties to participate. This provision does not prevent communications with staff not directly involved in the hearing in order to utilize the special skills and knowledge of the District in evaluating the evidence.

l. **Compelling Testimony; and Swearing Witnesses**: The Hearings Examiner or Presiding Officer may compel any person to testify who is necessary, helpful, or appropriate to the hearing. The Hearings Examiner or Presiding Officer shall administer the oath in a manner calculated to impress the witness with the importance and solemnity of the promise to adhere to the truth.

m. **Evidence**: Except as modified by these Rules and to the extent consistent with these Rules and Chapter 36 of the Texas Water Code and the District Act, the Texas Rules of Evidence govern the admissibility and introduction of evidence; however, evidence not admissible under the Texas Rules of Evidence may be admitted if it is of the type commonly relied upon by reasonably prudent persons in the conduct of their affairs. In addition, evidence may be stipulated by agreement of all parties.

n. **Written Testimony**: When a proceeding will be expedited and the interests of the parties not substantially prejudiced, testimony may be received in written form. The written testimony of a witness, either in narrative or question and answer form, may be admitted into evidence upon the witness being sworn and identifying the testimony as a true and accurate record of what the testimony would be if given orally. The witness will be subject to clarifying questions and to cross-examination, and the prepared testimony will be subject to objection.

o. **Requirements for Exhibits**: Exhibits of a documentary character must be of a size that will not unduly encumber the files and records of the District. All exhibits must be numbered and, except for maps and drawings, may not exceed 8-1/2 by 11 inches in size.

p. **Abstracts of Documents**: When documents are numerous, the Hearings Examiner or Presiding Officer may receive in evidence only those that are representative and may require the abstracting of relevant data from the documents and the presentation of the abstracts in the form of an exhibit. Parties have the right to examine the documents from which the abstracts are made.

q. **Introduction and Copies of Exhibits**: Each exhibit offered shall be tendered for identification and placed in the record. Copies must be furnished to the Hearings Examiner or Presiding Officer and to each of the parties, unless the Hearings Examiner or Presiding Officer rules otherwise.

r. **Excluding Exhibits**: In the event an exhibit has been identified, objected to, and excluded, it may be withdrawn by the offering party. If withdrawn, the exhibit will be returned and the offering party waives all objections to the exclusion of the exhibit. If not withdrawn, the exhibit shall be included in the record for the purpose of preserving the objection to excluding the exhibit.

s. **Official Notice**: The Hearings Examiner or Presiding Officer may take official notice of all facts judicially cognizable. In addition, official notice may be taken of generally recognized facts within the area of the District's specialized knowledge.

t. **Documents in District Files**: Extrinsic evidence of authenticity is not required as a condition precedent to admissibility of documents maintained in the files and records of the District.

u. **Oral Argument**: At the discretion of the Hearings Examiner or Presiding Officer, oral arguments may be heard at the conclusion of the presentation of evidence. Reasonable time limits may be prescribed. The Hearings Examiner or Presiding Officer may require or accept written briefs in lieu of, or in addition to, oral arguments. When the matter is presented to the Board for final decision, further oral arguments may be heard by the Board.

RULE 7.6 CONCLUSION OF THE HEARING; PROPOSAL FOR DECISION:

a. **Closing the Record; Final Report**: At the conclusion of the presentation of evidence and any oral argument, the Hearings Examiner or Presiding Officer may either close the record or keep it open and allow the submission of additional evidence, exhibits, briefs, or proposed findings and conclusions from one or more of the parties. No additional evidence, exhibits, briefs, or proposed findings and conclusions may be filed unless permitted or requested by the Hearings Examiner or Presiding Officer. After the record is closed, the Hearings Examiner or Presiding Officer shall prepare and submit a PFD to the Board, applicant, and each person who provided comments or each designated party not later than the 30th day after the date a hearing is concluded. The PFD will include a summary of the evidence, together with the Hearings Examiner's or Presiding Officer's findings and conclusions and recommendations for action. Upon completion and issuance of the Hearings Examiner's or Presiding Officer's PFD, a copy will be submitted to the Board and delivered to each party to the proceeding. In a contested case, delivery to the parties will be by certified mail. If the hearing was conducted by a quorum of the board and if the Presiding Officer prepared a record of the hearing as provided by Texas Water Code Section 36.408(a), the Presiding Officer shall determine whether to prepare and submit a PFD under this section, but shall not be required to prepare a PFD.

b. **Exceptions to the Hearings Examiner's or Presiding Officer's Proposal for Decision in a Contested Case; Reopening the Record**: The applicant and any designated party may submit to the Board written exceptions to the PFD. The Board shall consider the PFD at a final hearing. Additional evidence may not be presented during this final

hearing, however the parties may present oral argument to summarize the evidence, present legal argument, or argue an exception to the PFD. A final hearing may be continued in accordance with Rule 7.3(g) and Section 36.409, Texas Water Code.

c. **Time for Board Action on Certain Permit Matters**: In the case of hearings involving original permit applications, or applications for permit renewals or amendments, any requisite Hearings Examiner's or Presiding Officer's PFD should be submitted, and the Board should act, within 60 days after the close of the hearing record or receipt of SOAH's PFD.

RULE 7.7 SOAH HEARING:

a. **Deadline, Location**: If timely requested by the applicant or other party to a contested hearing, the District shall contract with SOAH to conduct the hearing on the application. The Board shall determine whether the SOAH hearing will be held in Travis County or at the District Office or other regular meeting place of the Board, after considering the interests and convenience of the parties, and the expense of a SOAH contract.

b. **Costs, Deposit**: The party requesting that the hearing be conducted by SOAH shall pay all costs associated with the contract for the hearing and shall make a deposit with the District in an amount that is sufficient to pay the estimated SOAH contract amount before the Presiding Officer refers the hearing to SOAH. If the total cost for the contract exceeds the amount deposited by the paying party at the conclusion of the hearing, the party that requested the hearing shall pay the remaining amount due to pay the final price of the contract. If there are unused funds remaining from the deposit at the conclusion of the hearing, the unused funds shall be refunded to the paying party.

c. **Referral**: Upon execution of a contract with SOAH and receipt of the deposit from the appropriate party or parties, the District's Presiding Officer shall refer the application to SOAH. The Presiding Officer's referral to SOAH shall be in writing and shall include procedures established by the Presiding Officer under Rule 7.7(d) below; a copy of the permit application, all evidence admitted at the preliminary hearing, the District's rules and other relevant policies and precedents, the District Management Plan, and the District Act; and guidance and the District's interpretation regarding its regulations, permitting criteria, and other relevant law to be addressed in a Proposal for Decision and Findings of Fact and Conclusions of Law to be prepared by SOAH. The District or Presiding Officer may not attempt to influence the Finding of Facts or the Administrative Law Judge's application of the law in a contested case except by proper evidence and legal argument. SOAH may certify one or more questions to the District's Board seeking the District Board's guidance on District precedent or the District Board's interpretation of its

regulations or other relevant law, in which case the District's Board shall reply to SOAH in writing.

d. **Procedure before SOAH**: A hearing conducted by SOAH is governed by SOAH's procedural rules; Subchapters C, D, and F, Chapter 2001, Texas Government Code; and, to the extent, not inconsistent with these provisions, any procedures established by the Presiding Officer under District Rule 7.3(a).

e. **District's Receipt of SOAH's Proposal for Decision and Findings of Fact and Conclusions of Law**: The District's Board shall conduct a hearing within 45 days of receipt of SOAH's Proposal for Decision and Findings of Fact and Conclusions of Law, and shall act on the application at this hearing or no later than 60 days after the date that the Board's final hearing on the application is concluded in a manner consistent with Section 2001.058, Texas Government Code. At least 10 days prior to this hearing, the Presiding Officer shall provide written notice to the parties of the time and place of the Board's hearing under this subsection by mail and fax, for each party with a fax number. The Presiding Officer shall exercise his or her authority under Rule 7.3(a) in conducting this hearing.

f. The Board may change a finding of fact or conclusion of law made by the Administrative Law Judge, or may vacate or modify an order issued by the Administrative Law Judge, only if the Board determines:

1. that the Administrative Law Judge did not properly apply or interpret applicable law, District rules, written policies, 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.

RULE 7.8 RULEMAKING HEARINGS PROCEDURES:

a. **General Procedures**: The Presiding Officer will conduct the rulemaking hearing in the manner the Presiding Officer deems most appropriate to obtain all relevant information pertaining to the subject of the hearing as conveniently, inexpensively, and expeditiously as possible. 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.

b. **Submission of Documents**: Any interested person may submit written statements, protests or comments, briefs, affidavits, exhibits, technical reports, or other documents relating to the subject of the hearing. Such documents must be submitted no later than the time of the hearing, as stated in the notice of hearing given in accordance with Rule 7.2;

provided, however, that the Presiding Officer may grant additional time for the submission of documents.

c. **Oral Presentations**: Any person desiring to testify on the subject of the hearing must so indicate on the registration form provided at the hearing. The Presiding Officer will establish the order of testimony and may limit the number of times a person may speak, the time period for oral presentations, and the time period for raising questions. In addition, the Presiding Officer may limit or exclude cumulative, irrelevant, or unduly repetitious presentations.

d. **Conclusion of the Hearing; Closing the Record**: At the conclusion of the testimony, and after the receipt of all documents, the Presiding Officer may either close the record, or keep it open to allow the submission of additional information.

RULE 7.9 FINAL DECISION; APPEAL:

a. **Board Action**: After the record is closed and the matter is submitted to the Board, the Board may then take the matter under advisement, continue it from day to day, reopen or rest the matter, refuse the action sought or grant the same in whole or part, or take any other appropriate action. The Board action takes effect at the conclusion of the meeting and is not affected by a motion for rehearing.

1. Rulemaking hearings: During the rulemaking process the board shall consider all groundwater uses and needs and shall develop rules which are fair and impartial and that do 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.

2. Permit hearings: The Board shall evaluate each application for a permit and permit amendment under the criteria in Rule 5.3(d).

b. **Requests for Written Findings and Conclusions**: An applicant in a contested or uncontested hearing on an application, or a party to a contested hearing, may administratively appeal a decision of the board on a permit or permit amendment application by requesting written findings of facts and conclusions of law not later than the 20th day after the date of the board's decision. On receipt of a timely written request, the board shall make written findings of fact and conclusions of law 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, no later than the 35th day after the date the board receives the request.

c. **Requests for Rehearing**: A party to a contested hearing may request a rehearing not later than the 20th day after the date the board issues the findings of facts and conclusions of law. A party to a contested hearing must first make a request for written findings and conclusions under Rule 7.8(b) before submitting a request for rehearing under this rule.

1. A request for rehearing must be filed in the District office and must state the grounds for the request. The party requesting a rehearing must provide copies of the request to all parties to the hearing.

2. 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.

3. 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.

4. An applicant or party to a contested hearing may not file suit against the District if a request for rehearing was not timely filed under this rule.

d. **Requests for Reconsideration**: Any decision of the District, including any determinations made by the General Manager, on a matter not covered under any other section of these rules may be appealed to the Board by requesting reconsideration of the decision within 20 days of the decision. Such a request for reconsideration must be filed at the District Office in writing and must state clear and concise grounds for the request. If the request is granted by the Board, the Board will make a decision within 45 days thereafter, unless otherwise agreed to by the parties to the proceeding. The failure of the Board to grant or deny the request for reconsideration within 45 days of submission will be deemed to be a denial of the request.

RULE 7.10 APPEAL OF DESIRED FUTURE CONDITIONS:

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

1. evidence that the petition is an affected person;
2. a request that the District contract with SOAH to conduct a hearing on the petitioner's appeal of the reasonableness of the Desired Future Condition;

3. evidence that the districts did not establish a reasonable Desired Future Condition of the groundwater resources within the relevant Groundwater Management Area.

b. Not later than 10 days after receiving a petition described by Subsection (a), the District's Presiding Officer shall determine whether the petition was timely filed and meets the requirements of Rule 7.9(a) and, if so, shall submit a copy of the petition to the TWDB. If the petition was untimely or did not meet the requirements of Rule 7.9(a), the District's Presiding Officer shall return the petition to the petitioner advising of the defectiveness of the petition.

c. Not later than 60 days after receiving a petition under Rule 7.9(a), the District shall:

1. contract with SOAH to conduct the requested hearing; and
2. submit to SOAH a copy of any petitions related to the hearing requested under Rule 7.9(a) and received by the District.

d. A hearing under District Rule 7.9 must be held:

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

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

e. Not less than 10 days prior to the date of the SOAH hearing under this rule, notice shall be issued by the District and meet the following requirements:

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

3. be provided to the County Clerk of Guadalupe County, whereupon the County Clerk shall post the notice on a bulletin board at a place convenient to the public in the County Courthouse; and
4. be sent to the following individuals and entities by certified mail, return receipt requested, hand delivery, first class mail, facsimile, email, FedEx, UPS, or any other type of public or private courier or delivery service;

(i) the petitioner;

(ii) any person who has requested notice in writing to the District;
(iii) each nonparty district and regional water planning group located within the same Groundwater Management Area as a district named in the petition;
(iv) TWDB's Executive Administrator; and
(v) TCEQ's Executive Director.

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

f. Before a hearing is conducted under this rule, SOAH shall hold a prehearing conference to determine preliminary matters, including:

1. whether the petition should be dismissed for failure to state a claim on which relief can be granted;
2. whether a person seeking to participate in the hearing is an affected person who is eligible to participate; and
3. which affected persons shall be named as parties to the hearing.

g. The petitioner shall pay the costs associated with the contract for the hearing conducted by SOAH under this rule. The petitioner shall deposit with the District an amount sufficient to pay the contract amount before the hearing begins. After the hearing, SOAH may assess costs to one or more of the parties participating in the hearing and the District shall refund any money exceeding actual hearing costs to the petitioner. SOAH shall consider the following in apportioning costs of the hearing:

1. the party who requested the hearing;
2. the party who prevailed in the hearing;
3. the financial ability of the party to pay the costs;
4. the extent to which the party participated in the hearing; and
5. any other factor relevant to a just and reasonable assessment of costs.

h. On receipt of the SOAH Administrative Law Judge's findings of fact and conclusions of law in a proposal for decision, which may include a dismissal of a petition, the District shall issue a final order stating the District's decision on the contested matter and the District's findings of fact and conclusions of law. The District may change a finding of fact or conclusion of law made by the Administrative Law Judge, or may vacate or modify an order issued by the Administrative Law Judge, as provided by Section 2001.058(e), Texas Government Code.

i. 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.

j. If the District in its final order finds that a Desired Future Condition is unreasonable, not later than the 60th calendar day after the date of the final order, the District shall coordinate with the districts in the Groundwater Management Area at issue to reconvene in a joint planning meeting for the purpose of revising the Desired Future Condition found to be unreasonable in accordance with the procedures in Section 36.108, Texas Water Code.

k. The Administrative Law Judge may consolidate hearings requested under this rule that affect two or more districts. The Administrative Law Judge shall prepare separate findings of fact and conclusions of law for each district included as a party in a multidistrict hearing.

SECTION 8. GROUNDWATER QUALITY

RULE 8.1 SOLID, HAZARDOUS OR RADIOACTIVE WASTE:

All persons generating, transporting, disposing, applying, or otherwise managing substances defined under state or federal law as solid, hazardous, or radioactive waste, or as sludge, must follow any and all applicable federal, state, and local environmental statues, requirements, and regulations, including, but not limited to those imposed under the Solid Waste Disposal Act (RCRA), the Public Health Service Act (the Safe Drinking Water Act), the Federal Water Pollution Control Act (the Clean Water Act), the National Environmental Policy Act, the Atomic Energy Act and the Low-Level Radioactive Waste Policy Act, as those statues, requirements or regulations are administered by the appropriate agency, including but not limited to the Texas Railroad Commission, the Texas Commission on Environmental Quality , the Texas Department of Health, or their successors, and the Environmental Protection Agency. In the event that applicable statutes, requirements, or regulations require that the person generating, transporting, applying, disposing or otherwise managing a waste or a sludge obtain a permit from an agency, and where those activities occur within the boundaries of the District, notice of the application must be provided to the District by the applicant within ten days of the date of application. In no event may waste or sludge be permitted to be applied in any manner in any outcrop area of any aquifer within the Guadalupe County Groundwater Conservation District.

RULE 8.2 RECHARGE FACILITIES:

A permit must be obtained before installing or operating a recharge facility. The following information must be provided on, or submitted with, the application:

a. The name and address of the applicant.

b. The name and address of the fee owner(s) of the land upon which the recharge facility will be located.

c. The legal description of the exact proposed location of the recharge facility.

d. The time schedule for construction and/or operation of the facility.

e. The names and addresses of the property owners within one-half (1/2) mile of the proposed recharge facility location, and the location of any wells on those properties.

f. A complete construction and operations plan that will include, but is not limited to, information as to:

(i) a technical description of the facility to be used for recharge.
(ii) the source of the water to be recharged.
(iii) the quality of the water to be recharged.
(iv) the volume of water to be recharged.
(v) the rate at which the water will be recharged.
(vi) the formation into which waters will be recharged.

g. Scientific evidence showing that the proposed operation will not:

(i) endanger the structural characteristics of the formation receiving the recharged water.
(ii) cause pollution, as defined in Rule 1, of underground water.
(iii) cause waste, as defined in Rule 1.

h. Any additional information that may be required by the Board.

SECTION 9. INVESTIGATIONS AND ENFORCEMENT

RULE 9.1 NOTICE AND ACCESS TO PROPERTY:

Board Members, the General Manager, and District agents and employees are entitled to access to all property within the District to carry out technical and other investigations necessary to the implementation of the District Act and these Rules. Prior to entering upon property for the purpose of conducting an investigation, the person seeking access shall give notice in writing or in person or by telephone to the owner, lessee, or operator, agent, or employee of the well owner or lessee, as determined by information contained in the application or other information on file with the District. Notice is not required if

prior permission has been granted to enter without notice. Inhibiting or prohibiting access to any Board Member, the General Manager, or District agents or employees who are attempting to conduct an investigation under the District Act or these Rules shall constitute a violation and shall subject the person who is inhibiting or prohibiting access, as well as any other person who authorizes or allows such action, to the penalties set forth in the District Act.

RULE 9.2 LIMITATIONS OF DISTRICT EMPLOYEE ACTIVITIES:

District employees may not gather information not specifically related to the purposes of the District, the District Act, these Rules, or District policy.

RULE 9.3 CONDUCT OF INVESTIGATION:

Where investigations require entrance upon property, such investigations will be conducted at reasonable times, and will be consistent with the establishment's rules and regulations concerning safety, internal security, and fire protection. The persons conducting such investigations must notify any occupant or management of their presence and identify themselves and present credentials upon request of the owner, lessee, operator, or person in charge of the property. Investigations will be limited to inspecting and investigating conditions relating to the groundwater quality or compliance with any rule, regulation, permit, or other order of the District.

RULE 9.4 REQUEST FOR INJUNCTIVE RELIEF AND ASSESSMENT OF PENALTIES:

If it appears that a person has violated, is violating, or is threatening to violate any provision of the District Act or any Board order, rule or permit, the Board may authorize the General Manager to institute and conduct a suit in the name of the District for injunctive relief, or to recover a civil penalty in an amount set by the Board in accordance with this Section of the Rules, or for both injunctive relief and civil penalties. Any suit shall be filed in a court of competent jurisdiction in Guadalupe County. If the District prevails in any suit to enforce its Rules, the District may seek, in the same action, recovery for attorney's fees, costs for expert witnesses, and other costs incurred by the District before the court.

RULE 9.5 RULES VIOLATIONS:

a. Major Violations: The following acts and omissions each separately constitute a major violation of the District Rules:

   1. for each well operating pursuant to a valid permit issued by the District, the withdrawal of groundwater from a validly permitted, non-exempt well in an amount that exceeds the authorized permitted amount by 10% or greater;

2. failure to timely register and permit a non-exempt well as required by these Rules;

3. engaging in any activity that constitutes waste;

4. substantially altering a well without first receiving from the District the required express authorization for the alterations made;

5. falsification of any documents or records submitted to the District in response to the requirements of the District Rules;

6. failure to timely remit all water use and other fees owed to the District pursuant to the terms of these Rules;

b. Minor Violations: A minor violation shall include all other acts or omissions that constitute violations of the District Rules and do not qualify as major violations.

RULE 9.6 ENFORCEMENT; HEARING; ASSESSMENT OF PENALTIES:

a. The District may afford an opportunity to cure an apparent, alleged violation of any District rule, order or permit, through informal communication, coordination and negotiation with the District. In the event that an apparent, alleged violation is not addressed to the satisfaction of the District's General Manager and Board President, a hearing shall be set for further action by the District's Board. If, after 10 days' notice and a hearing, the Board determines that a person has violated any provision of the Rules or any term of a District order or permit, the Board may pursue legal remedies, including but not limited to assessment of a penalty against that person that does not exceed the penalty amounts listed below. Notice of this hearing shall include the following information:

(1) the time, date, and place for the hearing;
(2) the basis of each alleged violation;
(3) the permit, rule and/or order that the District believes has been violated or is currently being violated; and
(4) a request that the person duly appear and show cause of the reasons an enforcement action should not be pursued.

This hearing notice shall be provided by certified mail, return receipt requested; hand delivery; first class mail; facsimile; email; FedEx; UPS; or any other type of public or private courier or delivery service. If the District is unable to provide notice to the alleged violator by any of these forms of notice, the District may tape the notice on the door of the alleged violator's office or home, or post notice in the newspaper of general circulation in the District and within the county in which the alleged violator resides or in which the alleged violator's office is located.

The District may pursue immediate enforcement action if the person identified in this hearing notice fails to appear and show cause of the reasons an enforcement action should not be pursued. After conclusion of this hearing, the District may commence suit and pursue civil penalties, injunctive relief and all other legal remedies. Any suit shall be filed in a court of competent jurisdiction in Guadalupe County. If the District prevails in a suit brought under this Section, the District may seek and the court shall grant, in the same action, recovery of attorney's fees, costs for expert witnesses, and other costs incurred by the District before the court.

Nothing in this rule shall constrain the authority of the District to take action, including emergency actions or any other enforcement action, against a person at any time, regardless of whether the District decides to hold a hearing under this Section. If the Board President or his or her designee determines that an emergency exists requiring the immediate entry of an order to prohibit waste or pollution or protect the public health, safety, and welfare on matters within the District's jurisdiction, he or she may enter a temporary order without notice and hearing provided, however, the temporary order shall continue in effect for the lesser of 30 days or until a hearing by the District's Board can be conducted. In such an emergency, the Board President or his or her designee is also authorized, without notice or hearing, to pursue a temporary restraining order, injunctive, and other appropriate relief in a court of competent jurisdiction.

b. Except as otherwise provided for in these Rules, penalties for violations of these Rules are set pursuant to the following schedule after the Board's consideration of the factors in Subsection (c) of this Rule:

Major Violation:	$200 - $500 per violation
Minor Violation:	$25 - $100 per violation

Each day of a continuing violation constitutes a separate violation.

c. In determining the amount of a civil penalty within the penalty range set in the schedule provided in Subsection (b) of this Rule, the Board shall consider the following factors:

1. compliance history;
2. efforts to correct the violation and whether the violator makes a good faith effort to cooperate with the District;
3. the penalty amount necessary to ensure future compliance and deter future noncompliance;
4. any enforcement costs related to the violation; and
5. any other matters deemed necessary by the Board.

d. The District shall collect all past due fees and civil penalties accrued that the District is entitled to collect under the Rules. Any person in violation of these Rules is subject to all past due fees and civil penalties along with all fees and penalties occurring as a result of any violations that ensue after the District provides written notice of a violation. Failure to pay required fees will result in a violation of the Rules and such failure is subject to civil penalties. The Board delegates to the General Manager authority to implement this Subsection, and delegates to the General Manager the authority to cure a minor violation through coordination, negotiation, and execution of a compliance agreement with the party in violation of the Rules, in lieu of the Board setting a penalty. Provided, however, the General Manager may in his or her discretion, refer any enforcement matter to the Board.

SECTION 10. FEES AND PAYMENT OF FEES

RULE 10.1 PERMIT FEES:

The District shall assess fees for the annual authorized withdrawal under a permit issued by the District of one dollar ($1.00) per acre foot for water permitted for agricultural use, and ten cents ($0.10) per thousand (1,000) gallons for all other uses for a beneficial purpose. One (1) acre foot of water is equivalent to 325,851 gallons.

RULE 10.2 APPLICATION AND OTHER FEES:

A fee of five hundred dollars ($500.00) shall be paid by an applicant for a permit at the time the application is submitted to the District. These fees shall cover administrative acts of the District, including the District's cost of reviewing and processing permit and permit amendment applications and the cost of hearings on applications, and shall not unreasonably exceed the cost to the District for performing such administrative acts. If the costs described in this rule exceed $500.00, the District may invoice the applicant for these additional costs, and the applicant shall pay the invoiced amount.

RULE 10.3 FEES FOR EXPORT OF GROUNDWATER OUT OF THE DISTRICT:

The District may impose a reasonable fee or surcharge for the export of groundwater out of the District using one of the following methods:

a. a fee negotiated between the District and the exporter; or

b. a fifty percent export surcharge, in addition to the District's production fee, for water exported out of the District.

RULE 10.4 RETURNED CHECK FEE:

A fee in the amount of $25 shall be paid to the District for checks returned to the District for insufficient funds, account closed, signature missing, or any other reason causing a check to be returned by the District's depository.

RULE 10.5 WELL LOG DEPOSIT:

A well log deposit of $50 shall be paid to the District. The District shall return the deposit to the depositor if all relevant well logs are submitted to the District within six months of the date of the registration or permit approval. In the event the District does not receive all relevant well logs or rights granted within the registration or permit are not used within six months after the date of approval of the registration or permit, the deposit shall become the property of the District.

RULE 10.6 FEE PAYMENTS:

Payments are due on the 15th day of each calendar month. In the event that the 15th calendar day is a weekend or holiday, the payment deadline will fall on the immediately following business day. Payments for fees not received by the last business day of each calendar month shall be subject to a late payment penalty of the greater of the following:

a. $25.00; or

b. ten percent (10%) of the total amount of annual water use fees due and owing to the District.

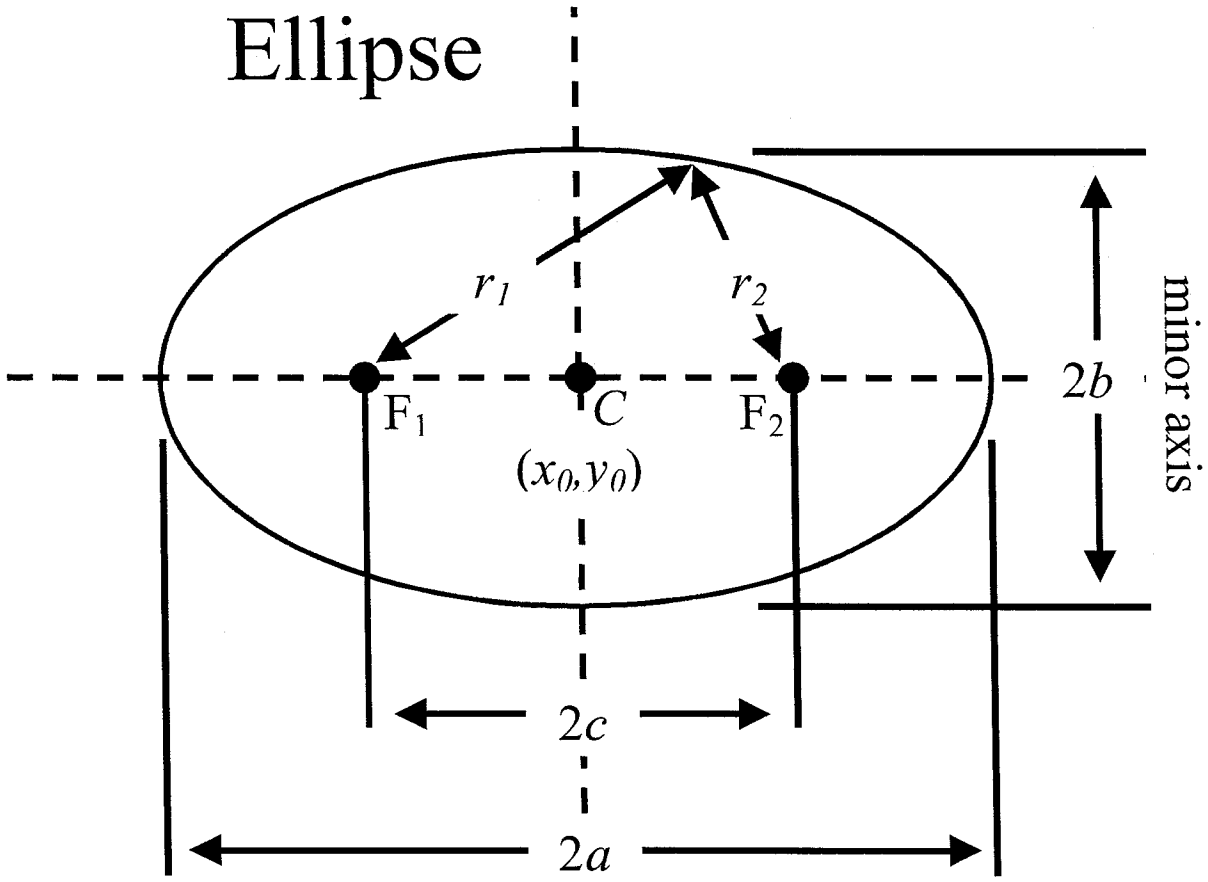
Permit fees shall be due monthly in equal monthly amounts based upon the effective rate set forth in Rule 10.1. Export fees shall be due on a monthly basis in an amount based on application of the fifty percent surcharge assessed on actual withdrawals or the amount negotiated.

The District will distribute invoices seeking payment for fees as provided in this rule.

* * * * *

#1

Ellipse



$$r_1 + r_2 = 2a$$

OR

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

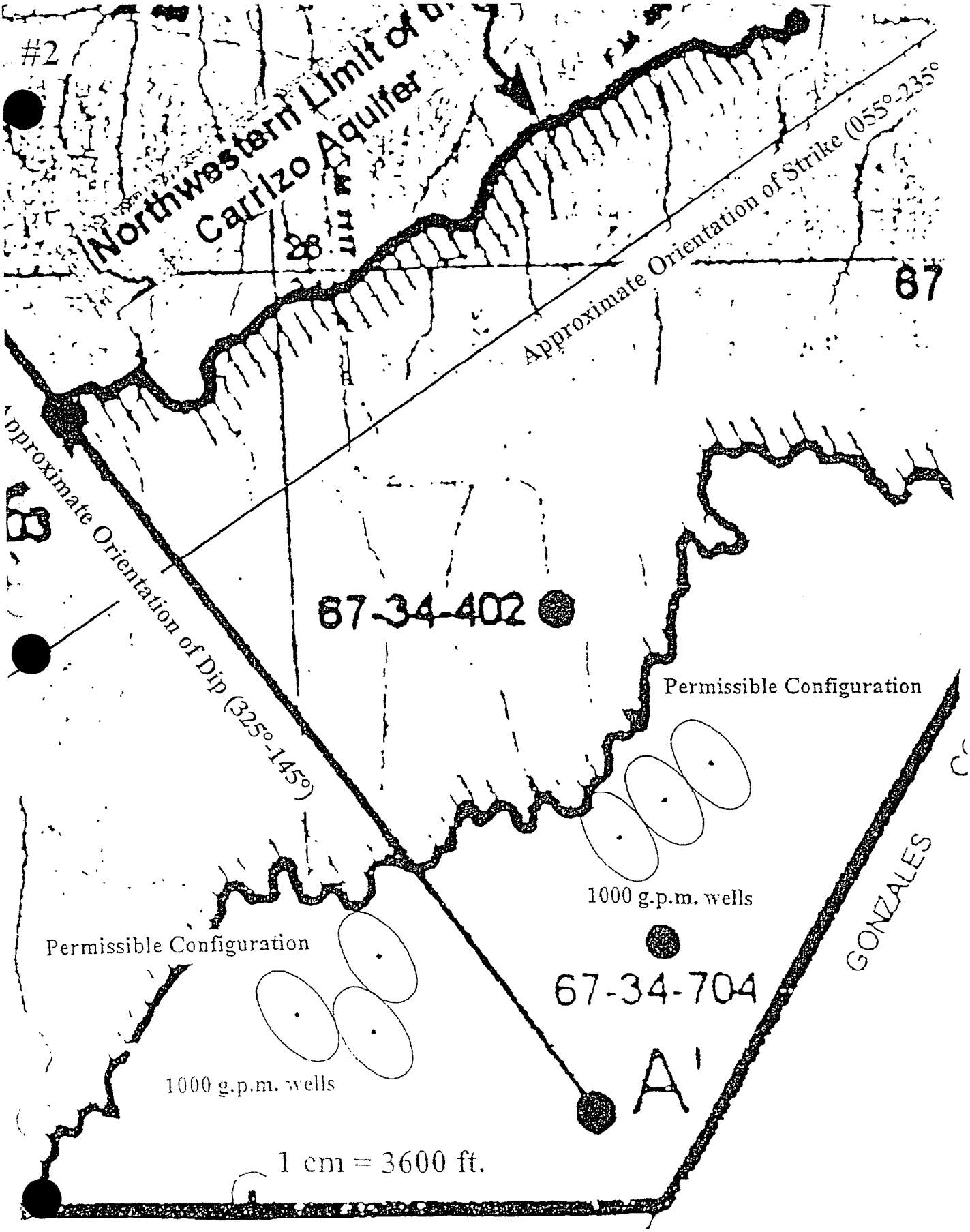
Example: 1000 g.p.m. well located at C

a = 3000 ft., b = 2000 ft.

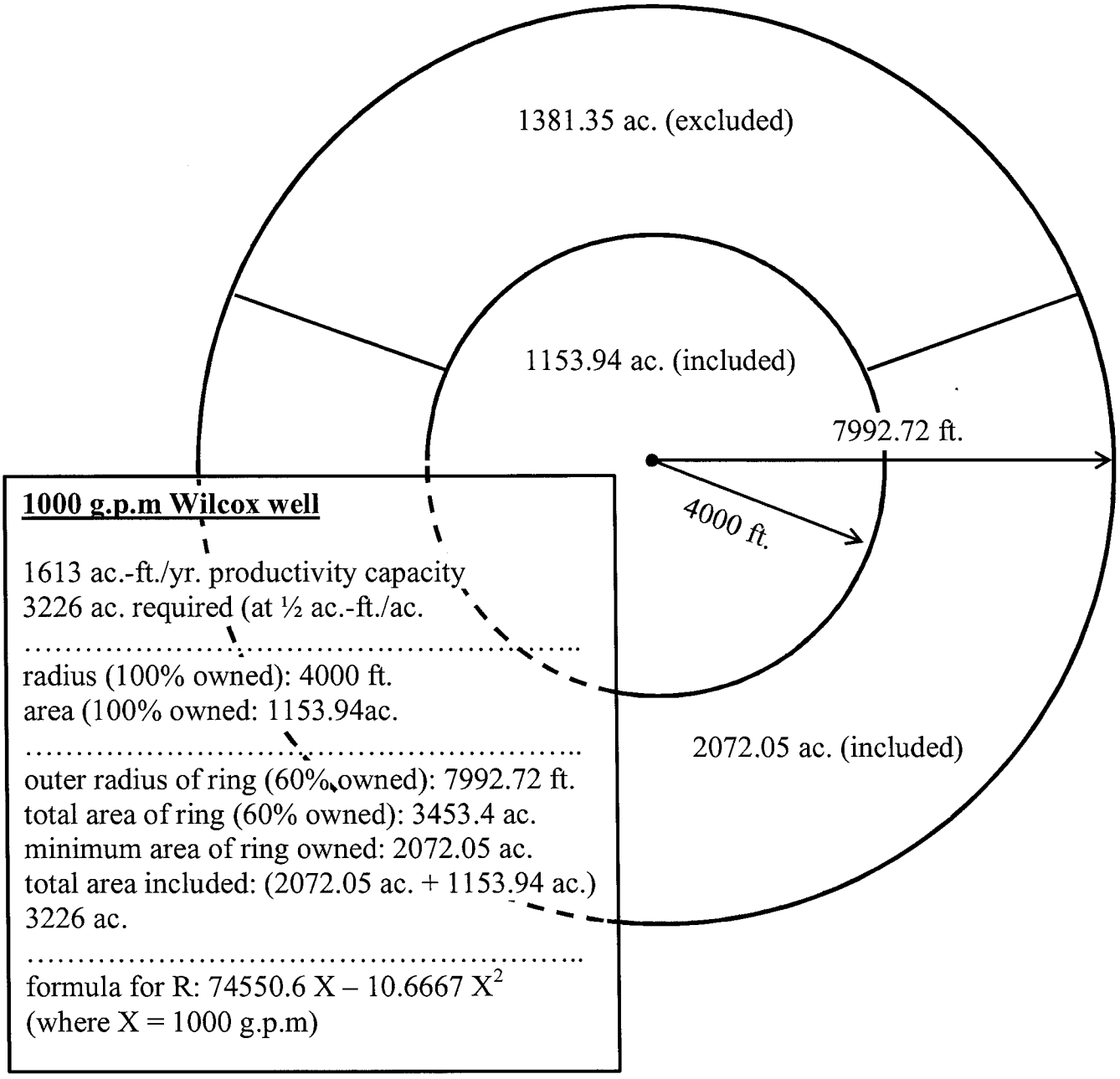
$r_1 + r_2 = 2a = 6000$ ft.

c = 2236 ft., 2c = 4472 ft.

The ratio of these numbers will hold for any size well. The major (long) axis of the ellipse is oriented along the dip, the minor (short) axis is oriented along the strike.


#2
Northwestern Limit of
Carrizo Aquifer
28
67
Approximate Orientation of Strike (055°-235°)
Approximate Orientation of Dip (325°-145°)
67-34-402
Permissible Configuration
1000 g.p.m. wells
67-34-704
Permissible Configuration
1000 g.p.m. wells
A
A'
GONZALES
1 cm = 3600 ft.

#3



1000 g.p.m Wilcox well

1613 ac.-ft./yr. productivity capacity
3226 ac. required (at ½ ac.-ft./ac.
.....
radius (100% owned): 4000 ft.
area (100% owned: 1153.94ac.
.....
outer radius of ring (60% owned): 7992.72 ft.
total area of ring (60% owned): 3453.4 ac.
minimum area of ring owned: 2072.05 ac.
total area included: (2072.05 ac. + 1153.94 ac.)
3226 ac.
.....
formula for R: $74550.6\ X - 10.6667\ X^2$
(where X = 1000 g.p.m)