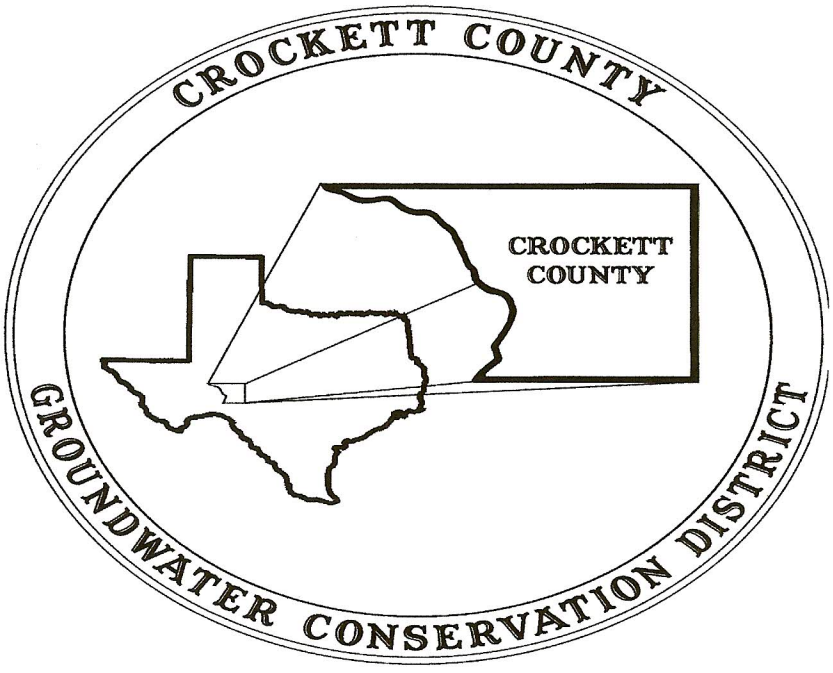
CROCKETT COUNTY GROUNDWATER CONDERVATION DISRTICT



MANAGEMENT PLAN

2013-2018

Adopted: September 9th, 2013

Approved by the Texas Water Development Board
September _____, 2013

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DISTRICT MISSION

The Crockett County Groundwater Conservation District is dedicated to the implementation of sound management strategies that will preserve and protect its groundwater resources within the District. The District strives to promote conservation, as well as preserve the quality and quantity of its water resources within the District for the benefit of the citizens and economy of the area.

TIME PERIOD FOR THIS PLAN

This plan becomes effective upon adoption by the Board of Directors of the Crockett County Groundwater Conservation District and approval by the Texas Water Development Board executive administrator. This plan remains in effect until September 1, 2018, or until such time as a revised or amended plan is approved.

STATEMENT OF GUIDING PRINCIPLES

The Crockett County Groundwater Conservation District recognizes the vital importance of groundwater to the economy of Crockett County as well as the entire GMA 7 area. Being the predominate water resource, the District is dedicated to conserving and protecting the quantity and quality of this valuable natural resource through prudent and cost effective management. Management planning should be based on awareness of the hydrologic properties of the specific aquifers within the District as well as quantification of existing and future resource data. The goals set forth within the plan are intended to provide for the conservation, preservation, protection, recharge, prevention of waste and pollution, as well as the efficient and prudent use of groundwater resources within the District. The goals of this plan can best be achieved through guidance from the locally elected board members who have an understanding of local conditions as well as technical support from the Texas Water Development Board and qualified consulting agencies. This management plan is intended only as a reference tool to provide guidance in the execution of district activities, but should allow flexibility in achieving its goals.

GENERAL DESCRIPTION OF THE DISTRICT

History

The Crockett County Groundwater Conservation District, formerly Emerald Underground Water Conservation District, was created by Acts of the 71st Legislature (1989). The district was confirmed by the citizens of Crockett County on January 26, 1991. In 2007, by Acts of the 80th Legislature, H.B. 4009, the District's name was changed to Crockett County Groundwater Conservation District. Members of the current Board of Directors are:President, Paul C. Perner, III -Vice President, James W. Owens - Secretary, Carlon A. Stapper, George Bunger, Jr. and Will M. Black. The District General Manager is Slate Williams. The Crockett County Groundwater Conservation District encompasses all of Crockett County with the exception of the metes and bounds of the Crockett County Water Control & Improvement District No. 1. Historically, Crockett County's economy has been centered around agriculture, but in the last several years, oil and gas has become the dominate industry. The agricultural income is derived from sheep and goats as well as some beef cattle production. Due to the topography and climate of the area, there is very little farming. Recreational hunting has also become a major supplemental income to the county.

Location and Extent

Crockett County, having an areal extent of 2,795.60 square miles or approximately 1,789,182.62 acres of land, is located in southwest Texas on the western edge of the Edwards Plateau. Crockett County is the eighth largest county in Texas with the Pecos River forming its western boundary. On the west lie Pecos and Terrell counties. Crane, Upton, Reagan and Irion counties border Crockett County on the north. On the east lie Schleicher and Sutton counties with Val Verde County on the south. Ozona, being the only town in the county, is centrally located in the eastern part of Crockett County. 1

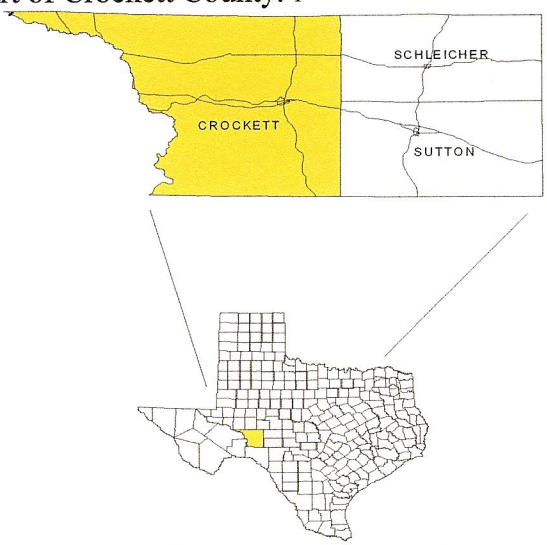


Figure 1. Location of the Crockett County

Topography and Drainage

Crockett County's topography is characterized by deep, narrow, steep walled canyons and flat mesas in the southern and western portions. Broad valleys and flat divides make up the northern part of the county; the northeastern area is a large flat divide. The altitude ranges from about 1,800 feet in the southwest to over 3,000 feet in the northwest. Karst topography, characterized by numerous sinkholes having underground drainage, occurs in the northeastern quarter of the county on the upper flat divide between the Colorado River and Rio Grande drainage basins.

Drainage of Crockett County is by means of intermittent, dendritic streams. On the east side of the county a dry tributary of Devils River drains southeastward into Sutton County. Johnsons Run and Howards Creek bisect central Crockett County and drain southward, joining Devils River and the Pecos River, respectively, in Val Verde County. In the Northwestern part of Crockett County, Live Oak Creek drains southward into the Pecos River at Lancaster Hill. The dry bed of Spring Creek originates in the northeastern corner of the county and runs northeastward. Generally, the county can be said to lie in the Rio Grande drainage basin. Only the extreme northeastern corner of the county lies in the Colorado River drainage basin.[1]

REGIONAL COOPERATION AND COORDINATION

West Texas Regional Groundwater Alliance

The District is a member of the West Texas Regional Groundwater Alliance (WTGRA). This regional alliance consists of seventeen (17) locally created and locally funded districts that encompass approximately eighteen (18.2) million acres or twenty eight thousand three hundred sixty eight (28,368) square miles of West Texas. To put this in perspective, this area is larger than many individual states including Rhode Island (1,045 sq mi), Delaware (1,954 sq mi), Puerto Rico (3,425 sq mi), Hawaii (6,423 sq mi), New Jersey (7,417 sq mi), Massachusetts (7,840 sq mi), New Hampshire (8,968 sq mi), Vermont (9,250 sq mi), Maryland (9,774 sq mi), and West Virginia (24,230 sq mi). This west Texas Region is as diverse as the State of Texas.

Due to the diversity of this region, each member district provides it's own unique programs to best serve its constituents.

In May of 1988 four (4) groundwater districts; Coke County UWCD, Glasscock County UWCD, Irion County WCD, and Sterling County UWCD adopted the original Cooperative Agreement. As new districts were created, they too adopted the Cooperative Agreement. In the fall of 1996, the original Cooperative Agreement was redrafted and the West Texas Regional Groundwater Alliance was created. The current member districts and the year they joined the Alliance are:

Coke County UWCD	(1988)	Crockett County GCD	(1992)	Glasscock GCD	(1988)
Hickory UWCD #1	(1997)	Hill County UWCD	(2005)	Irion County WCD	(1988)
Kimble GCD	(2004)	Lipan-Kickapoo WCD	(1989)	Lone Wolf GCD	(2002)
Menard County UWD	(2000)	Middle Pecos GCD	(2005)	Permian Basin UWCD	(2006)
Plateau UWC&SD	(1991)	Santa Rita UWCD	(1990)	Sterling County UWCD	(1988)
Sutton County UWCD	(1991)	Wes-Tex GCD	(2005)		

This Alliance was created for local districts to coordinate and implement common objectives to facilitate the conservation, preservation and beneficial use of water and related resources in this region of the State, to exchange information among the districts, and to educate the public about water issues. Local districts monitor the water-related activities that include but are not limited to farming, ranching, oil & gas production, and municipal water use. The Alliance coordinates management activities of the member districts primarily through exchange of information and policy discussions.

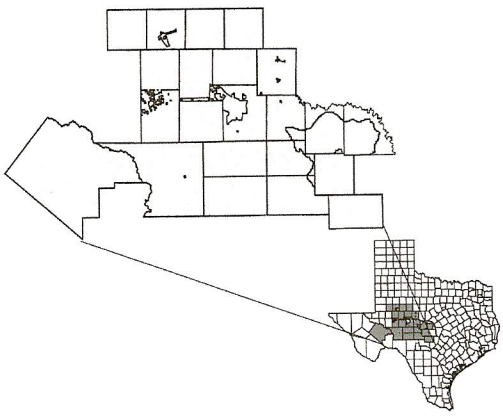


Figure 2. Territory in the West Texas Regional Alliance.

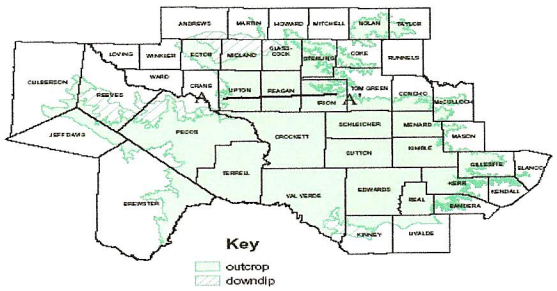
Groundwater Resources of the Crockett County G.C.D.

The primary sources of groundwater in Crockett County are derived from the Edwards-Georgetown aquifer of Cretaceous age, sands of the Trinity Group or Trinity aquifer and unconsolidated alluvium of Quaternary age which overlies the older Cretaceous rocks principally along the Pecos River, Live Oak Creek, Howard Creek and Johnson Draw.

Most of the water wells in Crockett County produce water from the Edwards-Georgetown and the Trinity aquifers for domestic and livestock purposes. Generally, the wells yield only small quantities of water, 1 to 20 gallons per minute, although yields of up to 2,000 gallons per minute have been reported in both aquifers. Groundwater is encountered at varying depths depending primarily upon topography. Water levels in the alluvium along the Pecos River may be only a few feet below surface, while on the high divides, the water level may occur as much as 600 feet below land surface.

The quality of water from wells in Crockett County varies within wide limits, but is generally good quality. The water is typically very hard and generally high in fluoride content. Samples from a few wells indicate that the water is undesirable for domestic use, but only a very few are considered unusable.

Edwards-Trinity



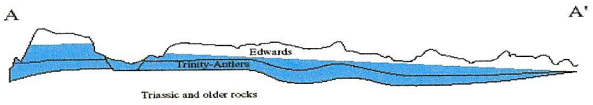


Figure 3. Location of Edwards-Trinity (Plateau) Aquifer

Surface Water Resources of Crockett County GCD

There are no surface water management entities in Crockett County and little to no available surface water within the district with the exception of the Pecos River which forms the western boundary of the district. Although there are a few small surface impoundments used to store pumped groundwater for livestock consumption, they are not viewed by the district as an efficient means of storage.

Technical District Information Required by Texas Administrative Code

MODELED AVAILABLE GROUNDWATER

An estimate of the modeled available groundwater for the Crockett County Groundwater Conservation District based on Desired Future Conditions.

Texas Water Code § 36.001 defines modeled available groundwater as "the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108".

The joint planning process set forth in Texas Water Code § 36.108 must be collectively conducted by all groundwater conservation districts within the same GMA. The District is a member of GMA7. The adopted DFCs were then forwarded to the TWDB for development of the MAG calculations. The submittal package for the DFCs can be found here:

http://www.twdb.state.tx.us/groundwater/management_areas/DFC.asp

Modeled Available Groundwater

Please refer to Appendix A

Amount of Groundwater being used within the district on an Annual Basis

Please refer to Appendix B*

Annual Amount of Recharge from Precipitation to the Groundwater Resources within the District

Please refer to Appendix C

Annual Volume of Water that Discharges from the Aquifer to Springs and Surface Water Bodies.

Please refer to Appendix C

Estimate of the Annual Volume of Flow into the District, out of the District, and Between Aquifers in the District

Please refer to Appendix C

Projected Surface Water Supply within the District

Please refer to Appendix B*

Projected Total Demand for Water within the District

Please refer to Appendix B*

Water Supply Needs

Please refer to Appendix B*

*** Since the District does not cover all of Crockett County, it is recommended that all estimates presented in the management plan be based on a proportional area percentage. This percentage can be derived by dividing the amount of acres or square miles covered by the District by the total number of acres or square miles contained within Crockett County. The percentage derived by the T.W.D.B. is 99.94% (i.e. 0.9995; see the 'Area' tab), but any estimate that the District provides is preferable. It is recommended that the generic county-wide data (e.g. county other, manufacturing, steam electric power, irrigation, livestock) be converted to a percentage of the total county-wide data. These generic county-wide data have been converted to a proportional value (relative to the size of the District) by multiplying each value from the 'County Water Demands' worksheet by 0.9994.**

WATER SUPPLY NEEDS

Based on current supply and demand calculations and projections, there are no projected water needs for Crockett County through 2060 according to the 2012 State Water Plan.

WATER MANAGEMENT STRATEGIES

Presently, there are no water management strategies listed in the 2012 State Water Plan because there are no water needs projected for the county through 2060, except for oil and gas production which is exempt from district regulation. Preservation and protection of groundwater quantity and quality has been the guiding principle of the District since its creation. The goals and objectives of this plan will provide guidance in the performance of existing District activities and practices. District rules adopted in 2013 address groundwater withdrawals by means of spacing and/or production limits, waste, and well drilling completion as well as capping and plugging of unused or abandoned wells. These rules are meant to provide equitable conservation and preservation of groundwater resources, protect vested property rights and prevent confiscation of property.

In pursuit of the District's mission to provide for conserving, preserving, protecting, recharging and preventing waste of water resources, the District may exercise the powers, rights and privileges to enforce its rules by injunction, mandatory injunction, or other appropriate remedies in a court of competent jurisdiction as provided for in TWC 36.102.

ACTIONS, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION

All District activities will be carried out in accordance with this plan and will utilize the provisions of this plan as a guide in prioritizing all District operations.

District rules adopted in 2013 shall be amended and enforced, as necessary, to implement this plan. All rules adopted or amended by the District shall be pursuant to TWC Chapter 36 and the provisions of this plan.

The District shall treat all citizens with equity. Citizens may apply to the District for discretion in enforcement of the rules on grounds of adverse economic effect or unique local characteristics. In granting discretion to any rule, the Board shall consider the potential for adverse effect on adjacent owners and aquifer conditions. The exercise of said discretion by the Board shall not be construed as limiting the power of the Board.

METHODOLOGY

The methodology that the District will use to trace its progress on an annual basis in achieving all of its management goals will be as follows:

- The District Manager will prepare and present an annual report to the Board of Directors on District performance in regards to achieving management goals and objectives for the previous fiscal year, during the first meeting of each new fiscal year. The reports will include the number of instances each activity was engaged in during the year.

- The annual report will be maintained on file at the District office.

GOALS, MANAGEMENT OBJECTIVES AND PERFORMANCE STANDARDS

Goal

1.0 Provide for the efficient use of groundwater within the District. (36.1071(a)(1))

Management Objective

1.1 Provide public information programs on water conservation

Performance Standard

1.1a – Annually report to the Board of Directors on the number of programs conducted during the year.

Management Objective

1.2 Each year the District will publish one article or newsletter on water conservation

Performance Standard

1.2a – Annually report to the Board of Directors on the number of articles or newsletters published each year.

Goal

2.0 Control and Prevent the Waste of Groundwater (36.1071(a)(2))

Management Objective

2.1 Each year, register all new wells drilled in the District.

Performance Standards

2.1a - District will maintain files including information on the drilling and completion of all new wells in the District.

2.1b - Annually report to the Board of Directors on the number of new wells registered during the year.

Goal

3.0 Natural Resource Issues. Gather and maintain groundwater data to improve the understanding of the aquifers and their hydrogeologic properties. This data will help in determining groundwater availability and future planning. (36.1071(a)(5))

Management Objective

3.1 Annually measure 90 percent of wells in the water level monitoring network within the District.

Performance Standards

3.1a - Annually report to the Board of Directors the number of wells monitored annually in the District's water level monitoring network.

Management Objective

3.2 Maintain a district-wide rainfall event network using voluntary monitors and automatic digital rainfall collectors to help evaluate recharge.

Performance Standards

3.2a - Annually report to the Board of Directors the total number of rain gauges in the rainfall monitoring network.

3.2b - Annually report to the Board of Directors the annual rainfall within the District.

Management Objective

3.3 Annually sample 45 percent of the wells in the water quality monitoring network within the District.

Performance Standard

3.3a - Annually report to the Board of Directors the number of wells sampled annually in the District's water quality monitoring network.

3.3b – Annually report to the Board of Directors any substantial water quality changes that were observed.

Management Objective

3.4 Each year the District will monitor all local periodicals for all public notices for application for fluid injection well permits within the District's boundaries. Each notice will be followed up with a request for copies of the permit application from the Texas Railroad Commission and filed in the District's office.

Performance Standard

3.4a - Annually report to the Board of Directors the number of notices and permit applications filed each year.

Goal

4.0 Implement management strategies that address drought conditions. (36.1071(a)(6))

Management Objective

4.1 Each year the District will monitor the Palmer Drought Severity Index, Standardized Precipitation Index and the Crop Moisture Index to help develop strategies that would offset adverse climatic conditions.

Performance Standards

4.1a - Provide a report quarterly to the Board of Directors on climatic conditions and proposed management strategies. It will be difficult to meet the water needs of the future without the reporting amount of use by the oil field which the District is unable to regulate. The District will encourage conservation from these users and also ask that they report usage to the district voluntarily and will be aware of conditions that could keep the district from meeting their DFC. [1]

Goal

5.0 Conservation and Precipitation Enhancement (36.1071 (a)(7))

Management Objective: Conservation

5.1 Provide and distribute literature on water conservation to area residents.

Performance Standards

5.1a - The district staff will provide information to area residents about water conservation by publishing at least one newsletter or newspaper article annually.

[1] TWDB drought page: https://www.twdb.state.tx.us/surfacewater/conditions/drought/index.asp

5.1b - Annual report to the Board of Directors listing the number of times newsletters or newspaper articles were published.

Management Objective: Precipitation Enhancement
5.2 The District will participate in the West Texas Weather Modification Association rainfall enhancement program.

Performance Standards
5.2a - Report monthly to the Board of Directors on West Texas Weather Modification Association activities.

5.2b - Annually provide to the Board of Directors the West Texas Weather Modification Association Annual Report.

5.2c – Annually provide to the Board of Directors the number of meetings attended by at least one District employee.

Goal
6.0 Desired Future Condition (36.1071(a)(8))

The District is actively participating in the joint planning process and the development of a desired future condition for the portion of the aquifer(s) within the District. Although the District does not feel that the "One Size Fits All" Desired Future Conditions process is the most efficient way to evaluate future needs of the Edwards-Trinity aquifer due to the extreme differences in the aquifers through out the state.

Management Objective
3.1 Annually measure 90 percent of wells in the water level monitoring network within the District.

Performance Standards
3.1a - Annually report to the Board of Directors the number of wells monitored annually in the District's water level monitoring network. The measurements collected will also be compared to the Desired Future Conditions.

MANAGEMENT GOALS DETERMINED NOT-APPLICABLE

Goal
7.0 Control and Prevention of Subsidence. (36.1071 (a) (3))

The rigid geologic framework of the region precludes significant subsidence from occurring.

Goal
8.0 Conjunctive Surface Water Management Issues (36.1071 (a) (4))

There exists only one permitted surface water user in Crockett County - this being treated waste water expelled from Crockett County Water Control and Improvement District No. 1's waste water treatment facility located south of the town of Ozona. The Crockett County G.C.D. has no jurisdiction over surface water or permitted surface water users.

Goal
9.0 Recharge Enhancement (36.1071 (a) (7))

The size of the District, the diverse topography, and limited knowledge of any specific recharge sites makes any type of recharge enhancement project economically unfeasible. This management goal is not applicable to the operation of the District.

Goal
10.0 Rainwater Harvesting (36.1071 (a) (7))

The arid nature of the area within the District, with annual rainfall averaging 15 inches or less, makes the cost of rainwater harvesting projects economically unfeasible. This management goal is not applicable to the operations of the District.

Goal
11.0 Brush Control (36.1071 (a) (7))

The District recognizes the benefits of brush control through increased spring flows and the enhancement of native turf which limits runoff. However, most brush control projects within the District are carried out and funded through the NRCS and ample educational material and programs on brush control are provided by the Texas Agrilife Extension Service. This management goal is not applicable to the operations of the District.

Goal

12.0 Addressing Natural Resource Issues Which Impact the Use and Availability of Groundwater Which Are Impacted By the Use of Groundwater In The District (356.5(a)(1)(E))

The District has no documented occurrences of endangered or threatened species dependent upon groundwater. Other issues related to resources-air, water, soil, etc. supplies by nature that are useful to life are likewise not documented. The natural resources of the oil and gas industry are regulated by the Railroad Commission of Texas, and are exempt by Chapter 36.117(e), unless the spacing requirements of the District can be met when space is available. Therfore, this management goal is not applicable to the operations of the District.

Summary Definitions

"Board of Directors" - the Board of Directors of the Crockett County Groundwater Conservation District

"District" - the Crockett County Groundwater Conservation District

"Waste" - as defined by Chapter 36 of the Texas Water Code means any one or more of the following:

(1) 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) escape of groundwater from a groundwater reservoir to any other reservoir or geologic strata that does not contain groundwater;

(4) pollution or harmful alteration of groundwater in a groundwater reservoir by saltwater or by other deleterious matter admitted from another stratum or from the surface of the ground;

(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 commission under Chapter 26;

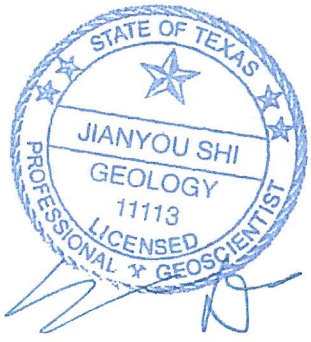
(6) groundwater pumped for irrigation that escapes as irrigation tailwater onto land other than that of the owner of the well unless permission has been granted by the occupant of the land receiving the discharge.

(7) for water produced from an artesian well "waste" has the meaning assigned by Section 11.205.

APPENDIX
A

GAM Run 10-043 MAG (Version 2): Modeled Available Groundwater for the Edwards-Trinity (Plateau), Trinity, and Pecos Valley Aquifers in Groundwater Management Area 7

by Jerry Shi, Ph.D., P.G.
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-5076
November 12, 2012



The seal appearing on this document was authorized by Jianyou (Jerry) Shi, P.G. 11113 on November 12, 2012.

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by Jerry Shi, Ph.D., P.G.
Texas Water Development Board
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November 12, 2012

EXECUTIVE SUMMARY:

The modeled available groundwater values for Groundwater Management Area 7 for the Edwards-Trinity (Plateau), Trinity, and Pecos Valley aquifers are summarized in Table 1. These values are also listed by county (Table 2), river basin (Table 3), and regional water planning area (Table 3). The modeled available groundwater values for the relevant aquifers in Groundwater Management Area 7 were initially based on Scenario 10 of GAM Run 09-035. In GAM Run 09-035, the Edwards-Trinity (Plateau), Trinity, and Pecos Valley aquifers were simulated and reported together. Though the desired future condition statement, specifying an average drawdown of 7 feet, only explicitly references the Edwards-Trinity (Plateau) Aquifer, it is the intent of the districts to also incorporate the Trinity and Pecos Valley aquifers. This was confirmed by Ms. Caroline Runge of Menard Underground Water District acting on behalf of Groundwater Management Area 7 in an e-mail to Ms. Sarah Backhouse at the Texas Water Development Board on June 6, 2012. The results here, therefore, contain information for each of these three aquifers. The modeled available groundwater from the Edwards-Trinity (Plateau), Trinity, and Pecos Valley aquifers in Groundwater Management Area 7 that achieves the requested desired future conditions is approximately 449,400 acre-feet per year from 2010 to 2060.

Earlier draft versions of this report showed modeled available groundwater for portions of the Edwards-Trinity (Plateau) Aquifer within the Lipan-Kickapoo Water Conservation District, the Lone Wolf Groundwater Conservation District, the Hickory Underground Water Conservation District No. 1, and the portion of the Trinity Aquifer within the Uvalde Underground Water Conservation District. However, Groundwater Management Area 7 declared those counties "not relevant" for joint planning purposes. Since modeled available groundwater only applies to areas with a specified desired future condition, we updated this report to depict modeled available groundwater only in counties with specified desired future conditions.

The modeled available groundwater for Kinney County Groundwater Conservation District previously reported in Draft GAM Run 10-043 MAG (Shi and Oliver, 2011) dated January 26, 2011, has been updated in a new model run and is presented in this report. The new model run is an update of Scenario 3 of Groundwater Availability Modeling Task 10-027, which meets the desired future conditions for the area adopted by the districts of Groundwater Management Area 7.

REQUESTOR:

Mr. Allan Lange of Lipan-Kickapoo Water Conservation District on behalf of Groundwater Management Area 7.

DESCRIPTION OF REQUEST:

In a letter dated August 13, 2010, Mr. Lange provided the Texas Water Development Board (TWDB) with the desired future conditions of the Edwards-Trinity (Plateau) Aquifer in Groundwater Management Area 7. On June 6, 2012 TWDB clarified through e-mail with Ms. Caroline Runge of Menard Underground Water District acting on behalf of Groundwater Management Area 7 that the intent of the districts within Groundwater Management Area 7 was to also incorporate the Trinity and Pecos Valley aquifers, except where explicitly stated as non-relevant in the desired future conditions of the Edwards-Trinity (Plateau) Aquifer. The desired future conditions for the aquifer[s], as described in Resolution # 07-29-10-9 and adopted July 29, 2010 by the groundwater conservation districts within Groundwater Management Area 7, are described below:

1) An average drawdown of 7 feet for the Edwards-Trinity (Plateau)[, Pecos Valley, and Trinity] aquifer[s], except for the Kinney County [Groundwater Conservation District], based on Scenario 10 of the TWDB [Groundwater Availability Model] run 09-35 which is incorporated in its entirety into this resolution; and

2) In Kinney County, that drawdown which is consistent with maintaining, at Las Moras Springs, an annual average flow of 23.9 [cubic feet per second] and a median flow of 24.4 [cubic feet per second] based on Scenario 3 of the Texas Water Development Board's flow model presented on July 27, 2010; and

3) the Edwards-Trinity [Aquifer] is not relevant for joint planning purposes within the boundaries of the Lipan-Kickapoo [Water Conservation District], the Lone Wolf [Groundwater Conservation District], and the Hickory Underground Water Conservation District No. 1; and

4) the Trinity (Hill Country) portion of the aquifer is not relevant for joint planning purposes within the boundaries of the Uvalde [Underground Water Conservation District] in [Groundwater Management Area] 7.

METHODS, PARAMETERS AND ASSUMPTIONS:

The desired future condition for Kinney County was evaluated in a new model run (Shi and others, 2012). The new model run is an update of Scenario 3 of Groundwater Availability Modeling (GAM) Task 10-027 (Hutchison, 2010a). Both model runs were based on the MODFLOW-2000 model developed by the TWDB to assist with the joint planning process regarding the Kinney County Groundwater Conservation District (Hutchison and others, 2011b). In both model runs, the total pumping in Kinney County, which lies within Groundwater Management Areas 7 and 10, was maintained at approximately 77,000 acre-feet per year to achieve the desired future conditions at Las Moras Springs. Details regarding this new model run are summarized in Shi and others (2012).

The desired future condition for the remaining areas in Groundwater Management Area 7 was based on Scenario 10 of GAM Run 09-035 using a MODFLOW-2000 model developed by the TWDB (Hutchison and others, 2011a). Details regarding this scenario can be found in Hutchison (2010b). In GAM Run 09-035, the Edwards-Trinity (Plateau), Trinity, Pecos Valley, and Trinity aquifers were simulated and reported together. The desired future condition statement specifying of an average drawdown of 7 feet, which is achieved in the above simulation, only explicitly references the Edwards-Trinity (Plateau) Aquifer. By stating that the above simulation is "incorporated in its entirety" into the resolution, it is the intent of the districts to also incorporate the Trinity and Pecos Valley aquifers. The results below, therefore, contain information on the Trinity and Pecos Valley aquifers in addition to the Edwards-Trinity (Plateau) Aquifer. This interpretation has been confirmed by Ms. Caroline Runge on behalf of Groundwater Management Area 7 to Ms. Sarah Backhouse at the Texas Water Development Board.

The locations of the Edwards-Trinity (Plateau), Trinity, and Pecos Valley aquifers are shown in Figure 1.

RESULTS:

The modeled available groundwater values from aquifers in Groundwater Management Area 7 that achieve the desired future conditions is approximately 445,000 acre-feet per year for the Edwards-Trinity (Plateau) aquifer, 2,500 acre-feet per year for the Trinity Aquifer, and 1,600 acre-feet per year for the Pecos Valley Aquifer (Tables 1, 2, and 3). These tables contain the modeled available groundwater for the aquifers subdivided by county, regional water planning area, and river basin for use in the regional water planning process. These areas are shown in Figure 2.

Tables 4, 5, and 6 show the modeled available groundwater for the Edwards-Trinity (Plateau), Trinity, and Pecos Valley aquifers summarized by county, regional water planning area, and river basin, respectively, within Groundwater Management Area 7.

The modeled available groundwater for the aquifers within and outside the groundwater conservation districts in Groundwater Management Area 7 where they were determined to be relevant for the purposes of joint planning are presented in Table 7. As shown in Table 7, the modeled available groundwater within the groundwater conservation districts in Groundwater Management Area 7 is approximately 370,000 acre-feet per year from 2010 to 2060.

LIMITATIONS:

The groundwater model used in developing estimates of modeled available groundwater is the best available scientific tool that can be used to estimate the pumping that will achieve the desired future conditions. Although the groundwater model used in this analysis is the best available scientific tool for this purpose, it, like all models, has limitations. 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 develop estimates of modeled available groundwater is the need to make assumptions about the location in the aquifer where future pumping will occur. As actual pumping changes in the future, it will be necessary to evaluate the amount of that pumping as well as its location in the context of the assumptions associated with this analysis. Evaluating the amount and location of future pumping is as important as evaluating the changes in groundwater levels, spring flows, and other metrics that describe the condition of the groundwater resources in the area that relate to the adopted desired future condition.

Given these limitations, users of this information are cautioned that the modeled available groundwater numbers should not be considered a definitive, permanent description of the amount of groundwater that can be pumped to meet the adopted desired future condition. Because the application of the groundwater model was designed to address regional scale questions, the results are most effective on a regional scale. Texas Water Development Board 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 future groundwater pumping as well as whether or not they are achieving their desired future conditions. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with Texas Water Development Board to refine these modeled available groundwater numbers given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future.

REFERENCES:

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Shi, Jerry, Ridgeway, Cindy, and French, Larry, 2012, Draft GAM Task Report 12-002: Modeled Available Groundwater in Kinney County (April 11, 2012).

Shi, Jerry and Oliver, Wade, 2011, GAM Run 10-043 MAG (January 26, 2011).

Texas Water Development Board, 2007, Water for Texas - 2007—Volumes I-III; Texas Water Development Board Document No. GP-8-1, 392 p.

TABLE 1. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS-TRINITY (PLATEAU) AQUIFER IN GROUNDWATER MANAGEMENT AREA 7. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY COUNTY, REGIONAL WATER PLANNING AREA, AND RIVER BASIN.

County	Regional Water Planning Area	River Basin	Year					
			2010	2020	2030	2040	2050	2060
Coke	F	Colorado	998	998	998	998	998	998
Crockett	F	Colorado	19	19	19	19	19	19
		Rio Grande	5,407	5,407	5,407	5,407	5,407	5,407
Ector	F	Colorado	4,918	4,918	4,918	4,918	4,918	4,918
		Rio Grande	504	504	504	504	504	504
Edwards	J	Colorado	2,306	2,306	2,306	2,306	2,306	2,306
		Nueces	1,632	1,632	1,632	1,632	1,632	1,632
		Rio Grande	1,700	1,700	1,700	1,700	1,700	1,700
Gillespie	K	Colorado	2,378	2,378	2,378	2,378	2,378	2,378
		Guadalupe	136	136	136	136	136	136
Glasscock	F	Colorado	65,213	65,213	65,213	65,213	65,213	65,213
Irion	F	Colorado	2,293	2,293	2,293	2,293	2,293	2,293
Kimble	F	Colorado	1,283	1,283	1,283	1,283	1,283	1,283
Kinney	J	Nueces	12	12	12	12	12	12
		Rio Grande	70,326	70,326	70,326	70,326	70,326	70,326
McCulloch	F	Colorado	4	4	4	4	4	4
Menard	F	Colorado	2,194	2,194	2,194	2,194	2,194	2,194
Midland	F	Colorado	23,251	23,251	23,251	23,251	23,251	23,251
Nolan	G	Brazos	302	302	302	302	302	302
		Colorado	391	391	391	391	391	391
Pecos	F	Rio Grande	115,938	115,938	115,938	115,938	115,938	115,938
Reagan	F	Colorado	68,250	68,250	68,250	68,250	68,250	68,250
		Rio Grande	28	28	28	28	28	28
Real	J	Colorado	278	278	278	278	278	278
		Guadalupe	3	3	3	3	3	3
		Nueces	7,196	7,196	7,196	7,196	7,196	7,196
Schleicher	F	Colorado	6,410	6,410	6,410	6,410	6,410	6,410
		Rio Grande	1,640	1,640	1,640	1,640	1,640	1,640
Sterling	F	Colorado	2,497	2,497	2,497	2,497	2,497	2,497
Sutton	F	Colorado	386	386	386	386	386	386
		Rio Grande	6,052	6,052	6,052	6,052	6,052	6,052

TABLE 1. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS-TRINITY (PLATEAU) AQUIFER IN GROUNDWATER MANAGEMENT AREA 7. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY COUNTY, REGIONAL WATER PLANNING AREA, AND RIVER BASIN.

County	Regional Water Planning Area	River Basin	Year					
			2010	2020	2030	2040	2050	2060
Taylor	G	Brazos	331	331	331	331	331	331
		Colorado	158	158	158	158	158	158
Terrell	E	Rio Grande	1,421	1,421	1,421	1,421	1,421	1,421
Tom Green	F	Colorado	426	426	426	426	426	426
Upton	F	Colorado	21,257	21,257	21,257	21,257	21,257	21,257
		Rio Grande	1,122	1,122	1,122	1,122	1,122	1,122
Uvalde	L	Nueces	1,635	1,635	1,635	1,635	1,635	1,635
Val Verde	J	Rio Grande	24,988	24,988	24,988	24,988	24,988	24,988
Grand Total			**445,283**	**445,283**	**445,283**	**445,283**	**445,283**	**445,283**

TABLE 2. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER IN GROUNDWATER MANAGEMENT AREA 7. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY COUNTY, REGIONAL WATER PLANNING AREA, AND RIVER BASIN.

County	Regional Water Planning Area	River Basin	Year					
			2010	2020	2030	2040	2050	2060
Gillespie	K	Colorado	2,482	2,482	2,482	2,482	2,482	2,482
Real	J	Nueces	52	52	52	52	52	52
Total			**2,534**	**2,534**	**2,534**	**2,534**	**2,534**	**2,534**

TABLE 3. MODELED AVAILABLE GROUNDWATER FOR THE PECOS VALLEY AQUIFER IN GROUNDWATER MANAGEMENT AREA 7. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY COUNTY, REGIONAL WATER PLANNING AREA, AND RIVER BASIN.

County	Regional Water Planning Area	River Basin	Year					
			2010	2020	2030	2040	2050	2060
Crockett	F	Rio Grande	31	31	31	31	31	31
Ector	F	Rio Grande	113	113	113	113	113	113
Pecos	F	Rio Grande	1,448	1,448	1,448	1,448	1,448	1,448
Upton	F	Rio Grande	2	2	2	2	2	2
Total			**1,594**	**1,594**	**1,594**	**1,594**	**1,594**	**1,594**

TABLE 4. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS-TRINITY (PLATEAU), TRINITY, AND PECOS VALLEY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 7 BY COUNTY FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR.

County	2010	2020	2030	2040	2050	2060
Coke	998	998	998	998	998	998
Crockett	5,457	5,457	5,457	5,457	5,457	5,457
Ector	5,535	5,535	5,535	5,535	5,535	5,535
Edwards	5,638	5,638	5,638	5,638	5,638	5,638
Gillespie	4,996	4,996	4,996	4,996	4,996	4,996
Glasscock	65,213	65,213	65,213	65,213	65,213	65,213
Irion	2,293	2,293	2,293	2,293	2,293	2,293
Kimble	1,283	1,283	1,283	1,283	1,283	1,283
Kinney	70,338	70,338	70,338	70,338	70,338	70,338
Mcculloch	4	4	4	4	4	4
Menard	2,194	2,194	2,194	2,194	2,194	2,194
Midland	23,251	23,251	23,251	23,251	23,251	23,251
Nolan	693	693	693	693	693	693
Pecos	117,386	117,386	117,386	117,386	117,386	117,386
Reagan	68,278	68,278	68,278	68,278	68,278	68,278
Real	7,529	7,529	7,529	7,529	7,529	7,529
Schleicher	8,050	8,050	8,050	8,050	8,050	8,050
Sterling	2,497	2,497	2,497	2,497	2,497	2,497
Sutton	6,438	6,438	6,438	6,438	6,438	6,438

TABLE 4. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS-TRINITY (PLATEAU), TRINITY, AND PECOS VALLEY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 7 BY COUNTY FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR.

County	2010	2020	2030	2040	2050	2060
Taylor	489	489	489	489	489	489
Terrell	1,421	1,421	1,421	1,421	1,421	1,421
Tom Green	426	426	426	426	426	426
Upton	22,381	22,381	22,381	22,381	22,381	22,381
Uvalde	1,635	1,635	1,635	1,635	1,635	1,635
Val Verde	24,988	24,988	24,988	24,988	24,988	24,988
Total	**449,411**	**449,411**	**449,411**	**449,411**	**449,411**	**449,411**

TABLE 5. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS-TRINITY (PLATEAU), TRINITY, AND PECOS VALLEY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 7 BY REGIONAL WATER PLANNING AREA FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR.

Regional Water Planning Area	Year					
	2010	2020	2030	2040	2050	2060
E	1,421	1,421	1,421	1,421	1,421	1,421
F	331,684	331,684	331,684	331,684	331,684	331,684
G	1,182	1,182	1,182	1,182	1,182	1,182
J	108,493	108,493	108,493	108,493	108,493	108,493
K	4,996	4,996	4,996	4,996	4,996	4,996
L	1,635	1,635	1,635	1,635	1,635	1,635
Total	**449,411**	**449,411**	**449,411**	**449,411**	**449,411**	**449,411**

TABLE 6. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS-TRINITY (PLATEAU), TRINITY, AND PECOS VALLEY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 7 BY RIVER BASIN FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR.

River Basin	Year					
	2010	2020	2030	2040	2050	2060
Brazos	633	633	633	633	633	633
Colorado	207,392	207,392	207,392	207,392	207,392	207,392
Guadalupe	139	139	139	139	139	139
Nueces	10,527	10,527	10,527	10,527	10,527	10,527
Rio Grande	230,720	230,720	230,720	230,720	230,720	230,720
Total	**449,411**	**449,411**	**449,411**	**449,411**	**449,411**	**449,411**

TABLE 7. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS-TRINITY (PLATEAU), TRINITY, AND PECOS VALLEY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 7 BY GROUNDWATER CONSERVATION DISTRICT FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	Year					
	2010	2020	2030	2040	2050	2060
Coke County UWCD	998	998	998	998	998	998
Crockett County GCD	4,685	4,685	4,685	4,685	4,685	4,685
Glasscock GCD	106,075	106,075	106,075	106,075	106,075	106,075
Hill Country UWCD	4,996	4,996	4,996	4,996	4,996	4,996
Irion County WCD	2,435	2,435	2,435	2,435	2,435	2,435
Kimble County GCD	1,283	1,283	1,283	1,283	1,283	1,283
Kinney County GCD	70,338	70,338	70,338	70,338	70,338	70,338
Menard County UWD	2,194	2,194	2,194	2,194	2,194	2,194
Middle Pecos GCD	117,386	117,386	117,386	117,386	117,386	117,386
Plateau UWC and SD	8,050	8,050	8,050	8,050	8,050	8,050
Real-Edwards CRD	13,167	13,167	13,167	13,167	13,167	13,167
Santa Rita UWCD	27,416	27,416	27,416	27,416	27,416	27,416
Sterling County UWCD	2,497	2,497	2,497	2,497	2,497	2,497
Sutton County UWCD	6,438	6,438	6,438	6,438	6,438	6,438
Uvalde County UWCD (Edwards-Trinity Plateau)	1,635	1,635	1,635	1,635	1,635	1,635
Wes-Tex GCD	693	693	693	693	693	693

TABLE 7. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS-TRINITY (PLATEAU), TRINITY, AND PECOS VALLEY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 7 BY GROUNDWATER CONSERVATION DISTRICT FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	Year					
	2010	2020	2030	2040	2050	2060
Total (areas in districts relevant for joint planning)	**370,286**	**370,286**	**370,286**	**370,286**	**370,286**	**370,286**
No District	79,125	79,125	79,125	79,125	79,125	79,125
Total (all areas)	**449,411**	**449,411**	**449,411**	**449,411**	**449,411**	**449,411**

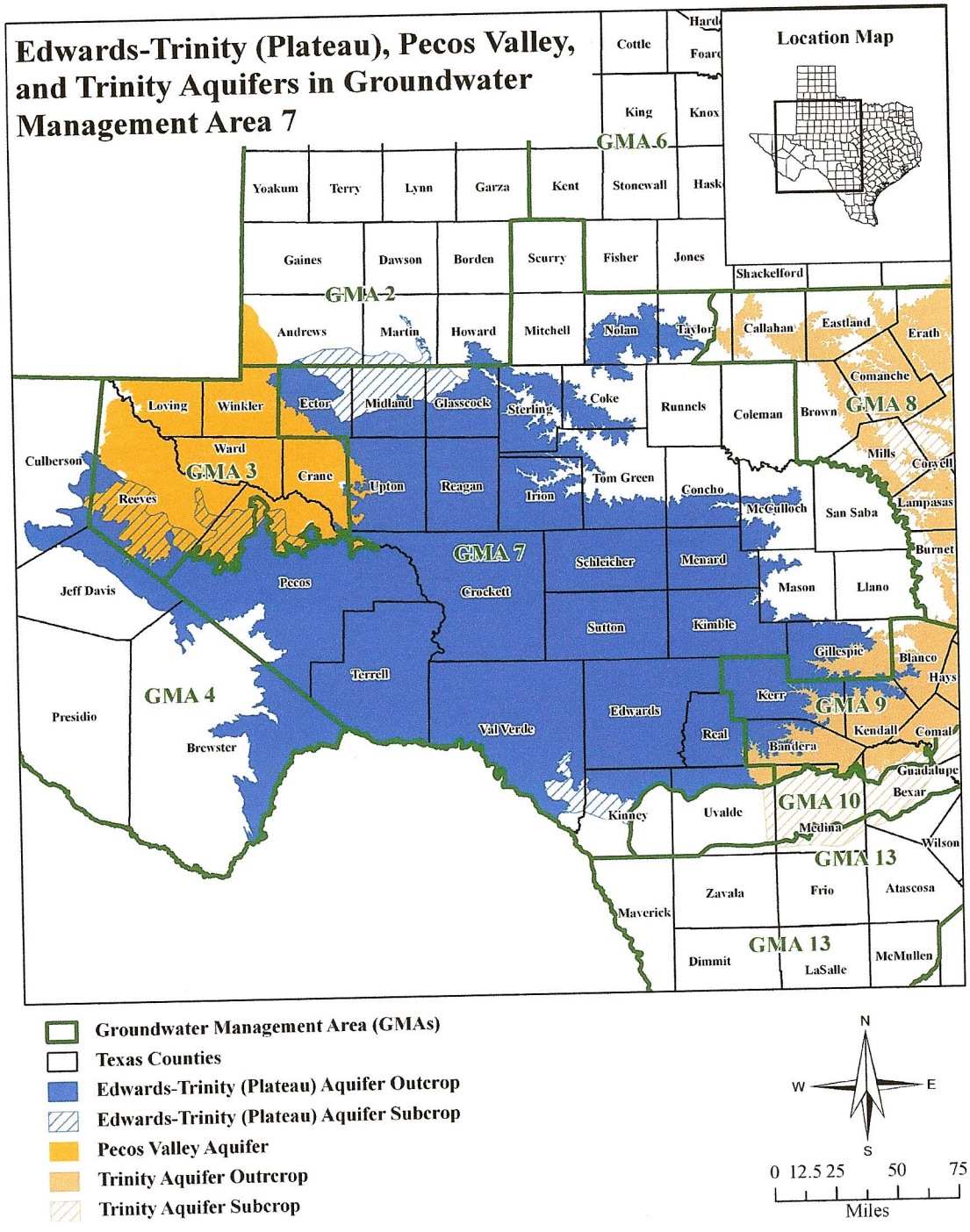

FIGURE 1. MAP SHOWING THE BOUNDARY OF THE EDWARDS-TRINITY (PLATEAU), PECOS VALLEY, AND TRINITY AQUIFERS ACCORDING TO THE 2007 STATE WATER PLAN (TWDB, 2007).

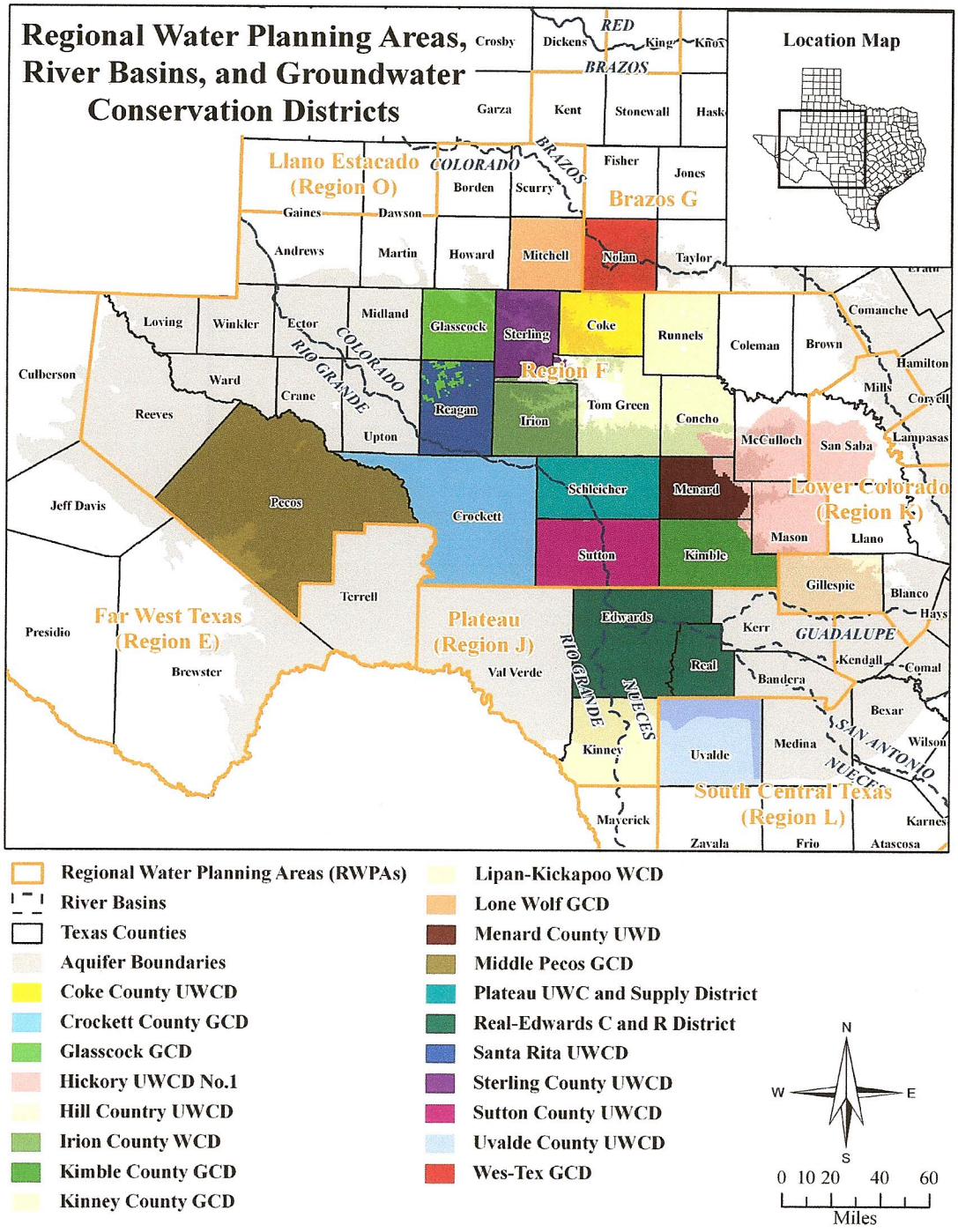

FIGURE 2. MAP SHOWING REGIONAL WATER PLANNING AREAS, GROUNDWATER CONSERVATION DISTRICTS, COUNTIES, AND RIVER BASINS IN AND NEIGHBORING GROUNDWATER MANAGEMENT AREA 7.

APPENDIX
B

Estimated Historical Groundwater Use And 2012 State Water Plan Datasets:

Crockett County Groundwater Conservation District

by Stephen Allen
Texas Water Development Board
Groundwater Resources Division
Groundwater Technical Assistance Section
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(512) 463-7317
October 29, 2012

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/GMPchecklist0911.pdf

The five reports included in part 1 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)
   reports 2-5 are from the 2012 State Water Plan (SWP)

Part 2 of the 2-part package is the groundwater availability model (GAM) report. 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 updated Historical Groundwater Use and 2012 State Water Planning data available as of 10/29/2012. Although it does not happen frequently, neither of these datasets are static and are subject to change pending the availability of more accurate data (Historical Water Use Survey data) or an amendment to the 2012 State Water Plan (2012 State Water Planning data). District personnel must review these datasets and correct any discrepancies in order to ensure approval of their groundwater management plan.

The Historical Water Use dataset can be verified at this web address:

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

The 2012 State Water Planning dataset can be verified by contacting Wendy Barron (wendy.barron@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 district conditions. The multiplier used as part of 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 State Water Plan 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 locations).

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

In the Historical Groundwater Use 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 has the option of including those data in the plan with an explanation of how the data were derived. Apportioning percentages 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 Groundwater Use
TWDB Historical Water Use Survey (WUS) Data

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

CROCKETT COUNTY

99.94 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	1,490	4	1,705	2,089	79	1,195	6,562
1980	GW	1,793	12	2,086	1,799	141	772	6,603
1984	GW	1,734	12	2,390	338	609	682	5,765
1985	GW	1,486	61	2,168	600	652	599	5,566
1986	GW	1,365	38	2,182	500	0	710	4,795
1987	GW	1,077	37	1,988	500	582	708	4,892
1988	GW	1,512	9	1,968	500	576	769	5,334
1989	GW	1,624	10	1,311	412	449	797	4,603
1990	GW	1,447	6	1,508	350	449	799	4,559
1991	GW	1,419	18	1,576	350	388	837	4,588
1992	GW	1,345	0	1,609	350	36	658	3,998
1993	GW	1,675	0	1,587	441	54	617	4,374
1994	GW	1,897	0	1,318	419	64	628	4,326
1995	GW	1,841	0	1,492	356	64	503	4,256
1996	GW	1,796	0	1,266	374	64	471	3,971
1997	GW	1,664	0	3,003	374	73	485	5,599
1998	GW	1,815	0	995	1,151	21	488	4,470
1999	GW	1,548	0	995	1,151	21	567	4,282
2000	GW	1,642	0	937	160	21	614	3,374
2001	GW	1,320	0	907	214	64	577	3,082
2002	GW	1,371	0	907	195	7	520	3,000
2003	GW	1,296	0	647	376	4	439	2,762
2004	GW	1,261	0	647	315	4	492	2,719
2006	GW	1,266	41	0	485	18	647	2,457
2007	GW	1,266	25	0	381	18	637	2,327
2008	GW	1,312	30	0	362	18	618	2,340
2009	GW	1,400	0	0	0	198	611	2,209
2010	GW	1,418	0	0	148	133	562	2,261

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

CROCKETT COUNTY

99.94 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
F	LIVESTOCK	COLORADO	LIVESTOCK LOCAL SUPPLY	4	4	4	4	4	4
F	LIVESTOCK	RIO GRANDE	LIVESTOCK LOCAL SUPPLY	127	127	127	127	127	127
	Sum of Projected Surface Water Supplies (acre-feet/year)			**131**	**131**	**131**	**131**	**131**	**131**

Projected Water Demands
TWDB 2012 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.

CROCKETT COUNTY

99.94 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
F	LIVESTOCK	COLORADO	30	30	30	30	30	30
F	COUNTY-OTHER	RIO GRANDE	43	41	40	38	37	36
F	STEAM ELECTRIC POWER	RIO GRANDE	972	776	906	1,066	1,261	1,499
F	MINING	RIO GRANDE	402	421	431	441	450	459
F	IRRIGATION	RIO GRANDE	525	518	508	498	492	482
F	LIVESTOCK	RIO GRANDE	966	966	966	966	966	966
F	CROCKETT COUNTY WCID #1	RIO GRANDE	1,664	1,790	1,825	1,832	1,872	1,913
	Sum of Projected Water Demands (acre-feet/year)		**4,602**	**4,542**	**4,706**	**4,871**	**5,108**	**5,385**

Projected Water Supply Needs
TWDB 2012 State Water Plan Data

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

CROCKETT COUNTY

All values are in acre-feet/year

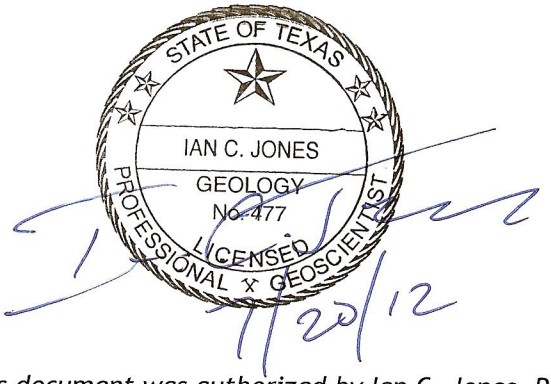
RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
F	COUNTY-OTHER	RIO GRANDE	0	0	0	0	0	0
F	CROCKETT COUNTY WCID #1	RIO GRANDE	839	713	678	671	631	590
F	IRRIGATION	RIO GRANDE	10	17	27	37	43	53
F	LIVESTOCK	COLORADO	0	0	0	0	0	0
F	LIVESTOCK	RIO GRANDE	0	0	0	0	0	0
F	MINING	RIO GRANDE	0	0	0	0	0	0
F	STEAM ELECTRIC POWER	RIO GRANDE	527	724	593	433	238	0
	Sum of Projected Water Supply Needs (acre-feet/year)		**0**	**0**	**0**	**0**	**0**	**0**

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

APPENDIX
C

GAM Run 12-004: Crockett County Ground Water 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
July 20, 2012



The seal appearing on this document was authorized by Ian C. Jones, Ph.D., P.G. 477 on July 20, 2012.

GAM Run 12-004: Crockett County Groundwater Conservation District Management Plan

by Ian C. Jones, Ph.D., P.G.
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July 20, 2012

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.

This report supersedes Groundwater Availability Model (GAM) Run 08-27 which did not include a water budget for the Dockum Aquifer. A groundwater availability model for the Dockum Aquifer was released in January 2009 (Ewing and others, 2008) and an alternate version of the groundwater availability model for the Dockum Aquifer was released in April 2010 (Oliver and Hutchison, 2010). The purpose of this report is to provide information to Crockett County Groundwater Conservation District for its groundwater management plan. The groundwater management plan for Crockett County Groundwater Conservation District is due for approval by the executive administrator of the Texas Water Development Board before September 5, 2013.

This report discusses the methods, assumptions, and results from model runs using groundwater models for the Dockum Aquifer and the Pecos Valley and Edwards-Trinity (Plateau) aquifers. Tables 1 through 3 summarize the groundwater model data required by the statute, and figures 1 through 3 show the area of each model from which the values in the respective tables were extracted. If after review of the figures, Crockett 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:

Groundwater models for the Pecos Valley and Edwards-Trinity (High Plains) aquifers and the Dockum Aquifer were run for this analysis. Water budgets for the transient model period (1980 through 1999) were extracted using ZONEBUDGET version 3.01 (Harbaugh, 1990) 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. The estimated net annual volume of flow between the Pecos Valley and Edwards-Trinity (Plateau) aquifers in the district was calculated as the net lateral flow in the Pecos Valley Aquifer of Crockett County Groundwater Conservation District that occurs along the Pecos River. This estimate is based on the assumption that there is no groundwater flow crossing the Pecos River—a major discharge zone from the Pecos Valley Aquifer.

PARAMETERS AND ASSUMPTIONS:

Edwards-Trinity (Plateau) Aquifer

- The recently modified and calibrated one-layer groundwater flow model of the Edwards Trinity (Plateau) and Pecos Valley Alluvium aquifers (Hutchison and others, 2011) was used for these simulations. This differs from GAM Run 08-027 where results were taken from the original two-layer model (Anaya and Jones, 2009). The modified model version was developed to more effectively simulate groundwater conditions and was used for this management plan data extraction analysis due to enhancements in the calibration and in order to be consistent with the Modeled Available Groundwater (MAG) process. The model was calibrated based on groundwater elevation data from 1930 to 2005; however, data was

extracted from 1980 to 1999 to be more consistent with the analysis completed for the Dockum Aquifer.

- The model has one layer which represents the Pecos Valley Aquifer in the northwest portion of the model area, the Edwards-Trinity (Plateau) Aquifer, the Hill Country portion of the Trinity Aquifer in the southeast portion of the model area, and a lumped representation of both the Pecos Valley and Edwards-Trinity (Plateau) aquifers in the relatively narrow area where the Pecos Valley Aquifer overlies the Edwards-Trinity (Plateau) Aquifer.

- The standard deviation of groundwater elevation residuals (a measure of the difference between simulated and actual water levels during model calibration) for the entire model domain is 70 feet and the average residual is -1.3 feet.

- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).

Dockum Aquifer

- We used version 1.01 of the groundwater availability model for the Dockum Aquifer. See Ewing and others (2008) for assumptions and limitations of the groundwater availability model.

- The model includes three layers representing: geologic units overlying the Dockum Aquifer including the Ogallala, Edwards-Trinity (High Plains), Edwards-Trinity (Plateau), Pecos Valley, and Rita Blanca aquifers (Layer 1), the upper portion of the Dockum Aquifer (Layer 2), and the lower portion of the Dockum Aquifer (Layer 3).

- The aquifers represented in Layer 1 of the groundwater availability model are only included in the model for the purpose of more accurately representing flow between these units and the Dockum Aquifer. This model is not intended to explicitly simulate flow in these overlying units (Ewing and others, 2008).

- The mean absolute error (a measure of the difference between simulated and measured water levels during model calibration) in the entire model between 1980 and 1997 is 65.0 feet and 69.6 feet for the upper and lower portions of the Dockum Aquifer, respectively (Ewing and others, 2008). This represents 2.7 and 3.0 percent of the hydraulic head drop across the model area for these same aquifers, respectively.

- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).

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 through 3. The components of the modified budget shown in tables1 through 3 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 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 through 3. 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 district or county boundaries, 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 through 3).

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 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 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.

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

Management Plan requirement	*Aquifer or confining unit*	*Results*
Estimated annual amount of recharge from precipitation to the district	Edwards-Trinity (Plateau) Aquifer	72,769
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Edwards-Trinity (Plateau) Aquifer	51,505
Estimated annual volume of flow into the district within each aquifer in the district	Edwards-Trinity (Plateau) Aquifer	144,023
Estimated annual volume of flow out of the district within each aquifer in the district	Edwards-Trinity (Plateau) Aquifer	178,768
Estimated net annual volume of flow between each aquifer in the district	From the Edwards-Trinity (Plateau) Aquifer to the Pecos Valley Aquifer	1,121

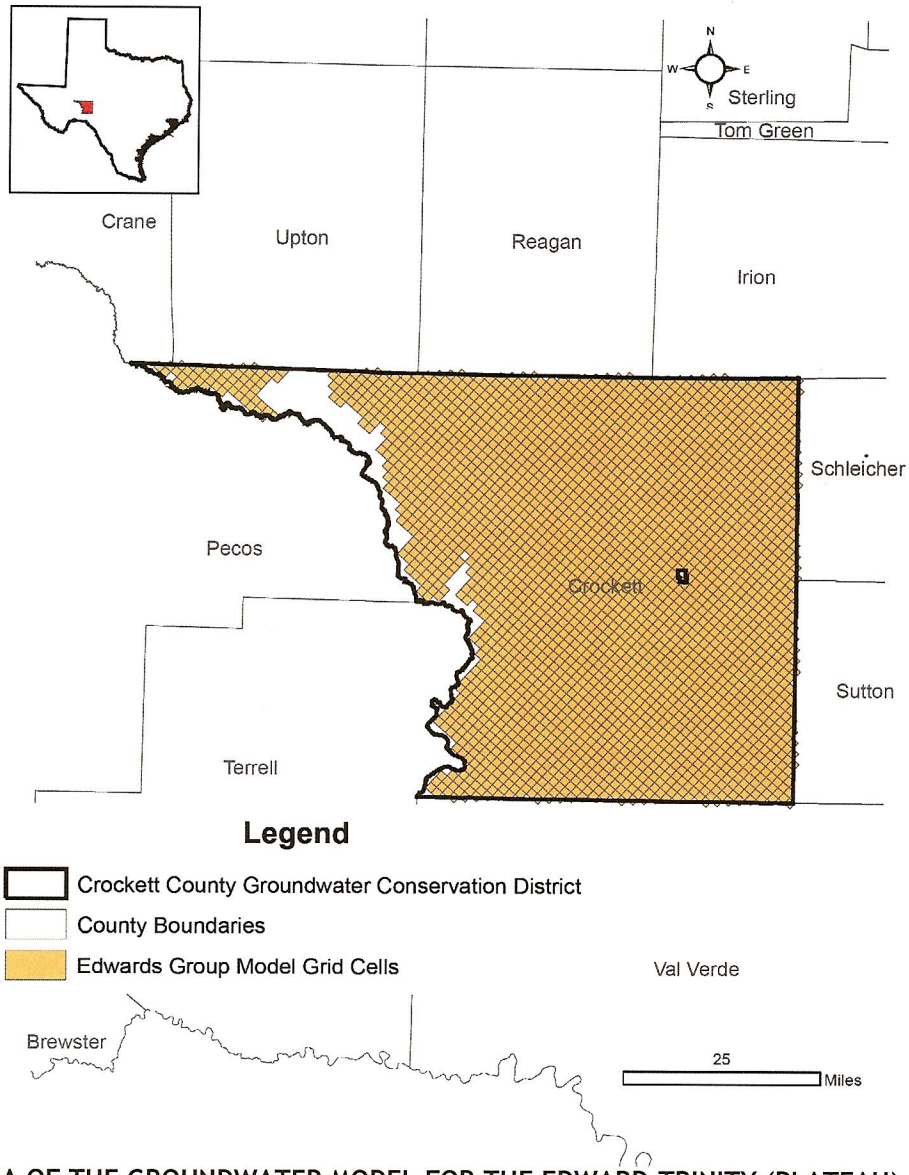

FIGURE 1: AREA OF THE GROUNDWATER MODEL FOR THE EDWARD-TRINITY (PLATEAU) AQUIFER FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

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

Management Plan requirement	*Aquifer or confining unit*	*Results*
Estimated annual amount of recharge from precipitation to the district	Dockum Aquifer	0
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Dockum Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Dockum Aquifer	1,487
Estimated annual volume of flow out of the district within each aquifer in the district	Dockum Aquifer	154
Estimated net annual volume of flow between each aquifer in the district	From the Dockum Aquifer to overlying younger units	1,333

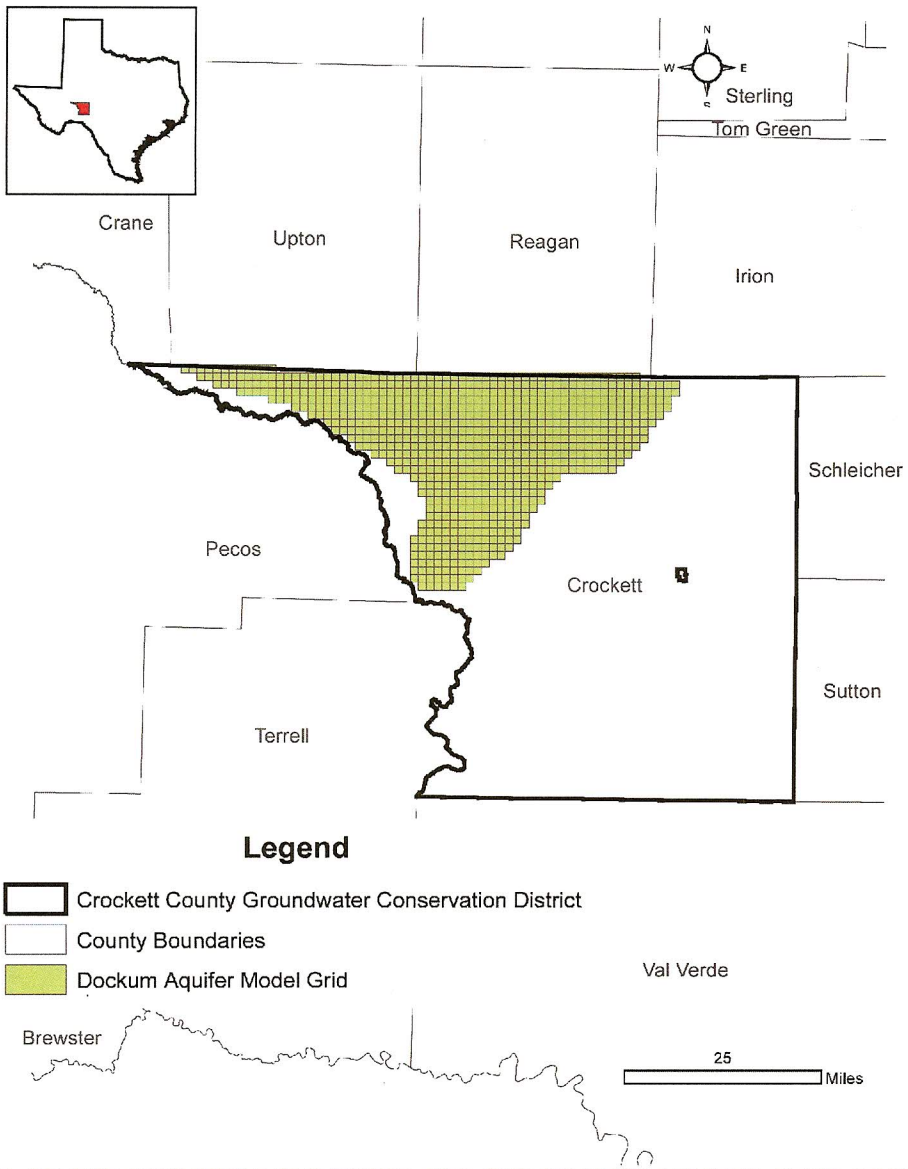

FIGURE 2: AREA OF THE GROUNDWATER MODEL FOR THE DOCKUM AQUIFER FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

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

Management Plan requirement	*Aquifer or confining unit*	*Results*
Estimated annual amount of recharge from precipitation to the district	Pecos Valley Aquifer	5
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Pecos Valley Aquifer	1,136
Estimated annual volume of flow into the district within each aquifer in the district	Pecos Valley Aquifer	1,625
Estimated annual volume of flow out of the district within each aquifer in the district	Pecos Valley Aquifer	504
Estimated net annual volume of flow between each aquifer in the district	From the Edwards-Trinity (Plateau) Aquifer to the Pecos Valley Aquifer	1,121

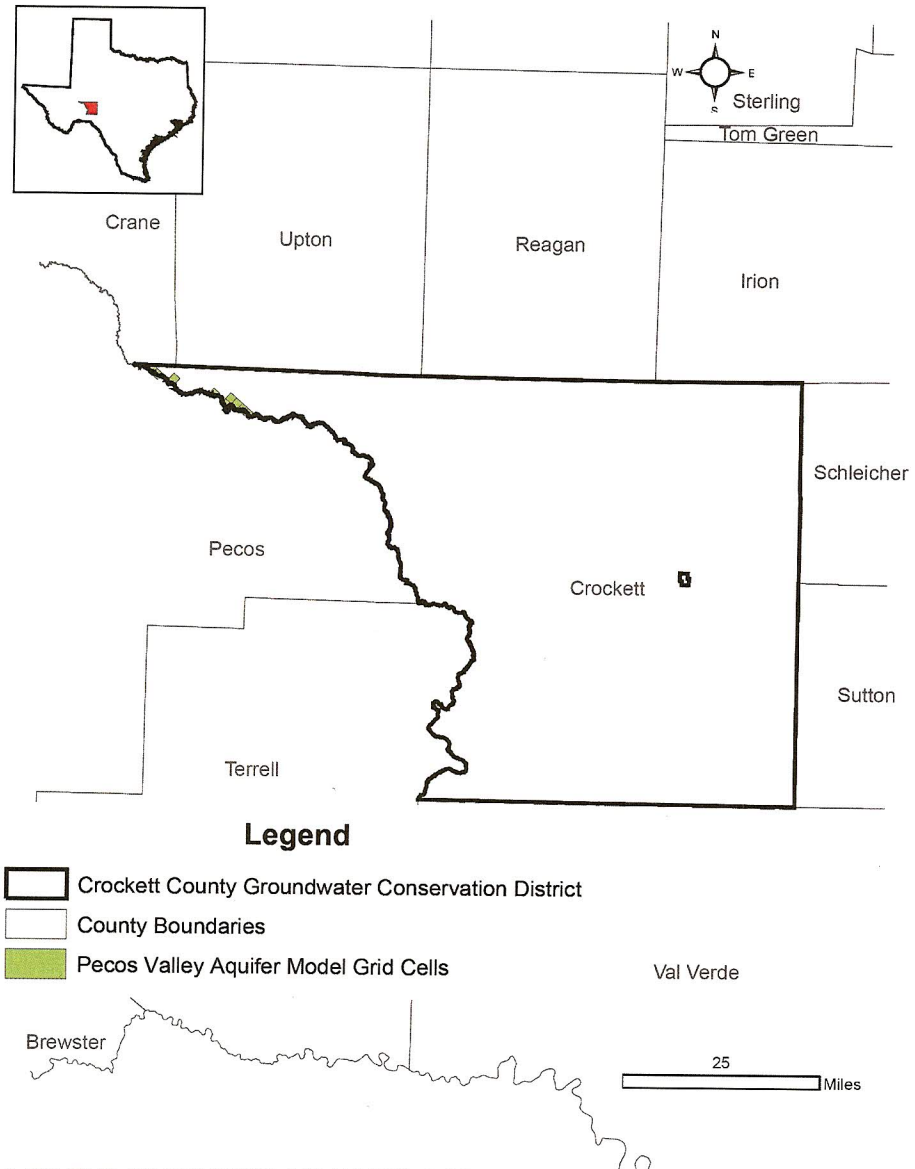

FIGURE 3: AREA OF THE GROUNDWATER MODEL FOR THE PECOS VALLEY AQUIFER FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

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APPENDIX
D

RULES OF THE
CROCKETT COUNTY GROUNDWATER CONSERVATION DISTRICT

As Adopted Effective July 1, 2013

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PREAMBLE

Crockett County Groundwater Conservation District

Throughout the State of Texas, groundwater conservation districts embody local government at its most basic level: local representatives establishing guidelines for the use and conservation of precious natural resources for the benefit of the citizens and economy of the District.

The Crockett County Groundwater Conservation District was established to conserve and manage groundwater for the benefit of the citizens of Crockett County. To fulfill this duty, the Crockett County Groundwater Conservation District has adopted these rules to ensure a fair, open, and consistent method of formulating and implementing its policies.

ARTICLE 1
INTRODUCTION AND REGULATORY AUTHORITY

1.1. Authority to Promulgate Rules. The Crockett County Groundwater Conservation District (the District) is a political subdivision of the State of Texas. The District was formed by Senate Bill 1635, 71st Legislature Regular Session in 1989; under the name Emerald Groundwater Conservation District. House Bill 4009, 80th Legislature Regular Session, renamed the district Crockett County Groundwater Conservation District, issued the order for election, and detailed its powers as that of a water conservation district. The original Rules of the District were adopted on September 14, 1992 and continued in effect as amended until JULY 1, 2013, the date of the adoption of these Rules.

1.2. Purpose of the Rules. The purpose of these Rules of the Crockett County Groundwater Conservation District ("Rules") is to implement the powers and duties of the District under its Enabling Act, Texas Water Code Chapter 36, and other applicable laws and to establish the general policies and procedures of the District.

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

The Rules will guide, define, and promote the District's goals of water conservation and pollution prevention in an effort to preserve, protect, and enhance the groundwater within the District's jurisdictional boundaries.

1.3. Effective Dates. These Rules are effective on the date approved by the Board of the District as set forth in Article 1, except as to any amendments which are effective on the dates indicated following each amended Rule.

a. The Board may from time to time, following notice and public hearing, amend or revoke any rule or adopt new rules following the procedures set out in Section 1.

b. The Board may adopt an emergency rule without prior notice or hearing, or with an abbreviated notice and hearing, according to Rule 1.3.

1.4. Severability. If any portion of these Rules is for any reason held to be invalid, illegal, or unenforceable in any respect, the invalidity, illegality, or unenforceability shall not affect any other portions hereof, and these Rules shall be construed as if such invalid, illegal, or unenforceable Rule or of portions thereof had never been contained herein.

1.5. Boundaries of the District. The boundary of the District is contiguous with the county lines of Crockett County which has an area of 2,839 square miles or approximately 1,817,321 acres of land excluding the area of Crockett County Water Control & Improvement District #1. Located in southwest Texas on the western edge of the Edwards Plateau, Crockett County is the eighth largest county in Texas with the Pecos River forming its western boundary. On the west lie Pecos and Terrell counties. Crane, Upton, Reagan, and Irion counties border Crockett County on the north. On the east lie Schleicher and Sutton counties, with Val Verde County on the south. Ozona, the county seat, is centrally located in the eastern part of Crockett County.

1.6. Groundwater Management Policies. The District is in agreement with the groundwater management principles expressed in the plan of Groundwater Management Area 7 and the State Water Plan (the "Plan"). In accordance with SB 3 regarding the determination of the amount of Modeled Available Groundwater (MAG) the District will implement policies in conformity with the statutorily prescribed planning process to conserve and protect the quality of groundwater within the District's boundaries. Therefore, it shall be the policy of the District to limit withdrawal of groundwater from wells, while preserving historic use to the greatest extent consistent with its management plan. Any such limits shall be based on current MAG calculation, and as may be revised from time to time.

ARTICLE 2
DEFINITIONS

Unless the context indicates a contrary meaning, the words hereinafter defined shall have the following meanings in the Rules of the Crockett County Groundwater Conservation District.

Abandoned Well – a well that has not been used for six consecutive months. A well is considered to be in use in the following cases:

1. a non-deteriorated well which contains the casing, pump, and pump column in good and operable condition; or

2. non-deteriorated well which has been capped.

Administratively Complete Application – a permit application received by the District that includes all documentation and fees required by Texas Water Code Sections 36.113 and 36.1131 and District Rules. In order for an application to be deemed administratively complete, it must include all administrative and technical information required by the District and there must be no unresolved compliance issues.

Agricultural Use or Purpose – means the use of groundwater for:

1. Cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;

2. Practicing floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media, by a nursery grower;

3. Raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;

4. Planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure;

5. Engaging in wildlife management as defined in Texas Tax Code Section 23.51(7); and,

6. Raising or keeping equine animals.

Annular Space – the space between the casing and borehole wall.

Aquifer – a geologic formation that will yield water to a well in sufficient quantities to make the production of water from this formation feasible for beneficial use.

Aquifer Mining or Groundwater Mining – a condition where the average available recharge of an aquifer or portion of an aquifer is less than the annual production from that aquifer or that portion of that aquifer. For purposes of these Rules, the terms "aquifer over drafting," "reduction of artesian pressure," "subsidence," and the "drawdown of the water table or aquifer" shall mean aquifer mining.

Application Fee – a fee assessed for processing applications for well registrations and permits.

Artesian Pressure – where water is confined in an aquifer under pressure so that the water will rise in the well casing or drilled hole above the bottom of the confining bed overlying the aquifer.

Beneficial Use – the use of groundwater for domestic, municipal, stock raising, agricultural, industrial, commercial, mining, manufacturing, irrigation, gardening, recreational, or any other purpose that is useful and beneficial to the user.

Board – the Board of Directors of the Crockett County Groundwater Conservation District.

Capping – closing a well with a covering capable of preventing surface pollutants from entering the well and sustaining weight of at least 400 pounds and constructed in such a way that the covering cannot be easily removed by hand.

Casing – a watertight pipe installed in an excavated or drilled hole, temporarily or permanently, to maintain the hole sidewalls against caving; to advance the borehole; in conjunction with cementing and/or bentonite grouting, to confine groundwater to its respective zones of origin; and to prevent

surface contaminant infiltration.

1. Plastic casing--National Sanitation Foundation (NSF-WC) or American Society of Testing Material (ASTM) F-480 minimum SDR 26 approved water well casing.

2. Steel Casing--New ASTM A-53 Grade B or better with a minimum weight and thickness of American National Standards Institute (ANSI) schedule 10.

3. Monitoring wells may use other materials, such as fluoropolymer (Teflon), glass-fiber reinforced epoxy, or various stainless steel alloys.

Chapter 36 – means Chapter 36 of the Texas Water Code, as amended.

Closed Loop Geothermal Well – a closed system well used to circulate water and other fluids or gases through the earth as a heat source or heat sink.

Commercial Use or Purpose – the use of groundwater to supply water to properties or establishments that are in business to build, supply or sell products, or provide goods, services or repairs and that use water in those processes, or to supply water to the business establishment primarily for employee and customer conveniences (i.e. flushing of toilets, sanitary purposes, or limited landscape watering).

Community Water System – a public water system that has the potential to serve at least 15 residential service connections on a year-round basis or serves at least 25 residents on a year-round basis.

Complaint Under Texas Water Code § 36.119 – a written complaint filed by an aggrieved party citing to Texas Water Code §36.119 alleging drilling or operating a well without a required permit or producing groundwater in violation of a District Rule adopted under Texas Water Code §36.116(a)(2).

Completion or Complete – sealing off access of undesirable water zones, absorption zones or contaminants from the well bore by utilizing proper casing and annular space positive displacement or pressure tube grouting or cementing (sealing) methods.

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

Conservation Credit –a supplemental or additional allocation of groundwater production rights allowed to a Permit Holder in consideration of conservation practices which exceed the normal requirements of the District's management plan or state law.

Contested Case Hearing – a hearing that occurs in protest or appeal of a Board action subsequent to the original board action.

Contested Case Hearing Fee – an administrative fee to be posted by a contesting party to offset expenses to be incurred by the District due to the conduct of a contested case hearing.

Dewatering Well – an artificial excavation that is constructed to produce groundwater to lower the water table or potentiometric surface and that is not used to produce or to facilitate the production of minerals under a state regulatory program.

Director – an elected or appointed member of the Board of Directors of the District.

Discharge – the volume of water that passes a given point within a given period of time; the amount of water that leaves an aquifer by natural or artificial means.

District – the Crockett County Groundwater Conservation District (CCUWCD).

District Office – the main office of the District at such location as may be established by the Board.

Domestic Use or Purpose – use of groundwater by a residence (not a business or other commercial structure) to support essential domestic activity, including but not limited to: uses inside the residence; irrigation of lawns, flower beds, shrubs, trees shading the residence, or of a garden or orchard that produces vegetables and fruit for consumption within the residence and not for sale; protection of foundations; and non-commercial recreation associated with the residence.

Drill – drilling, equipping, completing wells, or modifying the size of wells or well pumps/motors whereby a drilling or service rig must be on location to perform the activity.

Drilling Permit – required before drilling a new well or substantially altering an existing well located within the District.

Drip Irrigation- Drip or micro-irrigation is a generic term for a family of irrigation equipment that provides for distribution of water directly to the plant root zone by means of surface or sub-surface applicators or emitters. The three most common types of micro-irrigation used in Texas are micro-spray or bubblers, sub-surface (buried) drip and orchard surface drip or micro-spray irrigation.

Drought Management Plan – A plan providing for conservation measures to be implemented by a permit holder to comply with any drought restrictions approved by the District as part of its groundwater management plan.

Enabling Legislation – special law enactments that created the District, and as may be amended from time to time.

Enforcement Action – an action taken by the District to enforce District Rules, orders, or permits.

Environmental Monitoring Well – well drilled or developed to a depth of 30 feet or less for the purpose of collecting groundwater samples to ascertain the presence or absence of hazardous materials, hazardous waste, petroleum products, oils, solvents, or other hazardous constituents in groundwater.

Environmental Sampling Well – well or bore thirty (30) feet or less in depth drilled or cored for the purpose of collecting subsurface soil samples to ascertain the presence or absence of hazardous materials, hazardous waste, petroleum products, oils, solvents, or other hazardous constituents in subsurface soils.

Environmental Soil Boring – a man made excavation constructed to measure or monitor the quality

and quantity or movement of substances, elements, chemicals, or fluids beneath the surface of the ground. The term shall not include any well that is used in conjunction with the production of oil, gas, or any other minerals.

Exempt Domestic or Livestock Well – a well used primarily for domestic or livestock use that qualifies as exempt from obtaining an operating permit. A well used for domestic or livestock use is exempt if the well is used solely for domestic use or for livestock use, and is either drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater a day. However, a well is not an exempt domestic or livestock well if groundwater withdrawn from the well is transported outside the boundaries of the District.

A well is deemed capable of producing more than 25,000 gallons of groundwater per day unless the well is drilled, completed, or equipped so that it is incapable of producing more than 17.36 gallons per minute.

Exempt Well – a well for which the owner is not required to obtain an operating permit.

Existing Well – a well located within the District that was drilled and properly completed on or before September 14, 1992.

Fees – charges imposed by the District pursuant to Texas Water Code Chapter 36 and the District's Enabling Legislation.

Geologic Exploration Well – a well drilled for the purpose of exploring for, or otherwise determining the presence or absence of, subsurface minerals, including oil and natural gas.

Geologic formation – A rock formation that is or once was horizontally continuous, that shares some distinctive feature of lithology, and is large enough to be mapped.

Geotechnical Well – a well drilled or bored to determine engineering properties of soils or geologic formations for the purpose of construction.

Groundwater or Underground Water – water percolating beneath the earth's surface.

Groundwater Management Area – means Groundwater Management Area 7.

Groundwater Management Plan or Management Plan, – a management plan developed by the District and certified or approved by the Texas Water Development Board pursuant to Texas Water Code Chapter 36.

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

Hand-Dug Well – a well installed by hand digging or by auger drilling.

Hydrologic Unit – The aquifers described as Alluvium; Edwards and associated limestones; Upper Trinity; Middle Trinity; and Lower Trinity.

Industrial Use or Purpose – use of groundwater primarily in the building, production, manufacturing, or alteration of a product or goods, or to wash, cleanse, cool, or heat such goods or products.

Injection Well – a well used to inject water or other material into a subsurface formation or into pipe or tubing placed in the formation for the purpose of storage or disposal of the fluid.

Investigation Report – a report prepared by the District summarizing its investigation of a possible violation of law and making a recommendation to the Board regarding any further action.

Irrigation Use or Purpose – use of groundwater to supply water for application to plants or land in order to promote growth of plants, turf, or trees, other than for domestic use or purpose.

Licensed Water Well Driller – a person who holds a license issued by the Executive Director of the Texas Department of Licensing and Regulation pursuant to Texas Occupations Code Chapter 1901.

Licensed Water Well Pump Installer – a person who holds a license issued by the Executive Director of the Texas Department of Licensing and Regulation pursuant to Texas Occupations Code Chapter 1902.

Livestock Use or Purpose – use of groundwater to provide water to livestock, of any variety. Dogs, cats, birds, fish, reptiles, small mammals, potbellied pigs, and other animals typically kept as pets are not considered livestock. Livestock-type animals kept as pets or in a pet-like environment are not considered livestock although providing water to such pets may be considered domestic use when associated with a residence.

Modeled Available Groundwater – the calculated amount of groundwater available for permitting within the district as determined by the application of the process of modeling groundwater available given the adopted desired future condition of the aquifer within a groundwater management area.

Meter - A District approved, totalizing flow meter properly sized for the well's production capability, which is not capable of being "reset" by the well owner.

Monitor or Monitoring Well – an excavation constructed to measure or monitor the quality and/or quantity or movement of substances, elements, chemicals, or fluids beneath the surface of the ground. Included within this definition are piezometer wells, observation wells, and recovery wells. The term shall not include any well that is used in conjunction with the production of oil, gas, coal, lignite, or other minerals.

New Well – a well that is drilled or properly completed after September 14, 1992, or an existing well that has been substantially altered after September 14, 1992.

Non-exempt Domestic or Livestock Well – a well used primarily for domestic or livestock use that must obtain an operating permit. A domestic or livestock well is non-exempt if it is drilled, completed, or equipped so that it is capable of producing 25,000 gallons or more of groundwater a day. A domestic or livestock well of any sized production capability is non-exempt if groundwater withdrawn from the well is transported outside the boundaries of the District.

Non-exempt Well – a well for which the owner is required to obtain an operating permit.

Non-potable Water – water that is not fit for human consumption due to dissolved solids, mineral content, hardness, turbidity, microbial or bacteriological level, or other chemical, physical, or

biological parameter exceeding Maximum Contaminant Level (MCL) or Secondary Constituent Levels, as defined in 30 Texas Administrative Code Chapter 290.

Notice of Violation (NOV) – written correspondence from the District notifying a person that they are in violation of law, including violation of a District Rule, Order, or permit.

One-Time Authorization – a well used for a limited purpose, production volume, and duration specified in that authorization. Such authorization is limited solely to the terms specified in the authorization and does not create a right to produce water from the well in the future.

Open or Uncovered Well – an artificial excavation dug or drilled for the purpose of exploring for or producing water from the groundwater reservoir and that is not capped or covered as required by District Rules.

Operate or Operations – to produce or cause to produce water from a well or to use a well for injection or closed loop heat exchange purposes.

Operating Permit – required to operate a water well within the District.

Owner – a person who has the right to produce groundwater from the land, either by ownership, contract, lease, easement, or any other estate in the land. The term "Owner", as used herein, includes any agent or attorney representing the Owner in any matter concerning the District.

Party in Contested Case Hearing – any party affected by the contesting of a Board action.

Permit Amendment – a District approved change in an operating permit.

Permitted Well – a well for which an operating permit has been issued by the Crockett County Groundwater Conservation District.

Permit Holder – a person who holds either a drilling permit or an operating permit issued by the District.

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

Piezometer Well – a well of a temporary nature constructed to monitor well standards for the purpose of measuring water levels or used for the installation of a piezometer (a device constructed and sealed to measure hydraulic head at a point in the subsurface) resulting in the determination of locations and depths of permanent monitor wells.

Plugging – an absolute sealing of the well bore.

Pollution – the alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water that renders the water harmful, detrimental, or injurious to humans, animals, vegetation, or property, or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any reasonable purpose.

Pollution Source – a person, business, corporation, industry, operation, activity, or event, whether intentional or unintentional that causes, allows, or enables contaminants to be discharged to the environment, thereby causing pollution.

Potable Water – water that is suitable for human consumption, or can be made suitable for human consumption by primary filtration or chemical or ultraviolet disinfection. Potable water must comply with Maximum Contaminant Levels (MCL) or Secondary Constituent Levels, as defined in Title 30 Texas Administrative Code Chapter 290.

Presiding Officer – Either the Director or the Hearings Examiner designated to conduct a contested case hearing.

Priority Groundwater Management Area (PGMA) – an area designated and delineated by the State under Texas Water Code Chapter 35 as an area experiencing or expected to experience critical groundwater problems.

Production Capability – the volume of water a well can produce as determined by either the rated pumping capability of the installed pump or as determined by the District.

Public Water System – a system created and operated to provide water for human consumption to the public.

Pump Test - A well test conducted under the conditions of these Rules.

Pumping or Groundwater Production – all water withdrawn from the ground, measured at the wellhead.

Recharge– the amount of water that infiltrates to the water table of an aquifer.

Recovery Well – a well constructed for the purpose of recovering undesirable groundwater for treatment or removal of contamination.

Remediation Well – a well used to pump or vent contaminated air, water, or fluids from the ground.

Respondent – an individual who receives a Notice of Violation or other correspondence from the District regarding the individual's non-compliance with District Rules or other law within the District's enforcement authority.

Retail Water Utility or Retail Public Water Utility – as defined by Texas Water Code Section 13.002 and 30 Texas Administrative Code Section 291.3, any person, corporation, public utility, water supply corporation, municipality, political subdivision or agency operating, maintaining, or controlling within the District facilities for providing potable water service for compensation.

Rules – standards and regulations promulgated by the District.

Seal – an official seal, tag, or label placed on a well or its equipment, or the act of placing the tag or label, to indicate that further pumping of groundwater, or operation of the well, or continuing with other District regulated activities is not permitted by the District, shall be in violation of District Rules, and may subject the well owner to civil suit and/or penalties.

Single-Family Residence – An equivalent single-family connection or ESFC. An ESFC is defined as equaling a typical detached single-family house using an average of 360 gallons of water per day.

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

Spring – a point of natural discharge from an aquifer.

State of Texas Well Report – see "Well Log," defined below.

Subdivision – a tract or parcel of land for which a plat is required in accordance with Chapter 232 of the Texas Local Government Code.

Substantial Alteration of a Well – to change the physical or mechanical characteristics of a well, its equipment, production capabilities, or its purpose or location of use of the water produced in a way that may impact the level of fees the well is subject to or may impact whether an operating permit or amendment to an operating permit is required. This does not include repair of well equipment, well houses or enclosures, or replacement with comparable equipment.

Surface Impoundment – Any excavation or manmade structure that impounds or stores groundwater and is open to the air allowing evaporation. A non-permeable excavation or artificial structure that impounds less than 20,000 gallons of groundwater is not considered a surface impoundment.

Temporary Permit – see One-Time Authorization.

Test Well – a well drilled to explore for groundwater.

Variance – an exception to requirements or provisions of the Rules granted by the District as authorized under District Rules.

Waste –

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 one 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 or by 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 commission under Chapter 26 "Water Quality Control".

6. Groundwater pumped for irrigation that escapes as irrigation tail water 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.

7. Unless the water from an artesian well is used for a purpose and in a manner in which it may be lawfully used on the owner's land, it is waste and unlawful to willfully cause or knowingly permit the water to run off the owner's land or to percolate through the stratum above which the water is found.

Water Table – the upper boundary of the saturated zone in an unconfined aquifer.

Water Well – a man made excavation constructed to explore for or produce groundwater. The term does not include:

1. a test or blast hole in a quarry or mine or a well or excavation constructed to explore for or produce oil, gas, or other minerals unless the hole is also used to produce groundwater; or

2. an injection water source well regulated under Section 91.101, Natural Resources Code.

Well – an excavation drilled or dug into the ground that may intercept or penetrate a water-bearing stratum or formation.

Well Driller - a person holding a license to drill water wells under the provisions of Title 16, Chapter 76 of the Texas Administrative Code and who has registered a copy of such license with the District prior to conducting drilling operations in the District.

Well Log or State of Texas Well Report – the report that every well driller who drills, deepens, or alters a well is required to complete under the rules of the Texas Department of Licensing and Regulation, as defined in 16 Texas Administrative Code Sections 76.10 and 76.700, including any special purpose geophysical log that may be available for any given well, such as a gamma ray log, a temperature log, an electric log, or a caliper log.

Well Pumps and Equipment – devices and materials used to obtain water from a well, including the seals and safeguards necessary to protect the water from contamination.

Well Registration – the creation of a record of a well, under Rule 3, for purposes of registering the well as to its geographic location and for notification to the well owner in cases of spills or accidents, data collection, record keeping, or future planning purposes. First step in the process required by Rule 3 for drilling or operating a well located within the District.

Withdraw or Withdrawal – the act of extracting groundwater by pumping or any other method, other than the discharge of natural springs.

ARTICLE 3
RULES OF THE GROUNDWATER DISTRICT

SECTION 1
RULE MAKING PROCEDURES

Rule 1.1. Applicability. This section applies to rule making by the District but does not apply to internal personnel rules or practices, bylaws, statements regarding internal management or organization, or other statements not of general applicability.

Rule 1.2. Public Hearings on Proposed Rules

a. The Board shall hold at least one public hearing on proposed rules prior to adoption of the proposed rules that govern it unless the Board finds that an emergency exists which necessitates action prior to the conduct of a public hearing. An emergency rule may be adopted at any regular or special meeting of the Board conducted pursuant to proper notice.

b. The Board may direct any person to serve as the presiding officer and to conduct the public hearings on the proposed Rules.

c. Public hearings will be conducted in the manner the Board deems most suitable to conveniently, inexpensively, and expeditiously provide a reasonable opportunity for interested persons to submit relevant data, views, or arguments, in writing or orally, on proposed Rules.

Rule 1.3. Notice of Public Hearings on Proposed Rules

a. The Board will set a time and place for any public hearing on proposed Rules of the District.

b. The General Manager shall give prior notice of the public hearing at least twenty (20) days before the public hearing by posting the notice in the location where notices of the District's Board meetings are posted and by publishing the notice in one or more newspapers of general circulation within the District, unless the Board determines an emergency to public health or safety exists. Notice for a hearing on proposed rules of the District for emergency situations shall be given at least three (3) days prior to the public meeting.

c. The notice shall advise the public of the following:

   1. the proposed agenda;

   2. the date, place, and time the public hearing is to be convened;

   3. the date and time by which written comments must be filed with the District;

d. Proposed rules shall be available for use and inspection at the District Office.

Rule 1.4. Adoption of Rules

a. The Board may adopt proposed Rules as final at any time after the completion of the public hearing(s) and after the close of the written comment period.

b. The Board will compile new sections of the rules and make them available for public use and inspection at the District's principal office.

SECTION 2
REGISTERING AND PERMITTING WELLS

Rule 2.1. General Provisions.

Well registration is required for all existing and proposed wells within the District, whether exempt or non-exempt, and shall be filed with the District on forms supplied by the District.

a. Wells classified as exempt must be registered with the District.

b. Wells classified as non-exempt must be registered and permitted by the District.

c. All registrations and permits issued by the District shall be subject to District Rules, as may be amended from time to time, and terms and conditions regarding the drilling, equipping, completion, or modification of wells or pumps.

d. The District may conduct well and well site inspections during registration, permitting, drilling, completion, and after completion to confirm well location, status, completion or other related investigations deemed necessary by the District.

Rule 2.2. Wells Exempt from Permitting

a. The following wells must be registered, but are exempt from permitting and are considered exempt wells. A permit is not required to drill or produce groundwater from the following wells, so long as the well complies with District Spacing Rules:

1. A well used solely for domestic use or for providing water for livestock or poultry on a tract of land larger than 75 acres that is either drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater a day;

2. A well used solely to supply water for a rig that is actively engaged in drilling or exploration operations for oil or gas permitted by the Railroad Commission of Texas, provided that the person holding the Railroad Commission permit is responsible for drilling and operating the water

well, and that the well is located on the same lease or field associated with the drilling rig.

3. 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 that the withdrawals are required for mining activities regardless of any subsequent use of the water.

4. Test wells for geophysical, environmental investigation or purposes exempted by the laws of the State of Texas.

b. If an exempt well is modified so that the well is no longer an exempt well or used for any non-exempt purpose, a permit must be obtained prior to commencing any non-exempt use.

c. All new exempt wells must be registered with the District before drilling.

d. Exempt water wells shall be equipped and maintained so as to conform to the District rules requiring installation of casing, pipe, and fittings to prevent the communication of groundwater between different aquifers, reservoir or to any zone not containing groundwater, and to prevent the contamination or degradation in quality of the water in any groundwater reservoir.

e. Production limitations under Section 6 and to the payment of water use fees under Section 6 do not apply to a well exempt from permitting under Section 36.117(b)(2) or (b)(3), Water Code, which relate to water wells used in certain oil and gas drilling or exploration operations and surface coal mining. However, such a well shall be subject to the other requirements of these rules, including without limitation the well registration, drilling records, metering, water production reporting, and new well registration fee and deposit provisions of these rules.

Rule 2.3. Registration of Wells

a. All exempt wells which were drilled and put into regular use prior to September 14, 1992 shall be registered with the District using a District form. A pre-existing exempt well is not required to pay a registration fee.

b. All existing and new Exempt and Non-Exempt wells must be registered with the District using a District form and pay a registration fee prior to commencing drilling.

c. No person may commence to re-drill, re-equip, complete, or modify the size of an exempt well or its pumping equipment without first submitting a Well Registration form and paying a fee set by the Board.

d. A well registration will be issued if the District determines from the information submitted in the application that the well meets the requirements of an exempt well.

e. It is the responsibility of the Owner to supply all necessary information required to register a well. It is the responsibility of the Owner to ensure access to the well for inspections and verification of the application. The Owner is responsible for providing the District and the Water Well Driller with all information necessary to determine a legal location for a new well, including but not limited to, the information necessary to determine minimum separation distances from wastewater facilities, other wells, other potential sources of pollution, and property lines.

f. All wells must be registered or permitted upon information provided on forms promulgated by the District, in the name of the Owner of the real property on which the well is or will be located.

g. The District will act on each registration request within twenty (20) business days after receiving the completed application and the registration fee set by the District.

h. No water well driller or pump installer may begin to drill, complete, or alter an exempt well without having first completed and filed a Crockett County Groundwater District Water Well Driller or Pump Installer license certification form.

i. Within sixty (60) days of the completion date of the well the driller must provide to the Owner and the District a copy of all required completion reports and any other information required by these Rules.

j. The drilling of a well must commence within 120 days of issuance of the registration or permit. The General Manager may grant an extension for up to an additional 180 days.

k. If a well registration is denied by the General Manager, the Applicant shall be entitled to a hearing before the Board. A written request for such a hearing must be filed with the District. The District shall give notice of such hearing.

l. A registered well may be converted to a permitted well after drilling and completion if the required permit application is completed, permit application fees are paid, and a permit is obtained.

Rule 2.4. Permitting of Non-Exempt Wells

a. A permit from the District is required prior to drilling, equipping, completing, operating, producing or exporting groundwater from all, existing and new, non-exempt wells within the District.

b. It is the responsibility of the Owner to apply for the necessary permit. It is the responsibility of the Owner to ensure access to the Well, after completion, for inspections and verification that the well has been drilled and completed in conformity with the permit.

c. Notwithstanding the requirement of a permit, the Owner of a well permitted or producing groundwater before the effective date of this rule may continue to produce such water until the District takes final action on a permit application processed under these rules

d. Applications for permits must be made on forms promulgated by the District.

e. A Permit application fee shall be assessed for processing a permit application as follows:

1. A non-exempt well that existed prior to the date of creation of the District, is not required to pay the permit application fee.

2. A new, non-exempt well will be required to pay the permit application fee as may be established from time to time by the Board.

f. No water well driller or pump installer may begin to drill, complete, or alter a non-exempt well without having first completed and filed a District Water Well Driller or Pump Installer license certification form.

g. Upon completion of the well the driller must provide to the owner and the District a copy of the required completion report and any other applicable information. The water well driller shall have sixty (60) days from the well completion date or cessation of drilling to submit the required completion report to the owner and the District.

h. Drilling of a permitted well must commence within 120 days of issuance of the permit. The General Manager may grant an extension for up to an additional 180 days.

i. All applications will be referred to the Board for notice and hearing.

j. If a permit is revoked by the District, or cancelled by the owner, the permit application fee will not be refunded.

k. As of JULY 1, 2013 any well providing groundwater to ponds, lakes, tanks, reservoirs, or other surface impoundments shall obtain a permit to continue such use unless the well is exempt as a livestock well under Rule 2.2.a.(1) or well used by in oil or gas drilling under Rule 2.2.a.(2) or for mining pursuant to Rule 2.2.a.(3).

l. After JULY 1, 2013, except as provided by this rule, no permit shall be issued for any well that proposes to provide groundwater to ponds, lakes, tanks, reservoirs, or other surface impoundments, unless the Board finds such use to be beneficial.

m. The District may prohibit or restrict production as set out in the District Drought Management Plan.

n. The following conditions or terms shall be included in a well permit:

1. The permitted annual production amount stated in gallons or acre-feet;

2. The maximum instantaneous production rate stated in gallons per minute;

3. The expiration date of the permit;

4. The permitted purpose of use, including if the groundwater is to be pumped into a pond, lake, tank, reservoir, or other surface impoundment (if such use is authorized by the District);

5. That the Permit Holder report to the District compliance with any required Drought Management Plan.

o. Any material modification or change in operation of a permitted well from those conditions specified in the permit is prohibited without approval of an application for a permit amendment. If a Permit Holder requests a substantial modification or change in permit conditions, the District will consider such a request on the same basis as the District considers an application for a permit.

Rule 2.5. Permit Application

a. An application for a permit shall include the following:

1. The signature of the owner.

2. The name, mailing address and address of the Applicant's residence or principal office.

3. The physical address and GPS location of the well, using the WGS-84 co-ordinate system.

4. A map or plat that includes the location of the well site, the location of the meter or monitoring device, and shows the acreage upon which the Applicant relies for the requested production limit.

5. Identification of the actual or anticipated location, pump size, and production capacity of the well from which the water is to be produced.

6. A statement of the nature and purpose of the proposed beneficial use, including if groundwater will be pumped into a pond, lake, tank, reservoir, or other surface impoundment, and the anticipated amount of water to be used.

7. A statement of the anticipated time period within which the proposed construction or alteration is to begin.

8. A statement of the anticipated duration of time required for the proposed use of the water.

9. Information showing what water conservation measures the Permit Holder has adopted, what water conservation goals the Permit Holder has established, and what measures and time frames are necessary to achieve the Permit Holder's established water conservation goals.

10. A proposed Drought Management Plan. If the well will be part of a public water system for which the TCEQ requires a Drought Management Plan, the Applicant shall satisfy this requirement by submitting that TCEQ approved plan. If the well is not subject to those requirements, the Applicant may satisfy this requirement with a written statement affirming that Applicant will comply with the District's Drought Management Plan.

11. The proposed interval of the water-bearing formation.

12. If the water is to be sold to others, if the well is to be a Public Water Supply well, or if the well is a Retail Public Utility well, the Applicant must also provide:

    i. A description or map of the Permit Holder's service area in sufficient detail to allow the District to locate the area.

    ii. A description of the Permit Holder's metering and leak detection repair program for its water storage, delivery and distribution system.

    iii. A Drought Management Plan.

    iv. Information on each customer's water demands, including population and customer data, water use data, water supply system data, wastewater data, and conservation measures and goals, and the means for implementation and enforcement.

13. For permit applications requesting more than 72,000 gallons per day (50 GPM), the Applicant must also provide the following:

    i. Identification of all registered and permitted wells within 1/4 mile of the proposed well that are producing from the same formation, along with the names and mailing addresses of the owners of those wells.

    ii. Evidence satisfactory to the Board to establish the availability of water in the District during the period for which the water supply is requested.

    iii. Evidence establishing that the project is consistent with the approved Regional Water Plan and approved District Management Plan.

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

    1. The GPS location of the well, using the WGS-84 co-ordinate system.

    2. For permit applications requesting more than 72,000 gallons per day (50 GPM), the location of all registered and permitted wells within 1/4 mile of the proposed well.

c. The permit application must be accompanied by a permit application fee set by the Board.

d. The District shall determine whether the application, maps and other materials comply with the requirements of these Rules. The District may require amendment of the application, maps or other materials in order to achieve necessary compliance.

Rule 2.6. Change in Well Conditions or Operations; Permit Terms and Renewal; Permit Amendment; and Registration and Permit Revocation

a. **Change in Well Conditions or Operations.** No person shall take any of the following actions related to a well located in the District without submitting the appropriate application as described in these Rules and receiving authorization from the District to:

1. change the purpose of use of a well;

2. change the place of use of the water produced from the well;

3. alter the size or depth of a well, the well pump, or its pumping volume;

4. plug a well; or

5. abandon a well.

Such changes may be processed administratively, may require an amendment to an existing permit, may make an exempt well be required to obtain a permit, and may make a well subject to the production limits. No pump installer or water well driller may make changes to a well if the owner has not applied for and obtained the appropriate authorization under this Rule.

b. **Change in Use.**

1. It is the responsibility of the owner of such a well to apply for a permit no later than 90 days prior to making any change in the use of the permitted well.

2. Any time the production of groundwater from a well or the capability to produce groundwater from a well increases to more than 25,000 GPD (17.36 GPM), a permit or permit amendment shall be required.

3. A change in use or condition of an exempt well, from the uses and conditions described in Rule 2.2, shall require a permit.

4. If a tract of land of seventy-five acres or more containing an exempt well is subdivided after September 1, 2002, making the well tract less than seventy-five acres.

c. **Change in Ownership**. Any change in ownership of a well must be reported to the District, by the purchaser, on a District form within 60 days of the closing date of such a sale. If there are unpaid fees at the time of the transfer, the new owner shall become responsible for payment of such fees. For wells with a permit, failure to timely notify the District may result in the permit being revoked or suspended.

d. **Operating Permit Term.** Permits issued by the District are valid for a period of five (5) years, unless otherwise specified by the District as a special permit condition. Such a special permit condition may include the need for additional data regarding the impact of the well on the aquifer or surrounding wells. The District reserves the authority to amend, revise, and adopt new Rules applicable to wells subject to a permit.

e. **Renewal of Permits.** An application for renewal of a permit shall be submitted no later than 90 days prior to the expiration date of the permit and shall be accompanied by the appropriate non-refundable application fee. The District shall normally renew the permit at the end of each permit term unless:

1. the Permit Holder is not in compliance with permit conditions, the District Management Plan or District Rules;

2. the Permit Holder has delinquent District fees; or

3. conditions of the Aquifer, as reflected in the District's GAMs or Drought Management Plan, indicate that a reduction in production is required to conform to the District's current plans.

In the event of noncompliance or delinquent fees, the District shall notify the Permit Holder of the conditions preventing the automatic renewal of the Permit and allow the Permit Holder an opportunity to correct any noncompliance or pay delinquent fees. Failure of the Permit Holder to correct any noncompliance or pay delinquent fees within 30 days may result in revocation of the permit.

f. **Permit Amendment.** An amendment to a permit is required for any Substantial Alteration of a well or any substantial change in the operation, use, or condition of a well including but not limited to: changing the production capacity, the type of use of the well, the place of use of the water produced from the well, the size or depth of a well, or replacement of the pump with a pump of materially greater pumping capacity.

An application for an Amendment, on a form obtained from the District, and the appropriate non-refundable application fee, must be submitted at least 90 days prior to the date of any modification to a well. The applicant will be notified when the application has been reviewed and deemed Administratively Complete. No amendment application shall be deemed Administratively Complete if the applicant has unpaid fees or has unresolved compliance issues with the District. Within 60 days after the date a Permit Amendment application is determined to be Administratively Complete, the application shall be referred to the Board for consideration and action.

g. **Registration and Permit Revocation.**

1. A well permit may be subject to revocation or involuntary revision as a consequence of abandonment or deviation from the purposes or terms of the well Permit.

2. If an exempt well registration or well Permit is revoked or involuntarily revised, the Owner is entitled to a hearing before the Board of Directors. A

written request for such a hearing must be filed with the District, and the District will provide notice of and conduct such a hearing.

3. If an application for a Permit or registration expires or is revoked for nonuse, the entire application or registration fee is forfeited to the District.

Rule 2.7. Recordkeeping and Reporting

a. All Owners of permitted non-exempt wells shall keep monthly records of the amount of groundwater produced and purpose of the production; such records shall be available for inspection by district representatives at any time.

b. Immediate written notice must be given to the District in the event production exceeds the quantity authorized by the permit, or if the well becomes contaminated, causes pollution, or contaminates surrounding aquifers or other surface impoundments.

c. All Permit Holders must file with the District an annual report containing monthly water production and usage amounts. A report, covering production from the preceding year, must be filed on the appropriate form no later than January 21st of each year.

Rule 2.8. Monitoring Devices. All non-exempt wells must be equipped with production monitoring devices approved by the District and available for inspection by the District at any time during normal business hours. An hour meter may be considered as a production monitoring device on the well, if the well output in gallons per minute (GPM) can be accurately determined.

Rule 2.9. Reworking Wells. No person shall rework, re-drill, re-equip, or otherwise substantially modify a well in such a way as to convert the well from an exempt well to a non-exempt well without first obtaining a permit from the District.

Rule 2.10. Injection Wells. All injection well permit applications, including those permitted by the TCEQ and the Railroad Commission of Texas, must be submitted for review by the Board.

Rule 2.11. Replacement Wells

a. A replacement well for an exempt well must be registered with the District. The registration will be approved so long as the replacement well is located on the same tract of land as the well it is replacing, and the replaced well is permanently removed from service by plugging in accordance with District Rules.

b. A replacement well for a non-exempt well must be permitted by the District. The permit for the well it is replacing may be transferred to the replacement well, so long as the following conditions are met:

1. The replacement well is located on the same tract of land as the well it is replacing and otherwise meets the District rules regarding spacing.

2. The replacement well is sized and operated according to the previous permit.

3. The replacement well adheres to the purpose of use allowed under the previous permit.

4. The replaced well is permanently removed from service by plugging in accordance with District Rules.

5. The request to transfer the permit and the permit application fee is submitted on a District form prior to the drilling of the replacement well.

c. The replacement well will be subject to District Rules regarding well construction and inspections.

Rule 2.12 Export Permit. A permit is required to transfer groundwater beyond the boundaries of the district. An export permit is a permit allowing an applicant to export a certain volume of water. In order to apply for an export permit, applicant must submit information regarding, and the Board must consider:

a. The availability of water in the District and in the proposed receiving area during the period for which the water supply is requested;

b. The projected effect of the proposed transfer on aquifer conditions, depletion, subsidence, or effects on existing Permit Holders or other groundwater users within the District; and

c. The approved regional water plan and approved district management plan.

1. The Board reserves the right to alter an export permit of unreasonable amounts based on their review and determination of the above issues and provide a permit for a decreased amount.

2. An application for a permit to export water outside the District or an amendment to an existing export permit shall specify the following:

i. The legal description of the property that the groundwater withdrawal source will be located on;

ii. The actual or anticipated location, pump size, and capacity of the well from which the groundwater will be produced;

iii. The nature and purpose of the proposed well;

iv. The proposed time until pumping and exportation would begin;

v. The water conservation measures that the applicant has adopted in regards to this exportation endeavor;

vi. The proposed service area of water sales;

vii. The metering and leak detection and repair program; and

viii. Wells producing from the same formation on land adjacent to the property where the well is located or where the proposed well is to be located.

3. The application must include the following:

i. Map or plat, drawn to scale, that accurately describes the proposed project showing the locations of existing or proposed wells, existing or proposed monitoring devices, and existing or proposed water use or storage facilities.

4. Export permits issued by the district will be subject to a fee negotiated between the district and the transporter.

5. A transportation facility permit is not required for transportation of water begun prior to September 1, 1997. To claim this exemption the transporter must register the project with the District and provide evidence of the project completion date. District Water Purveyors that have customers both inside and outside the district are not required to obtain a transportation permit if no more than five percent (5%) of their monthly water volume is delivered outside the boundaries of the district.

6. The owner of a transportation facility or system shall be responsible for the prevention of pollution and waste.

7. All registered export facilities or systems must submit monthly reports, by the 5th day of each month, stating the volume of water transported during the preceding month.

SECTION 3
WELL SPACING

The purpose of these well spacing requirements is to promote groundwater conservation, provide for continued availability of groundwater resources, reduce localized depletion of groundwater, prevent interference between wells, and prevent the degradation of groundwater quality.

Rule 3.1. Applicability. The requirements of this Section apply to all wells drilled within the District unless specifically noted. As authorized by Texas Water Code Section 36.116, some of the required distances are more stringent than those required by Title 16, Texas Administrative Code Section 76.1000, as amended.

Rule 3.2. Determining Distances of a Tract Bordered By a Public Roadway. In determining the minimum distances set out in this Section, if the tract in question is bounded by a public road, it is permissible to use the centerline of a public roadway to calculate the distance required for the setback of a well from that boundary line.

Rule 3.3. Spacing from Potential Sources of Pollution

a. All wells must comply with the location standards of Title 16, Texas Administrative Code §76.1000 and with the minimum required separation distance for on-site sewage facilities of Title 30, Texas Administrative Code §285.91(10), which dictate horizontal distance from potential sources of pollution. Section 76.1000 excludes monitoring wells, environmental soil borings, dewatering wells, piezometer wells, and recovery wells from these requirements. Such wells may be located where necessity dictates.

b. Public water system wells must comply with the 150-foot sanitary control easement standards as required by Title 30, Texas Administrative Code Chapter 290.

Rule 3.4. Distance from Property Lines and Other Wells

a. All new wells shall be located a minimum horizontal distance from existing wells and property lines as required by Title 16, Texas Administrative Code Section 76.1000, unless covered by the more stringent spacing requirements of this Section.

b. All new water wells shall be located a minimum horizontal distance from existing water wells as specified in the following Table.

Actual Pumping Capacity of Well as Equipped (gallons per minute)	**Minimum Distance (in feet) between Existing Water Wells and the New Water Well**	**Distance of New Water Well from Property Lines (in feet)**
Less than 17 gpm	150	100 (50)*
17 gpm through 200 gpm	300	150
200-400 gpm	600	300
>400	900	450

* Pressure cementing of annular space required to reduce distance from property line from 100 feet to 50 feet.

c. If an existing tract of land is subdivided in such a way as to result in the formation of new property lines that are located closer to a well than the spacing requirements of this Section 3 provide, the existing or proposed water well and current property line shall be grounds for cancellation of such well's operating permit or revocation of that well's exempt status.

Rule 3.5. Completion Standards for All Wells

a. All wells must be completed in accordance with the well completion standards set forth under the Texas Water Well Drillers and Pump Installers Administrative Rules, Title 16, Part 4, Chapter 76, Texas Administrative Code, and under these Rules, and must be completed in compliance with applicable rules and regulations of any other governmental entity.

b. Water well drillers shall indicate the method of completion performed on the well report.

c. In order to prevent the commingling of water between aquifers, resulting in a loss of reservoir pressure, and to protect against degradation of water quality, each well penetrating more than one separate water bearing zone of any aquifer shall be completed in a manner so as to prevent the commingling of groundwater between aquifers or between subdivisions of an aquifer if required by the Texas Water Well Drillers and Pump Installers Administrative Rules, Title 16, Part 4, Chapter 76, Texas Administrative Code. The drillers shall indicate the method of completion used to prevent the commingling of water on the well report. The well driller may use any lawful method of completion calculated to prevent the commingling of groundwater.

d. In order to protect water quality, the integrity of the well, or loss of groundwater from the well, the District may impose any additional well completion requirements deemed necessary or appropriate by the District.

SECTION 4
PROHIBITION OF WASTE

Rule 4.1. Groundwater shall not be produced within the District in such a manner as to constitute waste, as defined in Article 2.

SECTION 5
DETERMINING BENEFICIAL USE WITHOUT WASTE

Rule 5.1: Determining Beneficial Use Without Waste

a. When setting the production limit for a non-exempt well for agricultural irrigation use, the District may base its calculations on industry standards from a reliable source such as a county extension agent. The information must be based on number of acres, crop type, and time of year.

b. When setting a production limit for a non-exempt well for agricultural livestock use, the District may base its calculation on industry standards from a reliable source such as a county extension agent. The information must be based on number of animals, type of animals, and time of year.

c. When setting a production limit for a non-exempt well for commercial use, the

District may consider the minimum water capacity requirements of Title 30, Texas Administrative Code Section 290.45(c) and (d).

d. When setting a production limit for a non-exempt well for industrial use, the District may consider the Applicant's Standard Industrial Code classification water use standards for the maximum amount of water necessary to efficiently meet the demands for the particular use.

e. When setting a production limit for a community water system well or retail public water utility well, the District shall consider, among other things, the size of the service area and the number of connections being served.

f. When setting a production limit for any non-exempt well, the District may consider historical data if supported by reliable documentation.

SECTION 6

GROUNDWATER PRODUCTION LIMITS

Rule 6.1. Preamble. This rule limits the production of groundwater as authorized by the District's enabling legislation and Texas Water Code Sections 36.101 and 36.116. This method of limiting groundwater production is appropriate based on the hydro-geological conditions of the aquifers in the District and is consistent with the approved District Management Plan developed and adopted under Texas Water Code Section 36.1071.

Rule 6.2. Production Limits for All Non-Exempt Wells

a. Non-Exempt wells that were permitted prior to JULY 1, 2013 may produce the amount authorized in the permit unless the owner applies for and is granted a permit amendment to change the production limit to an amount calculated under the terms of this Rule.

b. A permit issued on or after JULY 1, 2013 for a Non-Exempt well shall include a production limit that will be established during the permitting process and will be set based on this Rule 6.2.

c. Other than as described in Rule 6.2. a. and 6.2 b., production limits shall be established on the basis of Beneficial Use without Waste. Establishing a Production Limit on the basis of Beneficial Use without Waste shall be based on:

1. A demonstration of Beneficial Use without Waste, not to exceed the maximum sustained pumping capacity of the well determined from a 24 hour pump test;

2. A demonstration of compliance with Rules 6.3, if applicable; and

3. A demonstration that the Purpose of Use and Production Limit are consistent with the approved District Management Plan.

Rule 6.3. Production Limits for Wells Supplying Community Water Systems and Retail Water Utilities. A permit for a community water system or retail public water utility that utilizes groundwater as a source of supply, the beneficial use without waste requirement shall be based on the service area instead of ownership of acreage. Once a permit is issued containing a production limit based on this section any expansion of the service area requires a permit amendment.

SECTION 7
DROUGHT MANAGEMENT

Rule 7.1. Determination of Waste. Water uses regulated or prohibited under this Rule are considered to be non-essential and continuation of such uses during times of water restrictions, as defined herein, are deemed to constitute a waste of water. Person(s) violating these rules are subject to penalties including the Districts power, as authorized by Texas Water Code 36.102, to assess civil penalties not to exceed $10,000.00 per day per violation, and that each day of a continuing violation constitutes a separate violation.

Rule 7.2. Applicability

a. The provisions of this Section shall apply to all persons or organizations, public or private, having or operating wells, or person(s) utilizing groundwater within the District, regardless of purpose of use, size, capacity, and date of drilling or ownership of the wells.

b. The District recognizes that Permit Holders within the district may have developed and utilize their own Drought Management Plans. If a Permit Holder has multiple water sources, the groundwater component must be in compliance with the current stage. The Permit Holder must either:

1. Comply with this Rule; or

2. Provide the District written documentation, as a requirement of the permit application or permit renewal application, which demonstrates to the District's satisfaction that the Permit Holder's groundwater conservation measures are sufficient to meet the intent of, and be at least as restrictive as these rules.

The District shall make a determination of sufficiency based on information presented by the Permit Holder and inform the Permit Holder of such determinations in writing.

c. The restrictions set forth shall not apply to the temporary uses of water to alleviate conditions threatening health, safety, or welfare of the public, the suppression of

fires or the watering of landscape using solely grey water, surface water, harvested rain water or reclaimed water.

Rule 7.3. Initiation and Determination of Drought Stages. Each of the drought stages will be initiated by an action of the Board after analysis of the District's network of monitor wells, stream flow in the streams located within the District, cumulative rainfall, and/or other factors deemed appropriate by the Board and shall remain in effect for a minimum of thirty (30) days. Mandatory percentage reductions in groundwater use under this Rule 7.3 shall not apply to health and safety uses, such as sanitation and firefighting.

a. **Stage 1 – Year-Round Conservation. All well owners and/or users of** groundwater will minimize the use of groundwater especially for non-essential uses year-round through employment of water conservation practices. Automatic sprinklers for ornamental landscaping must be equipped with rain sensor controls and operated without causing substantial runoff. All ornamental fountains and water features must be closed loop re-circulating systems. Stage 1 is a year-round conservation program.

b. **Stage 2 - Incipient Dry Spell-Mild Drought**

1. Water Reduction for Permitted Users – Mandatory 10% reduction in groundwater use or as specified in the operating permit.

2. All other users must implement the following conservation practices

i. Outdoor lawn and landscape irrigation by hose-end sprinklers, automatic sprinklers, soaker hoses, or drip irrigation may not be performed between the hours of 10:00 A.M. and 8:00 P.M. Hand-held hoses or hand-held buckets are allowed at any time. Automatic sprinkler systems must be equipped with rain sensors to prevent operation during periods of rainfall.

ii. Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment must be done with a hand held hose equipped with a positive shutoff valve, or at a commercial facility.

iii. Water troughs or any water receptacles with mechanical float controls shall be routinely inspected and properly maintained to prevent leaks and waste of water.

c. **Stage 3 - Moderate Drought**

1. Water Reduction for Permitted Users – Mandatory 20% reduction in groundwater use or as specified in the operating permit.

2. All other users must implement the following conservation practices. The conservation practices from Stage 2 shall remain in effect and mandatory.

i. No lawn and landscape irrigation is permitted between the hours of 10:00 A.M. and 8:00 P.M., nor on any Saturday or Sunday. Outdoor lawn and landscape irrigation shall only be allowed on the following days for residences with addresses ending in the numbers set out for each day:

Lawn and Landscape Watering Schedule

Monday	0 & 1
Tuesday	2 & 3
Wednesday	4 & 5
Thursday	6 & 7
Friday	8 & 9

ii. Use of groundwater to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or spa type pools is prohibited; except on designated watering days during the designated watering hours. When such facilities are not in use, some form of surface cover shall be used to limit the evaporation of water.

iii. Filling or adding groundwater to any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except on designated watering days during the designated watering hours.

d. **Stage 4 - Severe Drought**

1. Water Reduction for Permitted Users – Mandatory 30% reduction in groundwater use or as specified in the operating permit.

2. The conservation practices from Stage 3 shall remain in effect and mandatory. When initiating this Stage, the Board may impose one or more of the following conservation practices.

i. All outdoor lawn and landscape irrigation, including the irrigation of new lawns and landscaping is limited to one day a week per the Lawn and Landscape Watering Schedule.

ii. The use of groundwater for washing sidewalks, driveways, parking areas, streets, tennis courts, or other paved impermeable areas, except to alleviate health or fire hazards is prohibited.

iii. The watering of the ground around foundation to prevent foundation cracking with groundwater is permitted only during

times designated for lawn and landscape irrigation, unless watering is accomplished by a drip system or a hand-held hose, then foundation watering may be done at any time.

iv. The operation, other than for basic filtration and/or recirculation, of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited. Filling of ponds, lakes, tanks, reservoirs, swimming pools or other surface impoundments with groundwater is prohibited. Groundwater may be added to pools to replace water lost due to use or evaporation during times when landscape irrigation is allowed.

v. Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment, utilizing groundwater, is prohibited unless it is on the premises of a commercial car wash, service station, or a private facility that utilizes a recycled water system. Charity carwashes are prohibited.

e. **Stage 5 - Extreme Drought**

1. Water reduction for permitted users – Mandatory 40% reduction in groundwater use or as specified in the operating permit.

2. The conservation practices from Stage 4 shall remain in effect and mandatory. When initiating this Stage, the Board may impose one or more of the following conservation practices.

i. Irrigation of lawns and landscaped areas shall be limited to once a week on the schedule designated in these rules as Lawn and Landscape Watering Schedule), and shall be by means of hand-held hoses or hand-held buckets only. No hose-end sprinklers or automatic sprinklers are allowed at any time.

ii. Use of water from hydrants shall be limited to fire fighting, related activities, or other activities necessary to maintain public health, safety, and welfare.

iii. Use of groundwater for construction activities is prohibited, unless authorized by an operating permit.

iv. The irrigation of a domestic or home garden with groundwater shall be limited to an area of 5,000 square feet and shall be by means of drip irrigation, hand-held hoses with a positive shut off device or hand-held buckets only.

f. **Stage 6 – Extreme Drought Emergency**

1. Water Reduction for Permitted Users – Mandatory 50% reduction in groundwater use or as specified in the operating permit.

2. The following requirements are for community water systems and retail water utilities:

   i. No additional, expanded or increase-in-size water service connections, meters, service lines, pipeline extensions, mains or water service facilities of any kind shall be allowed or approved if groundwater is used.

   ii. In the event of system failure, the water supply will be managed by such measures necessary to maintain public health and safety, including elimination of service to part or all of the water system.

3. Irrigation of hay crops is prohibited, unless specified in an operating permit.

4. The conservation practices from Stage 5 shall remain in effect and mandatory. When initiating this Stage, the Board may impose one or more of the following conservation practices.

   i. Irrigation of lawn and landscape areas is prohibited at all times.

   ii. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane, or any other mobile vehicle is prohibited at all times.

   iii. The filling, refilling, or adding of groundwater to private swimming, or spa type pools for any reason is prohibited.

   iv. The issuance of new well drilling permits, operating permits and amendments may be suspended except to replace an existing well.

   v. Other measures deemed necessary by the Board to protect public health and safety.

SECTION 8

INVESTIGATIONS AND ENFORCEMENT

Rule 8.1. Complaints and Investigations

a. All complaints shall be submitted or recorded on a District complaint form. These forms are available at the District office. If a complaint is made verbally, by telephone, or in person, District personnel will ensure that the information is recorded on a District complaint form. The complainant must inform the District if the complaint claims to qualify as an "aggrieved party" under the citizen suit provision of Texas Water Code §36.119.

b. For purposes of this Section and Texas Water Code § 36.119, an aggrieved party is a landowner or other person who has a right to produce groundwater from land that is adjacent to the land on which the well subject to the complaint is located, or who owns or otherwise

has a right to produce groundwater from land that lies within one-half mile of the subject well.

c. A complainant may ask to remain anonymous, unless they want to qualify as an aggrieved party under the citizen suit provision of Texas Water Code § 36.119.

d. District representative will investigate the complaint promptly and will record his findings in a written investigation report.

e. A copy of the investigation report will be sent to the well owner or driller who is the subject of the complaint. If the complainant has provided his name and address, a copy of the investigation report will be sent to the complainant.

f. Board Consideration of Investigation Reports.

1. The investigation reports for all complaints must be presented to the Board for consideration not later than 90 days from the date of receipt of the complaint.

2. Notice of the date, time, and location of the Board meeting at which the investigation report will be considered and a copy of the investigation report will be mailed to the well owner or driller who is the subject of the complainant by certified mail, return receipt requested, at least ten (10) days prior to the scheduled Board meeting.

3. At the Board meeting, the Board will determine whether or not a violation has occurred. If the Board decides that there has been a violation, it may direct the District staff to issue a notice of violation or initiate civil enforcement.

Rule 8.2. Enforcement

a. **Civil Enforcement.** As authorized by Texas Water Code Section 36.102, the violation of any District Rule shall be subject to a civil penalty not to exceed $10,000.00 per day per violation, and each day of a continuing violation constitutes a separate violation. The Board may seek enforcement of such civil penalties against any person by injunction, mandatory injunction, or other appropriate remedy through a complaint filed in a court of competent jurisdiction. In addition, the District may seek, and the court shall grant against any person, recovery of attorney's fees, costs for expert witnesses, and any other costs incurred by the District before the court.

b. **Notice of Violation.** The District shall send a notice of violation to a person who is believed to be in violation of law, including violation of a District Rule, order, or permit. The notice shall include a copy of the investigation report. The notice may require remedial action and may assess a penalty. The notice shall provide the opportunity for public hearing.

c. **Penalty Schedule.** The District may assess penalties for non-compliance with District Rules including failure to comply with conditions of a permit issued by the District. Penalties may be assessed in accordance with the following schedule, up to the maximum jurisdictional limit of the District in effect at that time.

Schedule of Penalties for Non-Compliance	**Minimum Penalty**
Non-Compliant Action	
Failure to notify District of drilling activity, location, date, and time.	$250.00
Failure to obtain a drilling permit or drilling a well without a permit	$1,000.00
Failure to notify District of date and time of setting casing and/or annular space sealing	$250.00

APPENDIX 1

RULE ADOPTION AND REVISION RECORDS

Date Adopted	Effective Date	Affected Section
Rules of the Emerald Underground Water Conservation District	September 14, 1992	Original
Rules of the Crockett County Groundwater Conservation District	July 1, 2013	All

APPENDIX 2

Bylaws of the Crockett County Groundwater Conservation District

CROCKETT COUNTYGROUNDWATER CONSERVATION DISTRICT

BYLAWS

Originally Adopted December 17, 2007
Amended and Adopted July 1, 2013

Table of Contents

SECTION 1

DISTRICT CREATION AND PURPOSE

Section 1.1
Creation and Purpose

The Crockett County Groundwater Conservation District (the District) is a political subdivision of the State of Texas. The District was formed by Senate Bill 1635, 71st Legislature Regular Session in 1989; under the name Emerald Groundwater Conservation District. House Bill 4009, 80th Legislature Regular Session, renamed the district Crockett County Groundwater Conservation District, issued the order for election, and detailed its powers as that of a water conservation district. The original Rules of the District were adopted on September 14, 1992 and continued in effect as amended until DATE OF ADOPTION, the date of the adoption of these Rules.

The District is a governmental agency, political body, and corporate entity. The District was created to serve and facilitate public use and benefit, and is essential to accomplish the objectives set forth in Section 59, Article XVI, of the Texas Constitution. The boundary of the District is contiguous with the county lines of Crockett County which has an area of 2,839 square miles or approximately 1,817,321 acres of land excluding the area of Crockett County Water Control & Improvement District #1. Located in southwest Texas on the western edge of the Edwards Plateau, Crockett County is the eighth largest county in Texas with the Pecos River forming its western boundary. On the west lie Pecos and Terrell counties. Crane, Upton, Reagan, and Irion counties border Crockett County on the north. On the east lie Schleicher and Sutton counties, with Val Verde County on the south. Ozona, the county seat, is centrally located in the eastern part of Crockett County.

The creation of the District was confirmed by the Commissioner's Court of Crockett County on December 12m 1988.

SECTION 2

BOARD OF DIRECTORS

Section 2.1
Composition and Appointment

The District is governed by a Board of Directors, which is comprised of not less than five and not more than eleven duly elected directors. The number of directors has been fixed at five, with one director representing each county precinct and one at-large Director. To be eligible to serve as a Director, a person must be a registered voter and reside in the District and/or precinct represented, except for the at-large Director, who must only be a resident of the District. At the time of taking office, no director may be serving as a member of a governing body of a municipality or the County. A director vacates his office if subsequent to his election to the Board of the District he is thereafter appointed or elected as a member of the governing body of a municipality or the County. A Director may serve multiple consecutive terms without limit.

In order to qualify for a place on the ballot to be elected to the Board, a candidate shall file an application with the Secretary of the Board signed by the applicant not later than 5:00 p.m. on the 62nd day prior to the date of the election or within the time period specified by Sec. 144.005 of the Texas Election Code, as amended. Write-in candidates shall comply with the provisions of Subchapter C, Chapter 146 of the Texas Election Code.

Section 2.2
Terms of Office; Director Vacancies; Notification

Permanent Directors shall serve staggered three-year terms, with the term of the director from each of the odd-numbered precincts expiring on June 1 of each odd-numbered year, and the term of the director from each of the even-numbered precincts expiring on June 1 of each even-numbered year. Should a vacancy occur on the Board for any reason, the Board shall appoint a replacement from the precinct with the vacant position to fill the remainder of the unexpired term. Within thirty (30) days after any election or appointment of a Director, the District shall notify the Executive Director of the Texas Commission on Environmental Quality in accordance with Section 35.054(e), Texas Water Code ("Water Code"). A Director shall serve until the Director's successor has qualified to serve.

Section 2.3
Sworn Statement; Bond; Oath of Office

As soon as practicable after a Director is appointed, the Director shall make the sworn statement prescribed by the Texas Constitution, take the oath of office, and execute a bond, as required by Section 36.055, Water Code. The District shall file the sworn statement, oath, and bond as prescribed in Section 36.055(d).

Section 2.4
Officers

At the next regular meeting following each election of directors, the Board shall meet and elect three Directors to serve as officers, whose titles shall be President, Vice-President, and Secretary. Officers shall serve until their successors are elected. Officers may serve multiple consecutive terms.

The President shall preside at all Board meetings, at which he is present execute all documents on behalf of the District, and perform other duties prescribed by the Board.

The Vice-President shall act as the President in case of the absence or disability of the President, and perform other duties prescribed by the Board.

The Secretary shall be responsible for seeing that all records and books of the District are properly kept according to the requirements of Sections 36.054(c) and 36.065, Water Code, and shall perform other duties prescribed by the Board.

The Board may appoint other Directors, the General Manager, or any employee as an Assistant Secretary to assist the Secretary, and any such person shall be entitled to certify as to the authenticity of any record of the District, including, but not limited to, all proceedings relating to bonds, contracts, or indebtedness of the District.

The Board shall fill vacant officer positions as needed to serve the remainder of the unexpired term of any vacant office. No director shall hold more than one office at a time.

Section 2.5
Indemnification of Directors and Employees

The District may purchase and maintain insurance or bonding on behalf of any person who is a Director or employee of the District in any capacity or arising out of his status as such.

Each Director and employee is indemnified by the District against any liability imposed upon him and for any expense reasonably incurred by him in connection with any claim made against him, or any action, suit or proceeding to which he may be a party by reason of his being, or having been, a Director or employee, and against such sums as counsel selected by the Board shall deem reasonable payment made in settlement of any such claim, action, suit, or proceeding; provided, however, that no Director or employee shall be indemnified with respect to actual damages arising out of a cause of action for a willful act or omission, an act or omission constituting gross negligence or official misconduct, or with respect to matters for which such indemnification would be unlawful or against public policy. Any right of indemnification granted by this Section is in addition to and not in lieu of any other such right for which any Director or employee of the District may at any time be entitled under the laws of the State of Texas; and if any indemnification that would otherwise be granted by this Section is disallowed by any competent court or administrative body as illegal or against public policy, then any Director or employee with respect to whom such adjudication was made, and any other Director or employee, shall be indemnified to the fullest extent permitted by law or public policy, it being the express intent of the District to indemnify its Directors and employees to the fullest extent possible in conformity with these Bylaws, all applicable laws and public policy. The indemnification provided herein shall inure to the benefit of the heirs, executors, and administrators of each Director and employee of the District.

Section 2.6
Conflicts of Interest

Directors shall, pursuant to the provisions of Chapters 171 and 176, Local Government Code, and the current District Code of Ethics, disclose any conflict of interest with matters pending before the Board, execute and file the appropriate disclosure affidavits and statements, and refrain from participation in any discussion or decision relating to such matters.

Section 2.7
Open Meetings and Public Information Training

Directors shall comply with the requirements for open meetings and public information training as provided by Sections 551.005 and 552.012, Government Code.

Section 2.8
Fees of Office and Reimbursement of Expenses

Directors may not receive fees of office or other compensation for performing the duties of director. However, a director is entitled to reimbursement of actual expenses reasonably and necessarily incurred while engaging in activities on behalf of the District.

SECTION 3
BOARD MEETINGS

Section 3.1
Regular and Special Meetings of the Board

The Board shall schedule and hold regular meetings, at least quarterly, as the Board may establish from time to time. At the request of the President or presiding officer, or by written request of at least two Directors, the Board shall hold special meetings. All Board meetings shall be held in accordance with the Open Meetings Act, Chapter 551 of the Texas Government Code.

The Board may provide members of the public an opportunity to speak and may place reasonable limitations on such public comment, including time limitations, prohibiting unduly repetitious comments or improper conduct, and requiring persons wishing to provide comment to complete an information card. A registration form may be provided for this purpose. At the discretion of the President or presiding officer, the Board may seek public comment or ask questions of any person in attendance. Public comment at permit application and rulemaking hearings shall be as provided in the District Rules.

To the extent necessary for orderly conduct of meetings at the discretion of the President or presiding officer, the guidelines of "Roberts Rules of Order Newly Revised", 11th Edition, by Henry M. III Robert, Daniel H. Honemann, Thomas J. Balch, and Daniel E. Seabold, 2011 revised edition, or as amended, may be followed, insofar as such procedures do not conflict with the District Rules, orders or resolutions of the District, or state law.

Section 3.2
Workshops

From time to time, a regular or special Board meeting, or portion thereof, may be designated as a workshop for the Board and its employees to discuss and evaluate issues that may require lengthy presentations not generally possible during a regular Board meeting. Workshops are primarily for the benefit of the Board and employees, although they will be open to the public.

During workshops of the Board, no public comments will be heard, unless specifically requested by a Director and recognized by the presiding officer.

Section 3.3
Quorum

A quorum of the Board must be present to conduct District business. A quorum exists when three or more Directors are present. A concurrence of a majority of the entire Board is required for transacting any business of the District. When the quorum is three Directors, all three Directors must vote in agreement for a motion to prevail.

SECTION 4
COMMITTEES

Section 4.1
Committees

The Board may establish and appoint Directors and/or other persons to advisory committees for formulation of recommendations to the Board. The Board may establish an audit or finance committee comprised only of Directors. No committee shall have any authority to act or bind the Board. All committee reports shall reflect the vote of the committee members making the report. Committee membership is voluntary and without compensation or reimbursement, except for reimbursement of expenses of Directors as set forth under Section 2.8.

SECTION 5
EMPLOYEES

Section 5.1
General Manager and Employees

The Board may employ or contract with a person to perform such services as General Manager for the District and set the General Manager's salary. A Director may be employed as General Manager of the District, however in such circumstance that director shall not participate in determining the salary of the General Manager. At least annually, the Board shall determine the compensation to be paid to the General Manger and review the actions and performance of the General Manager to determine how the General Manager has fulfilled his responsibilities and whether additional responsibilities should be delegated to him.

Section 5.2
Delegation of Authority

The General Manager shall be the chief administrative officer of the District and shall have full authority to manage and operate the affairs of the District, subject only to the direction given by the Board through policies, resolutions, and orders adopted by it. The General Manager, with the approval of the Board, may employ all persons necessary for the proper handling of the business and operations of the District and determine the compensation to be paid to any employee other than the General Manager, subject to the constraints of the annual budget approved by the Board.

The General Manager shall not employ or set the salary of any other employee who is related to the General Manager by blood or marriage or who is engaged in any other business with the General Manager either as an owner, agent, employer or employee without the prior, express consent and resolution of the Board. The General Manager, with the approval of the Board, may delegate such administrative duties as may be necessary to effectively and expeditiously accomplish his duties, provided however, that no such delegation shall ever relieve him of responsibilities which are required of the General Manager and within the scope of the powers of the District. In the absence of a General Manager, the President shall exercise all of the duties delegated to the General Manager.

SECTION 6
DISTRICT ADMINISTRATION

Section 6.1
District Address:

The District's mailing address is Post Office Box 1458, Ozona, Texas 76943. The physical address is 1102 Avenue I, Ozona Texas. Such addresses may be changed by resolution of the Board.

Section 6.2
Minutes and Records of the District

All documents, reports, records, taped recordings, and minutes of the District shall be available for public inspection in accordance with the Texas Public Information Act, Chapter 552, Texas Government Code. The preservation, storage, destruction, or other disposition of the District's records is subject to Chapter 201, Texas Government Code.

Section 6.3
Office Hours

The regular office hours of the District shall be determined and posted for Monday through Friday, except for District holidays. From time to time, circumstances may require the General Manager to modify these hours on a temporary basis. Operating hours, both regular and temporary, shall be posted on or near the front door to the District office. Permanent changes in the District's regular office hours may be approved by the Board from time to time.

Section 6.4
Official Seal

The Board, by resolution, may adopt an official seal for the District to be used on official documents of the District.

SECTION 7
FINANCIAL

Section 7.1
Contracts, Instruments, and Documents

The Board may authorize the President or the General Manager to enter into any contract or to execute and deliver any instrument or document in the name of and on behalf of the District. All contracts shall be executed by the President unless the General Manager has been specifically authorized by the Board to execute the contract in question, and, if deemed necessary by the Board or General Manager, approved by the District's legal counsel.

Section 7.2
Loans

No loans shall be contracted on behalf of the District and no evidence of indebtedness shall be issued in its name unless authorized by the Board, executed by the President, and attested to by the Board Secretary.

Section 7.3
Expenditures

The District's money may be disbursed only by check, draft, order, or other instrument, which shall be signed by at least two Directors unless the Board has authorized by resolution certain employees, or a combination of employees and Directors, to execute and deliver such instruments.

Section 7.4

Depositories
The Board shall name one or more banks to serve as depository for District funds and shall deposit such funds in accordance with Section 36.155, Water Code.

Section 7.5
Investments

Funds of the District may be invested and reinvested in accordance with the provisions of the Public Funds Investment Act, Chapter 2256, Government Code, and in accordance with the investment policy of the District.

Section 7.6
Annual Audit

The Board at the end of each fiscal year shall have prepared an audit of its affairs by an independent certified public accountant, who shall have no personal interest directly or indirectly in the fiscal affairs of the District and shall be experienced and qualified in the accounting and

auditing of public bodies. This audit shall be open to public inspection. The audit shall be performed in accordance with generally accepted auditing standards and shall satisfy all requirements imposed by Chapter 36, Water Code. The District's auditors may undertake consulting services for the District in addition to their duties in connection with the annual audit.

Section 7.7
Budget

Prior to the commencement of each fiscal year, the Board shall adopt an annual budget in accordance with Section 36.154, Water Code.

Section 7.8
Taxes; Assessment of Fees; Use of Revenue

The tax and bond provisions of Chapter 36 of the Water Code as amended apply to the District. The Board may annually levy and collect taxes to pay for the maintenance and operating expenses of the District at a rate not to exceed fifty (50) cents on each one hundred (100) dollars of assessed valuation. The Board may not levy a tax to pay the maintenance and operating expenses of the District until the tax is approved by a majority of the electors voting at an election in the District held for that purpose. The Board has adopted the county appraisal as the base for valuations necessary to provide net funds.

Section 7.9
Fiscal Year

The District's fiscal year shall begin on the first day of October.

Section 7.10
Purchasing

The Board shall have the right to purchase all materials, supplies, equipment, vehicles, and machinery needed by the District to perform its purposes. Expenditures to acquire goods or services valued at greater than five hundred dollars ($500.00) require approval by the Board in advance. If the General Manager determines that an emergency acquisition must be made which requires an expenditure greater than five hundred dollars ($500.00), he shall obtain verbal approval from the President. The transaction shall be presented to the Board for approval and validation at its next meeting. Expenditures of less than five hundred dollars ($500.00) may be made by the President or General Manager without prior Board approval if the expenditure falls within the existing budget.

No expenditures shall be made that are not authorized by the budget. This requirement shall not, however, prevent the Board from amending the budget at the same time that it authorizes an expenditure, provided that funds are available from other budget categories or that reserve funds are available.

Construction contracts and contracts for the acquisition of materials and machinery requiring the expenditure of $25,000.00 or more may be competitively bid, or as provided by law.

7.11
Bond Requirement

The Board shall require a Director, employee, or consultant who collects, pays, or handles any funds of the district to furnish good and sufficient bond as provided under Section 36.057(d) of the Texas Water Code.

SECTION 8
GENERAL PROVISIONS

Rule 8.1
Amending and Repealing Bylaws

The Board may amend or repeal in whole or in part these Bylaws.

Rule 8.2
Conflicting Rules

These Bylaws shall be construed in connection with and so as to conform in all respects to the laws of the State of Texas applicable to the District and its affairs. Any provisions of these Bylaws in conflict with any law applicable to the District shall be of no force and effect, and are deemed severed in accordance with section

Rule 8.3
Severability

If any provision of these Bylaws is rendered invalid in whole or in part by an order of a court of competent jurisdiction or other law, such provision shall be severed from these Bylaws and deemed inapplicable to the extent and during the time it is rendered invalid. All remaining provisions of these Bylaws shall continue in effect except to the extent they are rendered unworkable by the severance.

Approved:

_____
Secretary

APPENDIX
E

CROCKETT COUNTY GROUNDWATER CONSERVATION DISTRICT

P.O. Box 1458
Ozona, Texas 76943

MANAGEMENT PLAN
2013-2018

WHEREAS, the Crockett County Groundwater Conservation District (District) was created by Acts of the 71st Legislature (1989), p. 3245, Ch. 712, S.B. 1635 in accordance with Article 16, Section 59 of the Constitution of Texas and Chapters 35 and 36 of the Texas Water Code, as amended; and

WHEREAS, the District is required by SB1 through Chapter 36.1071 of the Texas Water Code to develop and adopt a Management Plan; and

WHEREAS, the District is required by SB1 to submit the adopted Management Plan to the Executive Administrator of the Texas Water Development Board for review and re-certification by September 1, 2013; and

WHEREAS, the District's Management Plan shall be certified by the Executive Administrator if the plan is administratively complete; and

WHEREAS, the District Board of Directors, after reviewing the existing Management Plan, has determined that this plan should be replaced with an amended Management Plan; and

WHEREAS, the District Board of Directors has determined that the amended Management Plan addresses the requirements of Chapter 36.1071.

NOW, THEREFORE, be it resolved, that the Board of Directors of the Crockett County Groundwater Conservation District, following notice and hearing, hereby adopts this amended Management Plan to replace the existing Management Plan; and

FURTHER, be it resolved, that this amended Management Plan shall become effective immediately upon adoption.

Adopted this 9th day of September, 2013, by the Board of Directors of the Crockett County Groundwater Conservation District.

Carlon Stapper - Board Secretary

Paul C. Perner, III - Board President

APPENDIX
F

NOTICE

2013 SEP -5 A

The Crockett County Groundwater Conservation District Board of Directors will hold a Public Hearing on the 9th day of September, 2013 at 4:15 P.M. at Crockett County Groundwater Conservation District Office at 1102 Ave. I - Ozona, Texas.

CLERK OF COUNTY COURT
CROCKETT COUNTY, TEXAS
BY

AGENDA

I. Call to Order
II. Approve and Adopt the 2013 Management Plan
III. Adjourn

Any other items as may become pertinent or relevant.

PLEASE post this notice at least three (3) days prior to the day of the meeting.

Posted this 5th day of September, 2013, at 11:18 o'clock.

BY: Ana Knaack

CROCKETT COUNTY
GROUNDWATER CONSERVATION DISTRICT

Minutes
September 9, 2013

THE BOARD OF THE CROCKETT COUNTY GROUNDWATER CONSERVATION DISTRICT met in a Public Hearing with the following members present:

Paul Perner, III
James W. Owens
Carlon Stapper
Will M. Black

Others present were: Slate Williams, District Manager, Heidi Williams, Secretary

Paul called the meeting to order.

James made a motion to adopt the New Mangement Plan for the District dated 2013-2018. Carlon seconded the motion, motion passed unanimously.

The Resolution was signed by Board President Paul Perner, III and District Manager Slate Williams.

Carlon moved to adjourn. Will M. seconded the motion, motion passed unanimously.

Secretary