CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT (CCASRCD)

Groundwater Management Plan

Adopted on July 17, 2013
Re-adopted January 9, 2014

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1. District's Mission

The Corpus Christi Aquifer Storage and Recovery Conservation District (District) is committed to manage and protect the groundwater resources of the District, including those injected into the ground for storage and later use. The District is committed to maintaining a sustainable, adequate, reliable, cost effective and high quality source of groundwater to promote the vitality, economy and environment of the District. The District will work with and for the citizens of the District and cooperate with other local, regional and state agencies involved in the study and management of groundwater resources. The District shall take no action without a full consideration of the groundwater needs of the citizens of the District.

2. Purpose of the Management Plan

The purpose of the management plan is to specify planning tools and development policies to manage and protect the groundwater resources of the District. The groundwater management plan (GMP) contains estimates of groundwater availability within the District, details of how the District manage groundwater, and management goals for the District. The management plan is supported on technical information provided by Texas Water Development Board (TWDB) and other site-specific information available for the District.

The management plan for the District will allow it to act in accordance with the requests of the state law. The 75th Texas Legislature (1997) established a statewide comprehensive regional water planning initiative with the enactment of Senate Bill 1 (SB1). SB1 included amendments to Chapter 36 of the Texas Water Code that require groundwater conservation districts to develop a groundwater management plan that shall be submitted to the TWDB for approval as administratively complete. SB 1 provides for review and approval of the GMPs by the Texas Water Development Board (TWDB). In 2001, the 77th Texas Legislature further clarified the water planning and management provisions of SB1 with the enactment of Senate Bill 2 (SB2) and HB 1763. The administrative requirements of Chapter 36 of the Texas Water Code related to groundwater management plan development are specified in 31 Texas Administrative Code, Chapter 356. This plan has been prepared to fulfill all requirements for groundwater management plans required by SB1, SB2, Chapter 36 Texas Water Code, and 31 Texas Administrative Code Chapter 356.

3. Time Period of the Management Plan

This plan shall be in effect for a period of five years from the date of approval by TWDB, unless a new or amended management plan is adopted by the District Board of Directors and certified by TWDB.

4. District Information

4.1. Corpus Christi ASR Conservation District Creation and History

The District was created in 2005 by the 79th Texas Legislature enactment of SB 1831, Section 1, Subtitle H, Title 6 (included in **Appendix A**). Special District Local Laws Code was amended by adding Chapter 8811 to include the District.

The District is located in Aransas, Kleberg, Nueces, and San Patricio Counties, Texas, as shown in **Figures 1 & 2**. The initial boundaries of the district (i.e., CCASRCD) are coextensive with the city limits of the City of Corpus Christi and include: in San Patricio County, property owned by or under contract to the City of Corpus Christi and bounded on the west by Interstate Highway 37 and U.S. Highway 77, on the north by the metropolitan planning organization (i.e., Corpus Christi Metropolitan Planning Organization) boundary, on the east by County Road 2849, and on the south by the city limits of the City of Corpus Christi.

The Corpus Christi ASRCD jurisdictional boundary covers four counties, including Aransas, Kleberg, Nueces, and San Patricio counties. The total land surface area of the District and the surface area of the District within each of these counties was calculated using a spatial analysis tool within GIS. The total area of the District is distributed in percentage of land in each county as follow: Aransas County: 0.01 %, Nueces County: 48.92 %, Kleberg County: 5.67 % and San Patricio County: 45.40 % of the total land area of the district. Also, the surface area of the District within each of these counties are as follows: Aransas County: 2.32%, Nueces County 35.43 %, Kleberg County: 2.38 % and San Patricio County 2.92% with respect to the total land within each county.

Neighboring districts include Kenedy County Groundwater District and San Patricio County groundwater Districts, both newly formed districts via legislation passed during the 2007 legislative session.

The State of Texas has established Groundwater Management Areas (GMA) throughout the State to facilitate regionalized planning for the State's groundwater resources. These GMAs are shown on **Figure 3.**

The District is located in GMAs 15 and 16.

4.2. Statement of Guiding Principles

The District is dedicated to protecting groundwater supplies within the District, developing and maintaining an aquifer storage and recovery program, providing the most efficient use of groundwater resources to supplement existing supplies, while controlling and preventing waste of groundwater.

The primary objective of the District is to achieve the purpose for which the District was created, e.g., to facilitate the operation of aquifer storage and recovery operations by the City of Corpus Christi to enhance its water supply, treatment, and distribution operations for the benefit of its retail and wholesale customers, both inside the city limits and within the Certificate of Convenience and Necessity (CCN) service area and outside the City to its outside city limits (OCL) treated and raw water customers. The major concern with the proposed aquifer storage and recovery operations is to ensure that once the aquifer storage and recovery well fields are established, others do not drill wells and tap into the waters that have been injected by the City into the aquifers for later recovery by the City.

Another objective of the District is to use its well permitting authority to enhance the City's ability to ensure that there is a safe water supply for its residents.

The City currently requires new developments within one mile of an existing water distribution main to tie into the potable water distribution systems operated by the City or one of the two water control and improvement districts, which provide potable water in parts of the City. The City does permit the use of well water for irrigation purposes.

The City is also considering the establishment of municipal setting designations to facilitate redevelopment of areas where the aquifers have been contaminated by pollutants.

4.3.Authority of the District

The District derives its authority to manage groundwater within the District by virtue of the powers granted and authorized in the District's enabling act, SB 1831 of the 79th Texas Legislature. **(Appendix A),** as codified in Chapter 8811, Special District Local Laws Code to include the District. The District, acting under authority of the enabling legislation, assumes all the rights and responsibilities of a groundwater conservation district specified in Chapter 36 of the Texas Water Code. The District Rules, adopted on May 5, 2011 by the District Board of Directors in a public meeting, give the District the authority to manage the use of groundwater in the District at all times by the due process specified in the District rules. (**Appendix E**).

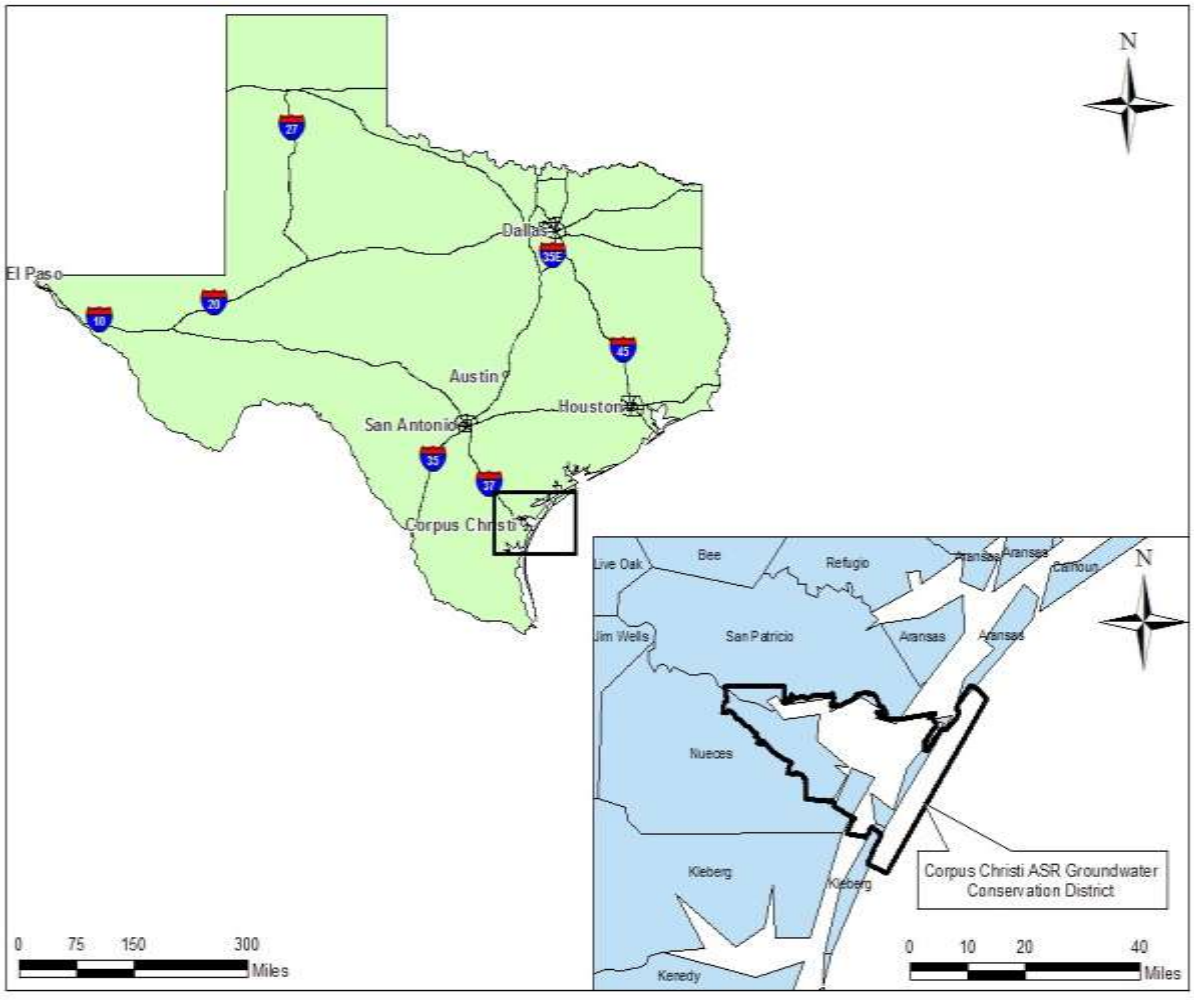


Figure 1. Location of the Corpus Christi ASR Conservation District

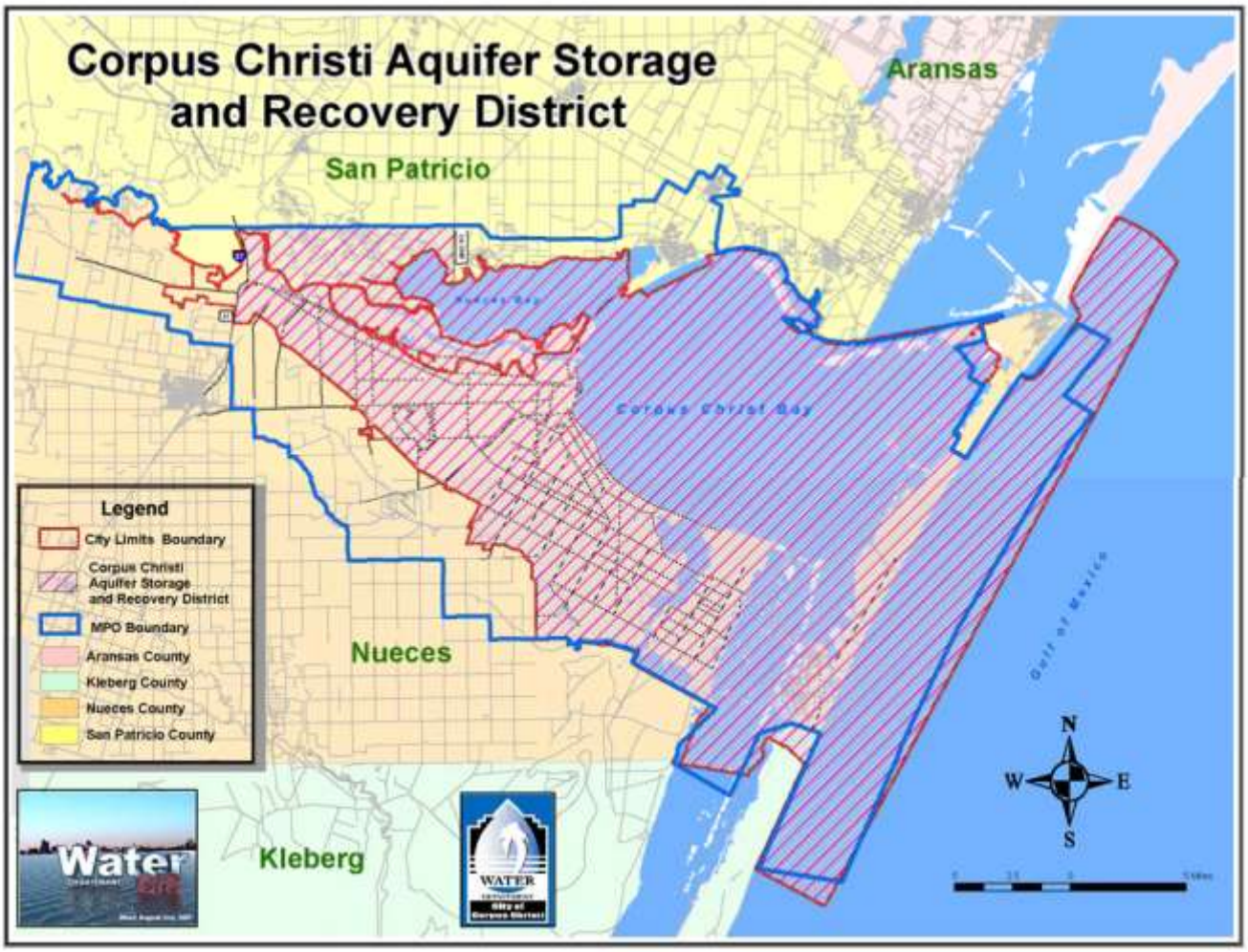


Figure 2. Location and Boundaries of the Corpus Christi ASR Conservation District.

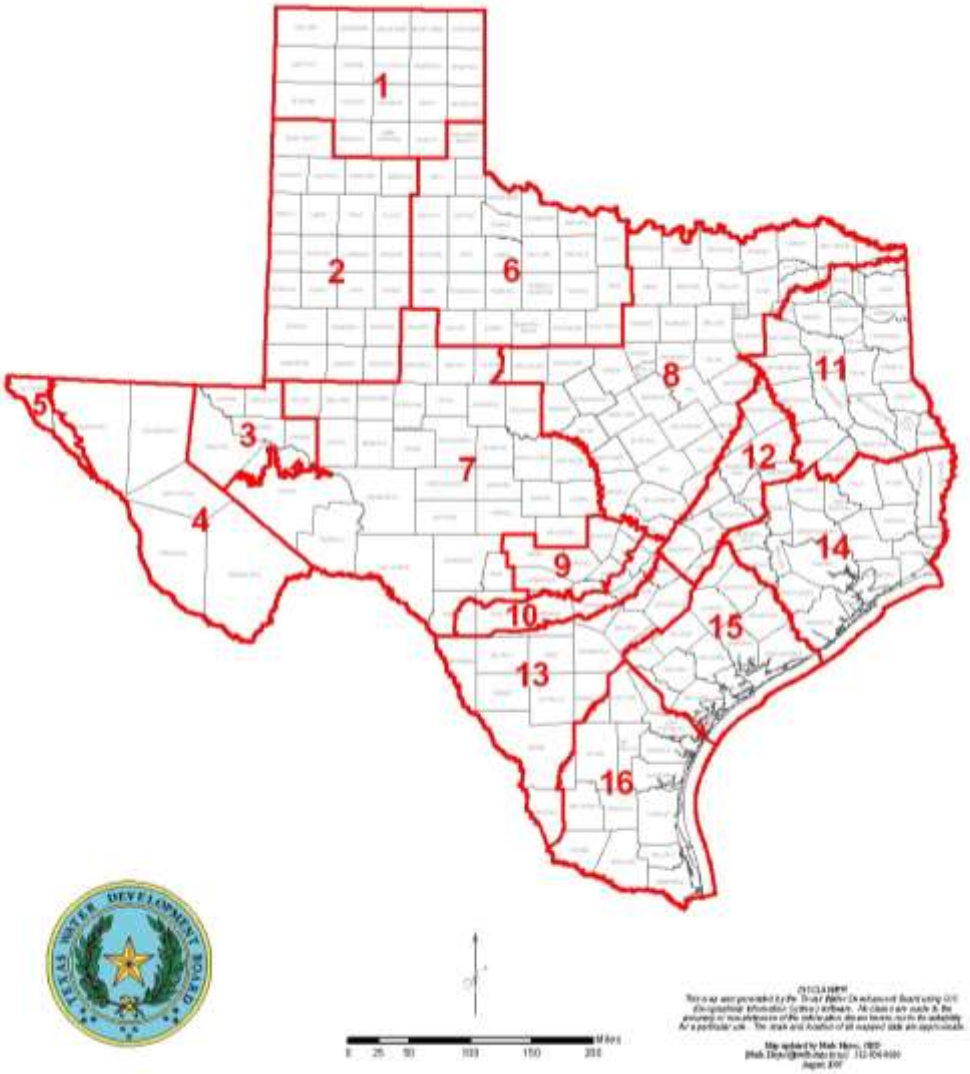


Figure 3. Groundwater Management Areas in Texas.

4.4 District Board of Directors and Committees

The District Board of Directors is composed of 5 members initially elected to staggered 2- and 4-year terms. All directors are appointed by the Corpus Christi City Council. The District's current Board of Directors is presented in **Table 1.** The Board of Directors hold regular meetings at City Hall at 1201 Leopard Street, Corpus Christi, Texas on a quarterly basis, unless otherwise posted. All meetings of the District's Board of Directors are public meetings noticed and held in accordance with all public meeting

requirements. The District Board of Directors meetings are posted in each county along with other items of interest by the District.

Current District Board of Directors	
Chairman	**Mr. Oscar Martinez**
Vice Chairman	**Mrs. Margie Rose**
Secretary	**Mr. Fred Segundo**
Member	**Mr. Gustavo Gonzalez**
Member	**Mr. Pete Anaya**
General Manager	**Mr. Ronald L. Olson**

Source: City of Corpus Christi, 2013

Table 1. District Current Board of Directors

4.5. Groundwater Resources of the District

The Gulf Coast Aquifer is the major aquifer present within the CCASRCD and yields moderate to large amounts of fresh to slightly saline water. It is divided into several water-bearing formations including the Catahoula, Jasper, Burkeville Confining System, Evangeline, and the Chicot, as shown in **Figures 4 & 5**. The Evangeline and Chicot Aquifers are the uppermost water-bearing formations and are the most productive. The Evangeline Aquifer features the highly transmissive Goliad Sands. The Chicot Aquifer is comprised of several formations, including the Beaumont and Lissie Formations. **Table 2** shows the stratigraphy of the Gulf Coast aquifer in the District.

Except for the Quaternary alluvium, the geologic formations crop out in belts nearly parallel to the Gulf of Mexico. Younger formations crop out nearer the Gulf and older formations crop out inland. The formations dip toward the coast and thicken causing the older formations to dip more steeply. Faults are common and some of them have displacements of up to several hundred feet. The displacements tend to decrease upward and may not appear at the surface. Faulting generally does not disrupt regional hydraulic continuity. (Loskot

et. al, 1982).

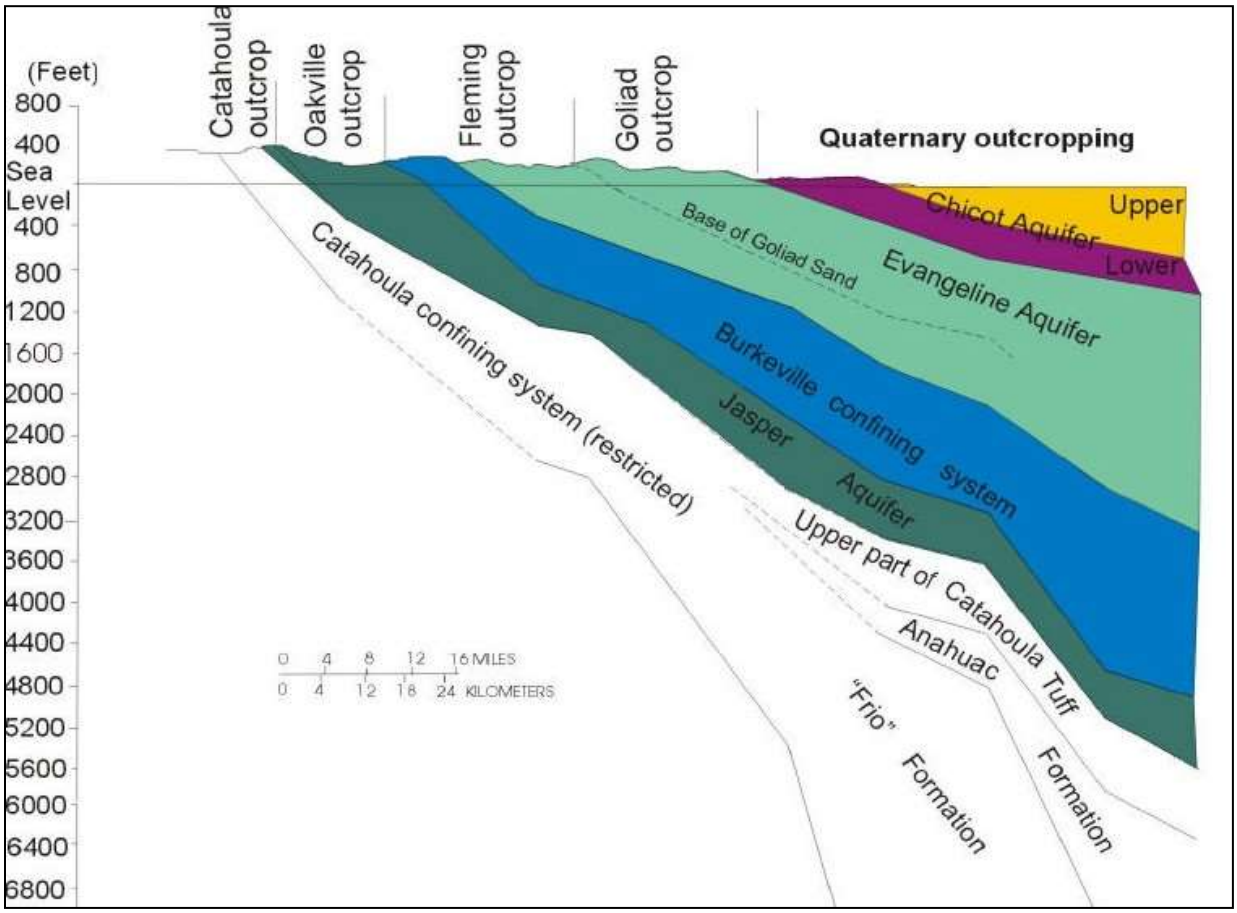


Figure 4. Cross Section of the Central Gulf Coast Aquifer

Chicot Aquifer

The Chicot aquifer is the main source of groundwater in Nueces County and consists of discontinuous layers of sand and clay of about equal thickness. It is composed of water bearing units of the Willis Sand, Lissie Formation, Beaumont Clay and Quaternary alluvium, which include all deposits from land surface to the top of the Evangeline aquifer. The Chicot aquifer contains very little fresh water in Nueces County. Individual sands may reach 500 feet in thickness. It is in hydrologic continuity with the Evangeline aquifer and the two units can be difficult to distinguish. The Chicot is delineated from the Evangeline in the subsurface mainly on higher sand to clay ratios that give the Chicot higher hydraulic conductivity. (Loskot et. al, 1982).

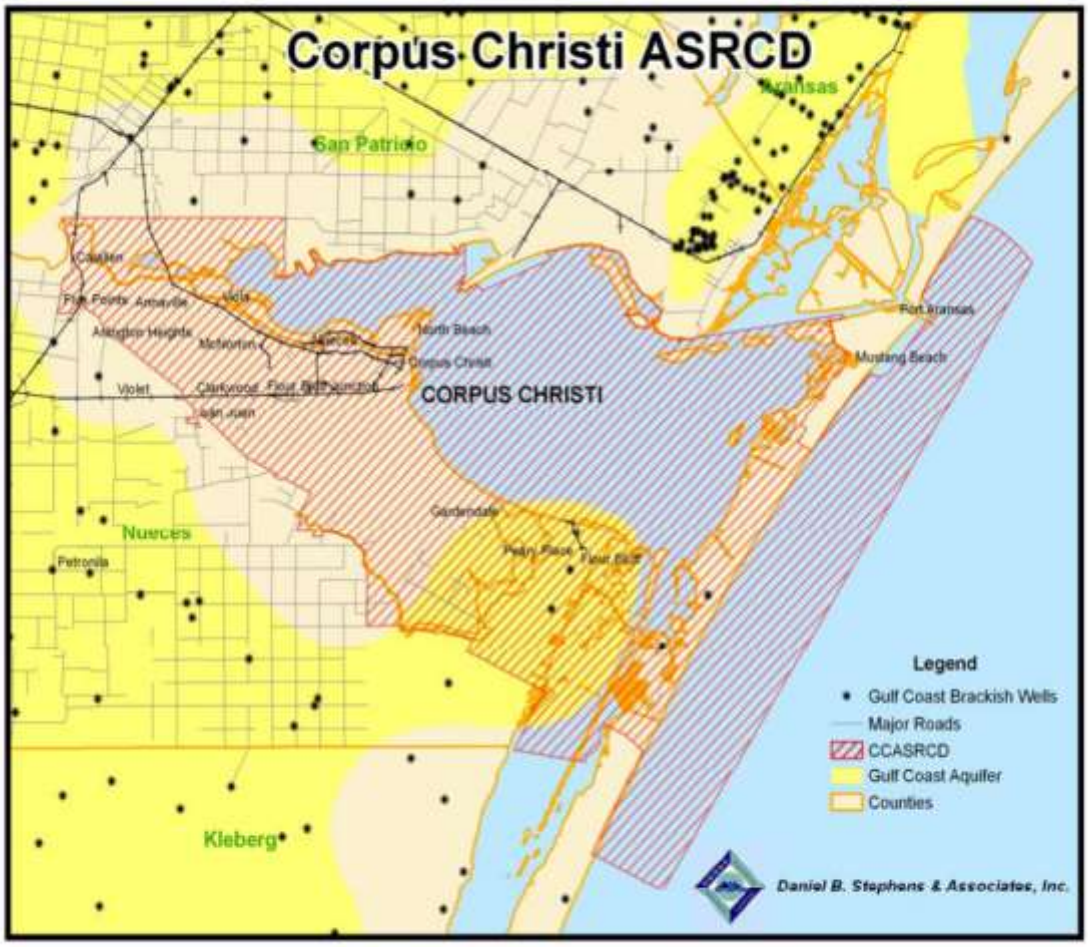


Figure 5. Aquifers within the Corpus Christi ASR Conservation District

Evangeline Aquifer

The Evangeline aquifer consists of sand and clay of the Goliad Sand and the upper part of the Fleming Formation. The Evangeline aquifer generally contains more sand than clay. Some of the sands and clays are continuous throughout much of the area. Individual sands may reach 100 feet in thickness in the area containing fresh to slightly saline water. The maximum thickness of the Evangeline aquifer is 1,380 feet and may have up to 470 feet of sand in aggregate thickness. Fresh water may occur as deep as 2,000 feet in east-central Wharton County. (Loskot et. al, 1982).

<table>
<tr><th>System</th><th>Series</th><th colspan="2">Geologic Unit</th><th>Hydrologic Unit</th></tr>
<tr><td rowspan="5">Quaternary</td><td>Holocene</td><td colspan="2">Alluvium</td><td rowspan="5">Chicot aquifer</td></tr>
<tr><td rowspan="4">Pleistocene</td><td colspan="2">Beaumont Clay</td></tr>
<tr><td>Montgomery Formation</td><td rowspan="2">Lissie Formation</td></tr>
<tr><td>Bentley Formation</td></tr>
<tr><td colspan="2">Willis Sand</td></tr>
<tr><td rowspan="4">Tertiary</td><td>Pliocene</td><td colspan="2">Goliad Sand</td><td rowspan="2">Evangeline aquifer</td></tr>
<tr><td rowspan="3">Miocene</td><td colspan="2" rowspan="2">Fleming Formation</td></tr>
<tr><td>Burkeville Confining Zone</td></tr>
<tr><td colspan="2">Oakville Sandstone</td><td rowspan="2">Jasper aquifer</td></tr>
<tr><td colspan="2">Catahoula Sandstone (Tuff)</td></tr>
</table>

Table 2. Geologic and Hydrologic Units of the District

Burkeville Confining Layer

The Burkeville confining layer is mostly clay but contains some sand layers. The Burkeville clay sequences are identified in the subsurface by electric logs and act as a regional impediment to the vertical flow of water. The Burkeville ranges from 300 to 500 feet in thickness. (Loskot et. al, 1982).

Jasper Aquifer

The Jasper aquifer is a minor source of water that may be slightly or moderately saline. It consists mainly of the Oakville Sandstone, but may include the upper part of the Catahoula Sandstone. The Oakville Sandstone contains laterally discontinuous sand and gravel lenses interbedded with shale and clay. Massive sandstone beds at the base of the formation thin upward with greater amounts of shale and clay. The Jasper aquifer ranges in thickness from about 200 to 800 feet where fresh to slightly saline water is present, but may reach 2,500 feet of thickness downdip in Wharton County. (Loskot et. al, 1982).

5. Technical Information Required by the Texas Administrative Code. (31 TAC 356.52/TWC § 36.1071)

5.1. Modeled Groundwater available information in the CCASRCD

The Texas Water Code (TWC§36.108) defines "Modeled available groundwater" as the amount of water that the executive administrator (TWDB) determines may be produced on an average annual basis to achieve a desired future condition established. The information derived from the groundwater availability models include:

- The annual **amount of recharge** from precipitation to the groundwater resource in the District,
- The annual volume of the **water that discharge from the aquifers** to springs and any surface water bodies (lakes, streams, rivers, etc.).
- The annual volume of **flow into** and **out** of the District within each aquifer and **between** the **aquifers** in the District.

One of the key coordination goals within each GMA were the development of desired future conditions (DFC) for the aquifers within each GMA, as required by the Texas Administrative Code:

> *"The desired, quantified condition of groundwater resources (such as water levels, water quality, spring flows, or volumes) at a specified time or times in the future or in perpetuity, as defined by participating groundwater conservation districts within a groundwater management area as part of the joint planning process." Desired future conditions have to be physically possible, individually and collectively, if different desired future conditions are stated for different geographic areas overlying an aquifer or subdivision of an aquifer."* [TAC§356.2(8)]

Based on these DFCs, the TWDB use the appropriate groundwater availability model (GAM) to develop Managed Available Groundwater (MAG) quantities to determine the annual availability from regional aquifers based on submitted DFCs.

The CCASRCD is between the perimeters of two Management Areas: GMA 15 and GMA 16. The groundwater available model for the CCASRCD management plan is GAM Run 12-016, which is attached as **Appendix G** on this plan. The GAM run 12-016, dated October 19, 2012, is the alternate model developed for GMA 16 (Hutchison and others, 2011). This model run replaces the results of GAM Run 08-03 (Tu, 2008). GAM Run 12-016 meets current standards set after the release of GAM Run 08-16 and is based on the alternative model developed for GMA 16. Differences in the results of the two model runs are mainly due to the differences the assumed areas of the Gulf Coast Aquifer in the district. The methods, assumptions and result details used in this analysis for the portion of the Gulf Coast aquifer located within the district are summarized in the **Appendix G**.

5.2. Estimated Amount of Groundwater Being Used Within District on an Annual Basis.

(31 TAC §356.53 (a)(5)(B); §356.53 (a)(5)(B)356.10 (2)/TWC §36.1071.(e)(3)(B))

The TWDB has data on estimated groundwater use in Nueces and San Patricio counties within the CCASRCD. The **Table 3** shows the average historical Groundwater Pumpage summary by County for the years 1974 through 2010. Average use in Nueces County over this historical period is approximately 646 acre-feet/year and 173 in San Patricio County within the District. This data is extracted from the Water User Survey (WUS) Database. The WUS estimates the annual groundwater use at 1,466 acre-feet/year in Nueces County and 354 acre-feet/year in San Patricio County in the year 2010 (**Appendix H**).

The District estimated its annual groundwater use at 2,100 acre-feet/year in the year 2000. This estimate is derived from 2007 State Water Plan water demand values adopted for use in the 2006 Coastal Bend Regional Water Plan as shown in **Table 4.** The 2010 Coastal Bend Regional Water Plan predictive annual pumping at Nueces County (for local supply used) was 1,567 acre-feet/year in 2000, 1,670 acre-feet/year in 2010, 1,719 acre-feet/year in 2020 and 1,963 acre-feet/year in 2060. All groundwater use is assumed to be out of the Chicot and Evangeline Formations of the Gulf Coast Aquifer.

The District recognizes that the annual groundwater availability in the portion of the Gulf Coast Aquifer underlying the District is the sum of:

- Recharge (the amount of water annually entering the aquifer through the infiltration of rainfall in the District);

- Net lateral underflow (the amount of water annually entering the District through the underground migration of water moving down-gradient within the aquifer after being recharged in aquifer outcrops lying beyond District boundaries less the amount of water which may migrate in a similar fashion outside of the District boundaries); and
- The amount of water (if any) annually taken from storage in the aquifer within the District boundaries.

The net annual amount of lateral underflow received by the aquifer underlying the District and the annual amount of water taken from storage in the aquifer within the District have yet to be determined specifically.

NUECES COUNTY								
Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974-2010 Average	GW	241	229	0	112	33	30	646
SAN PATRICIO COUNTY								
Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974-2010 Average	GW	63	0	0	105	2	3	173

All the values are in acre-feet/year

Table 3. **Average historical Groundwater Pumpage summary by County.**

RWPG	Source Name	River Basin	2000	2010	2020	2030	2040	2050	2060
N	Gulf Coast Aquifer	Nueces	2,100	2,080	2,061	2,042	2,022	2,003	1,983
	T								
Total Projected Water Availability in acre-feet /year			2,100	2,080	2,061	2,042	2,022	2,003	1,983

Table 4. **Estimates of Groundwater Availability for Nueces County**

5.3. Estimated Amount of Groundwater from Precipitation Recharge within District on Annual Basis. (31 TAC §356.53 (a)(5)(C)/TWC §36.1071.(e)(3)(C))

Recharge in the Gulf Coast aquifer occurs through the infiltration of rainfall. (Loskot et. al, 1982) The majority of the rain that falls on the land surface runs-off and is not available for recharge to the aquifer. A significant portion of the water that infiltrates the soil is lost through evapotranspiration. Another significant portion of the water that infiltrates the soil recharges the aquifer but is not held in storage because it is discharged through springs or bank seepage in creeks and rivers. (Scanlon et al, 2002) Vertical recharge to the aquifer is the fraction of the rainfall that originally infiltrated the soil and reached the aquifer to augment the amount of water in storage or available for use.

The amount of recharge to the Gulf Coast aquifer in the District is estimated to be approximately 84 acre-feet/year (**Table 5**). This estimate is based on GAM Run 12-016, in **Appendix G**, using the Central Gulf Coast aquifer GAM simulation for the District. The District recognizes that the GAM Run 8-03 was a preliminary rate used in the development of the GAM; it was subject to adjustment.

Other researchers have estimated the rate of recharge for the area of the Gulf Coast aquifer that is proximate to or including the District. Ryder (1988) estimated that the rate of recharge was less than 2 inches per year and Dutton and Richter (1990) estimated a range of 0.1 to 0.4 inches per year.

5.4. Estimate of the Amount of Water Discharged from Aquifers within the District.

(31 TAC §356.52 (a)(5)(D)/ TWC §36.1071(e)(3)(D))

The amount of water discharged from the Gulf Coast Aquifer within the District is an estimate of the annual volume of water that discharges from the aquifer to springs and surface water bodies. According to **Table 5**, this number is estimated to be approximately 225 acre-feet/year on the GAM Run 12-016, that is included in the **Appendix G**.

5.5. Estimate of the Amount of Water Flowing In and Out of the District and Between Aquifers in the District. (31 TAC §356.52 (a)(5)(E)/ TWC §36.1071(e)(3)(E))

An annual estimate of the amount of water flowing in and out of the District is estimated within the most recent GAM conducted by the TWDB. According to GAM Run 12-016, the amount of water flowing into the District is estimated to be 207 acre-feet/year with 210 acre-feet/year estimated to be flowing out of the District, showed in the table in **Table 5** (**Appendix G**). The estimated net annual volume of flow between

each aquifer in the District from brackish units to the Gulf Coast Aquifer is 147 acre-feet/year based on of the results of GAM Run 12-016.

Management Plan requirements	Aquifer	Results
Estimated annual amount of recharge from precipitation to the district	Gulf Coast Aquifer	84
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams and rivers	Gulf Coast Aquifer	255
Estimated annual volume of flow into the district within each aquifer in the district	Gulf Coast Aquifer	207
Estimated annual volume of flow out of the district within each aquifer in the district	Gulf Coast Aquifer	210
Estimated net annual volume of flow between each aquifer district	From brackish units to the Gulf Coast Aquifer	147

Table 5. **Summarized information for the Gulf Coast Aquifer that is needed for Corpus Christi Aquifer storage and recovery conservation district's groundwater management plan**. All values in acre-feet/year

6. Projected Water Supply and Demand within District

6.1 Projected surface water supply within District

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

The estimate of the projected surface water supply within the District according to the most recently adopted State Water Plan 2012 indicates a projected surface water supply for the CCASRCD in Nueces County is 80,094 acre-feet/year for the year 2020 and increasing to 95,145 acre-feet/year in the 2060 projection. In the San Patricio County, the sum of the projected surface water supplies in the State Water Plan 2012 is 528 acre-feet/year for the District for the year 2020 and 509 acre-feet/year for 2060. (**Appendix H.)**

6.2 Projected total demand for water within District

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

The estimate of the projected total demand within the District according to the most recently adopted State Water Plan 2012 (TWDB) is 91,584 acre-feet/year for the year 2020 in Nueces County and 10,179 acre-feet/year for San Patricio County in the District. Furthermore, estimates for the year 2060 are 121,433 acre-feet/year and 14,797 acre-feet/year for Nueces and San Patricio Counties respectively, specified in the State Water Plant 2012 for the CCASRCD. **(Appendix H)**

6.3 Projected water supply need and the Water management Strategies within District.

(TWC §36.1071(e)(4))

The State Water Plan 2012 projected negatives values for water supply needs for Nueces and San Patricio counties, as shown in **Appendix H**. The sum of projected water supply needs in acre-feet/year for Nueces county are -9,648 for the year 2020 and -54,947 for 2060. However, in San Patricio County, the projected water need deficiency is smaller than Nueces County. The Water Plan 2012 estimated -1 acre-feet/year for the year 2020 and -10,906 acre-feet /year for 2060. (Please refer to **Appendix H**).

6.4. Projected Water Management Strategies within District.

The projected management strategies, according to the most recently adopted State Water Plan 2012, calculated for the CCASRCD in Nueces County is 65,089 acre-feet/year for the year 2020 and 102,986 acre-feet/year in the in 2060. In the San Patricio County, the sum of the projected management strategies in the State Water Plan 2012 is 12,185 acre-feet/year in the District for the year 2020 and 43,078 acre-feet/year for 2060. (Please refer to **Appendix H**).

7. Management of Groundwater Supplies and Actions, Procedures, Performancem, and Avoidance for Plan Implementation (31 TAC §356.52 (a)(4)/ TWC §36.1071(e)(2))

This Management Plan will be used by the District as a guide to effectuate the efforts of preserving and protecting the groundwater resources of the CCASRCD. The District Rules, as well as the daily operations and activities of the District, will be consistent with the Management Plan.

The District adopted the Rules on May 5, 2011 which are included in **Appendix E**. These rules are consistent with the Management Plan and Chapter 36 of the Texas Water Code. The rules include registration and permit requirements for wells, spacing requirements, and meeting procedures, among other required topics. The rules will be enforced, and enforcement will be based on technical information available to the District.

8. District Goals, Management Objectives, and Performance Standards (31 TAC § 356.52)

8.1 Providing for the Most Efficient Use of Groundwater in the District (31 TAC §356.52 (a)(1)(A)/ TWC §36.1071(a)(1))

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

Performance Standard – The District shall, in each of its annual reports, provide the number of exempt and permitted wells registered by the District for the prior year.

8.1.2 **Objective –** The District will require permits for all new non-exempt wells constructed within the limits of the District as outlined in the District Rules.

Performance Standard – The District shall in each annual report, provide a summary of the number and type of applications made for the permitted use of groundwater in the District and the number and type of permits issued, and the total number of wells currently permitted within the District.

8.1.3 **Objective –** The District will establish a monitoring well network within the District to monitor water levels in the aquifers and monitor aquifer water quality. It is the District's intent to identify existing wells suitable for use as monitoring wells in lieu of construction of new monitoring wells.

Performance Standard –The District shall, within 36 months following adoption of this management plan and approval by TWDB, establish a monitoring well network based on the study recommendations. The District shall report on the status of the monitor well network in each annual report prior to completion of the network.

8.2 Controlling and Preventing the Waste of Groundwater in the District (31 TAC §356.52 (a)(1)(B)/ TWC §36.1071(a)(2))

8.2.1 **Objective –** Each year, the District will review and evaluate the District Rules to determine whether any amendments are needed to decrease the amount of waste of groundwater within the District. The District's review of its rules will take place during a properly noticed meeting, and any decisions regarding amendments to the District rules will be via formal District Board action and will be documented in the minutes of the Board.

Performance Standard – The District will, in each annual report, include a summary discussion of the District Board's review and decisions regarding amendments to the District Rules. Documentation in the annual report will include at minimum, the date, time, and location of the District Board meeting, and documentation (in the form of approved meeting minutes) of the Board's review and actions (if any) taken regarding rule amendments.

8.2.2 **Objective –** Each year, the District will meet with the City of Corpus Christi to identify opportunities to cooperate in providing information to the public regarding eliminating and reducing wasteful practices in the use of groundwater.

Performance Standard – Following each meeting with the City of Corpus Christi, district staff will document the topics of discussion with the City in the form of written meeting minutes, and prepare a summary of opportunities for cooperation with the City regarding public information regarding

efficient use of the District's groundwater. These opportunities will be presented to the District Board for discussion and action. The District will, in each annual report, include a summary discussion of the Board's review and decisions regarding cooperative public information activities with the City. Documentation in the annual report will include at minimum, the date, time, and location of the District Board meeting, and documentation (in the form of approved meeting minutes) of the Board's review and actions (if any) taken regarding cooperative venture. If the District Board elects to pursue cooperative activities with the City, the annual report will also include the number of cooperative activities participated in by the District, along with a summary description of each activity.

8.3 Conjunctive Surface Water Management Issues (31 TAC §356.52 (a)(1)(D)/ TWC §36.1071(a)(4))

8.3.1 **Objective** – Each year, the District will participate in the regional planning process by attending the Region L and Region N Regional Water Planning Group meetings to encourage the development of surface water supplies to meet the needs of water user groups in the District. A representative of the District will attend a minimum of 50 percent of the Region L Regional Water Planning Group meetings and a minimum of 50 percent of the Region N Regional Water Planning Group meetings.

Performance Standard – The District will, in each annual report, document the participation of District representatives in Region L and Region N meetings and the number of meetings attended in the preceding calendar year. Documentation will consist of a table listing all Region L and Region N meetings scheduled during the preceding 12 months, and the name(s) of District staff attending.

8.4 Natural Resource Issues That Affect the Use and Availability of Groundwater or are affected by the Use of Groundwater (31 TAC §356.52 (a)(1)(E)/ TWC §36.1071(a)(5))

8.4.1 **Objective** – The District will continue to investigate the location, depth, and uses of all existing water wells within the District. This investigation includes studies by agencies and consultants. The District will use this information to populate a database of water wells within its jurisdiction. The District will continuously update this database using information from the District's water well permitting process. Annually thereafter, the District will submit written requests for data from appropriate agencies of the State of Texas regarding the number, location, depth, and use of new water wells located within the District's jurisdiction, and update its database with the data received from the State agencies.

Performance Standard –The District will, using the information obtained from its continuing investigation, prepare a database that contains a quantitative listing of each water well, and other

pertinent data, located within the District's jurisdiction. A map will be prepared showing the location of each well. The District will also prepare a summary table listing each water well, and pertinent characteristics of each well, including but not limited to, location, total depth, casing and screen information, capacity, and use. The map and summary table will be included in the District's annual report.

8.5 Addressing Drought Conditions (31 TAC §356.52 (a)(1)(F)/ TWC §36.1071(a)(6))

8.5.1 **Objective –** The District will monitor City of Corpus Christi drought triggers, and as drought triggers change, meet and coordinate potential drought response with the City of Corpus Christi. (Please see **Appendix F** for the City of Corpus Christi's Drought Contingency Plan)

Performance Standard – The District will, in each of its annual reports, document the number of drought condition changes, a description of each drought condition change, and a description of any drought response actions taken by the City of Corpus Christ and/or the District.

8.6 Addressing Conservation (31 TAC §356.52 (a)(1)(G)/ TWC §36.1071(a)(7))

8.6.1 **Objective –** Each year, the District will promote water conservation by working with the City of Corpus Christi Water Department Conservation Team. At least once a year, the District will distribute, through the City, information to the public by means of brochures, public presentations, classroom presentations, displays at local events, and newspaper articles.

Performance Standard – The District will, in each annual report, include a summary of the educational efforts taken, estimated contacts made, and copies of the information distributed.

8.7 Addressing Rainwater Harvesting (31 TAC §356.52 (a)(1)(G)/ TWC §36.1071(a)(7))

8.7.1 **Objective –** Each year, the District will promote rainwater harvesting by working with the City of Corpus Christi Water Department Conservation Team. At least once a year, the District will distribute, through the City, information to the public by means of brochures, public presentations, classroom presentations, displays at local events, and newspaper articles. The District will also work with the City to implement a rainwater harvesting incentive for the citizens.

Performance Standard – The District will, in each annual report, include a summary of the efforts taken to promote rainwater harvesting, including estimated contacts made, copies of the information distributed, and the number of new rainwater harvesting systems.

8.8. Controlling and Preventing Subsidence (31 TAC §356.52 (a)(1)(G)/ TWC §36.1071(a)(7))

8.8.1 **Objective –** Within the first year following adoption of this management plan and approval by

TWDB, the District will develop a subsidence monitoring plan to monitor potential subsidence within the District. The subsidence monitoring plan will include an overall assessment of subsidence potential within the District based on projected groundwater usage and potential ASR operations, protocols for monitoring subsidence throughout the District, and protocols for coordinating potential responses to subsidence with adjacent Groundwater Conservation Districts.

Performance Standard – The District will include the subsidence monitoring plan as part of its first annual report following approval of this management plan by TWDB. The District will, in each annual report thereafter, summarize the results of the subsidence monitoring plan for the prior 12 months, including the number of any identified points of subsidence, and the number and description of any subsidence-related coordination efforts with adjacent groundwater conservation districts.

8.8.2 Objective – Within the second year after adoption of this management plan and approval by TWDB, the District will review the results of subsidence monitoring within the District and develop, as appropriate based on subsidence monitoring, a public education program regarding subsidence. Each year thereafter, the District will review annual subsidence monitoring results and its current subsidence-related public education program, and modify, as appropriate, its public education program.

Performance Standard – The District shall, in its second annual report, include its subsidence-related public education program. Annually thereafter, the District will include a summary of the number of educational programs initiated or conducted during the preceding 12 months, report the number of changes, if any, to its subsidence-related public education program, and will provide a summary of the changes to its subsidence-related education program.

8.9 Addressing in a Quantitative Manner the Desired Future Conditions of the Groundwater Resource (31 TAC §356.52 (a)(1)(H)/ TWC §36.1071(a)(8))

8.9.1 Objective – Each year, the District will sample water levels of at least three wells within the District. These results will be used over five years to calculate a five-year average.

Performance Standard – The District will, in each annual report, include the monitoring results of the samples wells. After five years, the average will be used to determine if the District is on track to the meet the DFC.

8.10 Management Goals Determined Not Applicable to the District

At this time, the District has determined that the following goals and objectives are not appropriate or cost-effective and therefore the District has determined them not to be applicable at this time:

A) Recharge Enhancement (31 TAC §356.52 (a)(1)(G)/ TWC §36.1071(a)(7))
B) Precipitation Enhancement (31 TAC §356.52 (a)(1)(G)/ TWC §36.1071(a)(7))
C) Brush Control (31 TAC §356.52 (a)(1)(G)/ TWC §36.1071(a)(7))

9. Site Specific Information Provided by District (31 TAC § 356.52 (c)/ TWC §36.1071(h))

The District did not use any information other than that provided by the TWDB when developing estimates for this current Management Plan as required in subsections 31 TAC §356.52 (a)(5)(C),(D), and (E).

References

1. Loskot, C. L., W. M. Sandeen, and C. R. Follett (1982), Ground-water resources of Colorado, Lavaca, and Wharton Counties, Texas, Texas Dept. of Water Resources Report 270, 240.

2. Scanlon, B. R., R. W. Healy, and P. G. Cook (2002), Choosing appropriate techniques for quantifying groundwater recharge, Hydrogeol. J., 10, 18-39.

3. Ryder, P. (1988), Hydrogeology and predevelopment flow in the Texas Gulf Coast Aquifer systems, 10.

4. Dutton, A. R., and B. C. Richter (1990), Regional geohydrology of the Gulf Coast Aquifer in Matagorda and Wharton Counties, Texas: Development of a numerical model to estimate the impact of water-management strategies, Bureau of Economic Geology, Univ. of Texas at Austin, Final Technical Report prepared for the Lower Colorado River Authority, 116 p.

Appendix A - Enabling Legislation SB 1831

79R11340 HLT-F

By: Hinojosa S.B. No. 1831

A BILL TO BE ENTITLED

AN ACT

relating to the creation of the Corpus Christi Aquifer Storage and Recovery Conservation District; granting the power of eminent domain.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

SECTION 1. Subtitle H, Title 6, Special District Local Laws Code, is amended by adding Chapter 8811 to read as follows:

CHAPTER 8811. CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT

SUBCHAPTER A. GENERAL PROVISIONS

Sec. 8811.001. DEFINITIONS. In this chapter:

(1) "Board" means the board of directors of the district.

(2) "Director" means a member of the board.

(3) "District" means the Corpus Christi Aquifer Storage and Recovery Conservation District.

Sec. 8811.002. NATURE OF DISTRICT. The district is a conservation and reclamation district in Kleberg, Nueces, and San Patricio Counties created under and essential to accomplish the purposes of Section 59, Article XVI, Texas Constitution. The district is created to develop and protect municipal aquifer

storage areas created by the City of Corpus Christi.

Sec. 8811.003. CONFIRMATION ELECTION NOT REQUIRED. An election to confirm the creation of the district is not required.

Sec. 8811.004. INITIAL DISTRICT TERRITORY. The initial boundaries of the district are coextensive with the city limits of the City of Corpus Christi and include:

(1) property owned by or under contract to the City of Corpus Christi in Nueces and Kleberg Counties; and

(2) in San Patricio County, property owned by or under contract to the City of Corpus Christi and bounded on the west by Interstate Highway 37 and U.S. Highway 77, on the north by the metropolitan planning organization boundary, on the east by County Road 2849, and on the south by the city limits of the City of Corpus Christi.

Sec. 8811.005. APPLICABILITY OF OTHER LAW. Except as otherwise provided by this chapter, Chapter 36, Water Code, applies to the district.

Sec. 8811.006. CREATION OF GROUNDWATER CONSERVATION DISTRICTS IN SAN PATRICIO COUNTY. (a) This chapter does not preclude the creation of a groundwater conservation district in San Patricio County.

(b) A groundwater conservation district created in San Patricio County may not limit or restrict the district from recovering water stored by the district in a municipal aquifer storage area in the district, even if the municipal aquifer storage

area is also located in the groundwater conservation district.

(c) To the extent that the boundaries of the district and a groundwater conservation district in San Patricio County overlap, the power and authority of the two districts are joint and coextensive.

(d) The district and land in the district are exempt from taxes and fees imposed by a groundwater conservation district created in San Patricio County.

[Sections 8811.007-8811.020 reserved for expansion]

SUBCHAPTER B. BOARD OF DIRECTORS

Sec. 8811.021. DIRECTORS; TERMS. (a) The district is governed by a board of five directors.

(b) Except as provided by Subsection (c), directors serve staggered four-year terms.

(c) The initial directors shall draw lots to determine which three directors shall serve four-year terms that expire at the end of the calendar year four years after the effective date of the Act creating this chapter, and which two directors shall serve two-year terms that expire at the end of the calendar year two years after the effective date of the Act creating this chapter.

Sec. 8811.022. APPOINTMENT OF DIRECTORS. The Corpus Christi City Council shall appoint the directors.

Sec. 8811.023. VACANCY. If a vacancy occurs on the board, the board may appoint a director to serve the remainder of the term.

Sec. 8811.024. OFFICERS. The board shall annually elect officers. The officers must be confirmed by the Corpus Christi City Council.

[Sections 8811.025-8811.050 reserved for expansion]

SUBCHAPTER C. POWERS AND DUTIES

Sec. 8811.051. AQUIFER STORAGE AND RECOVERY PROJECTS. The district may implement and develop aquifer storage and recovery projects.

Sec. 8811.052. MUNICIPAL AQUIFER STORAGE AREAS IN SAN PATRICIO COUNTY. The district may not allow more water to be recovered from a municipal aquifer storage area in San Patricio County than the amount of water stored by the district at the municipal aquifer storage area.

Sec. 8811.053. TAXES AND BONDS PROHIBITED. The district may not impose a tax or issue bonds.

Sec. 8811.054. PRODUCTION FEES. (a) The district may assess reasonable fees on each well in the district. A fee that is based on the amount of water withdrawn from a well may not exceed:

(1) one dollar per acre-foot for water used for the purpose of irrigating agricultural crops; or

(2) 17 cents per thousand gallons for water used for any other purpose.

(b) If the water is used for crop or livestock production or other agricultural purposes, the district may not impose on a well a fee that is more than 20 percent of the fee applied to water used

for municipal purposes.

SECTION 2. (a) The legal notice of the intention to introduce this Act, setting forth the general substance of this Act, has been published as provided by law, and the notice and a copy of this Act have been furnished to all persons, agencies, officials, or entities to which they are required to be furnished under Section 59, Article XVI, Texas Constitution, and Chapter 313, Government Code.

(b) The governor has submitted the notice and Act to the Texas Commission on Environmental Quality.

(c) The Texas Commission on Environmental Quality has filed its recommendations relating to this Act with the governor, lieutenant governor, and speaker of the house of representatives within the required time.

(d) All requirements of the constitution and laws of this state and the rules and procedures of the legislature with respect to the notice, introduction, and passage of this Act are fulfilled and accomplished.

SECTION 3. This Act takes effect immediately if it receives a vote of two-thirds of all the members elected to each house, as provided by Section 39, Article III, Texas Constitution. If this Act does not receive the vote necessary for immediate effect, this Act takes effect September 1, 2005.

Appendix B - Evidence of Public Notice and Adoption by District Board and Minutes of the Meeting of the CCASRCD Board of Directors

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT
SPECIAL MEETING AGENDA
Corpus Christi City Hall
Legal Conference Room (small) – 5th Floor
1201 Leopard Street
Corpus Christi, Texas
July 17, 2013
12:30 p.m.

POSTED
JUL 12 2013 4:00 p.m.
Armando Chapa
City Secretary

1. Call meeting to order – Roll call
   Oscar Martinez
   Margie Rose
   Fred Segundo
   Gus Gonzalez
   Pete Anaya

2. Approval of Minutes of regular meeting of April 18, 2013, and special meetings of May 10, 2013 and May 14, 2013.

3. Discussion of Long Term Water Supply

4. Discussion of Five Year Plan for District

5. Discussion and possible action regarding fiscal year and fund balance

6. Discussion and possible action regarding Resolution to GMA 15 Bylaws

7. Discussion and possible action regarding Management Plan

8. Discussion and follow up regarding well permits

9. Next meeting time – October 3, 2013

10. Identify Items to be placed on next Agenda

11. Public Comment (Limited to 3 minutes)
    Please be advised that the Open Meetings Act prohibits the District from responding and discussing your comments at length. The law only authorizes them to do the following:
    a. Make a statement of factual information.
    b. Recite an existing policy in response to the inquiry.
    c. Advise the citizen that this subject will be placed on an agenda at a later date.

12. Adjournment

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT
SPECIAL MEETING AGENDA
Corpus Christi City Hall
Legal Conference Room (small) – 5th Floor
1201 Leopard Street
Corpus Christi, Texas
July 17, 2013
12:30 p.m.

1. Call meeting to order – Roll call
   Oscar Martinez
   Margie Rose
   Fred Segundo
   Gus Gonzalez
   Pete Anaya

2. Approval of Minutes of regular meeting of April 18, 2013, and special meetings of May 10, 2013 and May 14, 2013.

3. Discussion of Long Term Water Supply

4. Discussion of Five Year Plan for District

5. Discussion and possible action regarding fiscal year and fund balance

6. Discussion and possible action regarding Resolution to GMA 15 Bylaws

7. Discussion and possible action regarding Management Plan

8. Discussion and follow up regarding well permits

9. Next meeting time – October 3, 2013

10. Identify Items to be placed on next Agenda

11. Public Comment (Limited to 3 minutes)
    Please be advised that the Open Meetings Act prohibits the District from responding and discussing your comments at length. The law only authorizes them to do the following:
    a. Make a statement of factual information.
    b. Recite an existing policy in response to the inquiry.
    c. Advise the citizen that this subject will be placed on an agenda at a later date.

12. Adjournment

FILED
AT 4:35P M O'CLOCK

JUL 12 2013

GRACIE ALANIZ GONZALES COUNTY CLERK
SAN PATRICIO COUNTY, TEXAS
BY Olivia Cantu DEPUTY

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT
SPECIAL MEETING AGENDA
Corpus Christi City Hall
Legal Conference Room (small) – 5th Floor
1201 Leopard Street
Corpus Christi, Texas
July 17, 2013
12:30 p.m.

1. Call meeting to order – Roll call
   Oscar Martinez
   Margie Rose
   Fred Segundo
   Gus Gonzalez
   Pete Anaya
2. Approval of Minutes of regular meeting of April 18, 2013, and special meetings of May 10, 2013 and May 14, 2013.
3. Discussion of Long Term Water Supply
4. Discussion of Five Year Plan for District
5. Discussion and possible action regarding fiscal year and fund balance
6. Discussion and possible action regarding Resolution to GMA 15 Bylaws
7. Discussion and possible action regarding Management Plan
8. Discussion and follow up regarding well permits
9. Next meeting time – October 3, 2013
10. Identify Items to be placed on next Agenda
11. Public Comment (Limited to 3 minutes)
    Please be advised that the Open Meetings Act prohibits the District from responding and discussing your comments at length. The law only authorizes them to do the following:
    a. Make a statement of factual information.
    b. Recite an existing policy in response to the inquiry.
    c. Advise the citizen that this subject will be placed on an agenda at a later date.
12. Adjournment

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT
SPECIAL MEETING AGENDA
Corpus Christi City Hall
Legal Conference Room (small) – 5th Floor
1201 Leopard Street
Corpus Christi, Texas
July 17, 2013
12:30 p.m.

1. Call meeting to order – Roll call
   Oscar Martinez
   Margie Rose
   Fred Segundo
   Gus Gonzalez
   Pete Anaya

2. Approval of Minutes of regular meeting of April 18, 2013, and special meetings of May 10, 2013 and May 14, 2013.

3. Discussion of Long Term Water Supply

4. Discussion of Five Year Plan for District

5. Discussion and possible action regarding fiscal year and fund balance

6. Discussion and possible action regarding Resolution to GMA 15 Bylaws

7. Discussion and possible action regarding Management Plan

8. Discussion and follow up regarding well permits

9. Next meeting time – October 3, 2013

10. Identify Items to be placed on next Agenda

11. Public Comment (Limited to 3 minutes)
    Please be advised that the Open Meetings Act prohibits the District from responding and discussing your comments at length. The law only authorizes them to do the following:
    a. Make a statement of factual information.
    b. Recite an existing policy in response to the inquiry.
    c. Advise the citizen that this subject will be placed on an agenda at a later date.

12. Adjournment

MINUTES OF THE SPECIAL MEETING OF THE BOARD OF DIRECTORS OF CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT

July 17, 2013

The Board of Directors of the Corpus Christi Aquifer Storage and Recovery Conservation District met in special session on Wednesday, July 17, 2013, in the Legal Conference Room, 5th floor, City Hall, 1201 Leopard Street, Corpus Christi, Texas, with the following in attendance:

Members:	In Attendance: (non-members)
Margie Rose, Vice-Chair	Tom Tagliabue, Director, Intergovernmental Relations
Fred Segundo, Secretary	Buck Brice, Assistant City Attorney
Gus Gonzalez	Brian Butscher, Deputy Director Water Operations
	Brent Clayton, Water Resource Planner
Absent:	Jeannie Holland, Recorder
Oscar Martinez	
Pete Anaya	

(1) **Call to Order**: The meeting was called to order by Board Vice-Chair, Margie Rose at 1:15 p.m. Roll was called. A quorum was present.

(2) **Minutes**: Minutes of the regular meeting of April 18, 2013, special meetings of May 10, 2013 and May 14, 2013 were reviewed. Motion was made by Board member Gus Gonzalez that the Minutes be approved as read. The motion was seconded by Board member Fred Segundo.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

(3) **Discussion of Long Term Water Supply:** Board member Gonzalez reported that the Mary Rhodes Pipeline Phase II is continuing on schedule with real property acquisition. Application for a 25/75 grant with the Bureau of Reclamation has been made.

(4) **Discussion of Five Year Plan for District:** The Annual Plan needs to be updated soon.

(5) **Discussion and possible action regarding Fiscal Year and Fund Balance:** Motion was made by Board member Gonzalez that this item be tabled until the next meeting. It was seconded by Board member Segundo.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

(6) **Discussion and possible action regarding Resolution to GMA 15 Bylaws:** GMA 15's ByLaws and Interlocal Agreement have been previously discussed and was reviewed. Motion was made by Board member Gonzalez to approve the GMA 15 Bylaws by executing the Resolution. The motion was seconded by Board member Segundo.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

(7) **Discussion and possible action regarding Management Plan:** Brent Clayton presented the proposed District Management Plan to be submitted to the State, pointing out that we are following the Plan. Board member Gonzalez reported that the Drought Contingency Plan is part of this Management Plan and we are working on being able to store water for a drought. This will also be addressed in the Annual Plan. Board member Gonzalez made a motion to approve the Management Plan, which was seconded by Board member Segundo.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

(8) **Discussion and follow up regarding Well Permits:** It was determined by the Board that this item will be discussed at the next meeting, with someone from Development Services being invited to discuss permit processing.

(9) **Next Meeting Time:** October 3, 2013

(10) **Items to be Placed on next Agenda**: Items to be placed on the Agenda for the next meeting include: 1) Discussion of long term water supply; 2) Discussion of Five-year Plan for District; 3) Discussion and possible action regarding fiscal year and fund balance; 4) Discussion and possible action regarding well permits; 5) Discussion and possible action regarding replacement of Board member Oscar Martinez upon his retirement.

(11) There was no Public Comment

(12) The meeting was adjourned by a Motion by Board Member Gonzalez and seconded by Board member Segundo at 1:30 p.m.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

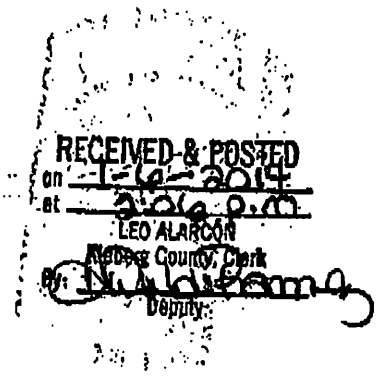
_____
Fred Segundo, Secretary

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT
REGULAR MEETING AGENDA
Corpus Christi City Hall
Legal (Small) Conference Room – 5th Floor
1201 Leopard Street
Corpus Christi, Texas
January 9, 2014
1:30 p.m.

FILED
AT 2:05P M O'CLOCK
JAN 06 2014
GRACIE ALANIZ-GONZALES, COUNTY CLERK
SAN PATRICIO COUNTY, TEXAS
BY Alma Castro DEPUTY

1. Call meeting to order – Roll call
   Margie Rose
   Fred Segundo
   Gus Gonzalez
   Pete Anaya
2. Approval of Minutes of meeting of October 10, 2013.
3. Discussion and possible action regarding election of officers (Tabled from October 10, 2013 meeting)
4. Discussion and possible action regarding replacement of Board member Pete Anaya for remainder of his term.
5. Discussion and possible action regarding approval of Management Plan
6. Discussion and possible action regarding fiscal year Resolution and fund balance (Tabled from October 10, 2013 meeting)
7. Discussion and possible action regarding well permits and applications (Tabled from October 10, 2013 meeting)
8. Discussion and possible action regarding renewing bonds for board members
9. Next meeting time – April 3, 2014
10. Discussion of long term water supply
11. Discussion of Five Year Plan for District
12. Public Comment (Limited to 3 minutes)
    Please be advised that the Open Meetings Act prohibits the District from responding and discussing your comments at length. The law only authorizes them to do the following:
    a. Make a statement of factual information.
    b. Recite an existing policy in response to the inquiry.
    c. Advise the citizen that this subject will be placed on an agenda at a later date.
13. Identify Items to be placed on next Agenda
14. Adjournment

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT
REGULAR MEETING AGENDA
Corpus Christi City Hall
Legal (Small) Conference Room – 5th Floor
1201 Leopard Street
Corpus Christi, Texas
January 9, 2014
1:30 p.m.



1. Call meeting to order – Roll call
   Margie Rose
   Fred Segundo
   Gus Gonzalez
   Pete Anaya
2. Approval of Minutes of meeting of October 10, 2013.
3. Discussion and possible action regarding election of officers (Tabled from October 10, 2013 meeting)
4. Discussion and possible action regarding replacement of Board member Pete Anaya for remainder of his term.
5. Discussion and possible action regarding approval of Management Plan
6. Discussion and possible action regarding fiscal year Resolution and fund balance (Tabled from October 10, 2013 meeting)
7. Discussion and possible action regarding well permits and applications (Tabled from October 10, 2013 meeting)
8. Discussion and possible action regarding renewing bonds for board members
9. Next meeting time – April 3, 2014
10. Discussion of long term water supply
11. Discussion of Five Year Plan for District
12. Public Comment (Limited to 3 minutes)
    Please be advised that the Open Meetings Act prohibits the District from responding and discussing your comments at length. The law only authorizes them to do the following:
    a. Make a statement of factual information.
    b. Recite an existing policy in response to the inquiry.
    c. Advise the citizen that this subject will be placed on an agenda at a later date.
13. Identify Items to be placed on next Agenda
14. Adjournment

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT
REGULAR MEETING AGENDA
Corpus Christi City Hall
Legal (Small) Conference Room – 5th Floor
1201 Leopard Street
Corpus Christi, Texas
January 9, 2014
1:30 p.m.

POSTED
11:42am
JAN 06 2014
Rebecca Huerta
City Secretary

1. Call meeting to order – Roll call
   Margie Rose
   Fred Segundo
   Gus Gonzalez
   Pete Anaya

2. Approval of Minutes of meeting of October 10, 2013.

3. Discussion and possible action regarding election of officers (Tabled from October 10, 2013 meeting)

4. Discussion and possible action regarding replacement of Board member Pete Anaya for remainder of his term.

5. Discussion and possible action regarding approval of Management Plan

6. Discussion and possible action regarding fiscal year Resolution and fund balance (Tabled from October 10, 2013 meeting)

7. Discussion and possible action regarding well permits and applications (Tabled from October 10, 2013 meeting)

8. Discussion and possible action regarding renewing bonds for board members

9. Next meeting time – April 3, 2014

10. Discussion of long term water supply

11. Discussion of Five Year Plan for District

12. Public Comment (Limited to 3 minutes)
    Please be advised that the Open Meetings Act prohibits the District from responding and discussing your comments at length. The law only authorizes them to do the following:
    a. Make a statement of factual information.
    b. Recite an existing policy in response to the inquiry.
    c. Advise the citizen that this subject will be placed on an agenda at a later date.

13. Identify Items to be placed on next Agenda

14. Adjournment

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT
REGULAR MEETING AGENDA
Corpus Christi City Hall
Legal (Small) Conference Room – 5th Floor
1201 Leopard Street
Corpus Christi, Texas
January 9, 2014
1:30 p.m.

1. Call meeting to order – Roll call
   Margie Rose
   Fred Segundo
   Gus Gonzalez
   Pete Anaya
2. Approval of Minutes of meeting of October 10, 2013.
3. Discussion and possible action regarding election of officers (Tabled from October 10, 2013 meeting)
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5. Discussion and possible action regarding approval of Management Plan
6. Discussion and possible action regarding fiscal year Resolution and fund balance (Tabled from October 10, 2013 meeting)
7. Discussion and possible action regarding well permits and applications (Tabled from October 10, 2013 meeting)
8. Discussion and possible action regarding renewing bonds for board members
9. Next meeting time – April 3, 2014
10. Discussion of long term water supply
11. Discussion of Five Year Plan for District
12. Public Comment (Limited to 3 minutes)
    Please be advised that the Open Meetings Act prohibits the District from responding and discussing your comments at length. The law only authorizes them to do the following:
    a. Make a statement of factual information.
    b. Recite an existing policy in response to the inquiry.
    c. Advise the citizen that this subject will be placed on an agenda at a later date.
13. Identify Items to be placed on next Agenda
14. Adjournment

UNAPPROVED MINUTES OF THE REGULAR MEETING
OF THE BOARD OF DIRECTORS OF
CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY
CONSERVATION DISTRICT

January 9, 2014

The Board of Directors of the Corpus Christi Aquifer Storage and Recovery Conservation District met in regular session on Thursday, January 9, 2014, in the Legal Conference Room, 5th floor, City Hall, 1201 Leopard Street, Corpus Christi, Texas, with the following in attendance:

Members:	In Attendance: (non-members)
Margie Rose, Vice-Chair	Buck Brice, Assistant City Attorney
Fred Segundo, Secretary	Brent Clayton, Water Resource Planner
Dan Biles*	Tom Tagliabue, Director, Intergovernmental Relations
	Jeannie Holland, Legal Assistant

Absent:
Gus Gonzalez

*Dan Biles was appointed to the CCASRCD Board of Directors by Corpus Christi City Council on December 10, 2013.

(1) **Call Meeting to Order**: The meeting was called to order by Board Vice-Chair, Margie Rose at 1:55 p.m. Roll was called. A quorum was present.

(2) **Approval of Minutes**: Minutes of the regular meeting of October 10, 2013 were reviewed. Motion was made by Board member Fred Segundo that the Minutes be approved. The motion was seconded by Board member Dan Biles.

Ayes: Board members Rose, Segundo and Biles
Nays: None

(3) **Discussion and possible action regarding election of officers**: Discussion was had and it was determined that this item should be tabled until the next meeting. Motion was made by Board member Dan Biles that this item be tabled until the next meeting. The motion was seconded by Board member Fred Segundo.

Ayes: Board members Rose, Segundo and Biles
Nays: None

(4) **Discussion and possible action regarding replacement of Board member Pete Anaya for remainder of his term**: Discussion was had. Motion was made by Board member Fred Segundo to nominate Tom Tagliabue to be recommended to the City Council to replace Pete Anaya on the Board. The motion was seconded by Board member Dan Biles.

Ayes: Board members Rose, Segundo and Biles
Nays: None

Assistant City Attorney Buck Brice advised that pursuant to Special District Local Laws Code, Title 6, Subtitle H, Chapter 8811, Sec. 8811.023, this Board has the authority to appoint a member to the Board to replace a member who has left. Discussion was had. Motion was made by Board member Dan Biles to rescind the aforementioned Motion. It was seconded by Board member Fred Segundo.

Ayes: Board members Rose, Segundo and Biles
Nays: None

Motion was subsequently made by Board member Dan Biles to appoint Tom Tagliabue to replace Pete Anaya for the remainder of Mr. Anaya's term on the Board. The motion was seconded by Board member Fred Segundo.

Ayes: Board members Rose, Segundo and Biles
Nays: None

(5) **Discussion and possible action regarding approval of Management Plan:** Brent Clayton advised that in July the Board approved the Management Plan which was submitted to TWDB. After submission, TWDB requested additional information. Brent reported that Appendix I was added to the Management Plan and needs the Board's approval before re-submitting it. Appendix I was reviewed. Board member Dan Biles made the motion to approve the Appendix I attachment to the Management Plan. The motion was seconded by Board member Fred Segundo.

Ayes: Board members Rose, Segundo and Biles
Nays: None

(6) **Discussion and possible action regarding Fiscal Year Resolution and Fund Balance:** Discussion was had regarding the fiscal year of the District. Motion was made by Board member Fred Segundo to change the fiscal year of the District to coincide with the fiscal year of the City of Corpus Christi, anticipating that the City of Corpus Christi is proposing a change to its fiscal year, and this motion includes the proposed change of the City, if approved by Council. The motion was seconded by Board member Dan Biles.

Ayes: Board members Rose, Segundo and Biles
Nays: None

(7) **Discussion and possible action regarding well permits and applications:** Brent Clayton provided a proposed Application for Exempt Well Permit for approval. It was reviewed and discussed. Brent has received two applications for permits. The well drillers report to the State and therefore, we may not have a record of all wells in the

District. It was requested that a study be performed and that Brent report back to the Board at the July meeting the percentage of wells in the District that are registered. Board member Fred Segundo moved that the proposed Application for Exempt Well Permit be approved. The motion was seconded by Board member Dan Biles.

Ayes: Board members Rose, Segundo and Biles
Nays: None

(8) **Discussion and possible action regarding renewing bonds for Board members**: The renewal bonds were presented to and signed by the present Board members to be kept on file with the Board. Jeannie Holland will contact the insurance company for applications for the new Board members' bonds.

(9) **Next Meeting Time:** April 3, 2014

(10) **Discussion of Long Term Water Supply:** Board member Dan Biles reported that we will soon have news regarding the Mary Rhodes Phase II.

(11) **Discussion of Five Year Plan for District:** Brent Clayton reported that he is working on the Strategic Supply Plan.

(12) **Items to be Placed on next Agenda**: Items to be placed on the Agenda for the next meeting include: 1) Discussion and possible action regarding election of officers; 2) Discussion and possible action to change the meeting time; 3) Status of INTERA Groundwater Study; 4) Discussion of long term water supply; 4) Discussion of Five-year Plan for District.

(13) There was no Public Comment

(14) The meeting was adjourned by a Motion by Board Member Dan Biles and seconded by Board member Fred Segundo at 2:17 p.m.

Ayes: Board members Rose, Segundo and Biles
Nays: None

_____
Fred Segundo, Secretary

Appendix C
Evidence of Coordination with Regional Surface Water Entities

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Felix Saenz, General Manager
P.O. Box 136
Falfurrias, TX 78355

RE: Adopted Groundwater Management Plan

Dear Mr. Saenz:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Brent Clayton

From: Brent Clayton
Sent: Friday, July 19, 2013 3:46 PM
To: general_manager@kenedygcd.com
Cc: Brent Clayton
Subject: Corpus Christi ASR Conservation District Groundwater Management Plan
Attachments: Kenedy County GCD Letter.pdf; combined CCASRCD Mgmt Plan 2013 w Appendices.pdf

Andy,

Please find attached the Corpus Christi Aquifer Storage and Recovery Conservation District Groundwater Management Plan, which was adopted by the Board of Directors on July 17, 2013. This Plan is for your review before the District submits it to the State next month.
Also attached is the formal cover letter addressed to you.
Thanks and let me know if you have any questions.

Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
(361) 826-1670
brentc@cctexas.com

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Andy Garza, District Manager
Kenedy County Groundwater Conservation District
100 E. Kleberg, Suite 304
P.O. Box 1433
Kingsville, Texas 78364-1433

RE: Adopted Groundwater Management Plan

Dear Mr. Garza:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Brent Clayton

From: Brent Clayton
Sent: Friday, July 19, 2013 3:48 PM
To: Lonnie Stewart
Cc: Brent Clayton
Subject: Corpus Christi ASR Conservation District Groundwater Management Plan
Attachments: combined CCASRCD Mgmt Plan 2013 w Appendices.pdf; Live Oak GCD letter.pdf

Lonnie,

Please find attached the Corpus Christi Aquifer Storage and Recovery Conservation District Groundwater Management Plan, which was adopted by the Board of Directors on July 17, 2013. This Plan is for your review before the District submits it to the State next month.
Also attached is the formal cover letter addressed to you.
Thanks and let me know if you have any questions.

Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
(361) 826-1670
brentc@cctexas.com

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Lonnie Stewart, Manager
Live Oak Underground water Conservation District
3460A HWY 281
George West, TX 78022

RE: Adopted Groundwater Management Plan

Dear Mr. Stewart:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Brent Clayton

From: Brent Clayton
Sent: Friday, July 19, 2013 3:26 PM
To: rfreund@nueces-ra.org
Cc: Brent Clayton
Subject: Corpus Christi ASR Conservation District Groundwater Management Plan
Attachments: combined CCASRCD Mgmt Plan 2013 w Appendices.pdf; NRA Letter.pdf

Rocky,
Please find attached the Corpus Christi Aquifer Storage and Recovery Conservation District Groundwater Management Plan, which was adopted by the Board of Directors on July 17, 2013. This Plan is for your review before the District submits it to the State.
Also attached is the formal cover letter addressed to you.
Thanks and let me know if you have any questions.

Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
(361) 826-1670
brentc@cctexas.com

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Nueces River Authority, Coastal Bend Division
Rocky Freund , Deputy Executive Director
400 Mann Street, Suite 1002
Corpus Christi, Texas 78401-2045

RE: Adopted Groundwater Management Plan

Dear Ms. Freund:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Brent Clayton

From: Brent Clayton
Sent: Friday, July 19, 2013 3:50 PM
To: pbrzozowski@lnra.org
Cc: Brent Clayton
Subject: Corpus Christi ASR Conservation District Groundwater Management Plan
Attachments: Region P Letter.pdf; combined CCASRCD Mgmt Plan 2013 w Appendices.pdf

Patrick,
Please find attached the Corpus Christi Aquifer Storage and Recovery Conservation District Groundwater Management Plan, which was adopted by the Board of Directors on July 17, 2013. This Plan is for your review before the District submits it to the State next month.
Also attached is the formal cover letter addressed to you.
Thanks and let me know if you have any questions.

Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
(361) 826-1670
brentc@cctexas.com

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Patrick Brzozowski, P.E., General Manager
Region P Regional Water Planning Group
Lavaca-Navidad River Authority
4631 FM 3131
Edna, Texas 77957

RE: Adopted Groundwater Management Plan

Dear Mr. Brzozowski:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Charles Ring, Chairman
San Patricio County Groundwater Conservation District
15410 CR 600
Sinton, TX 78387

RE: Adopted Groundwater Management Plan

Dear Mr.Ring:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Brent Clayton

From: Brent Clayton
Sent: Friday, July 19, 2013 3:34 PM
To: Brian Williams
Cc: Brent Clayton
Subject: Corpus Christi ASR Conservation District Groundwater Management Plan
Attachments: SPMWD Letter.pdf; combined CCASRCD Mgmt Plan 2013 w Appendices.pdf

Brian,
Please find attached the Corpus Christi Aquifer Storage and Recovery Conservation District Groundwater Management Plan, which was adopted by the Board of Directors on July 17, 2013. This Plan is for your review before the District submits it to the State next month.
Also attached is the formal cover letter addressed to you.
Thanks and let me know if you have any questions.

Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
(361) 826-1670
brentc@cctexas.com

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Brian Williams, General Manager
San Patricio Municipal Water District
P.O. Box 940
Ingleside, Texas 78362

RE: Adopted Groundwater Management Plan

Dear Mr. Williams:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Brent Clayton

From: Brent Clayton
Sent: Friday, July 19, 2013 3:51 PM
To: Carola G. Serrato
Cc: Brent Clayton
Subject: Corpus Christi ASR Conservation District Groundwater Management Plan
Attachments: combined CCASRCD Mgmt Plan 2013 w Appendices.pdf; STWA and Region N Letter.pdf

Carola,

Please find attached the Corpus Christi Aquifer Storage and Recovery Conservation District Groundwater Management Plan, which was adopted by the Board of Directors on July 17, 2013. This Plan is for your review before the District submits it to the State next month.
Also attached is the formal cover letter addressed to you.
Thanks and let me know if you have any questions.

Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
(361) 826-1670
brentc@cctexas.com

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Carola G. Serrato , Executive Director
South Texas Water Authority
and
Region N Regional Water Planning Group
111 East Sage Road
Kingsville, TX 78364

RE: Adopted Groundwater Management Plan

Dear Ms. Serrato:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 22, 2013

Ronnie Hoelscher, General Manager
Violet Water Supply Corporation
P.O. Box 1146
Robstown, TX 78380

RE: Adopted Groundwater Management Plan

Dear Mr. Hoelscher:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Brent Clayton

From: Brent Clayton
Sent: Friday, July 19, 2013 3:38 PM
To: Prichard@nueceswater3.com
Cc: Brent Clayton
Subject: Corpus Christi ASR Conservation District Groundwater Management Plan
Attachments: combined CCASRCD Mgmt Plan 2013 w Appendices.pdf; WCID 3 Letter.pdf

Phillip,
Please find attached the Corpus Christi Aquifer Storage and Recovery Conservation District Groundwater Management Plan, which was adopted by the Board of Directors on July 17, 2013. This Plan is for your review before the District submits it to the State next month.
Also attached is the formal cover letter addressed to you.
Thanks and let me know if you have any questions.

Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
(361) 826-1670
brentc@cctexas.com

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Philip J. Richard, District Manager
Nueces County WCID #3
501 East Main Street
Robstown, TX 78380

RE: Adopted Groundwater Management Plan

Dear Mr. Richard:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Corpus Christi Aquifer Storage & Recovery Conservation District

2726 Holly Road
Corpus Christi, TX 78415
361-826-1600

July 19, 2013

Mark Young, District Manager
Nueces County Water Control & Improvement District #4
315 South Ninth Street
Port Aransas, TX 78373

RE: Adopted Groundwater Management Plan

Dear Mr. Young:

The Corpus Christi Aquifer Storage & Recovery Conservation District (CCASRCD) Board of Directors adopted the Groundwater Management Plan on July 17, 2013 during a public meeting.

CCASRCD has enclosed a copy of the adopted management plan for your review and comment, for the purposes of coordinating development of CCASRCD's management plan, as required by State of Texas laws and regulations.

Please direct any comments or questions to:

Mr. Brent Clayton
Water Resource Planner
City of Corpus Christi Water Department
2726 Holly Road
Corpus Christi, TX 78415
361-826-1670
BrentC@cctexas.com

Sincerely,

Gustavo Gonzalez, P.E.

Board Member

Appendix D - Projected Groundwater Availability through 2060 using the Central Gulf Coast Groundwater Availability Model

Table A-1. Summary of estimated historic pumpage included in the groundwater availability model for the central part of the Gulf Coast Aquifer (in acre-feet per year).

Time Period	Total	Aransas	Austin	Bee	Brazoria	Brooks	Calhoun	Colorado	De Witt	Duval	Fayette
1920 - 1940	0	0	0	0	0	0	0	0	0	0	0
1940 - 1980	612,566	1,153	9,541	6,048	24,402	1,299	13,093	67,670	4,791	4,913	3,406
1981	593,921	1,263	9,333	5,594	23,841	1,295	10,970	61,521	4,665	4,576	3,313
1982	577,116	1,337	9,374	6,097	20,931	1,318	8,857	56,003	5,178	4,585	3,332
1983	552,769	1,404	9,181	5,545	19,198	1,413	6,713	50,033	4,832	4,384	3,091
1984	534,413	1,494	9,236	5,475	18,278	1,412	4,640	42,474	5,199	4,223	3,214
1985	486,448	1,467	7,948	3,221	19,829	1,321	4,516	41,977	5,068	3,620	3,491
1986	471,260	1,457	8,337	2,571	14,548	2,333	4,292	43,005	4,581	3,619	3,207
1987	411,599	1,342	7,075	2,059	15,074	1,911	3,778	37,038	4,824	4,999	3,303
1988	554,466	1,374	8,962	2,466	16,064	1,745	4,829	51,099	5,017	4,135	3,474
1989	396,370	1,440	9,265	3,786	9,736	1,824	4,536	29,221	5,316	4,853	3,510
1990	491,683	1,598	9,941	5,180	10,323	1,316	3,136	48,515	5,154	5,314	3,512
1991	429,632	1,575	9,295	5,430	10,541	1,502	3,787	45,844	4,287	4,876	3,064
1992	486,910	1,556	10,982	3,994	44,384	4,691	3,499	45,360	4,282	5,211	3,359
1993	416,265	1,598	6,378	2,594	12,175	5,947	3,219	22,012	4,212	7,830	3,617
1994	414,360	1,792	7,237	2,396	10,043	6,233	2,852	27,234	4,318	9,551	3,597
1995	432,290	1,601	6,714	1,861	11,835	6,373	3,830	25,725	4,461	8,507	3,567
1996	495,277	1,682	8,022	4,157	11,172	5,139	4,009	33,159	4,692	9,103	3,694
1997	375,675	1,555	6,711	2,819	9,943	4,536	1,476	25,214	4,487	8,352	3,603
1998	477,118	1,827	8,147	5,157	11,630	5,020	1,596	29,771	4,602	7,177	3,449
1999	437,082	1,827	8,159	4,057	12,674	4,040	1,517	33,236	4,587	7,749	3,750

Table A-1. (continued)

Time Period	Fort Bend	Goliad	Gonzales	Jackson	Jim Hogg	Jim Wells	Karnes	Kenedy	Kleberg	Lavaca	Live Oak
1920 - 1940	0	0	0	0	0	0	0	0	0	0	0
1940 - 1980	16,149	1,203	4	140,820	581	5,857	2,467	125	9,020	29,665	3,211
1981	18,187	1,194	4	131,251	699	5,572	2,357	119	7,978	28,285	3,446
1982	20,218	1,126	4	121,494	913	5,815	2,579	116	8,336	27,251	4,422
1983	22,270	1,134	4	111,267	967	5,760	2,924	115	7,649	26,231	4,323
1984	24,270	1,155	4	101,729	1,102	5,711	3,191	111	7,343	25,190	4,705
1985	14,185	1,113	4	76,278	1,136	4,828	2,702	104	6,626	19,034	5,928
1986	13,454	1,166	4	75,576	1,008	5,450	2,983	107	7,321	17,505	4,467
1987	11,288	1,131	4	73,073	944	5,003	3,047	114	6,405	15,596	4,213
1988	18,658	1,146	4	100,922	944	5,007	3,103	109	6,473	19,307	4,342
1989	14,869	1,324	4	71,208	397	4,131	1,737	103	6,438	17,094	4,037
1990	20,813	1,364	4	97,016	771	4,468	3,152	106	6,914	18,284	5,403
1991	17,700	1,238	4	79,275	1,007	4,211	2,668	105	6,396	14,618	6,363
1992	12,766	1,277	4	69,165	1,193	3,756	2,465	80	6,129	15,666	6,922
1993	13,020	1,152	4	62,536	924	3,888	2,310	89	6,118	13,361	5,671
1994	13,058	1,159	4	72,314	1,116	4,188	2,301	73	5,888	16,040	5,342
1995	12,613	1,104	4	62,385	1,047	3,916	2,506	69	6,263	14,222	4,575
1996	14,216	1,187	4	81,744	1,258	4,237	3,108	79	7,046	21,790	4,945
1997	8,983	1,160	4	44,783	713	3,807	2,416	73	6,941	10,117	3,584
1998	15,559	1,249	4	63,930	1,217	4,979	2,806	127	7,456	12,809	3,341
1999	8,808	1,234	4	53,615	981	4,761	2,897	104	5,209	11,376	2,420

Table A-1. (continued)

Time Period	Matagorda	McMullen	Nueces	Refugio	San Patricio	Victoria	Washington	Webb	Wharton
1920 - 1940	0	0	0	0	0	0	0	0	0
1940 - 1980	40,058	49	3,320	1,949	4,205	39,727	4	129	176,120
1981	39,603	38	3,447	1,890	4,449	39,963	5	139	176,386
1982	39,609	36	4,075	1,990	5,166	39,397	5	138	175,477
1983	40,643	29	4,501	1,705	5,897	37,660	5	142	172,017
1984	41,511	42	5,432	1,789	6,595	37,846	5	140	169,355
1985	35,989	28	5,488	1,625	4,491	29,071	5	135	183,435
1986	36,022	28	4,469	1,644	4,832	26,145	5	181	178,040
1987	31,127	29	3,921	1,586	4,181	26,111	5	118	139,691
1988	44,293	30	4,842	1,545	4,665	32,403	5	153	204,261
1989	19,012	27	2,817	1,545	3,896	32,826	5	158	138,217
1990	38,430	27	2,405	1,418	3,907	26,889	6	134	163,428
1991	37,859	29	2,352	1,345	3,828	24,067	6	137	134,140
1992	29,653	20	2,211	1,291	2,700	24,555	6	133	177,229
1993	29,070	19	2,394	1,271	3,059	25,946	6	144	173,646
1994	26,147	26	2,290	1,302	3,043	28,870	6	111	153,096
1995	35,867	26	2,323	1,310	3,122	26,209	5	130	177,269
1996	36,993	40	2,932	1,482	3,267	28,600	5	128	193,996
1997	14,287	28	3,242	1,344	3,201	23,953	5	122	172,970
1998	14,187	31	5,401	1,499	4,244	27,027	6	139	226,095
1999	11,829	29	3,097	1,263	3,748	24,542	6	143	214,181

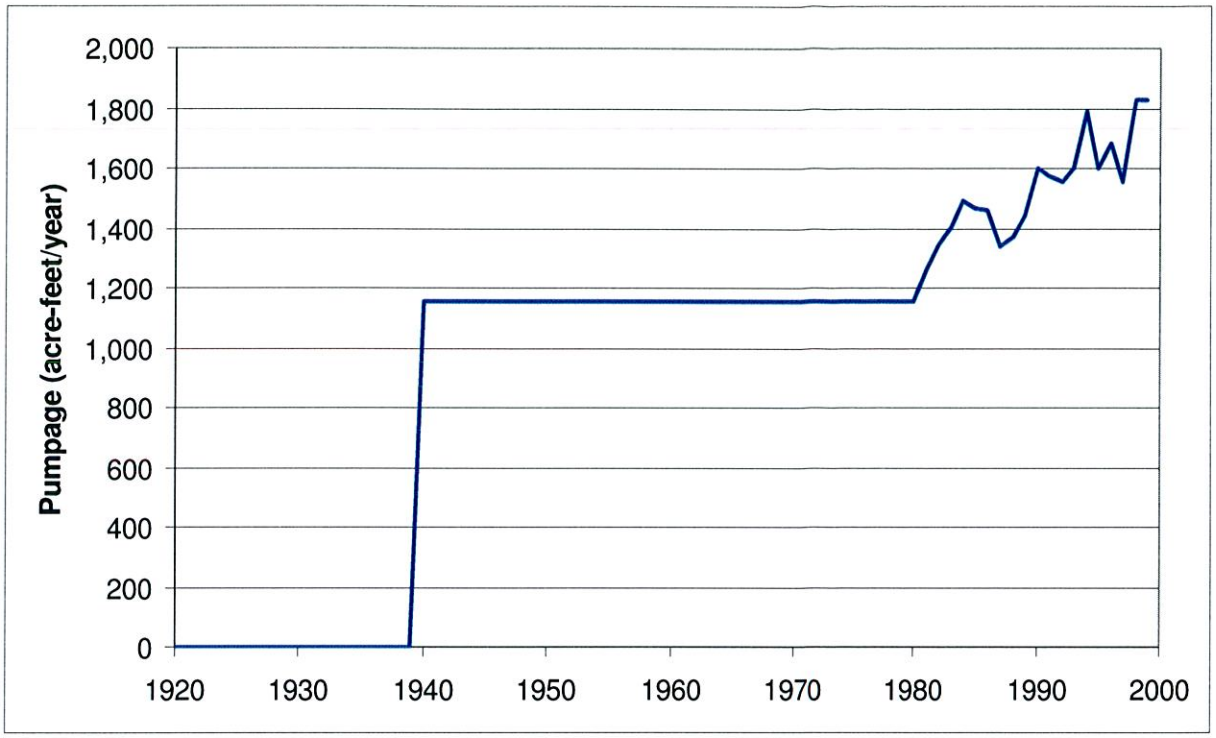

Figure A-1- Pumpage in Aransas County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

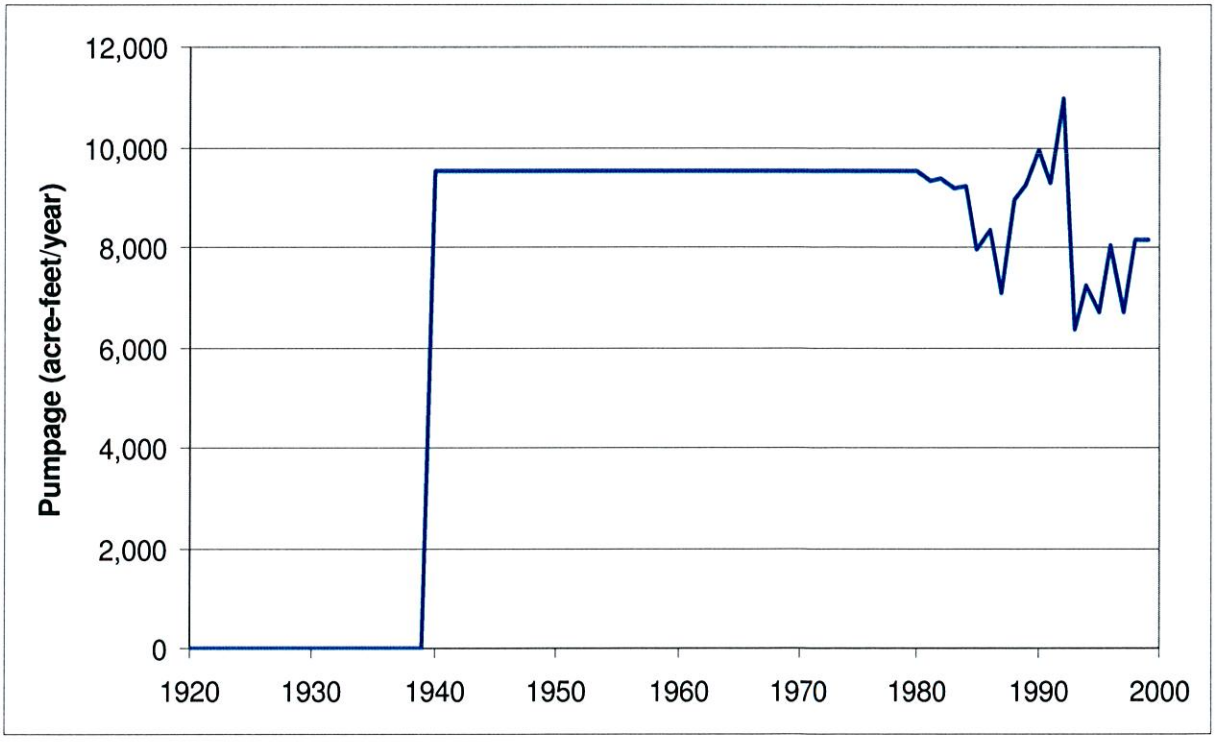

Figure A-2- Pumpage in Austin County included in groundwater availability model for the central part of the Gulf Coast Aquifer.

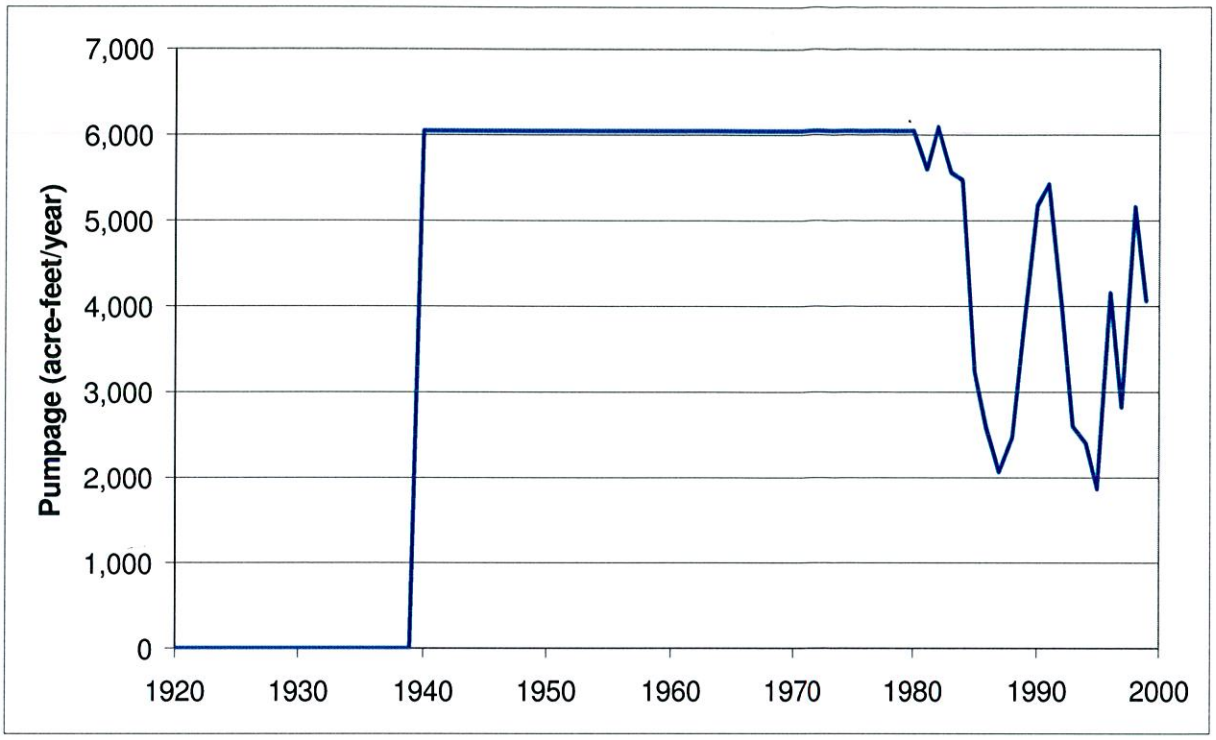

Figure A-3- Pumpage in Bee County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

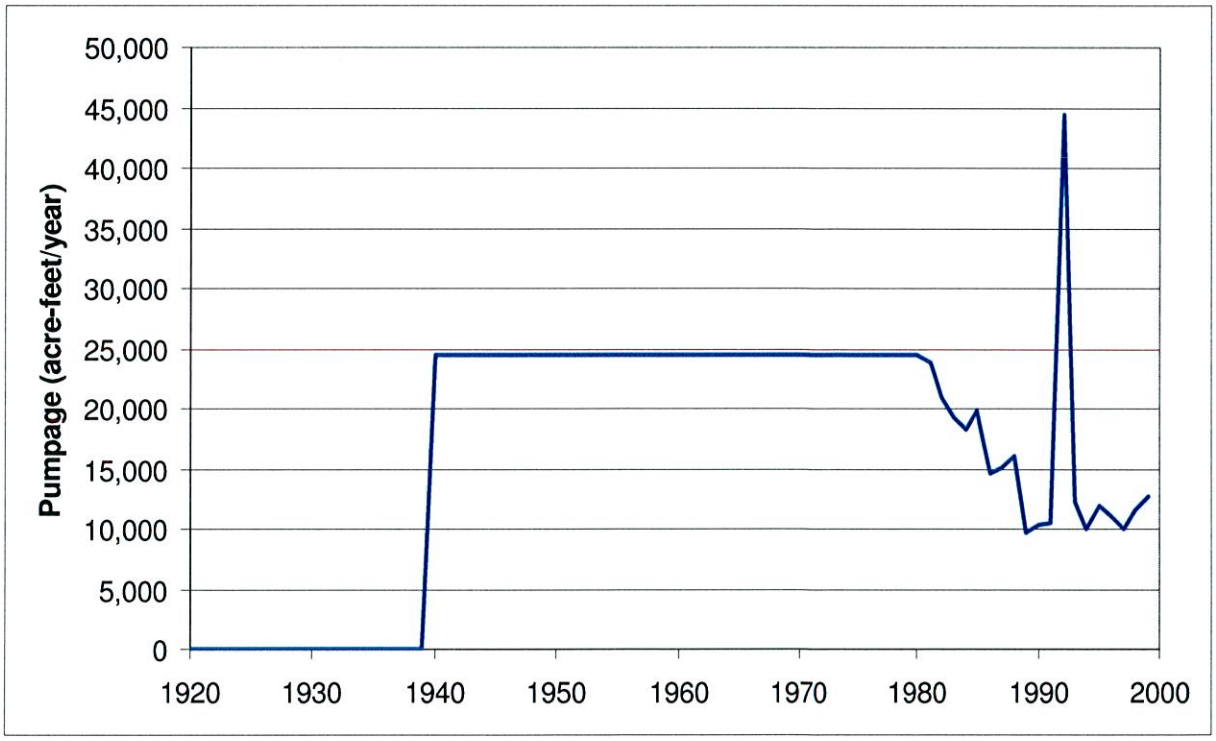

Figure A-4- Pumpage in Brazoria County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

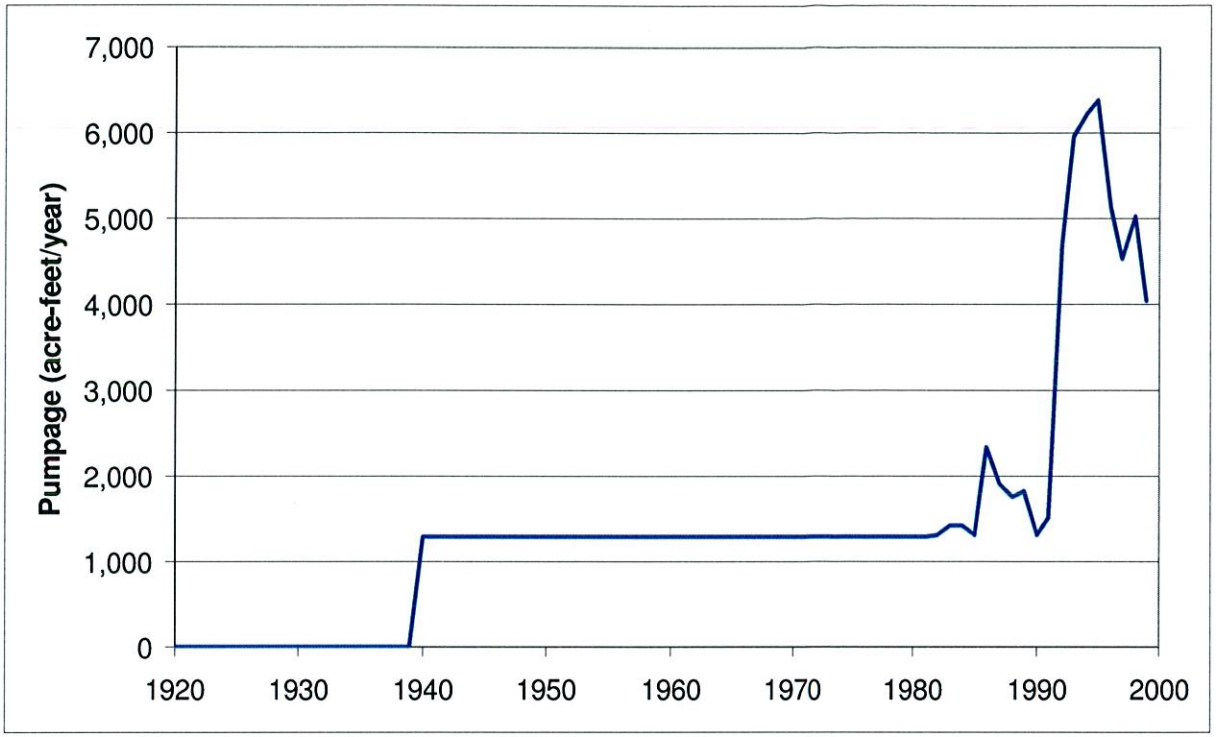

Figure A-5- Pumpage in Brooks County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

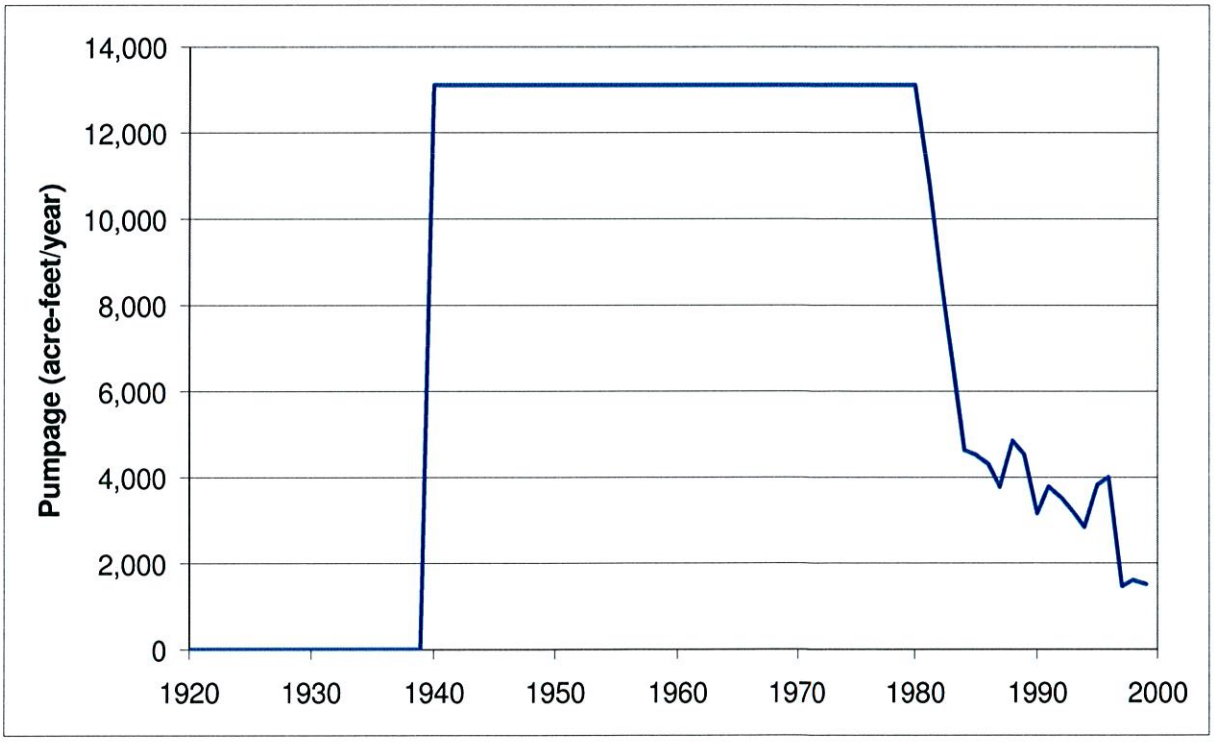

Figure A-6- Pumpage in Calhoun County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

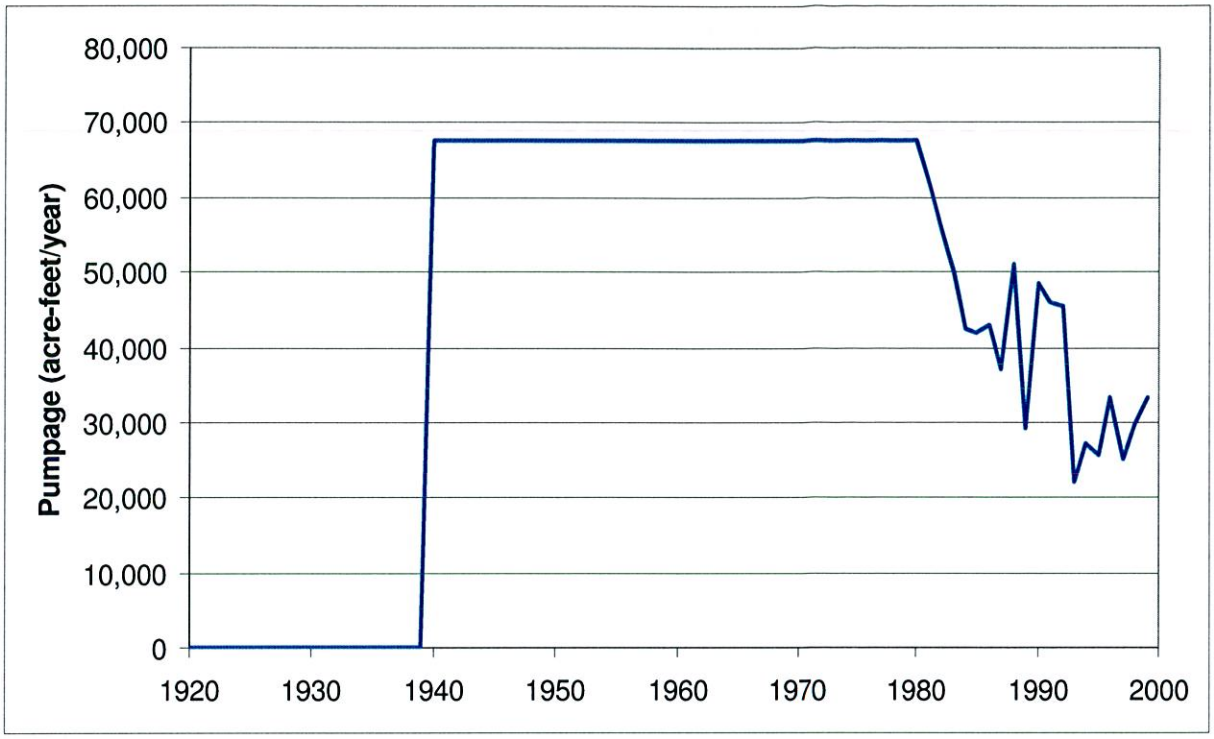

Figure A-7- Pumpage in Colorado County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

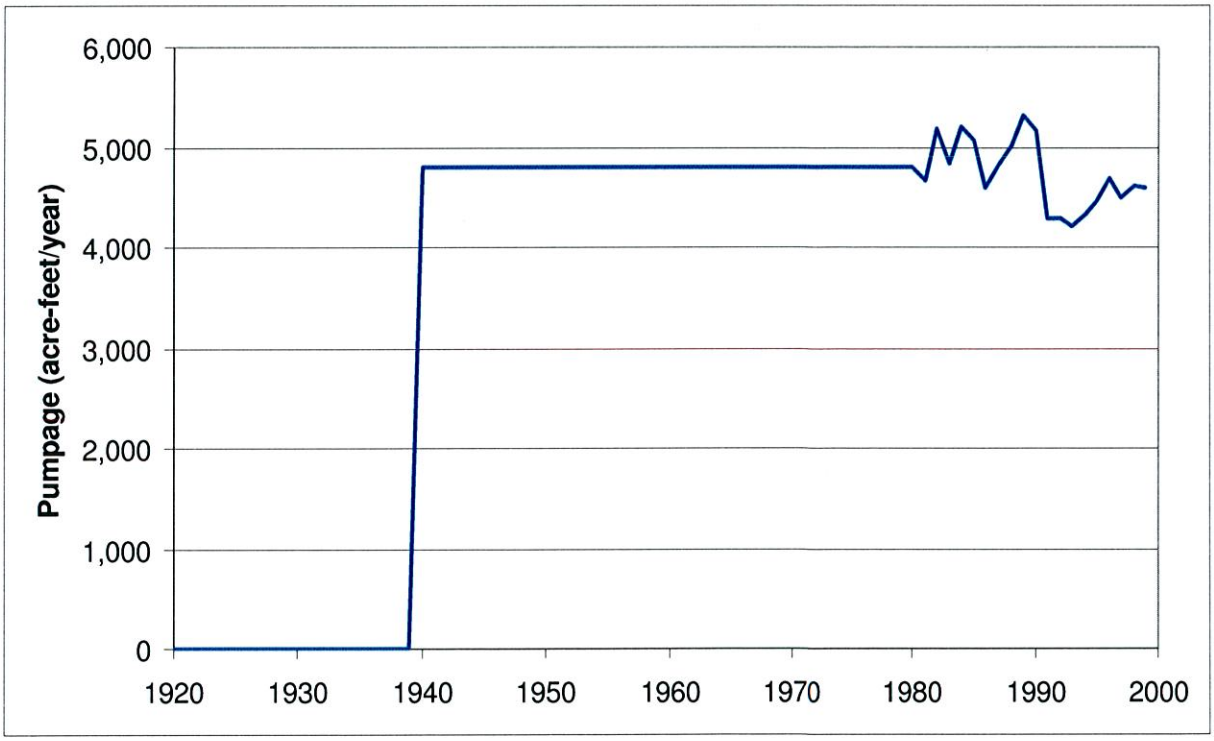

Figure A-8- Pumpage in De Witt County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

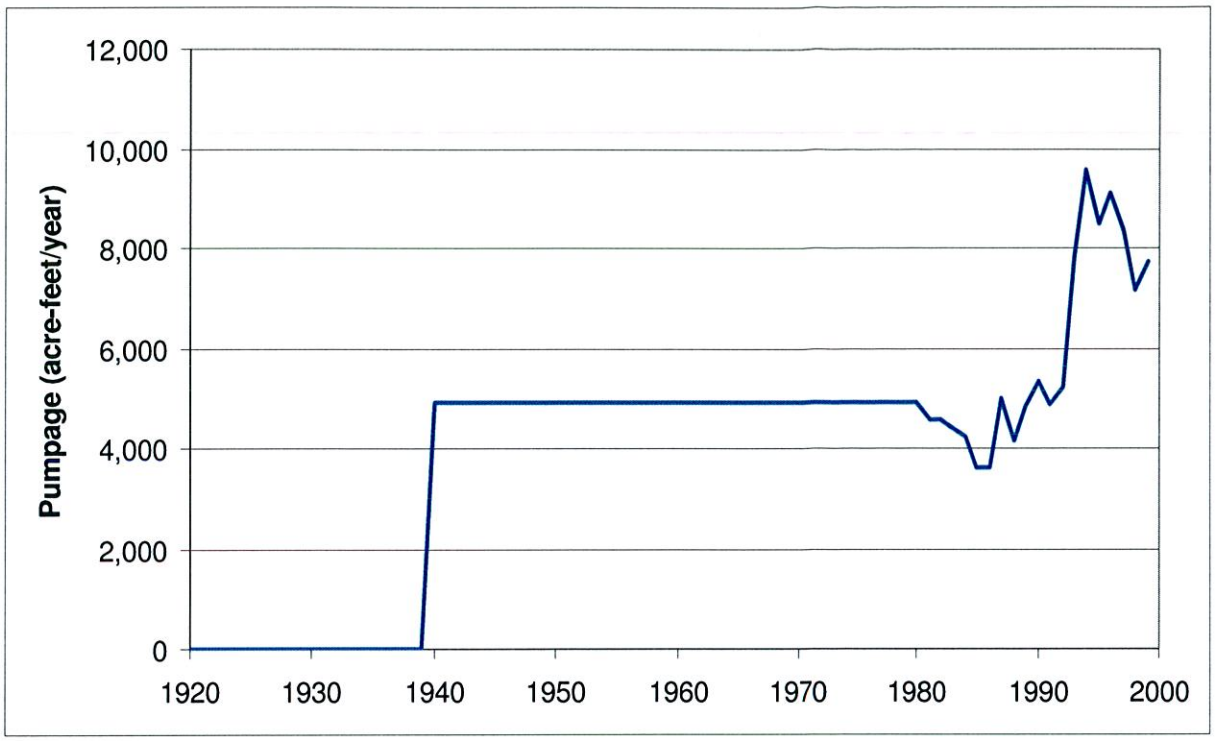

Figure A-9- Pumpage in Duval County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

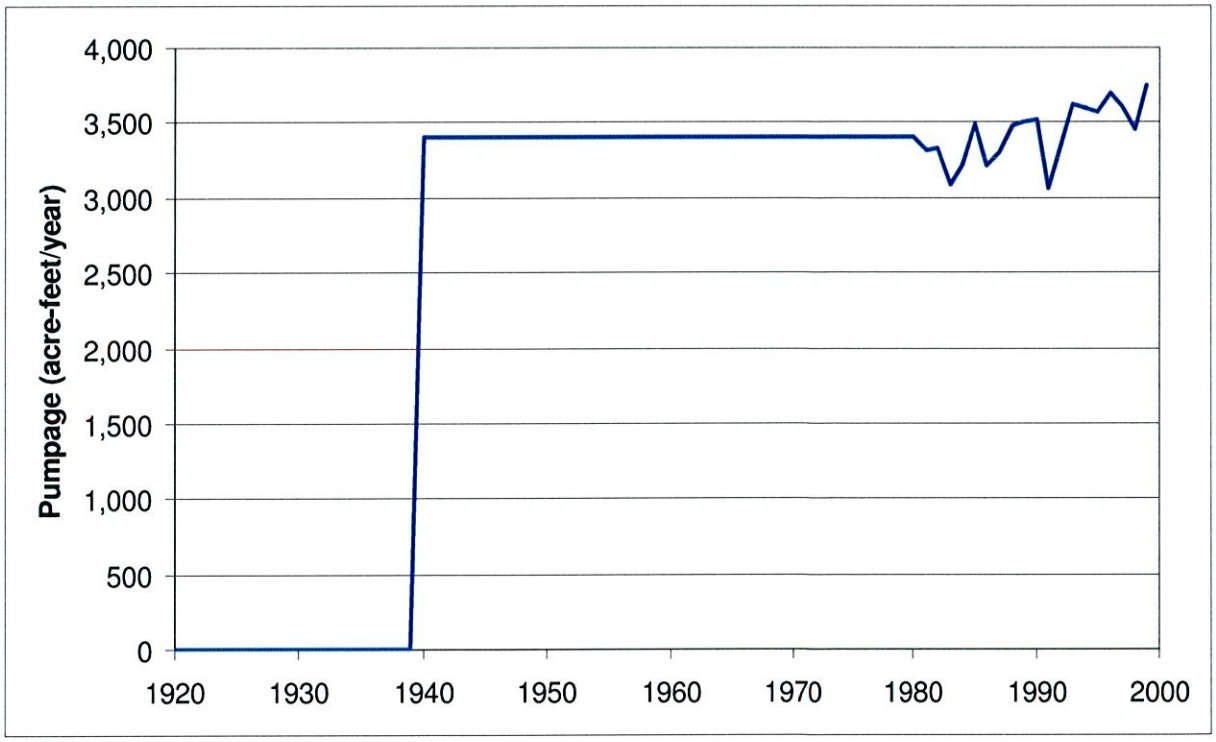

Figure A-10- Pumpage in Fayette County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

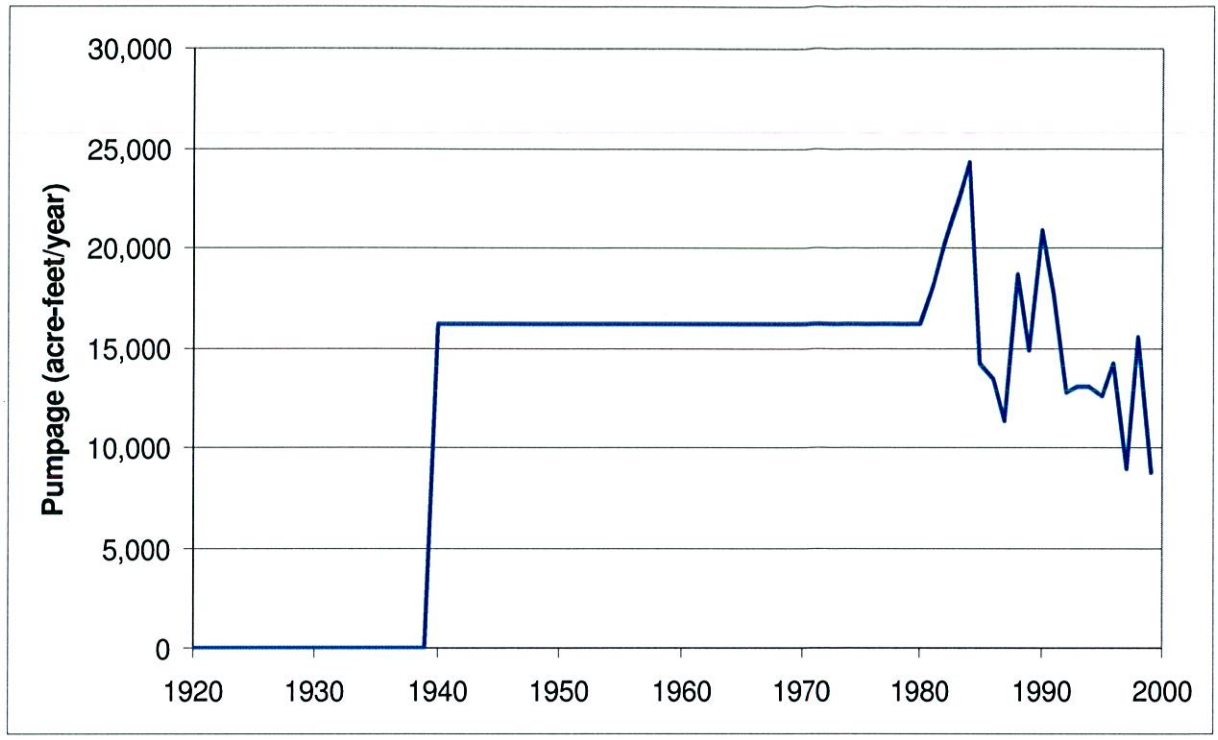

Figure A-11- Pumpage in Fort Bend County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

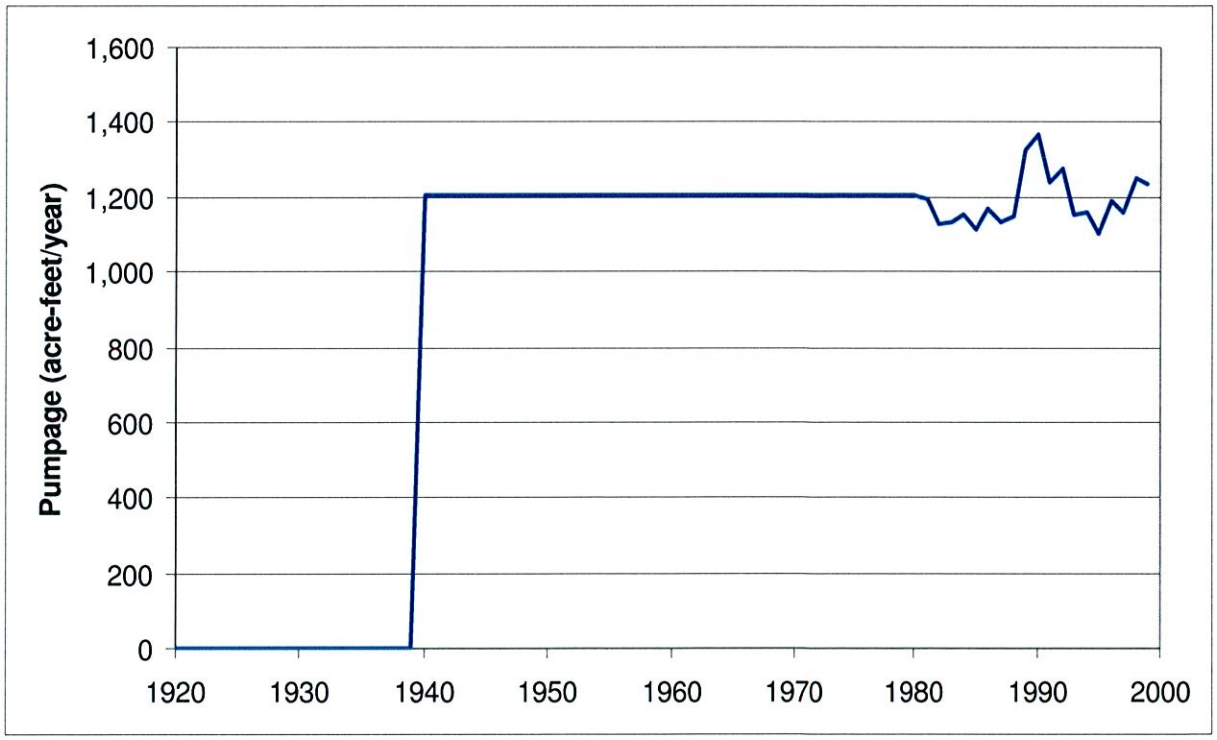

Figure A-12- Pumpage in Goliad County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

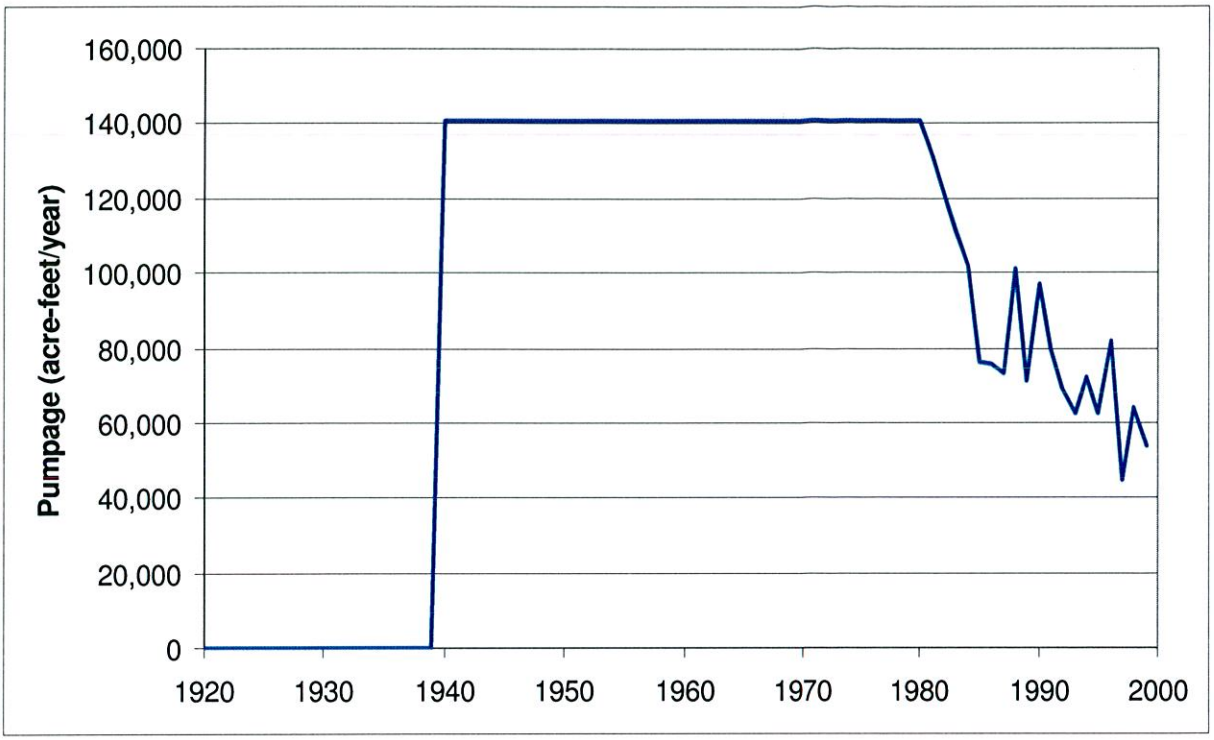

Figure A-13- Pumpage in Jackson County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

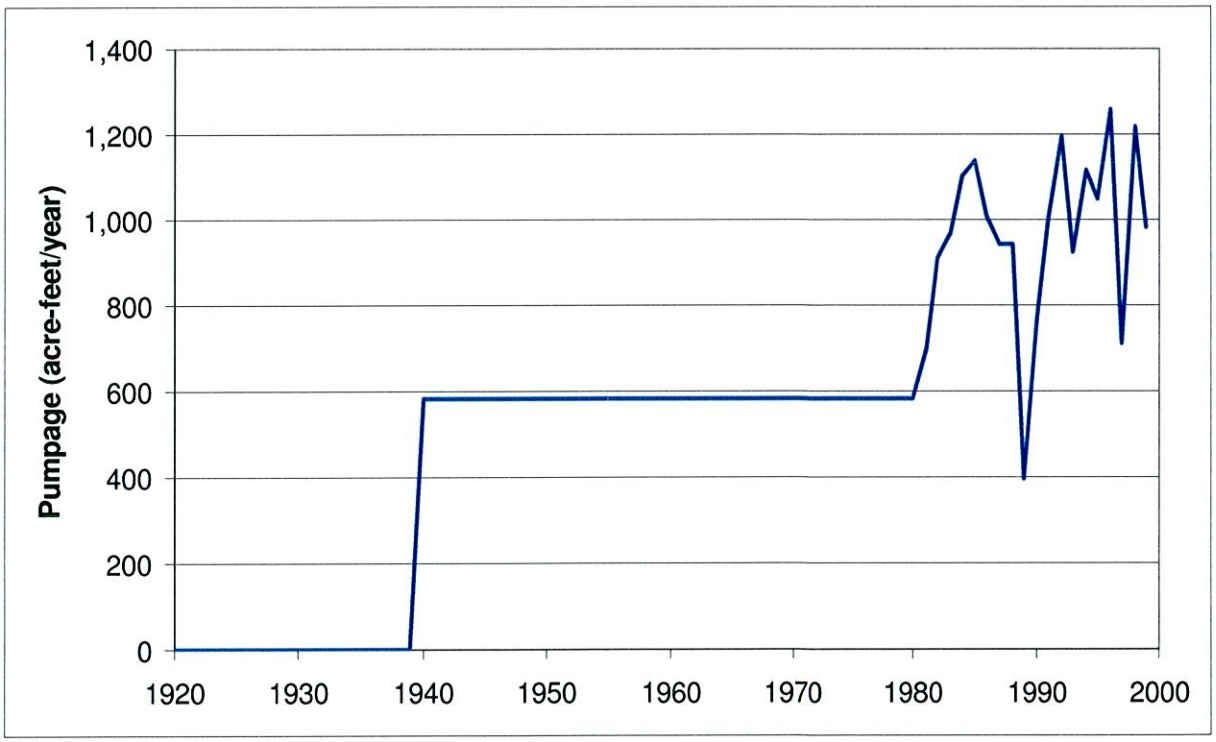

Figure A-14- Pumpage in Jim Hogg County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

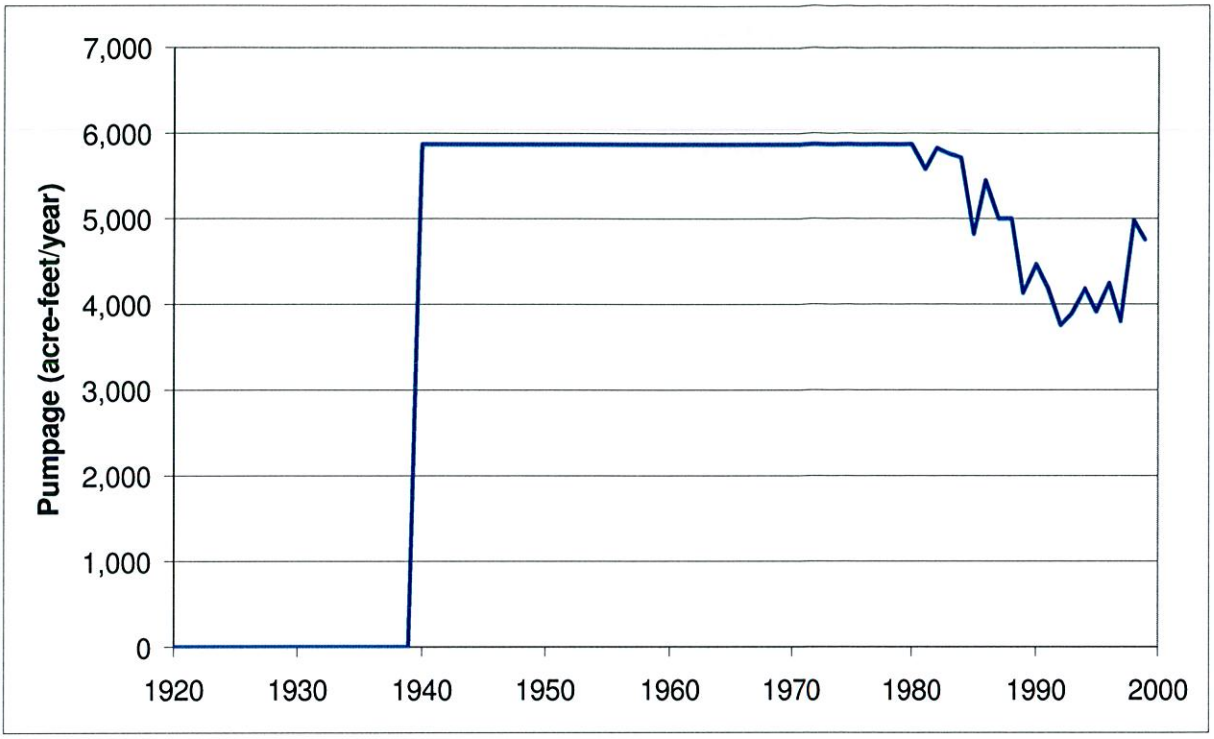

Figure A-15- Pumpage in Jim Wells County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

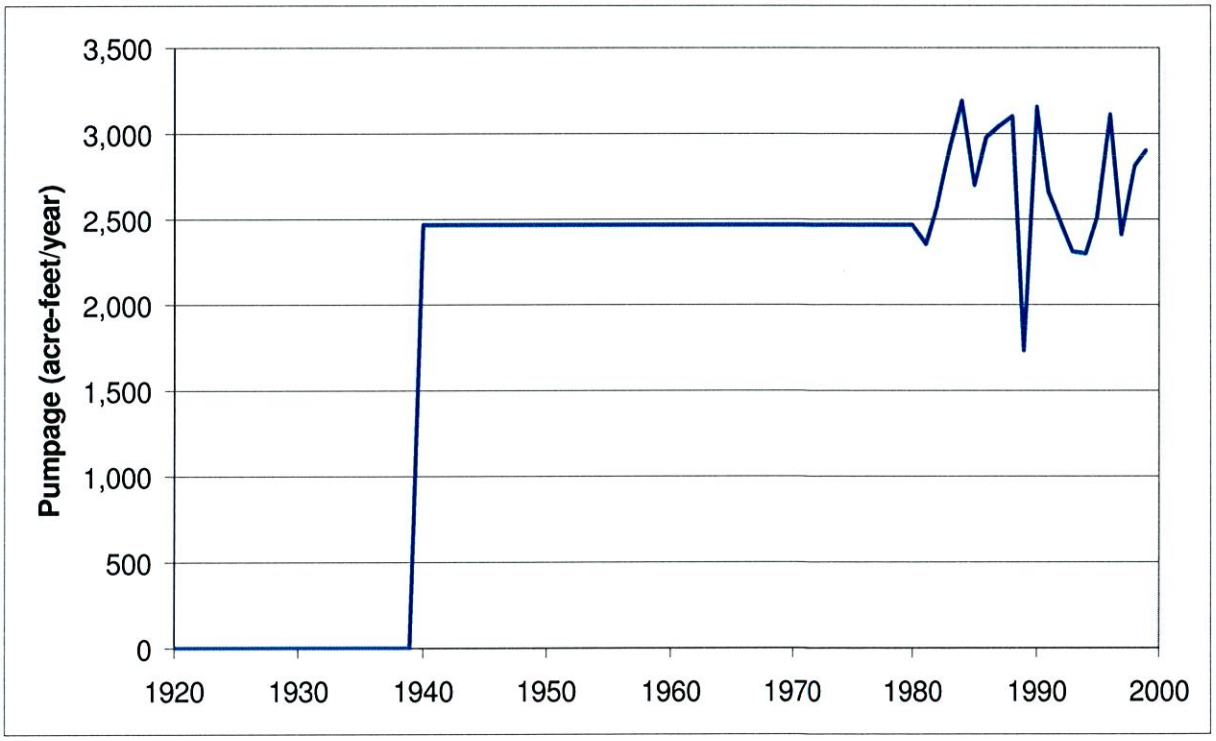

Figure A-16- Pumpage in Karnes County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

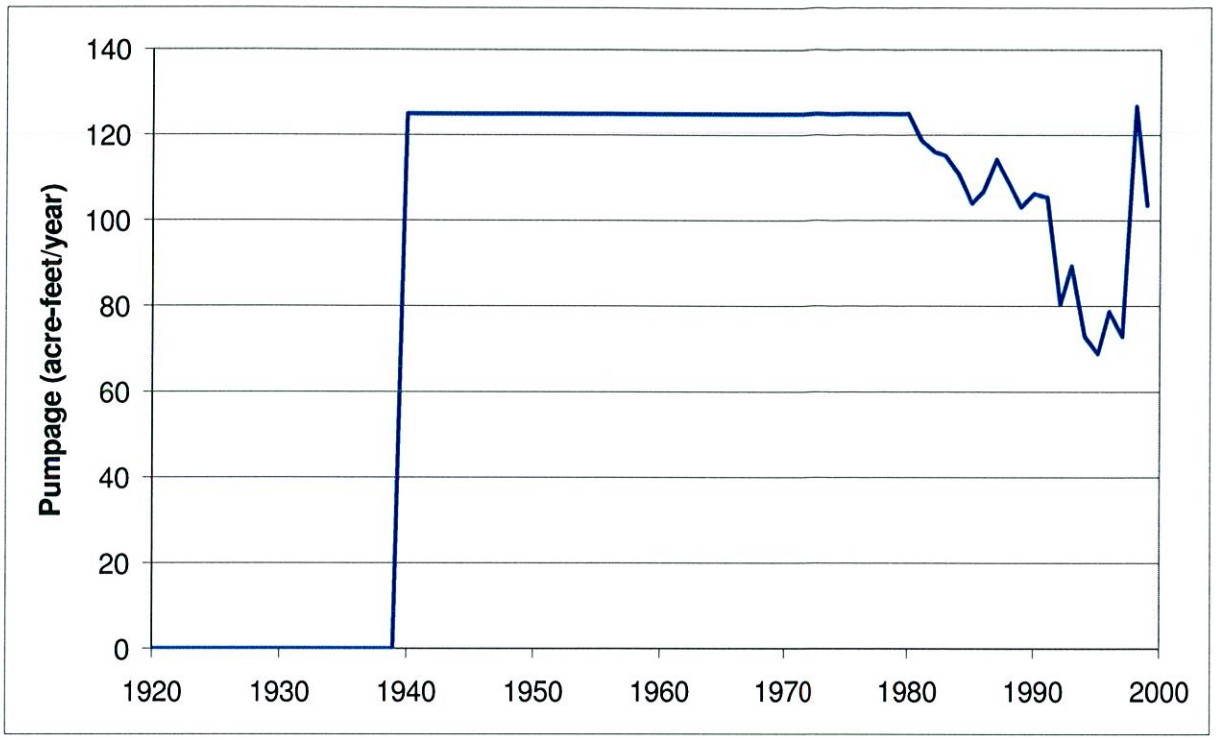

Figure A-17- Pumpage in Kenedy County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

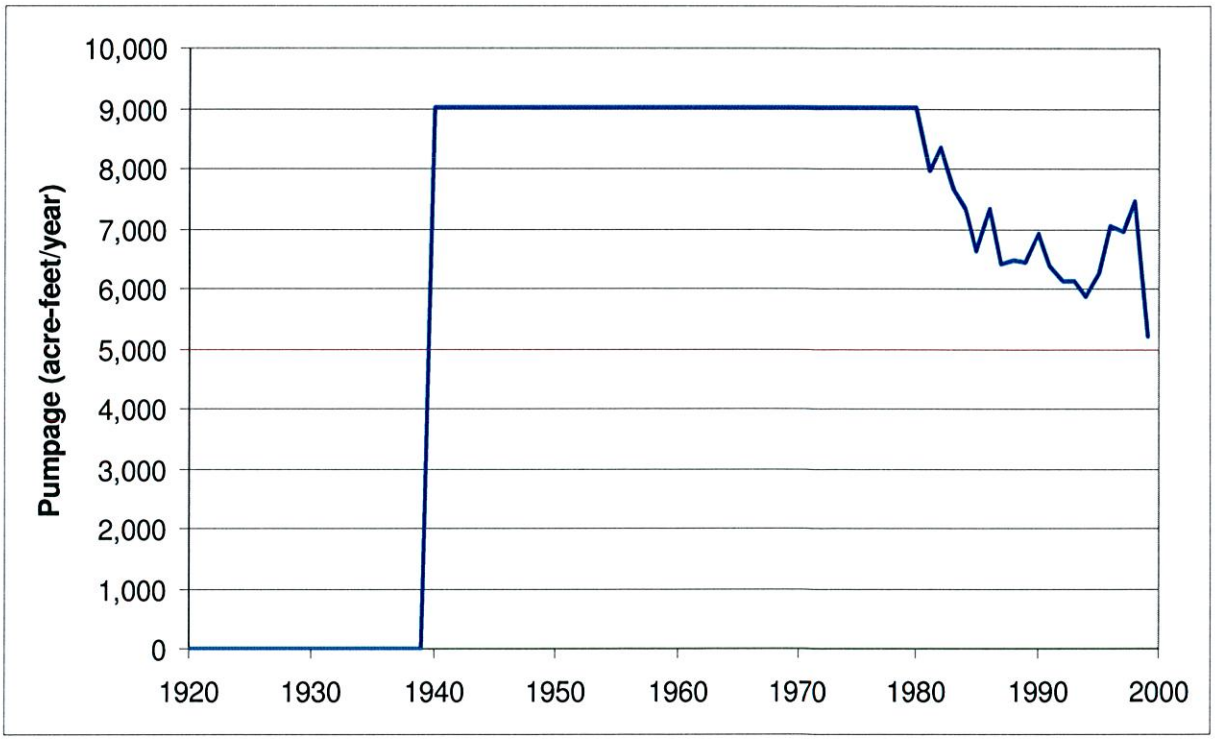

Figure A-18- Pumpage in Kleberg County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

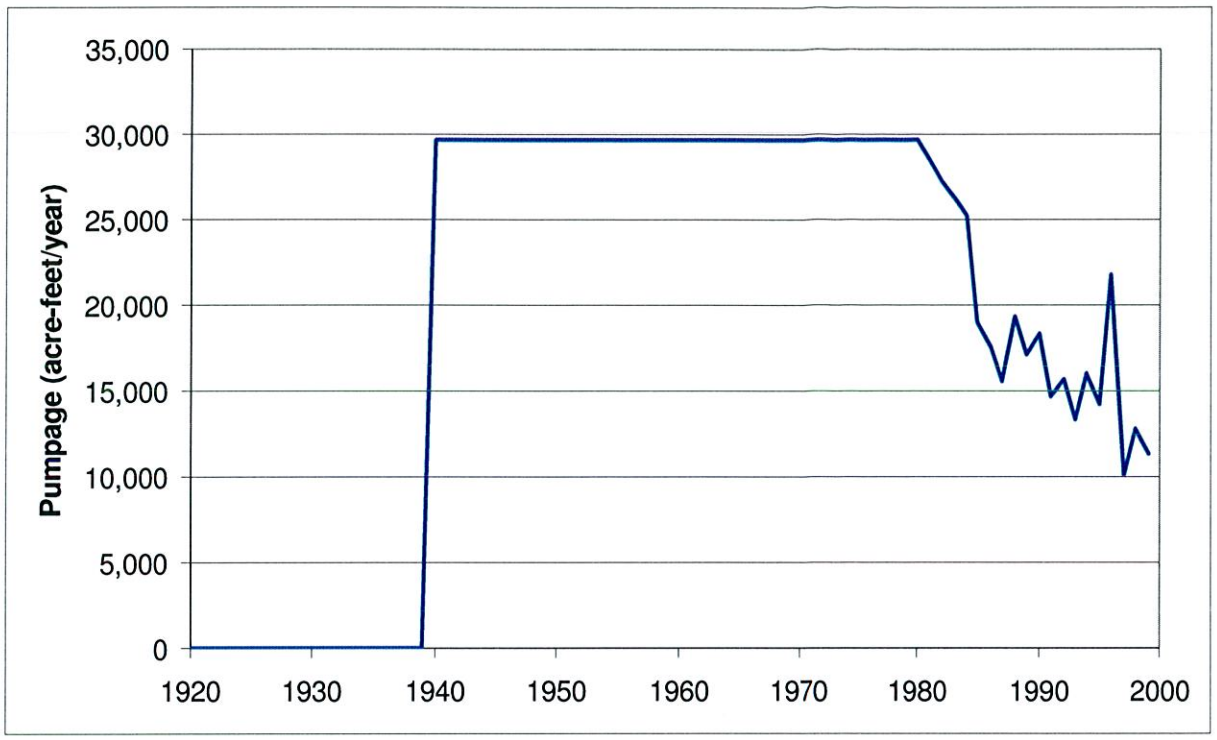

Figure A-19- Pumpage in Lavaca County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

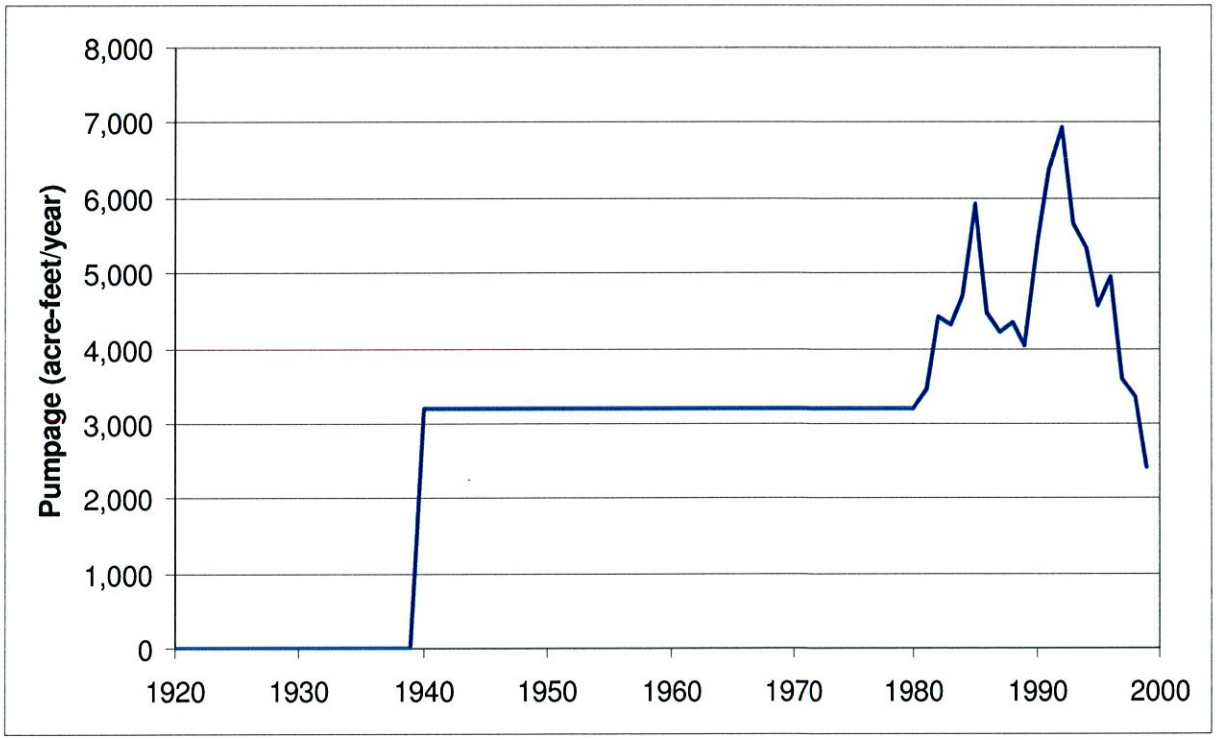

Figure A-20- Pumpage in Live Oak County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

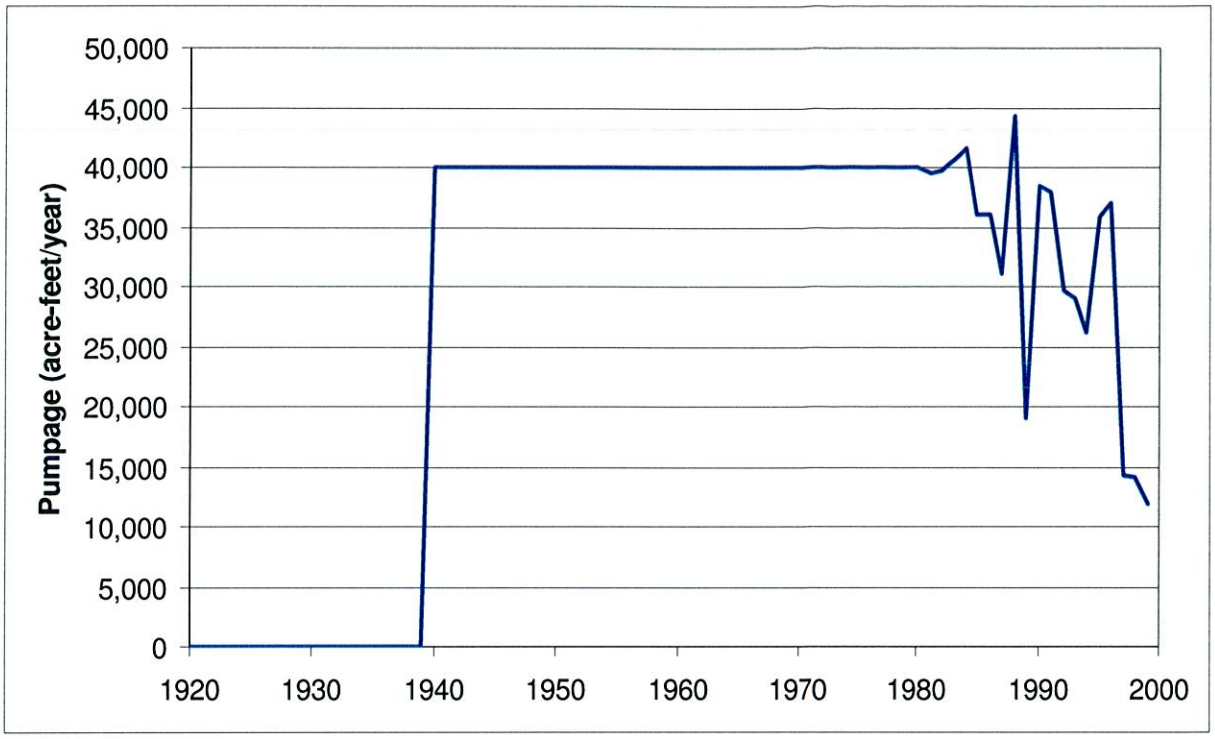

Figure A-21- Pumpage in Matagorda County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

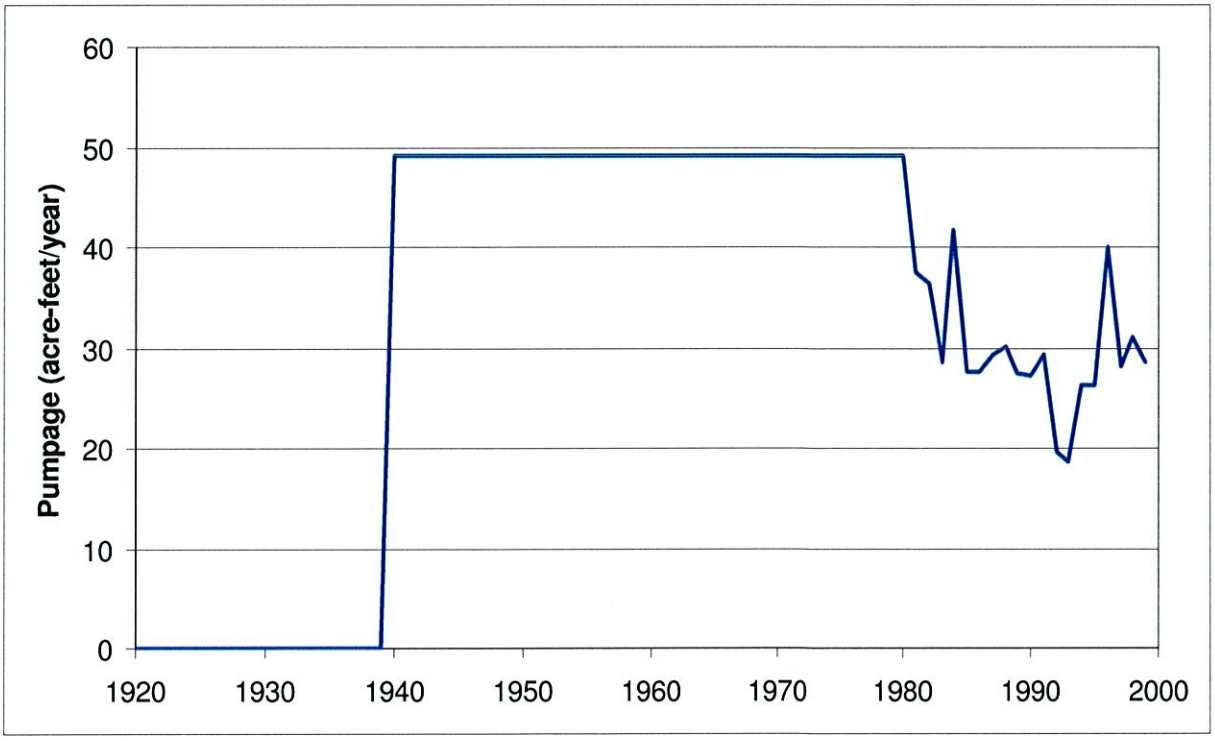

Figure A-22- Pumpage in McMullen County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

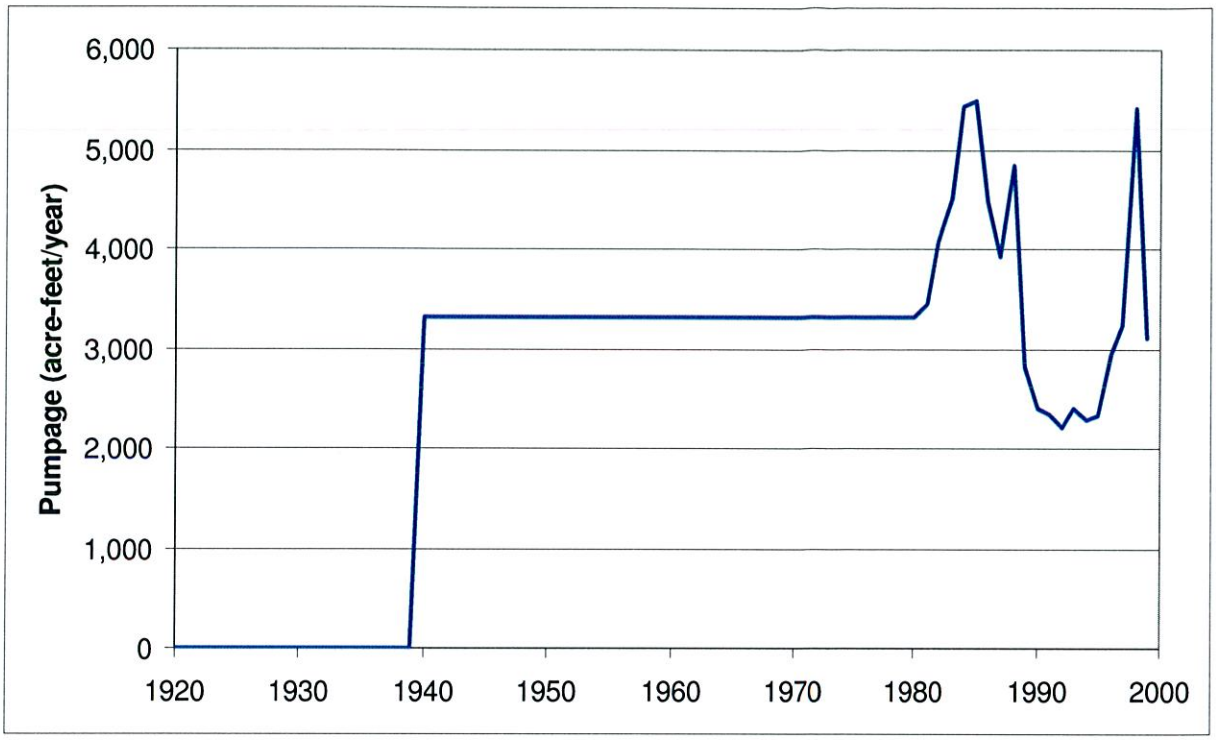

Figure A-23- Pumpage in Nueces County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

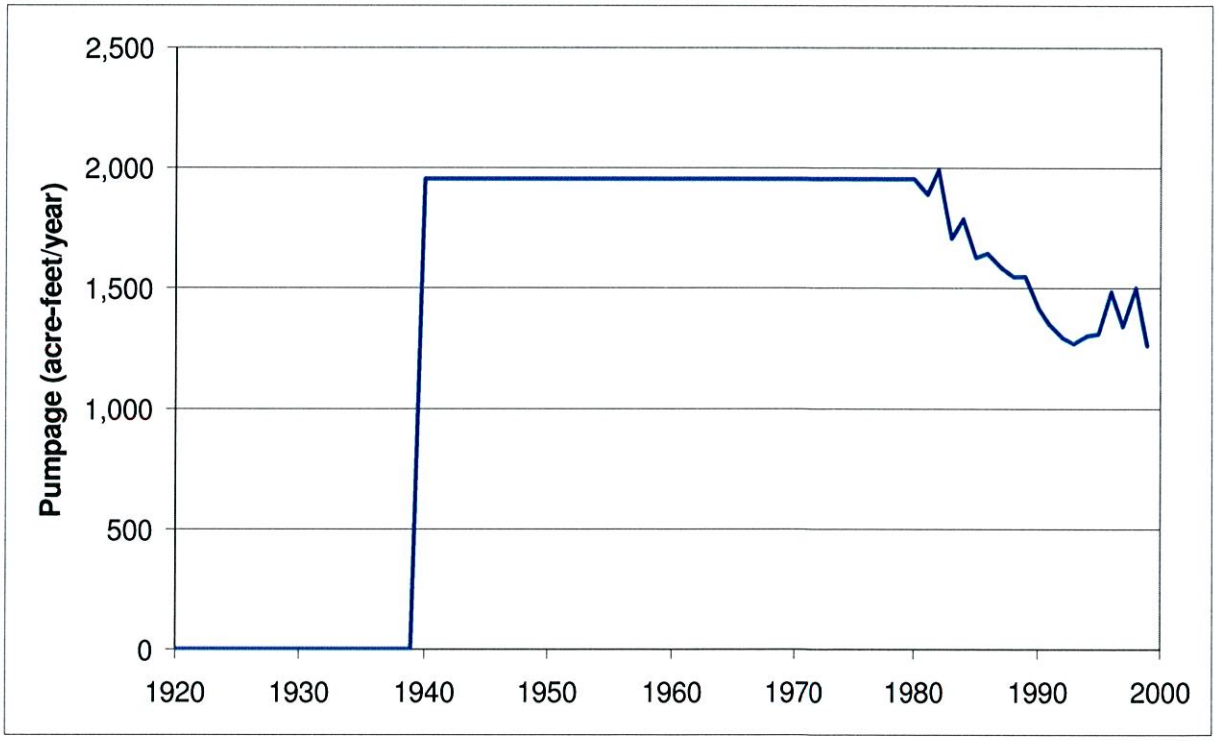

Figure A-24- Pumpage in Refugio County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

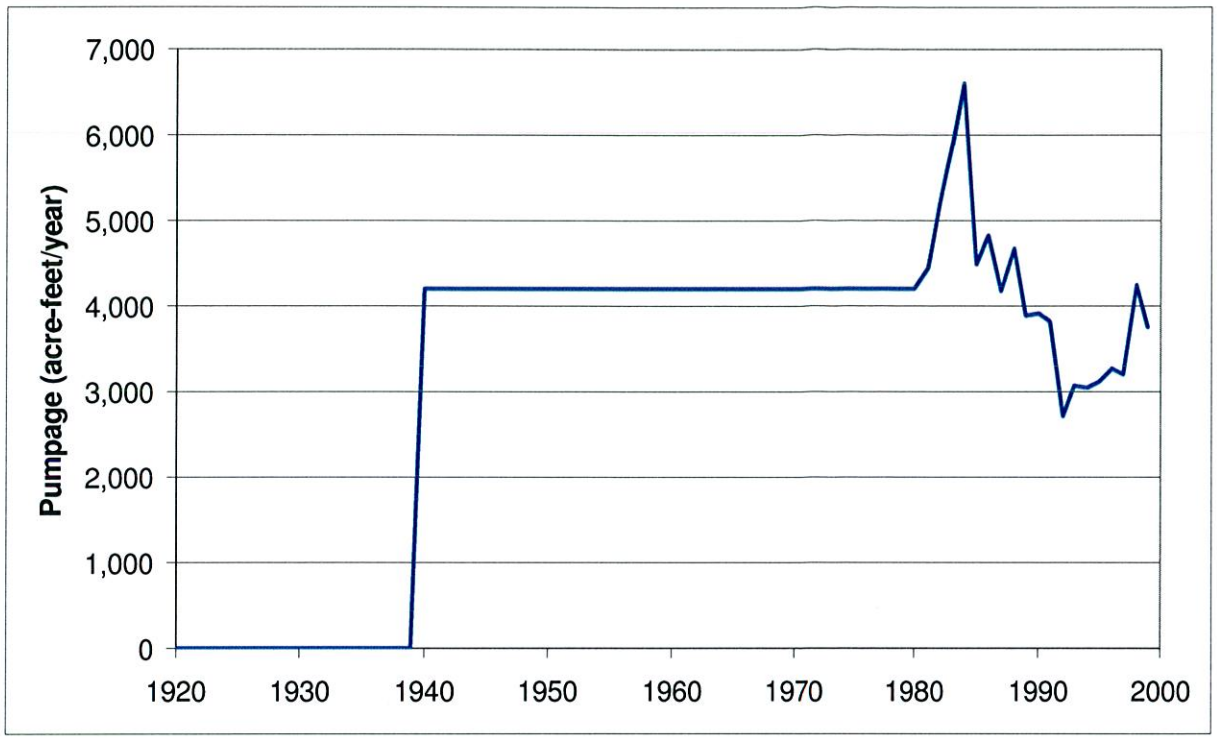

Figure A-25- Pumpage in San Patricio County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

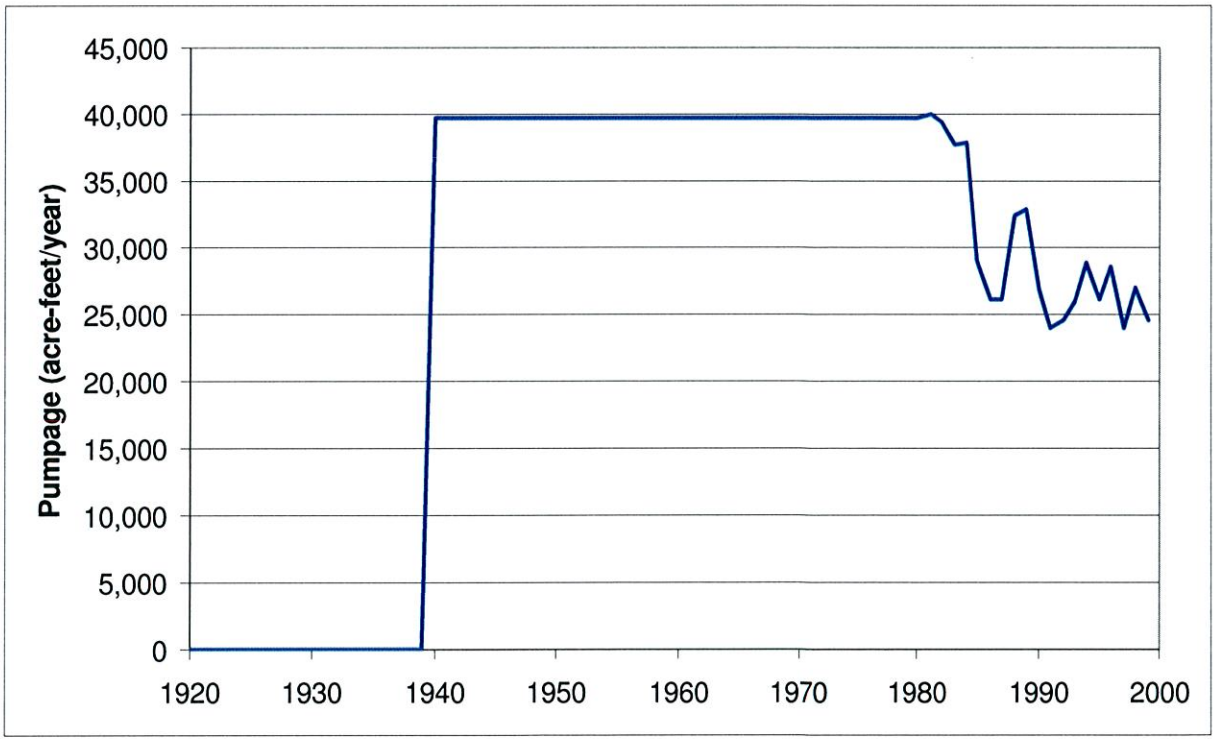

Figure A-26- Pumpage in Victoria County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

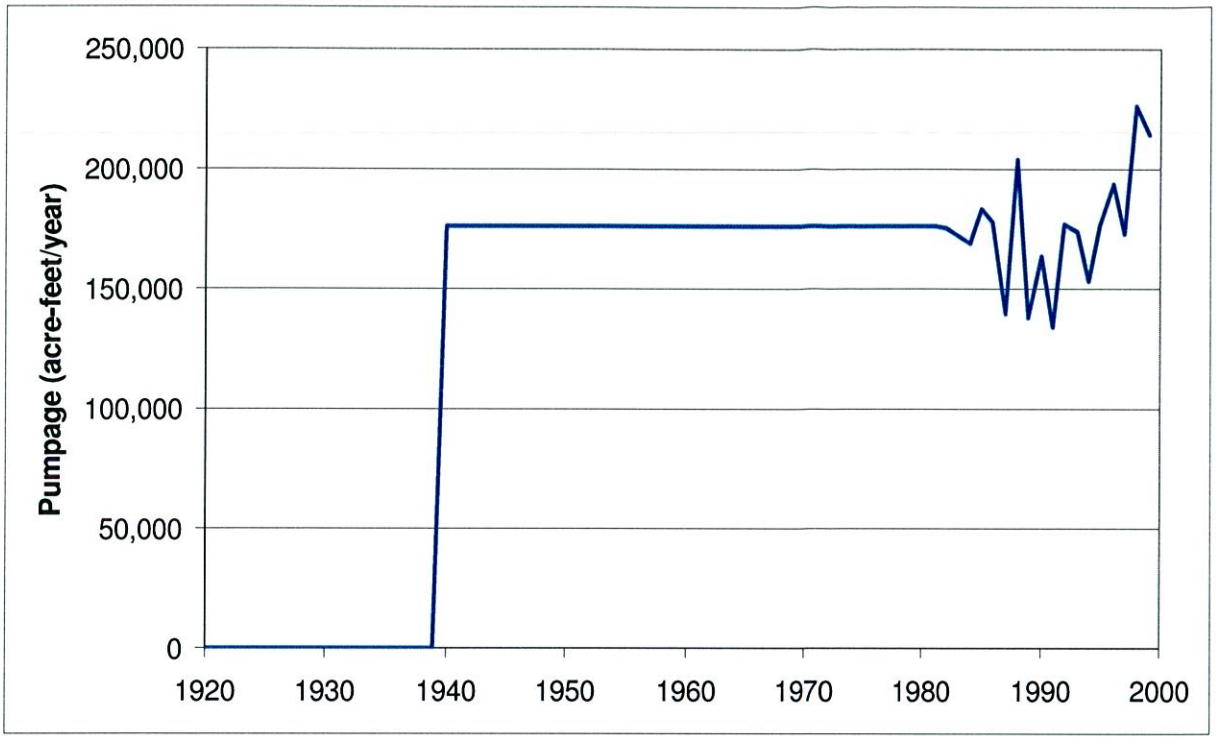

Figure A-27- Pumpage in Webb County included in the groundwater availability model for the central part of the Gulf Coast Aquifer.

MINUTES OF THE SPECIAL MEETING OF THE BOARD OF DIRECTORS OF CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT

July 17, 2013

The Board of Directors of the Corpus Christi Aquifer Storage and Recovery Conservation District met in special session on Wednesday, July 17, 2013, in the Legal Conference Room, 5th floor, City Hall, 1201 Leopard Street, Corpus Christi, Texas, with the following in attendance:

Members:	In Attendance: (non-members)
Margie Rose, Vice-Chair	Tom Tagliabue, Director, Intergovernmental Relations
Fred Segundo, Secretary	Buck Brice, Assistant City Attorney
Gus Gonzalez	Brian Butscher, Deputy Director Water Operations
	Brent Clayton, Water Resource Planner
Absent:	Jeannie Holland, Recorder
Oscar Martinez	
Pete Anaya	

(1) **Call to Order**: The meeting was called to order by Board Vice-Chair, Margie Rose at 1:15 p.m. Roll was called. A quorum was present.

(2) **Minutes**: Minutes of the regular meeting of April 18, 2013, special meetings of May 10, 2013 and May 14, 2013 were reviewed. Motion was made by Board member Gus Gonzalez that the Minutes be approved as read. The motion was seconded by Board member Fred Segundo.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

(3) **Discussion of Long Term Water Supply:** Board member Gonzalez reported that the Mary Rhodes Pipeline Phase II is continuing on schedule with real property acquisition. Application for a 25/75 grant with the Bureau of Reclamation has been made.

(4) **Discussion of Five Year Plan for District:** The Annual Plan needs to be updated soon.

(5) **Discussion and possible action regarding Fiscal Year and Fund Balance:** Motion was made by Board member Gonzalez that this item be tabled until the next meeting. It was seconded by Board member Segundo.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

(6) **Discussion and possible action regarding Resolution to GMA 15 Bylaws:** GMA 15's ByLaws and Interlocal Agreement have been previously discussed and was reviewed. Motion was made by Board member Gonzalez to approve the GMA 15 Bylaws by executing the Resolution. The motion was seconded by Board member Segundo.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

(7) **Discussion and possible action regarding Management Plan:** Brent Clayton presented the proposed District Management Plan to be submitted to the State, pointing out that we are following the Plan. Board member Gonzalez reported that the Drought Contingency Plan is part of this Management Plan and we are working on being able to store water for a drought. This will also be addressed in the Annual Plan. Board member Gonzalez made a motion to approve the Management Plan, which was seconded by Board member Segundo.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

(8) **Discussion and follow up regarding Well Permits:** It was determined by the Board that this item will be discussed at the next meeting, with someone from Development Services being invited to discuss permit processing.

(9) **Next Meeting Time:** October 3, 2013

(10) **Items to be Placed on next Agenda**: Items to be placed on the Agenda for the next meeting include: 1) Discussion of long term water supply; 2) Discussion of Five-year Plan for District; 3) Discussion and possible action regarding fiscal year and fund balance; 4) Discussion and possible action regarding well permits; 5) Discussion and possible action regarding replacement of Board member Oscar Martinez upon his retirement.

(11) There was no Public Comment

(12) The meeting was adjourned by a Motion by Board Member Gonzalez and seconded by Board member Segundo at 1:30 p.m.

Ayes: Board members Rose, Segundo, and Gonzalez
Nays: None

_____
Fred Segundo, Secretary

Appendix E - Corpus Christi
ASR Conservation District Rules

CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT

RULES AND REGULATIONS

SECTION 1. DEFINITIONS AND MATTERS OF GENERAL APPLICABILITY

Rule 1.1 Definition of Terms.

In the administration of its duties, the Corpus Christi Aquifer Storage and Recovery Conservation District follows the definitions of terms set forth in Chapter 36, Texas Water Code, with modifications, and the definitions as follows:

"Acre-foot" means the amount of water necessary to cover one acre of land to the depth of one foot, or 325,851 U.S. gallons of water.

"Additional production" means the amount of water produced from an excluded well in excess of that amount produced under permit by the Railroad Commission of Texas.

"Affected person" means, for any matter before the district, a person who has a personal justifiable interest related to a legal right, duty, privilege, power, or economic interest that is within the district's regulatory authority and affected by the matter before the district, not including a person who has an interest common to members of the public.

"Agricultural crop" means food or fiber commodities grown for resale or commercial purposes that provide food, clothing, animal feed, or other products.

"Agricultural use" or purposes means the use of groundwater for irrigation to produce an agricultural crop.

"Aquifer" means a geologic formation, group of formations or part of a formation that is capable of yielding a significant amount of water to a well or spring, and also includes subdivision(s) of an aquifer.

"Beneficial use" or "beneficial purpose" means use of groundwater for:

1. agricultural, gardening, domestic, stock raising, municipal, mining, manufacturing, industrial, commercial or recreational purposes;

2. exploring for, producing, handling, or treating oil, gas, sulfur, lignite, or other minerals; or

3. any other purpose that is useful and beneficial to the users that does not commit or result in waste as that term is defined in these rules.

"Board" means the Board of Directors of the Corpus Christi Aquifer Storage and Recovery Conservation District .

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

"Cement" means a neat Portland or construction cement mixture of not more than seven gallons of water per ninety-four (94) pound sack of dry cement, creating a cement slurry in which bentonite, gypsum, or other additives may be included.

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

"Director" means a person appointed by the City Council of the City of Corpus Christi, or by the board in the case of a resignation, and who is qualified and has taken the Constitutional oath of office.

"District" means the Corpus Christi Aquifer Storage and Recovery Conservation District as authorized under Acts 2005, 79th Legis., R.S., ch. 897, p. 3088. The legislation is codified as Chapter 8811, Vernon's Texas Codes Annotated, Special District Local Laws Code.

"District office" means the office of the district, which may be changed from time to time by resolution of the board.

"Domestic use" means the use of groundwater by an individual or a household to support essential domestic activity.

"Drilling permit" means a permit for a water well to be drilled, including test wells, or an existing well that is to be re-drilled.

"Drilling registration" means the registration required for an exempt well that is to be drilled.

"Essential domestic activity" includes water for use inside the home; watering domestic animals; to protect foundations; and recreation only for swimming pools. The term does not include water use activities for which consideration is given or for which the product is to be sold; irrigation of lawns and landscaped areas; filling or refilling ponds, lakes, tanks, reservoirs, or other confinements that have a capacity greater than ***25,000*** gallons; and non-closed system geothermal heating/cooling systems.

"Gpm." means gallons per minute.

"Groundwater" means water percolating below the surface of the earth.

"Groundwater reservoir" means a specific subsurface water-bearing stratum.

"Hearing body" means the board, any committee of the board, or a hearing examiner at any hearing held under the authority of law.

"Hearing examiner" means the person appointed by the board of directors to conduct a hearing or other proceeding.

"Landowner" means the person who holds possessory rights to the land surface or the groundwater.

"Municipal setting designation" means an area designated by the City Council under the authority of Section 551.005, Texas Local Government Code and Subchapter W, Chapter 361, Texas Health and Safety Code.

"Municipal use" means the use of groundwater through public water supply systems authorized by the State of Texas and includes individual wells supplying water for irrigation for non-agricultural purposes.

"New well application" means an application for a permit for a water well that has not been drilled or an injection well permit to inject water into a groundwater aquifer.

"Open Meetings law" means Chapter 551, Texas Government Code, as it may be amended from time to time.

"Public Information Act" means Chapter 552, Texas Government Code, also called the "Open Records law," as it may be amended from time to time.

"Operating permit" means a permit issued by the district for a water well, allowing groundwater to be withdrawn from the water well or allowing injection of water into a groundwater aquifer.

"Party" means a person who is an automatic participant in a proceeding before the district or a person who is an affected person as defined under these rules and who has been designated as a participant in the proceeding before the district.

"Person" means an individual, corporation, limited liability company, organization, government or governmental subdivision or agency, business trust, estate, trust, partnership, association, or any other legal entity.

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

"Presiding officer" means the president, vice-president, secretary or other board member presiding at any hearing or other proceeding or a hearing examiner conducting any hearing or other proceeding.

"Quorum" means a majority of the members of the board of directors.

"Registration" means the recordation of a certificate issued by the district for a well that is exempt from an operating permit.

"Rule" or "rules" mean the rules and regulations of the district.

"Texas Rules of Civil Procedure" and "Texas Rules of Evidence" mean the civil procedure and evidence rules, as adopted by the Supreme Court of Texas, as amended, and in effect at the time of the action or proceeding. Except as modified by these district rules, the rights, duties and responsibilities of the presiding officer acting under the Texas Rules of Civil Procedure and the Texas Rules of Evidence are the same as a court acting under those rules, without a jury.

"Waste" means any one or more of the following:

(a) withdrawal of groundwater from a groundwater reservoir at a rate and in an amount that causes or threatens to cause intrusion into the reservoir of water unsuitable for agricultural purposes, gardening, domestic use, stock raising purposes, or other beneficial purposes;

(b) the flowing or producing of wells from a groundwater reservoir if the water produced is not used for a beneficial purpose;

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

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

(e) willfully or negligently causing, suffering, or allowing groundwater to escape into any river, creek, natural watercourse, depression, lake, reservoir, drain, sewer, street, highway, road, or road ditch, or onto any land other than that of the owner of the well unless such discharge is authorized by permit, rule, or other order issued by the Texas Commission on Environmental Quality, its predecessors or successors, under Chapter 26, Texas Water Code;

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

(g) for water produced from an artesian well, "waste" has the meaning assigned by Section 11.205, Texas Water Code;

(h) groundwater that is discharged into a watercourse for transit to another location when the losses in transit exceed 20%; or

(i) operating a deteriorated well.

"Water meter" or "water measuring device" for large volume users means a water flow measuring device that can within +/- 10% accurately record the amount of groundwater produced during a measured time.

"Well" means any facility, device or method used to withdraw or sample groundwater from or observe the water level in a groundwater reservoir in the district.

Types of wells:

"Additional production well" means a well that is otherwise excluded by law from regulation by the district that is also used for additional purposes regulated by the district.

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

"ASR well" means either an ASR Injection well, ASR Monitoring well, or ASR Recovery well."

"ASR Injection well" means a well drilled to inject water into an aquifer for storage.

"ASR Monitoring well" means a well drilled to measure the level of stored water within an aquifer.

"ASR Recovery well" means a well drilled to recover water from aquifer storage.

"De-watering well" or "depressurizing well" means a well used to remove water from a construction site or an excavation, or to relieve hydrostatic uplift on permanent structures. De-watering wells may include exempt, non-exempt, and excluded wells.

"Exempt well" means a well that is:

(a) drilled or equipped to produce no more than 50,000 gallons per day; or

(b) drilled or equipped to produce water for watering livestock and poultry connected with farming, ranching, or dairy enterprises.

"Existing well" means a well that is in existence or for which drilling has commenced on the day of adoption of these rules.

"Excluded well" means a well drilled for oil, gas, sulfur, uranium, or brine, or for core tests, or for injection of gas, saltwater, or other fluid or for any purpose, under permits issued by the Railroad Commission of Texas.

"Injection well" means a well into which fluids are injected.

"Monitoring well" means a well installed to measure some property of the groundwater or the aquifer that it penetrates.

"New well" means a well not in existence or for which drilling has not commenced on the day of adoption of these rules.

"Non-exempt well" means either an existing or a new well subject to these rules.

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

"Well owner" means the person who owns a possessory interest in a well, the land upon which a well is located or to be located, or the beneficial use of the groundwater.

"Well system" means a well or group of wells tied to the same distribution system.

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

Rule 1.2 Purpose of rules; Mission Statement.

Reserved for expansion.

Rule 1.3 Use and effect of rules.

Reserved for expansion.

Rule 1.4 Amending of rules.

The board may, following notice and hearing, amend these rules or adopt new rules from time to time.

Rule 1.5 Headings and captions.

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

Rule 1.6 Construction.

A reference to a title, chapter or section without further identification is a reference to a title, chapter or section of the Water Code. Construction of words and phrases are governed by the Code Construction Act, Chapter 311, Subchapter B, Texas Government Code. Whenever a singular noun is used, it may refer to a plural; whenever a plural noun is used, it may refer to a singular.

Rule 1.7 Methods of service under the rules.

Except as otherwise provided in these rules, any notice or document required by these rules to be served or delivered may be delivered to the recipient, or the recipient's authorized representative, in person, by agent, by courier receipted delivery, by certified or registered mail sent to recipient's last known address, or by telephonic document transfer to the recipient's current telecopier number and shall be accomplished by 5:00 o'clock p.m. of the date on which it is due. Service by mail is complete upon deposit in a post office or other official depository of the United States Postal Service. Service by telephonic document transfer is complete upon transfer, except that any transfer commencing after 5:00 o'clock p.m. shall be deemed complete the following business day. If service or delivery is by mail, and the recipient has the right, or is required, to do some act within a prescribed period of time after service, three days will be added to the prescribed period. Where service by other methods has proved unsuccessful, the service may be complete upon publication of the notice in a newspaper of general circulation in the district, or by such method as the hearing body may provide.

Rule 1.8 Severability.

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

SECTION 2. BOARD OF DIRECTORS

Rule 2.1 Purpose of the board.

Reserved for expansion.

Rule 2.2 Board structure, officers.

Reserved for expansion.

Rule 2.3 Meetings.

The board will hold a regular meeting at least quarterly on a day and place that the board may establish from time to time by resolution. At the request of the president, or by written request of at least three members, the board may hold special meetings. All board meetings will be held in accordance with the Open Meetings law.

Rule 2.4 Committees.

The president may establish committees for formulation of policy recommendations to the board, and appoint the chair and membership of the committees, which may be derived from the board or outside of the board. Committee members serve at the pleasure of the president.

Rule 2.5 Ex parte communications.

A board member may communicate ex parte with other members of the board and staff.

SECTION 3. GENERAL MANAGER

Rule 3.1 General manager.

Reserved for expansion.

Rule 3.2 Delegation of authority.

Reserved for expansion.

SECTION 4. DISTRICT

Rule 4.1 Minutes and records of the district.

All documents, reports, records, and minutes of the district are available for public inspection and copying in accordance with the Public Information Act. Persons who are furnished copies may be assessed a copying charge, pursuant to policies established by the board. A list of charges for copies will be furnished by the district.

Rule 4.2 Certified copies.

Requests for certified copies must be in writing. Certified copies may be made by the secretary, assistant secretary or the general manager and will be affixed with the seal of the district. Persons furnished with certified copies may be assessed a certification charge, in addition to the copying charge, pursuant to policies established by the board.

Rule 4.3 Official office and office hours.

The board, by resolution, shall establish an official office for the district, and the office will maintain regular business hours.

SECTION 5. DISTANCE AND SPACING REQUIREMENTS

Rule 5.1 Required distance from aquifer boundary.

An applicant proposing to develop an aquifer storage area shall provide to the district the location of the storage area described by metes and bounds and the district shall enter an order demarcating the boundaries of the aquifer. The order shall be recorded in the real property records of the affected county and, thereafter, no well shall be permitted to be drilled within one mile of the boundaries of the demarcated aquifer except by the person who developed of the storage area, but the board may, if good cause is shown by clear and convincing evidence, that no harm or negative impact will occur to the aquifer storage area, allow drilling activity by others upon entering special orders or adding special permit conditions and requirements.

Rule 5.2 Required distance from property lines.

Except as provided in Rule 5.3, a new well may not be drilled within 50 feet from the property line of any adjoining landowner or an area designated with a municipal setting designation. This spacing may be reduced or increased by the board upon demonstration either that such spacing is overly protective of neighboring wells or is insufficiently protective of neighboring wells. All other non-excluded wells completed in other aquifers in the district will be considered on a case by case basis.

Rule 5.3 Exceptions to spacing requirements.

(a) Provided that an applicant presents waivers signed by the adjoining landowner(s) or the developer of the demarcated aquifer storage area, stating that they have no objection to the proposed location of the well site, the minimum distance from the property line requirements will not apply to the new proposed well location, subject to the right of the board to limit production of the well to prevent or minimize injury to adjoining landowners or the aquifer.

(b) Provided that an applicant shows good cause why a new well should be allowed to be drilled closer than the required minimum distance of 50 feet from the property line of the adjoining landowner(s), or closer than the distances stated in Rules 5.1 and 5.2, the issue of distance requirements will be considered during the technical review process and/or the contested case process. If the board chooses to grant a permit to drill a well that does not meet the distance requirements, the board may limit the production of the well to prevent or to minimize injury to adjoining landowners or the aquifer.

(c) In addition, the board may, if good cause is shown by clear and convincing evidence, enter special orders or add special permit conditions increasing or decreasing the distance requirements.

Rule 5.4 Requirement of monitor well.

Applications for wells drilled and existing wells when reworked, equipped to pump more than 200 acre-feet per year, or the equivalent on a daily basis, shall include provisions for

monitoring, on as frequent a basis as reasonably possible, water levels in the aquifer from which withdrawals are to be made using one or more existing wells, subject to more detailed orders of the board as set forth in the permit and all applicable rules, including but not limited to Rules 7.3 and 8.3(b)(2)(D). The board may, upon application, exempt an applicant from this rule.

Rule 5.5 Ownership of water stored in an aquifer storage area.

Water injected into an aquifer storage area is owned by the person who injected the water and is not percolating groundwater.

SECTION 6. PRODUCTION LIMITATIONS

Rule 6.1 Maximum allowable production from aquifers in district.

Reserved for expansion.

Rule 6.2 Areas of depletion and proration orders.

Reserved for expansion.

Rule 6.3 Additional production wells.

Reserved for expansion.

Rule 6.4 Storage and recovery aquifers.

Certain demarcated aquifer storage areas are to be designated for the specific purpose of aquifer storage and later recovery. These aquifers are to be deliberately injected with fresh water which are likely to cause the water levels to rise and, during withdrawal, cause the water levels to drop. In these areas, the rise and drop of water is normal and to be expected. Section 6 is not applicable to the demarcated areas.

Rule 6.5 Municipal Setting Designations.

Production of water in areas with municipal setting designations is prohibited.

Rule 6.6 Subsidence.

Reserve for expansion.

SECTION 7. DEPOSITS AND FEES FOR INTERIM PERMITS; FEES; FILING REPORTS

Rule 7.1 Initial Application fee, filing of state well reports and plugging reports.

(a) Each application for an interim permit of any type issued by the district or drilling registration must be accompanied by a one-time non-refundable application fee of $250.00, which will be accepted and deposited in the district account by the general

manager. The purpose of the application fee is to cover the cost of reviewing an application and processing an interim permit and to ensure receipt by the district of the information set out herein. Such administrative deposit or fee shall not unreasonably exceed the cost to the district for such administrative acts. The applicant may be required by the board to deposit with the district additional funds if the amount of the original deposit is expended prior to the board's final action on the interim permit.

(b) In the event that neither the driller's and completion logs of the well nor the interim permit marked "abandoned" is returned to the district office within 180 calendar days after the issuance date of the interim drilling permit or interim drilling registration, the deposit becomes the property of the district and the interim drilling permit or interim drilling registration is deemed cancelled without further action by the board, unless an extension has been granted. Extensions may be granted by the board to the extent of 180 days or less, as the board determines is appropriate.

(c) As an additional fee for administrative acts of the district, after an application for any interim permit issued by the district has been determined to be administratively complete by the board, the applicant shall deposit with the district an amount of money determined by the board to cover the cost associated with an uncontested or contested hearing regarding the interim permit application. The amount of the deposit shall be sufficient to pay legal fees, expert fees, court reporter fees, hearing facility rental fees, and other expenses. The remaining deposit balance, if any, is refundable following approval of the interim permit, disposal of any motions for rehearing, and receipt of anticipated expenses. The applicant may be required by the board to deposit with the district additional funds if the amount of the original deposit is expended prior to the board's final action on the permit.

Rule 7.2 Regulatory fees.

(a) Regulatory fees shall be paid to the district on a monthly basis for the amount of water actually produced from non-exempt wells under interim operating permits and interim transfer permits, which fees shall be established by resolution of the board and paid to the district within 15 days after the end of the reporting month.

(b) An exempt or excluded well is not excused from regulatory pumping fees if the groundwater is exported from the district. The owner of the well shall identify to the district the amount of water exported from the district on a monthly basis and pay a regulatory pumping fee to the district in an amount equal to the pumping fee of a non-exempt well plus the surcharge, as defined in Rule 7.2(e), which shall be paid to the district within 15 days after the end of the reporting month. Groundwater that is discharged pursuant to a permit issued by the Texas Commission on Environmental Quality or its predecessors and not sold is not considered to have been transferred from the district unless the discharge is part of an over all water transfer and sale.

(c) The owner of all wells exporting water out of the district shall report the amount of water actually produced on a monthly basis under interim operating permits and interim transfer

permits, which fees shall be established by resolution of the board and paid to the district within 15 days after the end of the reporting month.

(d) Regulatory fees not paid by 25 days after the end of the reporting month are considered delinquent and the fee payer shall be assessed a late fee of 5 percent of the amount due.

(e) The district may impose a surcharge equivalent of up to 50 percent of the district's production fee for water transported out of the district.

Rule 7.3 Filing reports.

(a) The driller's log and completion log, referred to by the Texas Department of Licensing and Regulation State Water Well Driller's Board as a "State Well Report," shall be filed with the district within 30 days from the preparation of the report pertaining to groundwater production, groundwater quality, or aquifer testing. In the event a well is plugged, the person who plugs the well shall within 30 days after plugging and abandonment is complete, submit a plugging report to the district in accordance with the Rules of the Texas Department of Licensing and Regulation, unless an extension has been granted.

(b) Water levels in monitoring wells designated under these rules shall be reported to the district at the same time as regulatory fees are paid to the district unless provided otherwise in the permit or in a written agreement with the district.

SECTION 8 INTERIM PERMITS, REGISTRATIONS AND AMENDMENTS

Rule 8.1 Interim drilling registrations and interim drilling permits.

(a) After the effective date of these rules, no person shall drill an exempt water well before filing an application for an interim drilling registration and receiving the interim registration or drill an interim non-exempt water well before filing an application for an interim drilling permit and receiving the interim drilling permit. Each original application for an interim water well drilling registration or interim drilling permit requires a separate application. Application forms will be provided by the district and furnished to the applicant upon request.

(b) Contents of an application. An application for an interim drilling registration or interim drilling permit shall be in writing and sworn, and shall contain:

(1) The name and mailing address of the applicant and the name and address of the owner of the land, if different from the applicant, on which the well is to be located;

(2) If the applicant is other than the owner of the property, documentation establishing the applicable authority to construct and operate a well on the owner's property for the proposed use;

(3) For exempt wells, a statement regarding the basis for asserting that the well will be exempt under Rule 8.6;

(4) A statement of the nature and purpose of the proposed well, its use and the amount of water to be used for each purpose;

(5) Except for exempt wells, availability of feasible and practicable alternative supplies to the applicant;

(6) Except for exempt wells, the projected effect of the proposed injection or withdrawal on the aquifer or any other aquifer conditions, depletion, subsidence, or effects on existing permit holders or other groundwater users in the district;

(7) Except for exempt and injection wells, the applicant's water conservation plan and, if any subsequent user of the water is a municipality or entity providing retail water services, the water conservation plan of that municipality or entity shall also be provided and a declaration that the applicant will comply with the district's management plan, when one is adopted;

(8) The location of the well and the estimated or proposed rate at which water will be injected and/or withdrawn and where the water is proposed to be used; and,

(9) A well closure plan or a declaration that the applicant will comply with well plugging guidelines and report closure to the applicable authorities, including the district.

(c) The general manager will assist the applicant for a voluntary interim registration for a well exempt under these rules and for a monitoring well and issue the interim registration.

(d) Unless specified otherwise by the board or these rules, and in accordance with Rule 7.1, interim drilling registrations and interim drilling permits are effective for a term ending when the district's management plan is approved and shall continue in effect until the board has the opportunity to determine whether the interim permits are consistent with the management plan. If the board determines that an interim permit is inconsistent with the management plan, the board shall notify the permit holder what changes are necessary to be included in the permit. If the holder of the interim permit agrees with the changes, a non-interim permit will be issued to the holder without further notice and hearing. If the permit holder does not agree, the board shall set the interim permit for hearing and give notice of the proposed changes to the interim permit.

(e) An interim drilling registration or interim drilling permit application may be changed by the applicant by submitting a written, sworn amendment to the application, calling the attention of the district to the proposed changes. For interim drilling permit applications, if an amendment is filed, new notice may be required to be given if significant changes are requested.

(f) An individual or entity may mitigate or make emergency repairs to an existing well provided that the mitigation or repair is required by the Railroad Commission of Texas and the mitigation or repair does not violate Rule 10.1.

Rule 8.2 Interim registrations.

(a) This subsection concerns wells which are exempt pursuant to Rule 8.6 and in existence on the effective date of these rules or which are no longer subject to the rules of the Railroad Commission of Texas, but will continue to be used, provided they will be exempt wells according to these rules. All existing water wells exempt under these rules from the requirement of an interim operating permit may be registered with the district by the well owner or the well operator. If the exempt well is in existence on the effective date of these rules, the well owner or operator may file with the district an application for a certificate of interim registration. After review and the determination by the general manager that the well is exempt, the owner or operator shall be issued a certificate of interim registration by the general manager. An interim registration may be amended by following the procedures for a new registration and identifying the changes requested.

(b) For proposed, exempt wells, not in existence on the effective date of these rules, the owner shall apply for a interim drilling registration and request that the well be registered. The application shall include the information set out in Rule 8.1(b). The general manager shall review the interim drilling registration application and make a preliminary determination on whether the well meets the exemptions provided in Rule 8.6. If it is concluded that the applicant seeks an interim drilling registration for a well that will be exempt under these rules, the general manager shall issue the interim drilling registration to the applicant. After the well is drilled and upon the filing of the driller's log and completion report with the district, the general manager shall issue to the owner or operator a certificate of interim registration.

(c) The driller's log and completion report (and on abandonment, if drilled, the plugging and abandonment report) shall be filed with the district as provided in Rule 7.3.

Rule 8.3 General interim permitting policies and procedures.

(a) Interim Operating Permit Requirement. The well owner or well operator must file a written, sworn application for an interim operating permit prior to operating any well for either injection of water or the withdrawal of water, not otherwise exempt under Rule 8.6 or excluded, unless additional production is obtained from the well. The connection of a water well to any means of distributing the water, whether temporary or permanent, shall be deemed as operating the well. Pumping tests of a well are not deemed operating the well. The interim operating permit may be approved by the general manager under such terms and conditions as the board shall direct, and the well shall remain permitted until an interim operating permit term has expired and is no longer required for the well/well system. For non-exempt wells in existence on the effective date of the creation of the district, an application for an interim operating permit or, after the district's management plan is approved, an operating permit must be filed on or before August 31, 2007.

(b) Interim Operating Permit Applications. Every well shall have a separate application for an interim operating permit, unless it is an exempt well or an excluded well having no additional production. Each original application for an interim operating permit requires a separate application. Application forms will be provided by the district and furnished to the applicant upon request. The application shall be in writing, sworn, and provide the following information:

(1) For non-exempt wells in existence on the effective date of these rules, the information provided for interim drilling permits stated in Rule 8.1, and any additional information requested by the general manager.

(2) For non-exempt wells not in existence on the effective date of these rules:

(A) Any corrections to the information supplied in the interim drilling permit application;

(B) The date the well was drilled and its location;

(C) The instantaneous (gallons per minute; gpm), daily, and annual rate at which the applicant seeks to inject into the well or pump the well and/or withdraw from the well; and,

(D) For wells to be drilled and equipped to produce more than 200 acre-feet per year, or the equivalent on a daily basis, excluding irrigation wells, such information must include, to the extent practical, the transmissivity and storativity of the aquifer from which groundwater is to be withdrawn and also shall include an assessment of the impact on the aquifer of the proposed pumpage. It is expected that these aquifer parameters be determined based on a pumping test of at least twenty-four hours duration. Any observation well used for determining transmissivity and storativity of an aquifer must be sufficiently close to the well being pumped to discern the effects of the pumping well on water levels in the aquifer in accordance with the anticipated transmissivity and storativity of the aquifer and duration of the pumping test. All testing is to be performed under the direction and control of a licensed professional engineer or a licensed professional geoscientist in the State of Texas, who shall affix his or her signature and seal to the test results and assessment of aquifer impact. For recognized well fields, defined as two or more wells operated by the same entity at or within plus thirty percent of the minimum spacing prescribed in Section 5 of these rules, a single aquifer test will be sufficient.

(E) Any additional information requested by the board or the general manager

(c) Notice of permit hearing. Once the district has received an original application for an interim drilling permit to withdraw water or to inject water or an interim operating permit for a non-exempt water well and the application is deemed administratively complete, the

general manager, with board orders, will prepare a written notice of the application and hearing as provided in Rule 13.2.

(d) Decision and Issuance of Permit. In deciding whether or not to grant an interim permit or interim permit amendment, and in setting the terms of the interim permit, the Board shall consider the Texas Water Code and the district rules, including:

(1) The application conforms to the requirements prescribed by Chapter 36, Water Code, and is accompanied by the prescribed fees;

(2) The proposed injection or use of water unreasonably affects existing groundwater and surface water resources or existing interim permit holders;

(3) The proposed use of water is dedicated to any beneficial use;

(4) The proposed use of water is consistent with the district's approved water management plan, when one is approved;

(5) The applicant has agreed to avoid waste and achieve water conservation;

(6) The applicant has agreed that reasonable diligence will be used to protect groundwater quality and that the applicant will follow well plugging guidelines at the time of well closure; and,

(7) The terms and conditions that shall be attached to the interim permit or interim permit amendment to protect the groundwater resources of the district and the users within the district.

(e) Interim Operating Permits, Terms. Interim operating permit terms are until the district's management plan is approved, and shall continue in effect until the board has the opportunity to determine whether the interim permits are consistent with the management plan. If the board determines that an interim permit is inconsistent with the management plan, the board shall notify the permit holder what changes are necessary to be included in the permit. If the holder of the interim permit agrees with the changes, a non-interim permit will be issued to the holder without further notice and hearing. If the permit holder does not agree, the board shall set the interim permit for hearing and give notice of the proposed changes to the interim permit.

(f) Interim Operating Permit Provisions. The interim operating permit will contain the name and address of the well owner or operator, the location of the well, the maximum rate at which water may be injected, where the water will be used and the purpose of use of the water, other criteria deemed necessary by the board for the protection of the public health, safety, welfare, conservation, and management of the groundwater resources in the district, and the standard provisions listed in Rule 8.4. The operating permit may also contain provisions relating to the means and methods of transportation of water produced within the district, and any other provisions that the board may direct.

(g) Aggregation of Withdrawal. Reserved for expansion.

(h) Effect of Acceptance of Permit. Acceptance of the interim permit by the person to whom it is issued constitutes acknowledgment by that person and agreement to comply with all of the terms, provisions, conditions, limitations, and restrictions stated in the permit and in these rules.

Rule 8.4 Operating permit provisions.

All interim operating permits are granted subject to these rules, orders of the board, and the laws of the State of Texas. An interim operating permit may be modified at any time by the board in accordance with the district's management plan, when one is adopted by the district and approved. In addition to any special provisions or other requirements incorporated into the interim permit, each permit issued shall contain the following standard permit provisions:

(1) This interim operating permit is granted in accordance with the provisions of the rules of the district, and acceptance of this interim permit constitutes an acknowledgment and agreement that the permittee accepts the terms and conditions of the interim permit and will comply with the rules and management plan, when one is adopted and approved, of the district.

(2) This interim permit confers only the right to operate the well described in this interim permit under these rules, and its terms may be amended pursuant to the provisions of these rules. To protect the interim permit holder from illegal use by a new landowner, within 10 days after the date of sale, the interim operating permit holder must notify the district in writing of the name and address of the new owner. Any person who becomes the owner of a currently permitted well must, within 20 calendar days from the date of the change in ownership, file an application for an interim permit amendment to effect a transfer of the permit.

(3) The operation of the well for the authorized withdrawal must be conducted in a non-wasteful manner.

(4) Injections or withdrawals from all non-exempt wells must be measured by a water meter or estimated by the owner or operator using a water measuring device or method that is within plus or minus 10% of accuracy. Measured or estimated water use shall be reported to the district monthly and the applicable fee paid. Permittees shall keep accurate records of the groundwater injected or withdrawn and the purposes of the withdrawal. Such records shall be available for inspection by district representatives.

(5) The well site must be accessible to district representatives for inspection, and the permittee agrees to cooperate fully in any reasonable inspection of the well and well site.

(6) The application for which this interim operating permit has been issued is incorporated by reference in this permit, and this interim operating permit is granted on the basis of and contingent upon the accuracy of the information provided in that application. A finding that false or inaccurate information has been provided is

grounds for immediate revocation of the interim operating permit. Interim operating permits are subject to the imposition of additional provisions in accordance with the district's approved management plan, when one is adopted.

(7) The maximum authorized withdrawal is limited to the amount stated in the permit on an annualized basis and the instantaneous rate of withdrawal can be no more than 1.25 times the amount authorized on an annual basis, except when groundwater production from wells is aggregated in accordance with Rule 8.3(g), unless otherwise authorized by the permit.

(8) Violation of this interim permit's terms, conditions, requirements, or special provisions, including pumping amounts in excess of authorized withdrawal, is grounds for revocation of the interim permit and/or punishable by civil penalties as provided by the district Rule 14.4.

(9) Wherever special provisions in this interim permit are inconsistent with other provisions or rules of the district, the special provisions of the permit shall prevail.

Rule 8.5 Interim operating permit limitations.

(a) Maximum Authorized Withdrawal. No interim operating permittee shall inject, pump or withdraw any groundwater on an annual basis in excess of the amount of groundwater authorized in the operating permit and no rate of pumping shall be in excess of 1.25 times the instantaneous rate necessary to produce the authorized withdrawal on an annual basis, except when groundwater production from wells is aggregated in accordance with Rule 8.3(g) or unless otherwise authorized by the interim operating permit.

(b) Interim Operating Permit Required. Unless otherwise exempt or excluded, no person shall operate a well without an interim operating permit issued by the district. However, if there is additional production from an exempt or excluded well, the interim operating permit requirement of these rules do apply.

(c) When an interim operating permit is granted, the permittee shall begin and complete construction of the permitted well diligently and, if the interim permit is for withdrawal, produce water from the well for the purpose(s) authorized within 24 months from the date the permit is issued. Failure of a permittee to begin and complete construction, and pump water from the permitted well for the authorized purpose(s) within the time period specified shall cause the interim permit to terminate and the permittee shall lose all rights thereunder without further action by the district; however, permittees may, upon a showing that it is not technically or economically feasible to connect the well to existing infrastructure or to a reasonably necessary extension of existing infrastructure within the 24 month period, be granted the full five year term of the operating permit to complete construction, and pump water from the permitted well for the authorized purpose(s). The permittee who has been granted an interim operating permit pursuant to this subsection must record a copy of the operating permit and the applicable spacing rule in effect at the time the operating permit is granted in the county real property records.

Rule 8.6 Exemptions.

(a) Except as otherwise provided in these rules, the interim operating permit requirements of this Section 8 do not apply to exempt wells, however, the interim drilling registration requirements of Rule 8.1 and the interim registration requirements of Rule 8.2 do apply to a well used solely for domestic use or for providing water for livestock or poultry on a tract of land larger than ten (10) acres that is either drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater per day.

(b) New and existing exempt wells may be registered with the district.

Rule 8.7 Interim registration or interim operating permit not required.

Wells drilled for oil, gas, sulfur, uranium, lignite, or brine or core tests, or for injection of gas, saltwater, or other fluids, or for any other purpose under permits issued by the Railroad Commission of Texas, other than additional production, are excluded under these rules. The district may not require a drilling permit for a well to supply water for drilling any wells permitted by the Railroad Commission of Texas, except as allowed by the Texas Water Code. Any well that ceases to be used for these purposes and is then used or additionally used as an ordinary water well, is subject to the rules of the district to the extent of the non-excluded purposes. Water wells drilled to supply water for hydrocarbon production activities, including lignite, must meet the spacing requirements of the district, including the limitations imposed by the designation of an aquifer storage area, unless no space is available within 300 feet of the production well or central injection station, in which event the applicant must demonstrate to the board that the storage aquifer will not be impacted. Any water well drilled and operated under the authority of the Railroad Commission of Texas that produces water in excess of that quantity necessary and for purposes other than the Railroad Commission permitted activity shall be subject to the rules and fees of the district to the extent excess water is produced and the purposes of use that are different than the Railroad Commission permitted activity.

Rule 8.8 Interim operating permit amendments.

Interim Permit Amendment Increasing Authorized Withdrawal. Reserved for expansion.

Rule 8.9 Renewal applications.

Reserved for expansion.

Section 9. PERMITS FOR TRANSFER OF GROUNDWATER OUT OF THE DISTRICT

Rule 9.1 Permit required.

Groundwater produced from within the district may not be transferred outside the district's boundaries unless the board has issued the well owner/operator an interim transfer permit. The requirements of this rule are applicable without regard to the manner the water is transferred out of the district and specifically includes discharges into watercourses to convey water, as well as pipelines and aquaducts.

Rule 9.2 Applicability.

An interim groundwater transfer permit is not required for transportation of groundwater that is part of a manufactured product, or if the groundwater is to be used on contiguous property with the same property ownership, that straddles the district boundary line or within the City of Corpus Christi.

Rule 9.3 Application.

(a) An application for an interim transfer permit must be filed in the district office, be in writing and sworn, and include the following information:

(1) the name and mailing address of the applicant and the name and address of the owner of the land from which the transfer is to be made, if different from the applicant, on which the well is to be located;

(2) if the applicant is other than the owner of the property, documentation establishing the applicable authority to construct and operate a well on the owner's property for the proposed transfer;

(3) a statement of the nature and purpose of the proposed use and the amount of water to be used for each purpose and the period of time each purpose is expected to continue;

(4) availability of water in the district and in the proposed receiving area during the period for which the water supply is requested;

(5) availability of feasible and practicable alternative supplies to the applicant, municipality or entity;

(6) the amount and purposes of use for which water is needed in the proposed receiving area for which water is needed;

(7) the projected effect of the proposed withdrawal on the aquifer or any other aquifer conditions, depletion, subsidence, or effects on existing permit holders or other groundwater users within the district as determined by a licensed professional engineer or a licensed professional geoscientist in the State of Texas;

(8) the indirect costs and economic and social impacts associated with the proposed transfer of water from the district;

(9) the approved regional and state water plan, if one has been approved, and the approved district management plan, if one has been approved;

(10) other facts and considerations deemed necessary by the district's board or general manager for protection of the public health and welfare and conservation and management of natural resources in the district;

(11) the applicant's water conservation plan and, if any subsequent user of the water is a municipality or entity providing retail water services, the water conservation plan of that municipality or entity shall also be provided;

(12) the location of the well; and

(13) the period of time for which the permit is sought.

(b) The board, at its discretion, may combine permit applications.

Rule 9.4 Hearing and permit issuance.

(a) Applications for interim transfer permits are subject to the hearing procedures provided by these rules.

(b) In determining whether to issue an interim permit to transfer groundwater out of the district, the board shall consider the information provided in Rule 9.3, the Texas Water Code, the district's management plan, when one is approved, the district's mission statement and such other information the board deems relevant.

Rule 9.5 Transfer permit amendments.

Amendment to an Interim Transfer Permit. It is a violation of these rules to transfer any amount of water in excess of the amount, withdrawal rate, or by any means or route not authorized by an interim transfer permit. A written, sworn application for an amendment to an interim transfer permit must be filed and the amendment granted before any deviation in the interim transfer permit occurs. The applicant must demonstrate that the originally authorized terms and conditions in the interim transfer permit have proven inadequate and why there is a need to change the authorization.

(1) Submission of application. The applicant for an amendment to modify the interim transfer permit shall provide sufficient documentation that the original authorizations have proven inadequate and the reasons for the need to make the change(s).

(2) Action on amendment. The general manager shall prepare a notice to be given of the amendment, which shall be given as in the original application, and a hearing conducted in the manner prescribed for permit issuance.

9.6. Duration of Transfer permit.

The period for which water may be transferred under an interim transfer permit shall be at least three (3) years if construction of a conveyance system has not been initiated within the period specified in the permit or at least thirty years if construction of a conveyance system has been initiated prior to the issuance of the permit. Initiation of construction means letting of contracts for construction of facilities from the point of the well to at least the district boundary and the commencement of actual construction under the contract.

9.7. Transfer Permit assessments.

The fees for the transfer of water out of the district will be set forth by resolution of the board.

SECTION 10. REWORKING AND REPLACING A WELL

Rule 10.1 Procedures.

(a) An existing, permitted or exempt well may not be reworked or re-equipped in a manner that will change the authorizations contained in the interim operating permit or interim registration without a written, sworn application for an amendment that is approved by the board in the case of an operating permit, or the general manager in the case of an interim registration. Re-drilling a well requires a new permit.

(b) An interim operating permit must be applied for, if a party wishes to increase the rate of production of an exempt well to the point of increasing the size of the column pipe and gallon per minute rate by reworking or re-equipping the well such that the well is no longer exempt.

(c) An interim drilling permit or an interim drilling registration must be applied for and granted if a party wishes to replace an existing well with a new, replacement well.

(d) A replacement well, in order to be considered such, must be drilled within 30 feet of the existing well and shall not be drilled nearer the property line, provided the original well was not "grandfathered," if it meets distance requirements (Rule 5), production (Rule 6), when production rules are adopted, and completion (Rule 11) requirements. The board may grant such application without further notice and/or variances to this rule on a case by case basis.

(e) After the effective date of these rules, upon commencing reworking or replacing permitted wells drilled and equipped to produce more than 200 acre-feet of water per year, the reworked or replacement well also shall be equipped to allow measurement of water levels in the well, and such water levels shall be measured on as frequent a basis as reasonably possible, preferably on a daily, but no greater than weekly, basis between the time the water level in the well first can be measured after the pump fails or is turned off to just before the pump is restarted for production. Reporting of water levels measured in accordance with this rule shall be coincident with payment of regulatory fees.

Rule 10.2 Emergency reworking or replacing a well.

An emergency replacement or reworking of a well under the auspices of the Railroad Commission of Texas may be performed with notice to the district so long as there is no change to the rate or amount of withdrawal. New driller's and completion logs must be filed with the district within the same period of time as the logs are required to be filed with the water well drillers' board.

SECTION 11. WELL LOCATION AND COMPLETION

Rule 11.1 Responsibility.

After an application for a well interim drilling permit or interim drilling registration has been granted, the well, if drilled, must be drilled within 30 feet of the location specified in the interim permit or interim registration application, and not elsewhere; however, the well shall not be drilled within 50 feet of the property line of the adjoining landowner, except as provided in Rule 5.3 or within an aquifer storage demarcated area. If the well should be commenced or drilled at a different location, the drilling or operation of such well is contrary to the authorizations contained in the permit and may be enjoined by the board pursuant to Chapter 36, Texas Water Code and these rules. As described in the Rules of the Texas Department of Licensing and Regulation, all well drillers and persons having a well drilled, deepened, or otherwise altered shall adhere to the provisions of the rule prescribing the location of wells and proper completion and these rules.

Rule 11.2 Location of domestic, industrial, injection, and irrigation wells.

(a) A new well must be located a minimum horizontal distance of 50 feet from any water-tight sewage facility and liquid-waste collection facility.

(b) A new well may not be located closer than a minimum horizontal distance of 150 feet from any potential source of contamination, such as existing or proposed livestock or poultry yards, privies, and septic systems, including tanks, piping, any evapo-transpiration pits, and pressure-dose distribution systems.

(c) A new well must not be located at a site generally subject to flooding; provided, however, that if a well must be placed in a flood prone area, it must be completed with a watertight sanitary well seal and steel casing extending a minimum of 24 inches above the known flood level, unless the well is approved by the Texas Commission on Environmental Quality.

(d) No new well may be located within five-hundred (500) feet of a sewage treatment plant, solid waste disposal site, or land irrigated by sewage plant effluent, or within three hundred (300) feet of a sewage wet well, sewage pumping station, or a drainage ditch that contains industrial waste discharges or wastes from sewage treatment systems.

Rule 11.3 Standards of completion for domestic, industrial, injection, and irrigation wells.

Water well drillers must indicate the method of completion on the Well Report (TNRCC-0199) Section 10 Surface Completion. Domestic, industrial, Class V injection, and irrigation wells must be completed in accordance with the stricter of the following specifications or Texas Department of Licensing and Regulation rules set forth at 16 Texas Administrative Code, Chapter 76, local county or incorporated city ordinances:

(1) The annular space between the borehole and the casing shall be filled with cement slurry from the ground level to a depth of not less than 10 feet below the land surface or well head.

(2) All wells shall have a concrete slab or sealing block above the cement slurry around the well at the ground surface.

(3) The slab or block shall extend at least two (2) feet from the well in all directions and have a minimum thickness of four inches and shall be separated from the well casing by a plastic or mastic coating or sleeve to prevent bonding of the slab to the casing.

(4) The surface of the slab shall be sloped to drain away from the well.

(5) In all wells:

(A) the casing shall extend a minimum of one foot above the original ground surface; and

(B) A slab or block as described in Rule 11.3(b) is required above the cement slurry except when a pitless adapter is used. Pitless adapters may be used in such wells provided that:

(i) Pitless adapter is welded to the casing or fitted with another suitably effective seal; and

(ii) The annular space between the borehole and the casing is filled with cement to a depth not less than 15 feet below the adapter connection.

(6) All wells, especially those that are gravel packed, shall be completed so aquifers or zones containing waters that differ are not allowed to commingle through the borehole-casing annulus or the gravel pack so as to result in pollution as defined in these rules.

(7) The well casing shall be capped or completed in a manner that will prevent pollutants from entering the well.

(8) The mix of cement shall conform to the definition contained in these rules.

(9) In addition, all new wells permitted after the effective date of these rules that are drilled and equipped to produce more than 200 acre-feet of water per year also shall be equipped to allow measurement of water levels in the well.

Rule 11.4. Re-completions.

(a) The landowner shall have the continuing responsibility of insuring that a well does not allow commingling of undesirable water and fresh water or the unwanted loss of water through the wellbore to other porous strata.

(b) If a well is allowing the commingling of undesirable water and fresh water or the unwanted loss of water, and the casing in the well cannot be removed and the well re-completed within the applicable rules, the casing in the well shall be perforated and cemented in a manner that will prevent the commingling or loss of water. If such a well has no casing, then the well shall be cased and cemented, or plugged in a manner that will prevent such commingling or loss of water.

(c) The board may direct the landowner to take steps to prevent the commingling of undesirable water and fresh water, or the unwanted loss of water.

(d) In an aquifer storage unit, some commingling of undesirable water and fresh water will occur and is authorized by an injection permit.

SECTION 12. WASTE AND BENEFICIAL USE

Rule 12.1 Waste defined.

Waste has the meaning as defined in Rule 1.1.

Rule 12.2 Waste prevention.

(a) Groundwater shall not be produced in or used within or without the district, in such a manner as to constitute waste as defined in Rule 1.1.

(b) No person shall cause pollution of the groundwater reservoir or aquifer in the district as defined in Rule 1.1.

(c) No person shall allow, cause, suffer, or permit waste as that term is defined herein.

(d) No person shall allow the continued existence of a deteriorated well.

Rule 12.3 Use for a beneficial purpose.

Groundwater produced in the district shall be used for a beneficial purpose.

SECTION 13. HEARINGS

Rule 13.1 Types of hearings.

(a) The district conducts two general types of hearings: (1) Permit hearings involving permit matters, in which the rights, duties, or privileges of a party are determined after an opportunity for an adjudicative hearing, and (2) rulemaking hearings involving matters of general applicability that implement, interpret, or prescribe the law or district policy, or that

describe the procedure or practice requirements of the district. Any matter designated for hearing before the board may be referred by the board for hearing before a hearing examiner.

(b) Permit Hearings.

(1) Permit Applications, Amendments and Revocations. The district will hold hearings on water well drilling permits, operating permits, transfer permits or amendments and permit revocations or suspensions. Hearings involving permit matters may be scheduled before a hearing examiner. A permit application or an amendment to a permit is considered contested when a person with a personal justiciable interest files a protest and seeks a contested case hearing, unless the board determines otherwise.

(2) Hearings on motions for rehearing. Motions for rehearing will be heard by the board pursuant to Rule 13.8(b).

(c) Rule-making Hearings.

(d) District management plan: At its discretion, when authorized by law, after giving notice, the board shall hold a hearing to adopt or revise the management plan.

(e) District rules: The district shall hold a hearing in accordance with these rules to adopt or revise these rules.

(f) Other matters: A public hearing may be held on any matter within the jurisdiction of the duties and responsibilities of the board, if the board deems a hearing to be in the public interest, or necessary to effectively carry out the duties and responsibilities of the board.

RULE 13.2 Notice and scheduling of hearings.

(a) Notices of all hearings of the district shall be prepared by the general manager.

(1) For all applications, except drilling registrations and registrations, the notice will be provided to the applicant, who has the responsibility for giving the notice. At a minimum, the notice shall state the following information: (1) the name and address of the applicant; (2) the name or names of the owner or owners of the land, if different from the applicant; (3) the date the application was filed and the number assigned to it; (4) the time and date when and place where the hearing will be held; (5) the address or approximate location of the proposed well; (6) a brief summary of the information included in the application; and, (7) a brief explanation of the proposed permit or permit amendment, including any requested amount of groundwater, the purpose of the proposed use and any change in use; (8) the time, date and location of the hearing; and, (9) any other information requested by the board.

(2) For rule-making hearings, the general manager is responsible for giving the notice. The notice shall be given not less than 20 days before the rule-making hearing. The notice shall be posted in a place readily accessible to the public at the district office, be provided to the county clerks of Nueces, San Patricio and Kleberg Counties, published in one or more newspapers of general circulation in each county, provide notice by mail, facsimile or electronic mail to any person who has requested notice, and a copy of the proposed rule shall be made available at the district office. The notice shall include the time, date and place of the rule-making hearing, a brief explanation of the subject of the rule-making hearing, and a location or internet site at which a copy of the proposed rule(s) may be reviewed or copied.

(b) The applicant shall give the notification to adjacent property owners and landowners as shown in the county tax rolls as of the date the application is filed and, in addition, to all existing registered and permitted well owners within 3,000 feet of the proposed well as shown in the records of the district on the day the application is filed not less than 10 days before the hearing and provide the district with proof of service. The applicant shall also publish the notice once in a newspaper(s) in general circulation in each county in the district not be less than 10 calendar days before the date set for the hearing. A publisher's affidavit and tear sheet of the notice shall be provided to the district. Proof of service and the publisher's affidavit and tear sheet of the notice shall be filed with the district prior to the commencement of the hearing. In considering whether notice has been given, the board may evaluate the good faith effort of the applicant to give the notice. The general manager shall also post notice in a publicly accessible place at the district's office, provide notice to the county clerk of Nueces County or the county clerk of the county in which the proposed well is located, give regular mail, facsimile or electronic mail notice to any person who has requested notice and regular mail notice to any other person entitled to receive notice under these rules. An officer or employee of the district shall make an affidavit establishing attempted service of the notice by first class mail, facsimile or electronic mail in accordance with the information provided by the person as proof that the notice was provided. However, the failure to provide the notice to persons requesting the notice does not invalidate an action taken by the district.

(c) Notice will be given to each person who requests in writing copies of hearing notices pursuant to the procedures set forth in this rule, and any other person the board of directors deems appropriate. The date of delivery or mailing of notice may not be less than 10 calendar days before the date set for the hearing.

(d) Requests for notices.

(1) Any person having an interest in the subject matter of a permit application or amendment hearing or hearings may receive written notice of such hearing or hearings by submitting a request in writing. The request must identify with as much specificity as possible the hearing or hearings for which written notice is requested. The request remains valid for a period of one year from the date of the request, after which time a new request must be submitted. Failure to provide written notice under this subsection does not invalidate any action taken by the board.

(2) Any person may submit a written request for notice of a rule-making hearing. The request is effective for the remainder of the calendar year in which the request is received. The request for a rule-making notice must be renewed by making a new request each year. An affidavit of an officer or employee establishing the attempted service of notice by first class mail, facsimile or electronic mail is proof that notice was provided by the district. However, the failure to provide the notice shall not invalidate an action taken by the district at a rule-making hearing.

(e) Hearings may be scheduled during the district's regular business hours, Monday through Friday of each week, except district holidays. All permit hearings will be held at the district office, unless the board directs otherwise. However, the board may from time to time change or schedule additional dates, times, and places for permit hearings. Other hearings will be scheduled at the dates, times and locations set at a regular board meeting, unless an emergency meeting becomes necessary, which shall be publicized and held as required by law. The district may schedule as many applications for consideration at one hearing as deemed desirable. Hearings may be continued from time to time and date to date without additional mailed or published notice.

Rule 13.3 General procedures.

(a) Authority of presiding officer. The presiding officer may conduct the hearing or other proceeding in the manner the presiding officer deems most appropriate for the particular proceeding. In permit or amendment application hearings, the presiding officer shall designate parties to the proceedings. The applicant shall always be designated a party.

(b) The presiding officer has the authority to:

(1) set hearing dates, other than the initial hearing date for permit matters in accordance with Rule 13.2;

(2) convene the hearing at the time and place specified in the notice for public hearing;

(3) establish the jurisdiction of the district concerning the subject matter under consideration;

(4) rule on motions and on the admissibility of evidence and amendments to pleadings;

(5) designate and align parties and establish the order for presentation of evidence;

(6) administer oaths to all persons presenting testimony;

(7) examine witnesses;

(8) issue subpoenas when required to compel the attendance of witnesses or the production of papers and documents;

(9) require the taking of depositions and compel other forms of discovery under these rules;

(10) ensure that information and testimony are introduced as conveniently and expeditiously as possible, without prejudicing the rights of any party to the proceeding;

(11) conduct public hearings in an orderly manner in accordance with these rules;

(12) recess any hearing from time to time and place to place;

(13) reopen the record of a hearing for additional evidence when necessary to make the record more complete; and

(14) exercise any other appropriate powers necessary or convenient to effectively carry out the responsibilities of presiding officer.

(c) Hearing Registration Forms. Each individual who participates in a hearing or other proceeding of the district must submit a form providing the following information: name; address; whether the person plans to testify; who the person represents if the person is not there in the person's individual capacity; and any other information relevant to the hearing or other proceeding.

(d) Appearance; Representative Capacity. Any interested person may appear in person or may be represented by counsel, engineer, or other representative provided the representative is fully authorized to speak and act for the principal. Such person or representative may present evidence, exhibits, or testimony, or make an oral presentation in accordance with the procedures applicable to the particular proceeding. Any partner may appear on behalf of the partnership. A duly authorized officer or agent of a public or private corporation, limited liability company, political subdivision, governmental agency, municipality, association, firm, or other entity may appear for the entity. A fiduciary may appear for a ward, trust, or estate. A person appearing in a representative capacity may be required to prove proper authority.

(e) Alignment of Parties; Number of Representatives Heard. Participants in a proceeding may be aligned according to the nature of the proceeding and their relationship to it. The presiding officer may require the participants of an aligned class to select one or more persons to represent them in the proceeding or on any particular matter or ruling and may limit the number of representatives heard, but must allow at least one representative of an aligned class to be heard in the proceeding or on any particular matter or ruling.

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

(g) Reporting. Hearings and other proceedings will be recorded on audio cassette tape or, at the discretion of the presiding officer, may be recorded by a certified shorthand reporter. The district does not prepare transcripts for the public of hearings or other proceedings recorded on audio cassette tape on district equipment, but the district will arrange access to the recording. Subject to availability of space, any party may, at their own expense, arrange for a reporter to report the hearing or other proceeding or for recording of the hearing or other proceeding. The cost of reporting or transcribing a permit hearing may be assessed in accordance with Rule 13.5(b). In all district matters, if a proceeding is recorded by a reporter, and a copy of the transcript of testimony is ordered by any person, the testimony will be transcribed and the original transcript filed with the papers of the proceeding at the expense of the person requesting the transcript of testimony. Copies of the transcript of testimony of any hearing or other proceeding thus reported may be purchased from the reporter.

(h) Continuance. The presiding officer may continue hearings or other proceedings from time to time and from place to place without the necessity of publishing, serving, mailing or otherwise issuing a new notice. If a hearing or other proceeding is continued and a time and place (other than the district office) for the hearing or other proceeding to reconvene are not publicly announced at the hearing or other proceeding by the presiding officer before it is recessed, the presiding officer must provide a notice giving the time, date, and location of the continued hearing by regular mail to the parties. It is not necessary to post at the county courthouses or publish a newspaper notice of the new setting.

(i) Filing of Documents, Time Limit. Applications, motions, exceptions, communications, requests, briefs or other papers and documents required to be filed under these rules or by law must be received in hand at the district's office within the time limit, if any, set by these rules or by the presiding officer for filing. Mailing within the time period is insufficient if the submissions are not actually received by the district within the time limit.

(j) Computing Time. In computing any period of time specified by these rules, by a presiding officer, by Board orders, or by law, the day of the act, event, or default after which the designated period of time begins to run is not included, but the last day of the period computed is included, unless the last day is a Saturday, Sunday or legal holiday as determined by the board, in which case the period runs until the end of the next day which is neither a Saturday, Sunday nor a legal holiday.

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

(l) Broadening the Issues. No person will be allowed to appear in any hearing or other proceeding that in the opinion of the presiding officer is for the sole purpose of unduly broadening the issues to be considered in the hearing or other proceeding.

(m) Conduct and Decorum. Every person, party, representative, witness, and other participant in a proceeding must conform to ethical standards of conduct and must exhibit

courtesy and respect for all other participants. No person may engage in any activity during a proceeding that interferes with the orderly conduct of district business. If in the judgment of the presiding officer, a person is acting in violation of this provision, the presiding officer will first warn the person to refrain from engaging in such conduct. Upon further violation by the same person, the presiding officer may exclude that person from the proceeding for such time and under such conditions as the presiding officer deems necessary.

Rule 13.4 Uncontested permit hearings procedures.

(a) Written Notice of Intent to Contest. Any person who intends to contest a permit application must provide written notice of that intent to the district office and the applicant at least five calendar days prior to the date of the hearing. If the general manager intends to contest a permit application, the general manager must provide the applicant written notice of that intent at least five calendar days prior to the date of the hearing. If no notice of intent to contest is received five calendar days prior to the hearing, the general manager, as instructed by the Board of Directors, will cancel the hearing and the board will consider the permit at the next regular board meeting.

(b) Informal Hearings. Permit hearings may be conducted informally when, in the judgment of the hearing body, the conduct of a proceeding under informal procedures will save time or cost to the parties, lead to a negotiated or agreed settlement of facts or issues in controversy, and not prejudice the rights of any party.

(c) Agreement of Parties. If, during an informal proceeding, all parties reach a negotiated or agreed settlement which, in the judgment of the hearing body, settles the facts or issues in controversy, the proceeding will be considered an uncontested case. The hearing body will summarize the evidence, make findings of fact and conclusions of law based on the existing record and any other evidence submitted by the parties at the hearing.

(d) Decision to Proceed as Uncontested or Contested Case. If the parties do not reach a negotiated or agreed settlement of the facts and issues in controversy or if any party contests a staff recommendation, and the hearing body determines these issues will require extensive discovery proceedings, the hearing body will declare the case to be contested and convene a prehearing conference as set forth in Rule 13.5. The hearing body may also recommend issuance of a temporary permit for a period not to exceed 4 months, with any special provisions the hearing body deems necessary, for the purpose of completing the contested case process. Any case not declared a contested case under this provision is an uncontested case and the hearing body will summarize the evidence, make findings of fact and conclusions of law, and make appropriate recommendations to the board.

(e) Recordation of the hearing. In an uncontested case, the presiding officer may substitute minutes or the report required under Tex. Water Code 36.410 for the method of recording the hearing.

Rule 13.5 Contested permit hearings procedures.

(a) Pre-hearing Conference. A pre-hearing conference shall be held to consider any matter which may expedite the hearing or otherwise facilitate the hearing process.

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

(2) Notice: A prehearing conference may be held at a date, time, and place stated in a separate notice given in accordance with Rule 13.2, or at the date, time, and place for hearing stated in the notice of public hearing, and may be continued from time to time and place to place, at the discretion of the presiding officer.

(3) Conference Action. Action taken at a prehearing conference may be reduced to writing and made a part of the record or may be stated on the record at the close of the conference.

(b) Assessing Reporting and Transcription Costs. Upon the timely request of any party, or at the discretion of the hearing body, the hearing body may make a recommendation to the board regarding the assessment of reporting and transcription costs to one or more of the parties. If the board is the hearing body, a hearing report with recommendations need not be filed. The hearing examiner must consider the following factors in assessing reporting and transcription costs:

(1) the party who requested the transcript;

(2) the financial ability of the party to pay the costs;

(3) the extent to which the party participated in the hearing;

(4) the relative benefits to the various parties of having a transcript;

(5) the budgetary constraints of a governmental entity participating in the proceeding;

(6) any other factor that is relevant to a just and reasonable assessment of costs.

(c) In any proceeding where the assessment of reporting or transcription costs is an issue, the hearing body must provide the parties an opportunity to present evidence and argument on the issue. A recommendation regarding the assessment of costs must be included in the hearing body's report to the board.

(d) Designation of Parties. Parties to a hearing will be designated on the first day of hearing or at such other time as the hearing body determines. The general manager and any person specifically named in a matter are automatically designated parties. Persons other than the automatic parties must, in order to be admitted as a party, appear at the proceeding in person or by representative and seek to be designated. To be designated as a party, the person must be an affected person as defined in Rule 1.1. After parties are designated, no other person may be admitted as a party unless, in the judgment of the hearing body, there exists good cause and the hearing will not be unreasonably delayed.

(e) Rights of Designated Parties. Subject to the direction and orders of the hearing body, parties have the right to conduct discovery, present a direct case, cross-examine witnesses, make oral and written arguments, obtain copies of all documents filed in the proceeding, receive copies of all notices issued by the district concerning the proceeding, and otherwise fully participate in the proceeding.

(f) Persons Not Designated Parties. At the discretion of the hearing body, persons not designated as parties to a proceeding may submit comments or statements, orally or in writing. Comments or statements submitted by non-parties may be included in the record, but may not be considered by the hearing body as evidence.

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

(h) Disabled Parties and Witnesses. Persons who have special requests concerning their need for reasonable accommodation, as defined by the Americans With Disabilities Act, 42 U.S.C. 12111(9), during a board meeting or a hearing, shall make advance arrangements with the general manager of the district. Reasonable accommodation shall be made unless undue hardship, as defined in 42 U.S.C. 12111(10), would befall the district.

(i) Agreements to be in Writing. No agreement between parties or their representatives affecting any pending matter will be considered by the hearing examiner unless it is in writing, signed, and filed as part of the record, or unless it is announced at the hearing and entered into the record.

(j) Discovery. Discovery will be conducted upon such terms and conditions, and at such times and places, as directed by the hearing body. Unless specifically modified by these rules or by order of the hearing body, discovery will be governed by, and subject to the limitations set forth in, the Texas Administrative Procedures Act. In addition to the forms of discovery authorized under the Texas Administrative Procedures Act, the parties may exchange informal requests for information by agreement.

(k) Discovery Sanctions. If the hearing body finds a party is abusing the discovery process in seeking, responding to, or resisting discovery, the hearing body may:

(1) suspend processing of the application for a permit if the applicant is the offending party;

(2) disallow any further discovery of any kind or a particular kind by the offending party;

(3) rule that particular facts be regarded as established against the offending party for the purposes of the proceeding, in accordance with the claim of the party obtaining the discovery ruling;

(4) limit the offending party's participation in the proceeding;

(5) disallow the offending party's presentation of evidence on issues that were the subject of the discovery request; and/or

(6) recommend to the board that the hearing be dismissed with or without prejudice.

(l) Compelling Testimony, Swearing Witnesses and Subpoena Power. The hearing body may compel the testimony of any person which is necessary, helpful, or appropriate to the hearing. The hearing body will administer the oath in a manner calculated to impress the witness with the importance and solemnity of the promise to adhere to the truth. The hearing body may issue subpoenas to compel the testimony of any person and the production of books, papers, documents, or tangible things, in the manner provided in the Texas Rules of Civil Procedure.

(m) Evidence. Except as modified by these rules, the Texas Administrative Procedures Act govern the admissibility and introduction of evidence; however, evidence not admissible under the Texas Administrative Procedures Act may be admitted if it is of the type commonly relied upon by reasonably prudent persons in the conduct of their affairs. In addition, evidence may be stipulated by agreement of all parties.

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

(o) Requirements for Exhibits. Exhibits of a documentary character must be sized to not unduly encumber the files and records of the district. All exhibits must be numbered and, except for maps and drawings, may not exceed 8-1/2 by 11 inches in size.

(p) Abstracts of Documents. When documents are numerous, the hearing body may receive in evidence only those that are representative and the hearing body may require

the abstracting of relevant data from the documents and the presentation of the abstracts in the form of an exhibit. Parties have the right to examine the documents from which abstracts are made.

(q) Introduction and Copies of Exhibits. Each exhibit offered must be tendered for identification and placed in the record. Copies must be furnished to the hearing body and to each of the parties, unless the hearing body rules otherwise.

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

(s) Official Notice. The hearing body may take official notice of all facts judicially cognizable. In addition, official notice may be taken of generally recognized facts within the area of the district's specialized knowledge.

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

(u) Oral Argument. At the discretion of the hearing body, oral arguments may be heard at the conclusion of the presentation of evidence. Reasonable time limits may be prescribed. The hearing body may require or accept written briefs in lieu of, or in addition to, oral arguments. When the matter is presented to the board for final decision, further oral arguments may be heard by the board, if the board is not the hearing body.

(v) If a hearing is uncontested, or becomes uncontested during the course of the hearing, the presiding officer may substitute minutes or the report required by law for a method of recording the hearing.

Rule 13.6 Conclusion of the hearing; report.

(a) Closing the Record; Final Report. At the conclusion of the presentation of evidence and any oral argument, the hearing body may either close the record or keep it open and allow the submission of additional evidence, exhibits, briefs, or proposed findings and conclusions from one or more of the parties. No additional evidence, exhibits, briefs, or proposed findings and conclusions may be filed unless permitted or requested by the hearing body. After the record is closed, the hearing body will prepare a report to the board, and submit the report to the board not later than the 30th day after the date the hearing is concluded, if the board is not the hearing body. The report must include a summary of the subject matter of the hearing and evidence, together with the hearing body's findings and conclusions and recommendations for action. Upon completion and issuance of the hearing body's report, a copy must be submitted to the board, delivered to each party to the proceeding and to each person who provided comments. In a contested case, delivery to the parties must be by certified mail.

(b) Exceptions to the Hearing Body's Report; Reopening the Record. Prior to board action, any party in a contested case or a person who provided comments may file written exceptions to the hearing body's report, and any party in an uncontested case may request an opportunity to make an oral presentation of exceptions to the board. Upon review of the report and exceptions, the hearing body may reopen the record for the purpose of developing additional evidence, or may deny the exceptions and submit the report and exceptions to the board. The board may, at any time and in any case, remand the matter to the hearing body for further proceedings.

(c) Time for Board Action on Certain Permit Matters. In the case of hearings involving new permit applications, original applications for existing wells, or applications for permit renewals or amendments, the hearing body's report should be submitted, and the board shall act, within 60 calendar days after the close of the hearing record.

Rule 13.7 Rule-making hearings procedures.

(a) General Procedures. The presiding officer will conduct the rule-making hearing in the manner the presiding officer deems most appropriate to obtain all relevant information pertaining to the subject of the hearing as conveniently, inexpensively, and expeditiously as possible. The presiding officer may follow the guidelines of Robert's Rules of Order, Newly Revised.

(b) Submission of documents. Any interested Person may submit written statements, protests or comments, briefs, affidavits, exhibits, technical reports, or other documents relating to the subject of the hearing. Such documents must be submitted no later than the time of the hearing, as stated in the notice of hearing given in accordance with Rule 13.2; provided, however, that the presiding officer may grant additional time for the submission of documents.

(c) Oral presentations. Any person desiring to speak on the subject of the hearing must so indicate on the registration form provided at the hearing. The presiding officer establishes the order of testimony and may limit the number of times a person may speak, the time period for oral presentations, and the time period for raising questions. In addition, the presiding officer may limit or exclude cumulative, irrelevant, or unduly repetitious presentations.

(d) Conclusion of the hearing; closing the record; hearing body's report. At the conclusion of the testimony, and after the receipt of all documents, the presiding officer may either close the record, or keep it open to allow the submission of additional information. If the presiding officer is a hearing examiner or chairman of a committee, the presiding officer must, after the record is closed, prepare a report to the board. The report must include a summary of the subject of the hearing and the public comments received, together with the hearing body's recommendations for action. Upon completion and issuance of the hearing body's report, a copy must be submitted to the board. Any interested person who so requests in writing will be notified when the report is completed, and furnished a copy of the report.

(e) Exceptions to the hearing body's report; reopening the record. Any interested person may make exceptions to the hearing body's report, and the board may reopen the record, in the manner prescribed in Rule 13.6(b).

Rule 13.8 Final decision; appeal.

(a) Board action. After the record is closed and the matter is submitted to the board, the board may then take the matter under advisement, continue it from day to day, reopen or rest the matter, refuse the action sought or grant the same in whole or part, or take any other appropriate action but the board shall act on an application for any type of permit or permit amendment not less than 60 days after the date the final hearing is concluded. The board action takes effect at the conclusion of the meeting and is not affected by a motion for rehearing.

(b) Requests for rehearing or findings and conclusions. Any decision of the board on a matter may be appealed by requesting a rehearing before the board within 20 calendar days of the date of the board's decision, in the case of a contested or uncontested hearing on an application, the applicant, or a party to a contested hearing, may administratively appeal. Such a rehearing request must be filed at the district office in writing and must state clear and concise grounds for the request. Such a rehearing request is mandatory with respect to any decision or action of the board before any appeal may be brought. The board's decision is final if no request for rehearing is made within the specified time, or upon the board's denial of the request for rehearing, or upon rendering a decision after rehearing. If the rehearing request is granted by the board, the date of the rehearing will be within 45 calendar days thereafter, unless otherwise agreed to by the parties to the proceeding. The failure of the board to grant or deny the request for rehearing within 90 calendar days of submission will be deemed to be a denial of the request.

SECTION 14. INVESTIGATIONS AND ENFORCEMENT

Rule 14.1 Notice and access to property.

Board members and district agents and employees are entitled to access to all property within the district to carry out technical and other investigations necessary to the implementation of the district rules. Prior to entering upon property for the purpose of conducting an investigation, the person seeking access must give notice in writing or in person or by telephone to the owner, lessee, or operator, agent, or employee of the well owner or lessee, as determined by information contained in the application or other information on file with the district. Notice is not required if prior permission is granted to enter without notice. Inhibiting or prohibiting access to any board member or district agents or employees who are attempting to conduct an investigation under the district rules constitutes a violation and subjects the person who is inhibiting or prohibiting access, as well as any other person who authorizes or allows such action, to the penalties set forth in the Texas Water Code, Section 36.102.

Rule 14.2 Conduct of investigation.

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

Rule 14.3 Rule enforcement.

If it appears that a person has violated, is violating, or is threatening to violate any provision of the district rules the board of directors may institute and conduct a suit in the name of the district for enforcement of rules through the provisions of Section 36.102, Texas Water Code.

Rule 14.4 Penalty for violating rules, permit condition, or board orders.

The penalty for violating a rule, permit term or condition or order of the board is up to $5,000 per violation per day for each day the violation continues.

Rule 14.5 Sealing of wells.

(a) Following due process, the district may, upon orders from a court of competent jurisdiction, seal wells that are prohibited from withdrawing groundwater within the district by the district rules to ensure that a well is not operated in violation of the district rules. A well may be sealed when:

(1) No application has been made for a permit to drill or to register a new well;

(2) No application has been made for an operating permit to withdraw groundwater from an existing or new well that is not registered, excluded or exempted from the requirement that a permit be obtained in order to lawfully withdraw groundwater; or

(3) The board has denied, canceled or revoked a drilling permit or an operating permit.

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

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

Appendix F - City of Corpus Christi Water Conservation Plan 2013 and Drought Contingency Plan 2013

Drought Contingency Plan

2013

City of Corpus Christi, Texas

Cover photo by Fred Pena

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Appendices

Drought Contingency Plan

1. Introduction

This document is the Drought Contingency Plan (DCP) for the City of Corpus Christi (City). This DCP was created so that the City can cut back demand when supplies are low so the residents have enough water to make it through a drought. This DCP clearly explains the triggers initiated by a drought and the steps to be taken during each stage of a drought.

There is also information in this DCP which explains the steps to be taken in a water emergency, such as when supplies are cut off or contaminated.

This DCP is different from the Water Conservation Plan (WCP) because it only takes effect when there are drought conditions. The WCP is a year-round guide, regardless of the drought conditions, and contains several regular best management practices.

The DCP has been prepared in accordance with Texas Administrative Code Title 30 Chapter 288 Subchapter B Rule §288.20 for Municipal Uses by Public Water Suppliers. Since the City serves wholesale water customers, a Drought Contingency Plan for Wholesale Water Suppliers has also been included in Section 16 in accordance with Texas Administrative Code Title 30 Chapter 288 Subchapter B Rule §288.22.

2. Declaration of Policy and Reason

In order to conserve the available water supply, to protect the integrity of water supply facilities with particular regard for domestic water use, sanitation, and fire protection, to protect and preserve public health, welfare, and safety, and to minimize the adverse impacts of water-supply shortage or other water-supply emergency conditions, the City hereby adopts the following regulations and restrictions on the delivery and consumptions of water. The Water Resource Management Ordinance which gives the City the authority to regulate and enforce this DCP is included as a supporting document.

Water uses regulated or prohibited under this DCP are considered to be non-essential, and continuation of such uses during times of water shortage or other emergency water-supply conditions are deemed to constitute a waste of water, which subjects the offender(s) to penalties as defined in Section 13 of this DCP.

Since the City first started supplying its residents with water in the 1890s, the region has experienced several periods of drought. Over the years, supplies have been added and conservation measures have been strengthened to ensure water security for the residents and businesses of the region. However, with the variability of weather patterns in South Texas and a continually growing population, it is critical that the City plans for future drought conditions.

Currently, the City's water supply system is comprised of three reservoirs: Lake Corpus Christi, Choke Canyon Reservoir and Lake Texana. However, the criteria to trigger drought response stages are based on the combined capacity of Lake Corpus Christi and Choke Canyon

Reservoir. (See Section 8). Since Choke Canyon Reservoir filled in June 1987, the combined storage of Choke Canyon Reservoir and Lake Corpus Christi has exceeded 60% capacity only about 62% of the time. The water storage levels in Choke Canyon Reservoir and Lake Corpus Christi have generally been 2-4% higher since Lake Texana supplies were added in October 1998.

Even with three reservoirs, the City still faces drought conditions (<50% storage levels) 16% of the time. It is because of this frequency that the following DCP has been developed. This DCP adopts measures that will dramatically cut water consumption in order to conserve water supplies.

3. Public Education

A public meeting to receive comments on the DCP was held on April 17, 2013.

The City will periodically provide the public with information about the DCP, including information about the conditions under which each stage of the DCP is to be initiated or terminated, and the drought response measures to be implemented in each stage. This information will be provided by utility bill inserts, notices in the Corpus Christi Caller-Times, and notice on the City's website (www.cctexas.com).

Notification to the public about when drought stages go into effect or when restrictions are lifted is explained in more detail in Section 9.

4. Coordination with Regional Water Planning Groups

The service area of the City of Corpus Christi is located within the Coastal Bend Regional Water Planning Area (Region N) and the City has provided a copy of this DCP to Region N in care of the Nueces River Authority.

The City of Corpus Christi shall review and update, as appropriate, the DCP at least every five years based on new or updated information, such as the adoption or revision of the regional water plan.

A presentation on the 2013 DCP revisions was made the Region N Water Planning Group on March 7, 2013. Minutes from the meetings will be available at http://www.nueces-ra.org/CP/RWPG/minutes/index.php after the June 13, 2013 meeting.

5. Authorization

The City Manager, or designee, is hereby authorized and directed to implement the applicable provisions of the DCP upon determination that such implementation is necessary to protect

public health, safety, and welfare. The City Manager, or designee, shall have the authority to initiate or terminate drought or other water supply emergency responses as described in this DCP. However, the City Manager, in the exercise of the City Manager's discretion, may initiate or terminate any stage when the City Manager deems necessary at any particular time. The City Manager shall notify the members of the City Council before implementing any measures.

6. Application

The provisions of this DCP shall apply to all persons, customers, and property utilizing water provided by the City of Corpus Christi. The terms "person" and "customer" as used in the DCP include individuals, corporations, partnerships, associations, and all other legal entities.

7. Definitions

For the purposes of this Chapter in this DCP, the following definitions shall apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use which is integral to the operations of commercial, non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

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

Contract (end-user) water customers: a private entity that has a contract with the City to receive raw or treated water supplies for its sole use (i.e. does not resell to other users).

Customer: any person, company, or organization using water supplied by the City of Corpus Christi and paying a retail water bill.

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and use.

Institutional water use: the use of water by an establishment dedicated to public service, such as a school, university, church, hospital, nursing home, prison, or government facility. All facilities dedicated to public service are considered institutional regardless of ownership.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, rights-of-way, and medians.

Non-essential water use: water uses that are not essential or not required for the protection of public, health, safety, and welfare, including:

- irrigation of landscape areas, including parks, athletic fields, and golf courses, except as otherwise provided under this DCP;
- use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle;
- use of water to wash down any impervious cover including sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- use of water to wash down buildings or structures for purposes other than immediate fire protection or health reasons;
- flushing gutters or permitting water to run or accumulate in any gutter or street;
- use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
- use of water in an aesthetic feature including fountain or pond except where necessary to support aquatic life;
- failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak; and
- use of water from hydrants for construction purposes or any other purposes other than fire fighting or flushing needed to maintain chlorination levels and protect public health.

Wholesale customers: any public or private utility that has a contract with the City to receive raw or treated water supplies and authority (through contracts) to resell this water to other users.

8. Criteria for Initiation and Termination of Drought Response Stages

The City Manager, or designee, shall monitor water supply and/or demand conditions on a weekly basis and shall determine when conditions warrant initiation or termination of each stage of the DCP, that is, when the specified “triggers” are reached. However, the City Manager, in the exercise of the City Manager’s discretion, may initiate or terminate any stage when the City Manager deems necessary at any time. This section explains the triggers of each stage. Best management practices and water use restrictions for each drought stage are described in Section 10.

The triggering criterion to be monitored for determining drought response stages is (1) the combined reservoir storage levels of Choke Canyon Reservoir and Lake Corpus Christi, based on the TCEQ 2001 Agreed Order (amended April 17, 2001) relating to inflows into Nueces Bay and Estuary or (2), in the alternative for Stage 1, Lake Texana’s level. See Appendix A.

8.1. Stage 1 – Mild Water Shortage Condition

Requirements for initiation – Customers shall be requested to voluntarily conserve water and adhere to prescribed restrictions on certain water used when the combined storage level of Choke Canyon Reservoir and Lake Corpus Christi declines below 50 percent or Lake Texana storage level declines below 40%.

Requirement for termination – Stage 1 of the DCP may be rescinded when the combined storage level of Choke Canyon Reservoir and Lake Corpus Christi increases above 60 percent or Lake Texana storage level increases above 50%. Either of these conditions must exist for a period of 15 consecutive days before termination of Stage 1.

8.2. Stage 2 – Moderate Water Shortage Condition

Requirements for initiation – Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses described in Section 10 when the combined storage level declines to below 40 percent.

Requirement for termination – Stage 2 of the DCP may be rescinded when the combined storage level increases above 50 percent for a period of 15 consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

8.3. Stage 3 – Severe Water Shortage Condition

Requirements for initiation – Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 3 of this DCP when the combined storage levels declines to below 30 percent.

Requirement for termination – Stage 3 of the DCP may be rescinded when the combined storage level increases above 40 percent for a period of 15 consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

8.4. Stage 4 – Critical Water Shortage Condition

Requirements for initiation – Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 4 of the DCP when the combined storage levels declines to below 20 percent.

Requirement for termination – Stage 4 of the DCP may be rescinded when the combined storage level increases above 30 percent for a period of 15 consecutive days. Upon termination of Stage 4, Stage 3 becomes operative.

8.5. Stage 5 – Emergency Water Shortage Condition

Requirements for initiation – Customers shall be required to comply with requirements and restrictions for Stage 5 of this DCP when the City Manager, or designee, determines that a water supply emergency exists based on:

- A major water line breaks, or pump or system failures occur, which causes unprecedented loss of capability to provide water service; or
- Water production or distribution system limitations; or
- Natural or man-made contamination of the water supply source occurs.

Requirement for termination – The emergency water shortage condition may be rescinded when the City Manager, or designee, deems appropriate.

9. Drought Stages Response Notification

The City Manager, or designee, shall monitor water supply and/or demand conditions on a weekly basis and, in accordance with the triggering criteria set forth in Section 8 of this Chapter, shall determine that a mild, moderate, severe, critical, or emergency water shortage condition exists and shall implement the following notification procedures.

Notification of the Public:

The City Manager, or designee, shall notify the public for every change in drought stage status by any or all of the following:

- City's website (www.cctexas.com)
- Publication in the Corpus Christi Caller-Times
- Notice on the monthly billing
- Public Service Announcements
- Signs posted in public places

Additional Notification:

The City Manager, or designee shall, at a minimum, notify directly, or cause to be notified directly, the following individuals and entities for every change in drought stage status:

- Mayor and members of the City Council
- Fire Chief
- City and/or County Emergency Management Coordinator
- County Judge and Commissioner(s)
- Major water users (such as industries)

- Critical water users (such as hospitals)
- Parks/street superintendents and public facilities managers
- Texas Commission on Environmental Quality (TCEQ) – note TCEQ executive director MUST be informed within five (5) business days of mandatory water use restrictions being imposed

10. Drought Best Management Practices Per Stage

A summary of water use reduction targets for each drought stage response is presented in the following table. Further discussion on best management practices and implementation practices associated with each stage of response is included below. During Stages 2, 3, and 4, requests for exceptions may be presented to the Director of Water Operations or designee.

Drought Stage Response	CCR/LCC Combined Reservoir Storage Level	Target Demand Reduction Levels
Stage 1- Mild	<50% or if Lake Texana is <40%	5%
Stage 2- Moderate	<40%	10%
Stage 3- Severe	<30%	15%
Stage 4- Critical	<20%	30%
Stage 5- Emergency	Not Applicable	50%

10.1. Stage 1 Response – MILD Water Shortage Conditions

Target: Achieve a *voluntary* 5% reduction in daily treated water demand relative to treated water demand with the water use restrictions below.

Best Management Practices for Supply Management:

The City will enact voluntary measures to reduce or discontinue the flushing of water mains if practicable and utilize reclaimed water for non-potable uses to the greatest extent possible. The City will prioritize sources of supply not impacted by drought conditions, when available, including interruptible supplies from Lake Texana during times when Lake Texana water level is at or above 43 feet mean sea level in accordance with Lavaca-Navidad River Authority (LNRA) contract.

Water Use Restrictions for Reducing Demand

(a) Water customers are requested to voluntarily limit the irrigation of landscaped areas to **once per week**. The City Manager, or designee, will determine the watering schedule.

(b) All operations of the City of Corpus Christi shall adhere to water use restrictions prescribed for Stage 2 of the DCP.

(c) Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.

10.2. Stage 2 Response – MODERATE Water Shortage Conditions

Target: During Stage 2, achieve a 10% reduction in daily treated water demand relative to treated water demand with the water use restrictions below.

Best Management Practices for Supply Management:

In addition to the best management practices for supply management listed under Stage 1, the City will also do the following during Stage 2:

- Use more repair crews if necessary to allow for a quicker response time for water-line leak repair; and
- City crews (Water and other departments) begin monitoring customers' compliance with Stage 2 restrictions during the course of their daily rounds.

Water Use Restrictions for Demand Reduction

Under threat of penalty for violation, the following water use restrictions shall apply to all persons during Stage 2:

a) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to **once per week**. The watering schedule will be determined by the City Manager or designee. Customers will be made aware of their designated watering day in accordance with Section 9. However, irrigation of landscaped areas is permitted on any day if it is by means of a hand-held hose (with positive shutoff nozzle), a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system with a positive shutoff device. Exceptions for this restriction may be permitted, upon review and approval by the Director of Water Operations or designee, for the following uses: new plantings (for up to 60 days), vegetable gardens, athletic playing fields, and botanical gardens. In addition, this restriction does not apply to customers irrigating with well water or an aerobic septic system. Customers irrigating with well water or an aerobic septic system must apply for a permit from the City Water Department to be prominently posted on the premises within two (2) feet of the street number located on the premises.
b) Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle is prohibited except on designated watering days. However, washing of boats and/or flushing of boat motors is permitted upon immediate exit of water body. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial car wash. Further, such washing may be exempted from these regulations upon review by the Director of Water Operations or designee if the health, safety, and welfare of

the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables. Washing of boats and/or flushing of boat motors is permitted upon immediate exit of water body.

c) Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or Jacuzzi-type pools is prohibited except on designated watering days.
d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life.
e) Use of water from hydrants shall be limited to fire fighting, related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under special permit from the City of Corpus Christi Water Department.
f) Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days. However, if the golf course utilizes a water source other than that provided through City of Corpus Christi Water Department infrastructure, the facility shall not be subject to these regulations.
g) The use of water to maintain integrity of building foundations is limited to designated watering days and is only permitted by use of hand-held hose or drip irrigation.
h) The following uses of water are defined as non-essential and are prohibited:
    1. Wash-down of any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
    2. Use of water to wash down buildings or structures for purposes other than immediate fire protection without permit granted by the Director of Water Operations or designee;
    3. Use of water for dust control without permit without permit granted by the Director of Water Operations or designee;

10.3. Stage 3 Response – SEVERE Water Shortage Conditions

Target: During Stage 3, achieve a 15% reduction in total daily treated water demand relative to treated water demand with the water use restrictions below.

Best Management Practices for Supply Management:

In addition to the best management practices for supply management listed under Stage 2, the City will also do the following during Stage 3:

- Eliminate the flushing of water mains unless required for decontamination and/or public safety; and
- Review customers' water usage for compliance based on the previous month's water use and notify violators verbally or in writing as the situation dictates.

Water Use Restrictions for Demand Reduction:

All requirements of Stage 2 shall remain in effect during Stage 3 except as modified below:

a) Irrigation of landscaped areas shall be limited to **once every other week**. The watering schedule will be determined by the City Manager or designee. Customers will be made aware of their designated watering day. However, irrigation of landscaped areas is permitted on any day if it is by means of a hand-held hose (with positive shutoff nozzle), a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system with a positive shutoff device. Exceptions for this restriction may be permitted, upon review and approval by the Director of Water Operations or designee, for the following uses: new plantings (for up to 60 days), vegetable gardens, athletic playing fields, and botanical gardens. In addition, this restriction does not apply to customers irrigating with well water or an aerobic septic system. Customers irrigating with well water or an aerobic septic system shall still apply for a permit from the City Water Department to be prominently posted on the premises within two (2) feet of the street number located on the premises.
b) The watering of golf course fairways with potable water is prohibited. The watering of greens and tees are limited to once every other week unless the golf course utilizes a water source other than that provided through City of Corpus Christi Water Department infrastructure or done by means of hand-held hoses, hand-held buckets, or drip irrigation.

Optional Measures:

During Stage 3, the following measures are optional water use restrictions that may be implemented by the City Manager, or designee, with City Council approval, as conditions warrant:

a) The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.
b) For residential and multi-unit customers, a drought surcharge of up to and including 100% of the total monthly water bill over the monthly allocation may be added to the customers' bill to deter discretionary water use, as explained in Section 11.

10.4. Stage 4 Response – CRITICAL Water Shortage Conditions

Target: During Stage 4, achieve a 30% or greater reduction in daily treated water demand relative to treated water demand with the water use restrictions below. An additional surcharge will be added to each utility bill during Stage 4 water shortage conditions to discourage discretionary water use, as described in Section 11 for retail customers and Section 16.10 for wholesale customers.

Best Management Practices for Supply Management:

In addition to the best management practices for supply management listed under Stage 3, the City will also do the following during Stage 4:

- Upon written notice, disconnect the water meters of willful violators if absolutely necessary to prevent the deliberate wasting of water.

Water Use Restrictions for Demand Reduction:

All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except as modified below:

a) Irrigation of landscaped areas shall be **prohibited at all times**.
b) Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle not occurring on the premises of a commercial car wash stations and not in the immediate interest of public health, safety, and welfare is prohibited.
c) The filling, refilling, or adding of water to swimming pools, wading pools, and jacuzzi-type pools, and water parks (unless non-city, alternative source) is prohibited.
d) The use of water to maintain the integrity of a building foundation is still permitted on the designated Stage 3 watering day and shall be done by hand or drip irrigation method.

Optional Measures:

During Stage 4, the following measures are optional water use restrictions that may be implemented by the City Manager, or designee, with City Council approval, as conditions warrant:

a) No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby suspended for such time as this drought response stage shall be in effect.
b) For residential and multi-unit customers, a drought surcharge of up to and including 100% of the total monthly water bill over the monthly allocation may be added to the customers' bill to deter discretionary water use, as explained in Section 11.

10.5. Stage 5 Response – EMERGENCY Water Shortage Conditions

Target: During Stage 5, achieve a 50% or greater reduction in daily treated water demand relative to treated water demand with the below water use restrictions. Surcharges and reduced allocations are enforceable during Stage 5 water shortage conditions, as described in Section 13.

During emergency conditions such as system outage or supply source contamination, or supply sources draining empty, alternative water sources and/or alternative delivery mechanisms may be necessary with prior approval of the City Manager or designee. For emergency water shortage conditions associated with contamination of Nueces Basin stored supplies, the City, under the City Manager or designee's direction, will cease pumping from the Nueces River and will contact the LNRA to identify additional, temporary water that may be available from Lake Texana on a short-term basis to meet essential water needs. For emergency water shortage conditions associated with contamination of Lake Texana supplies, the City, under the City Manager's direction, will cease pumping from the Mary Rhodes Pipeline.

Best Management Practices for Supply Management:

In addition to the best management practices for supply management listed under Stage 4, the City will also do the following:

- Call the 10 largest water customers in the area affected by the emergency condition, and if necessary, use runners in key areas to begin spreading the message of a major outage.

Water Use Restrictions for Demand Reduction:

During Stage 5, all requirements of Stage 2, 3, and 4 shall remain in effect except as modified below:

a) Irrigation of landscaped areas is absolutely prohibited.
b) Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle is absolutely prohibited.
c) Associated uses of water not related to business process which are discretionary, such as equipment washing, shall be deferred until the Stage 5 emergency has been terminated.

Optional Measure:

During Stage 5, the following measure is an optional water use restriction that may be implemented by the City Manager, or designee, with City Council approval, as conditions warrant:

a) For residential and multi-unit customers, a drought surcharge of up to and including 100% of the total monthly water bill over the monthly allocation may be added to the customers' bill to deter discretionary water use, as explained in Section 11.

11. Surcharges for Drought Stages 3 – 5 and Service Measures

(a) General

1. The surcharges established herein are solely intended to regulate and deter the use of water during a period of serious drought in order to achieve necessary water conservation. The City Council expressly finds that the drought poses a serious and immediate threat to the public and economic health and general welfare of this community, and that the surcharges and other measures adopted herein are essential to protect said public health and welfare.
2. This section, and the surcharges and measures adopted herein are an exercise of the City's regulatory and police power, and the surcharges and connection fees are conservation rates intended to meet fixed costs as a result of lost revenue.
3. With City Council approval, the City Manager is authorized to determine trigger points or allocations and surcharges during Stages 3, 4, and 5 Emergency Water Shortage conditions.
4. In this section, institutional customer means city utility customer which operates as a not-for-profit entity.
5. A customer may appeal an allocation or drought surcharge triggering point established under this Section to the Director of Water Operations or designee on grounds of unnecessary hardship, through the process outlined in Section 12.
6. Drought surcharge funds will first be applied towards annual debt service as reflected in the City operating budget to offset revenue loss due to drought conditions. Additional funds will be reported to City Council for City Council direction.

(b) Residential water customers, who are not billed through a master water meter.

1. A monthly base amount of 3,000 gallons shall be established as a trigger point for each customer. Water consumption up to and including this amount will not include a drought surcharge.
2. Above the 3,000 gallon consumption trigger point, with City Council Approval, a drought surcharge shall be added up to and including 100% of the customer's total monthly water bill over the allocation.

(c) *Residential customers who are billed from a master water meter.*

1. Once Stage 2 condition has been declared, property managers of multi-tenant units shall notify the City Director of Water Operations of the number of residential units in their facility for determination of allocations. Until so notified, the City shall calculate the allocation based on two residential units per master water meter. A monthly base amount of 3,000 gallons shall be established as a trigger point for each residential unit.

2. When consumption for the month is less than or equal to 3,000 gallons times the number of residential units, there will be no surcharge.
3. With City Council approval, when consumption is above the 3,000 gallons times the number of units, a drought surcharge shall be added up to and including 100% of the customer's total monthly water bill over the allocation.
4. The customer is responsible for passing the demand charge onto the tenant.

(d) Commercial or institutional customer

1. A monthly water usage allocation shall be established by the City Manager or designee for each commercial or institutional customer.
2. Method of establishing allocation:
    a. When the combined reservoir capacity is less than 20% of total capacity (Stage 4), the commercial or institutional customer's allocation shall be 90 percent of the customer's usage for the corresponding month's billing period during previous 12 months prior to the implementation of Stage 2.

    b. If the customer's billing history is shorter than 12 months, the monthly average for the period for which there is a record shall be used for any monthly period for which no history exists.

    c. Provided, however, a customer, 90 percent of whose monthly usage is less than 6,000 gallons, shall be allocated 6,000 gallons.

    d. The City Manager shall give best effort to see that notice of each commercial or institutional customer's allocation is mailed to such customer.

    e. If, however, the customer does not receive such notice, it shall be the customer's responsibility to contact the City Utilities Billing Office to determine the allocation, and the allocation shall be fully effective notwithstanding lack of receipt of written notice.

    f. Upon request of the customer or at the initiative of the City Manager, the allocation may be reduced or increased,

        (1) if one nonresidential customer agrees to transfer part of its allocation to another nonresidential customer, or

        (2) if other objective evidence demonstrates that the designated allocation is inaccurate under present conditions.

(e) Industrial customers, who use water for processing.

1. A monthly water usage allocation shall be established by the City Manager or designee for each an industrial customer, which uses water for processing (e.g., an industrial customer).
2. Method of establishing allocation.
    a. When the combined reservoir capacity is less than 20% of total capacity (Stage 4), the industrial customer allocation shall be 90 percent of the customer's usage for the corresponding month's billing period during the previous 12 months prior to the implementation of Stage 2

    b. If the customer's billing history is shorter than 12 months, the monthly allocation shall be 1/12 of 90% of the customer's maximum annual contracted amount until 12 months of billing history are established. However if the industrial customer does not have a water contract and does not have at least 12 months of billing history, then the new industrial customer will provide data regarding expected water use and City will determine allocation based on 90% of expected use to determine initial allocation until 12 months of billing history are established.

    c. The City Manager shall give his best effort to see that notice of each industrial customer's allocation is mailed to such customer.

    d. If, however, the customer does not receive such notice, it shall be the customer's responsibility to contact the City Utilities Billing Office to determine the allocation, and the allocation shall be fully effective notwithstanding lack of receipt of written notice.

    e. Upon request of the customer or at the initiative of the City Manager, the allocation may be reduced or increased, if:

        1. The designated period does not accurately reflect the customer's normal water usage because customer had shut down a major processing unit for overhaul during the period.

        2. The customer has added or is in the process of adding significant additional processing capacity.

        3. The customer has shut down or significantly reduced the production of a major processing unit.

        4. The customer has previously implemented significant permanent water conservation measures.

        5. The customer agrees to transfer part of its allocation to another industrial customer.

6. Other objective evidence demonstrates that the designated allocation is inaccurate under present conditions.

(f) Commercial, institutional, and industrial customers shall pay the following surcharges:

1. Customers whose allocation is 6,000 gallons through 20,000 gallons per month:

a. $5.00 per 1,000 gallons for the first 1,000 gallons over allocation.

b. $8.00 per 1,000 gallons for the second 1,000 gallons over allocation.

c. $16.00 per 1,000 gallons for the third 1,000 gallons over allocation.

d. $40.00 for each additional 1,000 gallons over allocation.

2. Customers whose allocation is 21,000 gallons per month or more:

a. One times the block rate for each 1,000 gallons in excess of the allocation up through 5 percent above allocation.

b. Three times the block rate for each 1,000 gallons from 5 percent through 10 percent above allocation.

c. Five times the block rate for each 1,000 gallons from 10 percent through 15 percent above allocation.

d. Ten times the block rate for each 1,000 gallons more than 15 percent above allocation.

e. The surcharges shall be cumulative.

f. As used herein, "block rate" means the charge to the customer per 1,000 gallons at the regular water rate schedule at the level of the customer's allocation.

(g) *Nonresidential customer is billed from a master meter*.

1. When a nonresidential customer is billed from a master meter which jointly measures water to multiple residential dwelling units (for example: apartments, mobile homes), the customer may pass along any surcharges assessed under this DCP to the tenants or occupants, provided that:

a. The customer notifies each tenant in writing:

1. That the surcharge will be passed along.

2. How the surcharge will be apportioned.

3. That the landlord must be notified immediately of any plumbing leaks.

4. Methods to conserve water (which shall be obtained from the City).

b. The customer diligently maintains the plumbing system to prevent leaks.

c. The customer installs water saving devices and measures (ideas for which are available from the City) to the extent reasonable and practical under the circumstances.

(h) Water service to the retail water customer may be terminated under the following conditions:

1. Monthly residential water usage exceeds allocation by 4,000 gallons or more two or more times for any individual month after the implementation of Stage 4. Also, the two months need not be consecutive months.

2. Monthly water usage on a master meter which jointly measures water usage to multiple residential dwelling units exceeds allocation by 4,000 gallons times the number of dwelling units or more two or more times (which need not be consecutive months).

3. Monthly nonresidential water usage for a customer whose allocation is 6,000 gallons through 20,000 gallons exceeds its allocation by 7,000 gallons or more two or more times (which need not be consecutive months).

4. Monthly nonresidential water usage for a customer whose allocation is 21,000 gallons or more exceeds its allocation by 15 percent or more two or more times (which need not be consecutive months).

5. For residential customers and nonresidential customers whose allocation does not exceed 20,000 gallons, after the first disconnection water service shall be restored upon request for a fee of $50.

6. For such customers, after the second disconnection, water service shall be restored within 24 hours of the request for a fee of $500.

7. If water service is disconnected a third time for such customer, water service shall not be restored until the City re-enters a level of water conservation less than Stage 3.

8. For master meter customers, the service restoration fees shall be the same as above times the number of dwelling units.

9. For nonresidential customers whose allocation is 21,000 gallons per month or more:

    a. After the first disconnection water service shall be restored upon request for a fee in the amount of "X" in the following formula:

        X = $ 50 x Customer’s Allocation in gallons / 20,000 gallons

    b. After the second disconnection for said customers, water service shall be restored within 24 hours of the request for a fee of 10 times "X".

    c. If water service is disconnected a third time for such customer, water service shall not be restored until the City re-enters a level of water conservation less than Stage 3.

    d. The City Manager is directed to institute written guidelines for disconnection of water service under this provision, which will satisfy minimum due process requirements, if any.

(i) It shall be a defense to imposition of a surcharge hereunder, or to termination of service, that water used over allocation resulted from loss of water through no fault of the customer (for example, a major water line break) for the following conditions:

1. The customer shall have the burden to prove such defense by objective evidence (for example, a written certification of the circumstances by a plumber).

2. A sworn statement may be required of the customer.

3. This defense shall not apply if the customer failed to take reasonable steps for upkeep of the plumbing system, failed to reasonably inspect the system and discover the leak, failed to take immediate steps to correct the leak after discovered, or was in any other way negligent in causing or permitting the loss of water.

(j) When this section refers to allocation or water usage periods as "month," monthly," "billing period," and the like, such references shall mean the period in the City's ordinary billing cycle which commences with the reading of a meter one month and commences with the next reading of that meter which is usually the next month.

1. The goal for the length of such period is 30 days, but a variance of two days, more or less, will necessarily exist as to particular meters.

2. If the meter reader system is prevented from timely reading a meter by any obstacle which is attributable to the customer, the original allocation shall apply to the longer period without modification.

12. Requests for Exemptions and Variances

(a) The Director of Water Operations or designee may, in writing, grant a temporary variance to any of the provisions for water users found in this DCP upon determination that failure to grant such variance would cause an emergency condition adversely affecting the public health, sanitation, or fire protection for the public or person requesting such a variance.

(b) A person requesting an exemption or variance from the provisions of this Ordinance shall file request on City-provided application for exemption/variance with the City Water Department within 5 days after a particular drought response stage has been invoked. All request forms shall be reviewed by the Director of Water Operations or designee, and shall include the following:

1. Name and address of the water user(s).
2. Purpose of water use.
3. Specific provision(s) of the Ordinance from which the water user is requesting relief.
4. Detailed statement as to how the specific provision of the Ordinance adversely affects the water user or what damage or harm will occur to the water user or others if water user complies with this DCP.
5. Description of the exemption requested
6. Period of time for which the exemption is sought.
7. Alternative water use restrictions or other measures the water user is taking or proposes to take to meet the intent of this DCP and the compliance date.
8. Other pertinent information; or as required on permit application

(c) No exemption nor variance shall be retroactive or otherwise justify any violation of this DCP occurring prior to the issuance of the exemption/variance.

(d) The Director of Water Operations of designee shall consider requests of water users for special consideration to be given as to their respective particular circumstances and is hereby authorized to, in special cases, grant such variance from the terms of this DCP if such compliance would cause an emergency condition adversely affecting the public health, sanitation, or fire protection for the public or person requesting such a variance as will not be contrary to the public interest, where, owing to special conditions, a literal enforcement of the provisions of this DCP will result in

unnecessary hardship, and so that the spirit of this DCP shall be observed and substantial justice done.

(e) Should a permit for special exception be granted, it shall be in effect from the time of granting through the termination of the then current stage, unless revoked by the Director of Water Operations or designee for noncompliance; provided, that the permit is prominently posted on the premises within two (2) feet of the street number located on the premises.

(f). A person denied request for permit or exception from these rules may appeal the decision to the Assistant City Manager for Public Works, Utilities and Transportation by submitting written request for appeal to the Assistant City Manager within five business days from issuance of denial. The decision of the Assistant City Manager shall be final.

(g) Violations of any permit conditions may be enforced under Section 13.

13. Enforcement

(a) A violation under this article is a Class C misdemeanor. Any person that violates any provision of this article shall be subject to a fine of not more than five hundred dollars ($500.00) per violation per day. The culpable mental state required by Section 6.02 of the Texas Penal Code is specifically negated and dispensed with and a violation of this article is a strict liability offense.

(b) The commission of a violation of each provision, and each separate violation thereof, shall be deemed a separate offense, in and upon conviction thereof, shall be fined as hereinabove provided.

(c) If any person or a second person in the same household or premises is found guilty of a second violation of this article, the water superintendent shall be authorized to discontinue water service to the premises where such violation occurs.

(d) Cases filed under this section shall be expedited and given preferential setting in municipal court before all other cases.

(e) Any person whose name is on file with the utilities billing office as the customer on the water account for the property where the violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on said premises shall constitute prima facie evidence that the customer committed the violation, but said customer shall have the right to show that he did not commit the violation.

(f) If any person fails to respond to a citation or summons issued for a violation of this article within the time allowed, upon receipt of notice from the director or a judge of the municipal courts, the water superintendent is authorized to discontinue water service to the premises where such violation occurs.

14. Variances

A temporary variance for existing water uses otherwise prohibited under this DCP may be obtained through the process outlined in Section 12.

15. Severability

It is hereby declared to be the intention of the City that the sections, paragraphs, sentences, clauses, and phrases of this DCP are severable and, if any phrase, clause, sentence, paragraph, or section of this DCP shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such declaration shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this DCP, since the same would not have been enacted by the City without the incorporation into this DCP of any such unconstitutional phrase, clause, sentence, paragraph, or section.

16. Wholesale Drought Contingency Plan

16.1 Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply and/or to protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Corpus Christi (City) adopts the following Wholesale Drought Contingency Plan (the Plan).

16.2 Public and Wholesale Customer Involvement

Opportunity for the wholesale water customers to provide input into the preparation of the Plan was provided by the City by means of supplying the Contracting Parties with a copy of the Plan and receiving comments by email. The public was invited to view and make comments on the Plan by placement of the Plan on a public website and a public meeting held on April 17, 2013 at City Hall. The Plan was adopted under the open meetings requirement of the TCEQ during the May 28, 2013 City Council meeting.

16.3 Wholesale Water Customer Education

The City will periodically provide wholesale customers with information about the Plan, including information about conditions under which each stage of the Plan is to be initiated or terminated and drought response measures to be implemented in each stage. This information will be distributed by providing a copy of the Plan to each wholesale water customer.

16.4 Coordination with Regional Water Planning Groups

The water service area of City of Corpus Christi and its wholesale water customers is located within the Coastal Bend Planning Region (Region N) and the City has provided a copy of the Plan to Region N.

The City of Corpus Christi shall review and update, as appropriate, the drought contingency plan at least every five years based on new or updated information, such as the adoption or revision of the regional water plan.

16.5 Authorization

The City of Corpus Christi City Manager, or designee, is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. Wholesale customers are subject to the plan under their contracts with the City. The City Manager, or designee, shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan. The City Manager shall notify the TCEQ within five (5) business days of any mandatory water use restrictions being enacted.

16.6 Application

The provisions of this Plan shall apply to all customers utilizing water provided by the City on a wholesale basis. The terms “person” and “customer” as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities. The provisions of this Plan shall apply to all customers utilizing water provided by the City on a wholesale basis. Every wholesale water contract entered into, renewed or modified after official adoption of this Plan (by either ordinance, resolution, or tariff) shall include language relating to the City of Corpus Christi Water Conservation Plan and Drought Contingency Plan, adopted under Ordinance Number 55-151 to impose similar restrictions, surcharges or rationing measures on their customers. To the extent of its legal authority, the City of Corpus Christi shall require its wholesale customers to implement outdoor watering restrictions similar to those of the City for each drought response stage. The City requires that any contract for the resale of water furnished to wholesale water contractors shall contain a similar condition.

16.7 Triggering Criteria for Initiation and Termination of Drought Response Stages

The City of Corpus Christi City Manager, or designee, shall monitor water supply and/or demand conditions on a weekly basis and shall determine when conditions warrant initiation or termination of each stage of the Plan. Customer notification of the initiation or termination of drought response stages will be made by email, mail, or telephone. The news media will also be informed by the City.

The triggering criterion to be monitored for determining drought response stages is the combined reservoir storage levels of Choke Canyon Reservoir and Lake Corpus Christi. The combined storage levels selected are based on the TCEQ 2001 Agreed Order on Freshwater

Inflows to the Nueces Bay and Estuary (amended April 17, 2001). See Appendix A. The triggering criterions in this section are minimum standards for initiation and maximum standards for termination, and the City Manager, or designee, can initiate or terminate each stage when conditions warrant.

(a)Stage 1 – MILD Water Shortage Condition

Requirements for initiation – The City will recognize that a mild water shortage condition exists when the combined storage level declines below 50 percent or Lake Texana storage level declines below 40%.

Requirement for termination – Stage 1 of the Plan may be rescinded when the combined storage level of Choke Canyon Reservoir and Lake Corpus Christi increases above 60 percent or Lake Texana storage level increases above 50%. Either of these conditions must exist for a period of 15 consecutive days before termination of Stage 1.

(b)Stage 2 – MODERATE Water Shortage Condition

Requirements for initiation – The City will recognize that a moderate water shortage condition exists when the combined storage level declines below 40 percent.

Requirement for termination – Stage 2 of the Plan may be rescinded when the combined storage level increases above 50 percent for a period of 15 consecutive days. Upon termination of Stage 2, Stage 1 becomes operative. The City will notify its wholesale customers and the media of the termination of Stage 2 in the same manner as the notification of initiation of Stage 1 of the Plan.

(c)Stage 3 – SEVERE Water Shortage Condition

Requirements for initiation – The City will recognize that a severe water shortage condition exists when the combined storage levels declines to below 30 percent.

Requirement for termination – Stage 3 of the Plan may be rescinded when the combined storage level increases above 40 percent for a period of 15 consecutive days. Upon termination of Stage 3, Stage 2 becomes operative. The City will notify its wholesale customers and the media of the termination of Stage 3.

(d)Stage 4 – CRITICAL Water Shortage Condition

Requirements for initiation – The City will recognize that a severe water shortage condition exists when the combined storage levels declines to below 20 percent.

Requirement for termination – Stage 4 of the Plan may be rescinded when the combined storage level increases above 30 percent for a period of 15 consecutive days. Upon termination of Stage 4, Stage 3 becomes operative. The City will notify its wholesale customers and the media of the termination of Stage 4.

(e)Stage 5 – EMERGENCY Water Shortage Condition

Requirements for initiation – The City will recognize that an emergency water shortage condition exists when any of the following occur:

i. A major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; or
ii. Water production or distribution system limitations; or
iii. Natural or man-made contamination of the water supply source occurs.

Requirement for termination – The emergency water shortage condition may be rescinded when the City of Corpus Christi City Manager, or designee, deems appropriate. The City will notify its wholesale customers and the media of the termination of emergency shortage condition in the same manner as the notification of initiation of Stage 1 of the Plan.

16.8 Drought Response Stages

The City of Corpus Christi City Manager, or designee, shall monitor water supply and/or demand conditions and, in accordance with the triggering criteria set forth in Section 16.7, shall determine that mild, moderate, or severe water shortage conditions exist or that an emergency condition exists and shall implement best management practices accordingly.

For water contracts between the City and wholesale customers with specific reductions based on stage, wholesale water customers are to implement measures to achieve water use reduction targets specified in the contract. For other contracts, required adoption of a Drought Contingency Plan should strive to achieve the water use reduction targets for each drought stage response presented in the following table. Further discussion on best management practices and implementation practices associated with each stage of response is described below.

Drought Stage Response	Reservoir Storage Level	Target Demand Reduction Levels
Stage 1- Mild	<50% or if Lake Texana is <40%	5%
Stage 2- Moderate	<40%	10%
Stage 3- Severe	<30%	15%
Stage 4- Critical	<20%	30%
Stage 5- Emergency	Not Applicable	50%

Stage 1 – MILD Water Shortage Conditions

Target: Achieve a *voluntary* 5 percent reduction in daily water demand for each wholesale customer utilizing City's water supply system.

Best Management Practices for Supply Management:

- The City will *voluntarily* coordinate with the necessary agencies to ensure that unnecessary releases of water from the Reservoir System are minimized, including leakage from gates or outlet works.
- The City will encourage each wholesale water customer to utilize alternative water sources *voluntarily* such as interconnections with another water system, temporary use of a water supply other than from the City's system, or use of reclaimed water for non-potable purposes, etc.

Water Use Restrictions for Reducing Demand:

- The City Manager, or designee, will contact wholesale water customers to discuss water supply and/or demand conditions and will request that wholesale water customers initiate voluntary measures to reduce water use (e.g. implement Stage 1 of the customer's drought contingency plan).

- The City Manager, or designee, will provide a regular report to the news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and consumer information on water conservation measures and practices.

Stage 2 – MODERATE Water Shortage Conditions
Target: Achieve a 10 percent reduction in daily water demand for each wholesale customer utilizing City's water supply system.

Best Management Practices for Supply Management:

- The City will coordinate with the necessary agencies to ensure that unnecessary releases of water from the Reservoir System are minimized.
- The City will encourage each wholesale water customer to utilize alternative water sources such as interconnections with another water system, temporary use of a water supply other than from the City's system, use of reclaimed water for non-potable purposes, etc.

Water Use Measures for Reducing Demand:

- The City of Corpus Christi City Manager, or designee, will initiate contact with wholesale water customers to discuss water supply and/or demand conditions and the possibility of pro rata curtailment of water diversions and/or deliveries.
- The City of Corpus Christi City Manager, or designee, will request wholesale water customers to initiate mandatory measures to reduce non-essential water use (e.g. implement Stage 2 of the customer's drought contingency plan).
- The City Manager, or designee, will provide a regular report to the news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and consumer information on water conservation measures and practices.

Other Actions to be Taken:

- The City will notify, in writing, operators of recreational facilities to consider issuance of signs near boat ramps and in public parks notifying the public that the Reservoir System is operating at less than 40 percent of its conservation pool volume, and that a Stage 2 Drought Response level has been declared. The City will recommend that operators post information to the public regarding Stage 2 of the Drought Contingency Plan and possible boating safety hazards due to decreasing Reservoir levels.

Stage 3 – SEVERE Water Shortage Conditions
Target: Achieve a 15 percent reduction in daily water demand for each wholesale customer utilizing City's water supply system.

Best Management Practices for Supply Management:

- The City will coordinate with the necessary agencies to ensure that unnecessary releases of water from the Reservoir System are minimized.

- The City will encourage each wholesale water customer to utilize alternative water sources such as interconnections with another water system, temporary use of a water supply other than from the City's system, use of reclaimed water for non-potable purposes, etc.

Water Use Measures for Reducing Demand:

- The City of Corpus Christi City Manager, or designee, will contact wholesale water customers to discuss water supply and/or demand conditions and will request that wholesale water customers initiate additional mandatory measures to reduce non-essential water use (e.g. implement Stage 3 of the customer's drought contingency plan).
- The City of Corpus Christi City Manager, or designee, will initiate preparations for the implementation of pro rata curtailment of water diversions and/or deliveries in accordance with Texas Water Code §11.039 by preparing a monthly water usage allocation baseline for each wholesale customer according to procedures specified in 16.9 of the Plan.
- The City of Corpus Christi City Manager, or designee, will provide a regular report to the news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and consumer information on water conservation measures and practices.

Other Actions to be Taken:

- The City will notify, in writing, operators of recreational facilities to consider issuance of signs near boat ramps and in public parks notifying the public that the Reservoir System is operating at less than 30 percent of its conservation pool volume, and that a Stage 3 Drought Response level has been declared. The City will recommend that operators post information to the public regarding Stage 3 of the Drought Contingency Plan and possible boating safety hazards due to decreasing Reservoir levels.

Stage 4 – CRITICAL Water Shortage Conditions

Target: Achieve a 30 percent reduction in daily water demand for each wholesale customer utilizing City's water supply system.

Best Management Practices for Supply Management:

- The City will coordinate with the necessary agencies to ensure that unnecessary releases of water from the Reservoir System are minimized, including leakage from project gates.
- The City will encourage each wholesale water customer to utilize alternative water sources such as interconnections with another water system, temporary use of a water supply other than from the City's system, use of reclaimed water for non-potable purposes, etc.

Water Use Restrictions for Reducing Demand:

- The City of Corpus Christi City Manager, or designee, will contact wholesale water customers to discuss water supply and/or demand conditions and will request that wholesale water customers initiate additional mandatory measures to reduce non-essential water use (e.g. implement Stage 4 of the customer's drought contingency plan).
- The City of Corpus Christi City Manager, or designee, will initiate pro rata curtailment of water diversions and/or deliveries for each wholesale customer according to the procedures specified in Section 16.9 of the Plan in accordance with Texas Water Code §11.039.
- The City of Corpus Christi City Manager, or designee, will provide a regular report to the news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and consumer information on water conservation measures and practices.

Other Actions to be Taken:

- The City will notify, in writing, operators of recreational facilities to consider issuance of signs near boat ramps and in public parks notifying the public that the Reservoir System is operating at less than 20 percent of its conservation pool volume, and that a Stage 4 Drought Response level has been declared. The City will recommend that operators post information to the public regarding Stage 4 of the Drought Contingency Plan and possible boating safety hazards due to decreasing Reservoir levels.

Stage 5 – EMERGENCY Water Shortage Conditions

Whenever emergency water shortage conditions exist as defined in Section 16.7 of the Plan, the City of Corpus Christi City Manager, or designee, shall:

- Assess the severity of the problem and identify the actions needed and the time required to solve the problem.
- Inform the utility director or other responsible official of each wholesale water customer by telephone, email, or in person and suggest actions, as appropriate to alleviate problems (e.g., notification of the public to reduce water use until service is restored).
- If appropriate, notify city, county, and/or state emergency response officials for assistance.
- Undertake necessary actions, including repairs and/or clean-up as needed.
- Prepare a post-event assessment report on the incident and critique of emergency response procedures and actions.

16.9 Pro Rata Water Allocation

In the event that the triggering criteria specified in Section 16.7 of the Plan for Stage 4 have been met, the City of Corpus Christi City Manager, or designee, is hereby authorized to

implement allocation of water supplies on a pro rata basis to raw water and treated wholesale customers in accordance with Texas Water Code §11.039. The initiation of pro rata allocation preparations shall begin during Stage 3. A provision will be included in every wholesale water contract entered into or renewed after adoption of the plan, including contract extensions, that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code §11.039.

(1) A raw water or wholesale treated water customer's monthly allocation shall be a percentage of the customer's water usage baseline. The percentage will be set by resolution of the city council based on the city manager's assessment of the severity of the water shortage condition and the need to curtail water diversions and deliveries, and may be adjusted periodically by resolution of the city council as conditions warrant. Once pro rata allocation is in effect, water diversions by or deliveries to each raw water or wholesale treated water customer shall be limited to the allocation established for each month.

(2) A monthly water usage allocation shall be established by the City Manager, or the City Manager's designee, for each raw water or wholesale treated water customer. The raw water or wholesale treated water customer's water usage baseline will be computed on the average water usage by month for the previous five-year period. If the raw water or wholesale treated water customer's billing history is less than five (5) years, the monthly average for the period for which there is a record shall be used for any monthly period for which no billing history exists.

(3) The City Manager shall provide notice, by certified mail, to each raw water or wholesale treated water customer informing them of their monthly water usage allocations and shall notify the news media and the Executive Director of the Texas Commission on Environmental Quality upon initiation of pro rata water allocation.

(4) Upon request of the raw water or wholesale treated water customer or at the initiative of the City Manager, the allocation may be reduced or increased if:

a. The designated period does not accurately reflect the raw water or wholesale treated water customer's normal water usage;

b. The customer agrees to transfer part of its allocation to another raw water or wholesale treated water customer; or

c. Other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established under this section to the City Council of the City of Corpus Christi.

16.10 Pro Rata Surcharges and Enforcement

During any period when pro rata allocation of available water supplies is in effect, wholesale customers shall pay the following surcharges on excess water diversions:

- 2.0 times the normal water rate per unit in excess of the monthly allocation up through 5 percent above the monthly allocation.
- 2.5 times the normal water rate in excess of the monthly allocation from 5 percent through 10 percent above the monthly allocation.
- 3.0 times the normal water rate in excess of the monthly allocation from 10 percent through 15 percent above the monthly allocation.
- 3.5 times the normal water rate more than 15 percent above the monthly allocation.

16.11 Variances

The City Manager, or designee, may, in writing, grant a temporary variance to the pro rata water allocation policies provided by this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the public health, welfare, or safety and if one or more of the following conditions are met:

(1) Compliance with this Plan cannot be technically accomplished during the duration of this water supply shortage or other condition for which the Plan is in effect.
(2) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Plan shall file a petition for variance with the City Manager within 5 days after pro rata allocation has been invoked. All petitions for variances shall be reviewed by the City Manager, or designee, and shall include the following:

(1) Name and address of the petitioner(s).
(2) Detailed statement with supporting data and information as to how the pro rata allocation of water under the policies and procedures established in the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.
(3) Description of the relief requested.
(4) Period of time for which the variance is sought
(5) Alternative measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
(6) Other pertinent information.

Variances granted by the City shall be subject to the following conditions, unless waived or modified by the City.

(1) Variances granted shall include a timetable for compliance with allocation requirements.
(2) Variances granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

16.12 Severability

It is hereby declared to be the intention of the City that the sections, paragraphs, sentences, clauses, and phrases of this Plan are severable and, if any phrase, clause, sentence, paragraph, or section of this Plan shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such declaration shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Plan, since the same would not have been enacted by the City without the incorporation into this Plan of any such unconstitutional phrase, clause, sentence, paragraph, or section.

16.13 Reservoir System Operating Plan

Because all of the wholesale customers rely on the reservoir systems for their supplies, they are subject to the Reservoir Operating Plan. A copy of this is included in Attachment B.

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

AN AGREED ORDER Amending the operational procedures and continuing an Advisory Council pertaining to Special Condition 5.B., Certificate of Adjudication No. 21-3214; Docket No. 2001-0230-WR

On April 4, 2001, came to be considered before the Texas Natural Resource Conservation Commission ("Commission") the Motion by the City of Corpus Christi and Nueces River Authority for the adoption of an amendment to the Agreed Order issued April 28, 1995, establishing operating procedures pertaining to Special Condition 5.B., Certificate of Adjudication No. 21-3214, held by the City of Corpus Christi, the Nueces River Authority, and the City of Three Rivers" (the two cities and river authority shall be referred to herein as "Certificate Holders"). The Certificate Holders and the Executive Director of the Texas Natural Resource Conservation Commission have agreed to the provisions of this Agreed Order.

The City of Corpus Christi (managing entity) requests that Section 2 of this Agreed Order be amended to add further detail to the provisions regarding the use of water for bays and estuaries and to make changes in the required passage of inflows for the bays and estuaries automatic at 40 percent and 30 percent of total reservoir system capacity upon institution of mandatory outdoor watering restrictions. Additionally, Certificate Holders request the most recent bathymetric surveys be used for determining reservoir system storage capacity. The Certificate Holders request details be added regarding provisions for two projects to enhance/augment the amount of freshwater going into the receiving estuary and timelines for those projects.

After considering the proposals and the presentations of the parties, the Commission finds that it has authority to establish operational procedures under Special Condition 5.B. of Certificate of Adjudication No. 21-3214, and that operational procedures previously established should be amended. The Commission finds that, because of the need to continue to monitor the ecological environment and health of related living marine resources of the estuaries to assess the effectiveness of freshwater inflows provided by requirements contained in this Agreed Order relating to releases and spills from Choke Canyon Reservoir and Lake Corpus Christi (collectively referred to as the Reservoir System), as well as return flows, and to evaluate potential impacts which may occur to the reservoirs as well as to the availability of water to meet the needs of the Certificate Holders and their customers which may result from those operational procedures, the existing advisory council should be maintained to consider such additional information and related issues and to formulate recommendations for the Commission's review.

The Commission additionally finds that based on the preliminary application of the Texas Water Development Board's Mathematical Programming Optimization Model, (GRG-2), 138,000 acre-feet of fresh water is necessary to achieve maximum harvest in the Nueces Estuary; and, therefore, when water is impounded in the Lake Corpus Christi-Choke Canyon Reservoir System to the extent greater than 70 percent of the system's storage capacity, the delivery of 138,000

acre-feet of water to Nueces Bay and/or the Nueces Delta, by a combination of releases and spills, together with diversions and return flows noted below, should be accomplished; and that during periods when the reservoir system contains less than 70 percent storage capacity, reductions in releases and spills, along with diversions and return flows, are appropriate in that a satisfactory level of marine harvest will be sustained and the ecological health of the receiving estuaries will be maintained.

The Commission finds that return flows, other than to Nueces Bay and/or the Nueces Delta, that are delivered to Corpus Christi Bay and other receiving estuaries are currently in the assumed amount of 54,000 acre-feet per annum (per calendar year), and that they shall be credited at this amount until such time as it is shown that actual return flows to Corpus Christi Bay and other receiving estuaries exceed 54,000 acre-feet per annum.

The Commission finds that by contractual relationships, the City of Corpus Christi is the managing entity for operating the Reservoir System.

The Commission finds that the Motion by the City of Corpus Christi and Nueces River Authority to Amend this Agreed Order is reasonable and should be granted. Benefits of the proposed diversion project and operating changes will include increased water supply, increased reservoir storage levels, increased positive flow events for Rincon Bayou and the upper Nueces Delta, increased sources of nitrogen for the upper delta, and lower salinity levels in the upper delta.

When the Commission uses the word "release" in this Order, release means spills, inflow passage, intentional releases, and return flows; provided, however, under this Order no release from storage is required to meet conditions of this Order.

By consenting to the issuance of this Agreed Order, no party admits or denies any claim, nor waives with respect to any subsequent proceeding any interpretation or argument which may be contrary to the provisions of this Agreed Order.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION THAT:

1. a. The City of Corpus Christi, as operator of the Choke Canyon/Lake Corpus Christi reservoirs (the "Reservoir System"), shall provide not less than 151,000 acre-feet of water per annum (per calendar year) for the estuaries by a combination of releases and spills from the Reservoir System at Lake Corpus Christi Dam and return flows to Nueces and Corpus Christi Bays and other receiving estuaries (including such credits as may be appropriate for diversion of river flows and/or return flows to the Nueces Delta and/or Nueces Bay), as computed and to the extent provided for herein.

   b. When water impounded in the Reservoir System is greater than or equal to 70 percent of storage capacity, a target amount of 138,000 acre-feet is to be delivered to Nueces Bay and/or the Nueces Delta by a combination of releases and spills from

the Reservoir System as well as diversions and return flows. In accordance with the monthly schedule and except as provided otherwise in this Agreed Order, target inflows to Nueces Bay and/or the Nueces Delta shall be in the acre-foot amounts as follow:

January	2,500	July	6,500
February	2,500	August	6,500
March	3,500	September	28,500
April	3,500	October	20,000
May	25,500	November	9,000
June	25,500	December	4,500

It is expressly provided, however, that releases from Reservoir System storage shall not be required to satisfy the above targeted inflow amounts, as calculated in Subparagraph d.

c. When water impounded in the Reservoir System is less than 70 percent but greater than or equal to 40 percent of storage capacity, a targeted amount of 97,000 acre-feet is to be delivered to Nueces Bay and/or the Nueces Delta by a combination of releases and spills from the Reservoir System as well as diversions and return flows. In accordance with the monthly schedule and except as provided otherwise in this Agreed Order, target inflows to Nueces Bay and/or the Nueces Delta shall be in the acre-foot amounts as follows:

January	2,500	July	4,500
February	2,500	August	5,000
March	3,500	September	11,500
April	3,500	October	9,000
May	23,500	November	4,000
June	23,000	December	4,500

It is expressly provided, however, that releases from Reservoir System storage shall not be required to satisfy the above targeted inflow amounts as calculated in Subparagraph d.

d. The amounts of water required in subparagraphs 1.b. and 1.c. will consist of return flows, and intentional diversions, as well as spills and releases from the Reservoir System as defined in this subparagraph. For purposes of compliance with monthly targeted amounts prescribed above, the spills and releases described in this paragraph shall be measured at the U.S. Geological Survey stream monitoring station on the Nueces River at Calallen, Texas (USGS Station No. 08211500). Any inflows, including measured wastewater effluent and rainfall runoff meeting lawful discharge standards which are intentionally diverted to the upper Nueces Delta region, shall be credited toward the total inflow amount delivered to Nueces Bay and/or the Nueces

Delta. Inflow passage from the Reservoir System for the purpose of compliance with the monthly targeted amounts prescribed in subparagraphs 1.b. and 1.c. shall in no case exceed the estimated inflow to Lake Corpus Christi as if there were no impoundment of inflows at Choke Canyon Reservoir. The estimated inflow to Lake Corpus Christi as if there were no impoundment of inflows at Choke Canyon Reservoir shall be computed as the sum of the flows measured at the U.S. Geological Survey (USGS) STREAMFLOW GAGING STATIONS ON THE Nueces River near Three Rivers (USGS No. 08210000), Frio River at Tilden, Texas (USGS No. 08206600), and San Miguel Creek near Tilden, Texas (USGS No. 08206700) less computed releases and spills from Choke Canyon Reservoir.

e. The passage of inflow necessary to meet the monthly targeted allocations may be distributed over the calendar month in a manner to be determined by the City. Relief from the above requirements shall be available under subparagraphs (1) or (2) below and Section 2.(b) and 3.(c) at the option of the City of Corpus Christi. However, passage of inflow may only be reduced under one of those subparagraphs below, for any given month.

(1) Inflows to Nueces Bay and/or the Nueces Delta in excess of the required monthly targeted amount may be credited for up to fifty (50) percent of the targeted requirement for the following month, based on the amount received.

(2) When the mean salinity in Upper Nueces Bay (Lat. 27°51'02", Long. 97°28'52") for a 10-day period, ending at any time during the calendar month for which the reduction of the passage of inflow is sought, is below the SUB*, pass through of inflow from the reservoir system for that same calendar month may be reduced as follows:

(a) For any month other than May, June, September and October, if 5 parts per thousand (ppt) below the SUB for the month, a reduction of 25% of the current month's targeted Nueces Bay inflow;

(b) If 10 ppt below the SUB for the month, a reduction of 50 % of the current month's targeted Nueces Bay inflow except that credit under this provision is limited to 25 % during the months of May, June, September and October;

* "SUB" means "salinity upper bounds" as set forth more specifically in Section 3.b.

(c) If 15 ppt below the SUB for that month, a reduction of 75% of the current month's targeted Nueces Bay inflow.

f. The City of Corpus Christi shall submit monthly reports to the Commission containing daily inflow amounts provided to the Nueces Estuary in accordance with this Agreed Order through releases, spills, return flows and other freshwater inflows.

2. a. Certificate holders are to provide in any future contracts or any amendments, modifications or changes to existing contracts the condition that all wholesale customers and any subsequent wholesale customers shall develop and have in effect a water conservation and drought management plan consistent with Commission rule. The City of Corpus Christi shall solicit from its customers and report to the Commission annually the result of conservation under the City's plan, the customers' plans, and the feasibility of implementing conservation plans and programs for all users of water from the reservoir system. This report shall be submitted with the Certificate Holder's annual water use report as provided by 31 T.A.C. §295.202.

b. The Certificate Holders may reduce targeted Nueces Bay inflows during times of prolonged drought in accordance with this subparagraph 2.

(1) When the combined storage in the Choke Canyon/Lake Corpus Christi reservoir system (Reservoir System Storage) falls below 50% of the total system storage capacity, the City of Corpus Christi shall issue public notice advising and informing the water users of the region of voluntary conservation measures that are requested immediately and required drought management measures to be taken should the Reservoir System Storage fall to under 40% and/or 30% of total system storage capacity. To the extent of its legal authority, the City of Corpus Christi shall require its wholesale customers to issue public notice advising and informing the water users of the region of voluntary conservation measures that are requested immediately and required drought management measures to be taken should the Reservoir System Storage fall to under 40% and/or 30% of total system storage capacity.

(2) In any month when Reservoir System Storage is less than 40%, but equal to or greater than 30% of total system storage capacity, the City of Corpus Christi shall implement time of day outdoor watering restrictions and shall reduce targeted inflows to Nueces Bay to 1,200 acre-feet per month (1,200 acre-feet per month represents the quantity of water that is the median inflow into Lake Corpus Christi during the drought of record). Time of day outdoor watering restrictions prohibit lawn watering between the hours of 10:00 o'clock a.m. and 6:00 o'clock p.m. and are subject to additional conditions as described in the City of Corpus Christi's approved "Water Conservation and Drought Contingency Plan ("Plan")." To the extent of its legal authority, the City of Corpus Christi shall require its wholesale customers to implement time of day outdoor watering restrictions similar to those of the City.

(3) In any month when Reservoir System Storage is less than 30% of total system storage capacity, the City of Corpus Christi shall implement a lawn watering schedule in addition to time of day outdoor watering restrictions (see subparagraph 2.b.(2)) and shall suspend the passage of inflow from the Reservoir System for targeted inflows to Nueces Bay. However, return flows directed into Nueces Bay and/or the Nueces Delta shall continue. The lawn watering schedule shall allow customers to water lawns no oftener than every five days, subject to the time of day restrictions described in subparagraph 2.b.(2) and any additional conditions as described in the City's Plan.

(4) Certificate Holders' may implement whole or partial suspension of the passage of inflow through the reservoir as described above when the City implements, and requires its customers to implement, water conservation and drought management measures at diminished Reservoir System levels, as set forth in subparagraphs b.(2) and b.(3).

c. For purposes of this Agreed Order, Reservoir System storage capacity shall be determined by the most recently completed bathymetric survey of each reservoir. As of 2001, completed bathymetric surveys of each reservoir reports conservation storage capacities of 695,271 acre-feet (below 220.5 feet mean sea level) for Choke Canyon Reservoir (Volumetric Survey of Choke Canyon Reservoir, TWDB September 23, 1993) and 241,241 acre-feet (below 94 feet mean sea level) for Lake Corpus Christi (Regional Water Supply Planning Study-Phase I Nueces River Basin, HDR, December, 1990).

d. Percentage of the Reservoir System capacity shall be determined on a daily basis and shall govern, in part, the inflow to be passed through the reservoir during the remaining days of the month.

e. Within the first ten days of each month, the City of Corpus Christi shall submit to the Commission a monthly report containing the daily capacity of the Reservoir System in percentages and mean sea levels as recorded for the previous month as well as reservoir surface areas and estimated inflows to Lake Corpus Christi assuming no impoundment of inflows at Choke Canyon Reservoir. The report shall indicate which gages or measuring devices were used to determine Reservoir System capacity and estimate inflows to Lake Corpus Christi.

f. Concurrent with implementing subparagraphs 2.b.(1) through 2.b.(3), the City shall proceed to:

1. Acquire land rights to properties necessary to re-open the Nueces River Overflow Channel and make the Nueces River Overflow Channel and Rincon Bayou Overflow Channel permanent features of the Rincon Bayou Diversion;

2. Construct and operate a conveyance facility to deliver up to 3,000 acre-feet per month of required Reservoir System "pass-throughs" directly from the Calallen Pool into the Upper Rincon Bayou by use of one or two of the five authorized points of diversion under Certificate of Adjudication No. 2464, being the existing San Patricio Municipal Water District point of diversion and/or a point on the North bank of the Calallen Pool located at Latitude 27.8823°N, Longitude 97.6254°W, also bearing S 27° 24' W, 4,739 feet from the southwest corner of the J.H.W. Ottman Survey, Abstract No. 212, San Patricio County, Texas, where the water will be pumped at the maximum rate of 45,000 gpm; and

3. Implement an on-going monitoring and assessment program designed to facilitate an "adaptive management" program for freshwater inflows into the Nueces Estuary.

4. Construction necessary to implement subparagraph 2.f.1. shall be accomplished by December 31, 2001 and work necessary to accomplish subparagraph 2.f.2. shall be accomplished by December 31, 2002.

5. In the event the City fails to timely complete the work set forth in subparagraphs 2.f.1. and 2.f.2., this amendment shall automatically terminate and the provisions of the Agreed Order of April 28, 1995 shall be reinstated and become operative despite this amendment, unless the Executive Director grants a modification after considering the recommendations of the Nueces Estuary Advisory Council.

g. The Executive Director is delegated authority to make modifications to subparagraph 2.f., after considering the recommendations of the Nueces Estuary Advisory Council. However, changes may be made through this process only with the City's consent if the changes result in increased costs to the City.

If the Executive Director makes modifications to subparagraph 2.f. as authorized in this paragraph, any affected person may file with the chief clerk a motion for reconsideration of the Executive Director's action no later than 23 days after the date the Executive Director mails notice of the modification to the City. This motion shall be considered under the provisions of 30 Texas Administrative Code § 50.39(d) and (e).

h. The City shall obtain all necessary permits from the Commission before beginning these projects. The deadlines set out above include time necessary to apply for, process and, if necessary, complete hearings on these permits.

3. a. The City of Corpus Christi, with the assistance and/or participation of federal, state and local entities, shall maintain a monitoring program to assess the effect of this

operating plan on Nueces Bay. The cornerstone of this program is the development of a salinity monitoring program. The program shall include at least two monitoring stations, one in upper Nueces Bay (Lat. 27°51'02", Long. 97°28'52") and one in mid Nueces Bay (Lat. 27°51'25", Long. 97°25'28") with the capability of providing continuous salinity and/or conductivity data, temperature, pH, and dissolved oxygen levels. Additional stations may be established at the recommendation of the Advisory Council (continued by paragraph 4 of this Agreed Order) to assess inflow effects throughout the estuarine system, but the City shall not be obligated to establish such additional stations except to the extent authorized by its City Council.

b. The City of Corpus Christi or its designated representatives shall monitor salinity levels in Upper and Mid-Nueces Bay. The lower (SLB) and upper (SUB) salinity bounds (in parts per thousand-ppt) developed for application of the Texas Estuarine Mathematical Programming Model and considered appropriate for use herein, are as follows:

	SLB	SUB		SLB	SUB
January	5	30	July	2	25
February	5	30	August	2	25
March	5	30	September	5	20
April	5	30	October	5	30
May	1	20	November	5	30
June	1	20	December	5	30

c. When the average salinity for the third week (the third week includes the seven days from the 15th through 21st) of any month is at or below the subsequent month's established SLB for upper Nueces Bay (Lat. 27°51'02", Long. 97°28'52"), no releases from the Reservoir System to satisfy targeted Nueces Bay inflow mounts shall be required for that subsequent month.

d. All data collected as a result of the monitoring program required by paragraph 3 of this Agreed Order shall be submitted monthly to the Commission within the first ten days of the immediately following month. The Nueces Estuary Advisory Council shall study the feasibility of developing a method of granting credits for inflows which exceed the required amounts to replace the credits that are set out in subparagraph 1.e.(l) and make recommendations to the Commission for possible implementation. That method shall have as its goal the maintenance of the proper ecological environment and health of related living marine resources and the provision of maximum reasonable credits towards monthly inflow requirements.

4. a. To assist the Commission in monitoring implementation of this Order and making recommendations to the Commission relating to any changes to this Agreed Order and the establishment of future operating procedures, the Nueces Estuary Advisory

Council shall be continued. Its members shall include, but are not limited to a qualified representative chosen by each of the following entities or groups: the Executive Director of the Texas Natural Resource Conservation Commission, whose representative shall serve as chair;the Texas Water Development Board; the Texas Parks and Wildlife Department; the Texas Department of Health; the General Land Office; the holders of Certificate of Adjudication No. 21-3214 (the Cities of Corpus Christi and Three Rivers and the Nueces River Authority; the University of Texas Marine Science Institute; Texas A&M University - Corpus Christi; Save Lake Corpus Christi; Corpus Christi Chamber of Commerce; the City of Mathis; Coastal Bend Bays and Estuaries Program, Inc.; a commercial bay fishing group; a conservation group (e.g. the Sierra Club and the Coastal Bend Bays Foundation); wholesale water suppliers who are customers of the Certificate Holders (e.g., the South Texas Water Authority and the San Patricio Municipal Water District); the Port of Corpus Christi Authority; and a representative of industry. The representatives should have experience and knowledge relating to current or future water use and management or environmental and economic needs of the Coastal Bend area.

b. No modification shall be made to this Order without the unanimous consent of the Certificate Holders, except to the extent provided by law.

c. Matters to be studied by the Nueces Estuary Advisory Council and upon which the Executive Director shall certify recommendations to the Commission shall include, but are not limited to:

(1) the effectiveness of the inflow requirements contained in this Agreed Order on Nueces Estuary and any recommended changes;

(2) the effect of the releases from the Reservoir System upon the aquatic and wildlife habitat and other beneficial and recreational uses of Choke Canyon Reservoir and Lake Corpus Christi;

(3) the development and implementation of a short and long-term regional water management plan for the Coastal Bend Area;

(4) the salinity level to be applied in Paragraphs 1.e. and 3.c., at which targeted inflows in the subsequent month may be suspended;

(5) the feasibility of discharges at locations where the increased biological productivity justifies an inflow credit computed by multiplying the amount of discharge by a number greater than one; and development of a methodology for granting credits for inflows which exceed the required amount to replace the credits that are set out in subparagraph 1.e. That methodology shall have as its goal the maintenance of the proper ecological

environment and health of related living marine resources and the provision of maximum reasonable credits towards monthly inflow requirements; and,

(6) any other matter pertinent to the conditions contained in this Agreed Order.

5. This Agreed Order shall remain in effect until amended or superseded by the Commission.

Issued date: APR 05 2001

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION

Robert J. Huston, Chairman

OPERATIONS PLAN FOR THE

LAKE CORPUS CHRISTI-CHOKE CANYON RESERVOIR SYSTEM

The following operations plan for the Lake Corpus Christi –Choke Canyon Reservoir water system provides for the two reservoirs to be operated as a regional water supply with primary purpose to be furnishings a dependable supply to the people in the Coastal Bend area. The plan also recognizes the need for the recreational facilities for public use and the Texas Water Commission adjudicated water permit which requires a minimum flow of 151,000 acre-feet of water annually to bays and estuaries from return flows, spills, or fresh water releases from Lake Corpus Christi once Choke Canyon Reservoir fills.

The Plan consists of four phases of operation depending on the water levels in the two reservoirs.

PHASE I - This phase applies only to the initial filling period of Choke Canyon Reservoir. It is necessary that this reservoir be filled at the earliest opportunity so that all structures and mechanical equipment can be tested. Initial filling of the reservoir also triggers the requirement that minimal flows be made available for bays and estuaries.

1. During the initial period, only the releases requires required by agreement between the City of Corpus Christi and the Texas Parks and Wildlife Department, varying between 15 and 33 cubic feet per second depending on the reservoir level, will be made unless Lake Corpus Christi elevation falls below elevation 86 feet.

2. If water user demand is less than 200,000 acre-feet annually and Lake Corpus Christi is at elevation 86 feet, water will be released from Choke Canyon to maintain this elevation until Choke Canyon Reservoir falls to elevation 184 feet.

3. When Lake Corpus Christi has fallen to elevation 86 feet and Choke Canyon has fallen to elevation 184 feet, Lake Corpus Christi will be allowed to drop to elevation 76 feet, at which time water will be released from Choke Canyon to allow user's intake structures at Lake Corpus Christi to be used.

4. Should water user demand excess 200,000 acre-feet annually, the water level of Lake Corpus Christi will be allowed to drop to elevation 76 feet prior to releases from Choke Canyon Reservoir.

PHASE II - This phase applies after Choke Canyon Reservoir is filled and water user demand is less than 150,000 acre-feet annually.

1. A minimum of 2,000 acre-feet per month will be released from Choke Canyon Reservoir to meet conditions of the release agreement between City of Corpus Christi and the Texas Parks and Wildlife Department.

2. Whenever Lake Corpus Christ water surface falls to elevation 88 feet and Choke Canyon Reservoir surface elevation is above 204 feet, releases will be made from Choke Canyon Reservoir to maintain Lake Corpus Christi surface at elevation 88 feet.

3. Whenever Lake Corpus Christi water surface is at or below elevation 88 feet and Choke Canyon Reservoir surface elevation is below 204 feet, the Choke Canyon release for the current month is made equal to the Lake Corpus Christi release from the preceding month. This minimizes drawdown at Lake Corpus Christi for recreation purposes and promotes a more constant quality of water by mixing Choke Canyon Reservoir releases with Lake Corpus Christi content.

PHASE III - This phase applies after Choke Canyon Reservoir is filled and water user demand is between 150,000 and 200,000 acre-feet annually. During this period, water release plan prepared by the Bureau of Reclamation will be followed to produce a dependable yield of 252,000 acre-feet.

1. A minimum of 200,000 acre-feet per month will be releases from Choke Canyon Reservoir to meet conditions of the release agreement between the City of Corpus Christi and the Texas Parks and Wildlife Department.

2. Whenever Lake Corpus Christi water surface is at or below elevation 88 feet, and the ratio of Choke Canyon Reservoir content to Lake Corpus Christi content (both at the end of the preceding month) exceeds the corresponding ratio with 6-foot drawdown at both reservoirs, the Choke Canyon Reservoir release for the current month is made equal to the Lake Corpus Christi release during the preceding month. This equalizes drawdown at the two reservoirs for recreation purposes and promotes a more constant quality of water by mixing Choke Canyon Reservoir releases with Lake Corpus Christi content.

PHASE IV - This phase applies after Choke Canyon Reservoir is filled, water user demand exceeds 200,000 acre-feet annually, and developed long-term supply is less than 300,000 acre-feet annually.

1. A minimum of 2,000 acre-feet per month will be released from Choke Canyon Reservoir to meet conditions of the release agreement between the City of Corpus Christi and the Texas Parks and Wildlife Department.

2. In order to provide maximum dependable yield from the two reservoirs, the water level in Lake Corpus Christi will be allowed to drop top elevation 74.0 feet (Ordinance Changed #022661) before water is released from Choke Canyon Reservoir in excess of the 2,000 acre-feet per month requirement. When the elevation of Choke Canyon Reservoir drops to 155 feet, Lake Corpus Christi will be lowered to its minimum elevation.

LAKE CORPUS CHRISTI-CHOKE CANYON RESERVOIR STATISTICAL DATA

	Capacity, Acre-Feet*	Water Elevation When Full, Feet	Minimum Functional Elevation, Feet
Lake Corpus Christi	272,000	94.0	76.0
Choke Canyon Reservoir	692,000	220.5	147.5

Intake Structure Elevations of Customers Withdrawing Water Directly from Lake Corpus Christi:

	Elevation, Feet
City of Mathis	73.0
Beeville Water Authority	74.0
Alice Water Authority	67.0
City of Corpus Christi	55.0

Annual Lake Corpus Christi Withdrawals:

Fiscal Year	Total Withdrawn From Lake, Acre-Feet
1975-76	86,416
1976-77	86,408
1977-78	101,596
1978-79	96,029
1979-80	106,851
1980-81	104,657
1981-82	107,002
1982-83	107,348
1983-84	119,701
1984-85	90,226
1985-86	105,469

* 1 acre-foot = 325,850 gallons

Ordinance adopting the Water Conservation Plan and Drought Contingency Plan; Amending City Code of Ordinances, Chapter 55, Article XII Water Conservation, regarding water resource management including drought restrictions and surcharges, providing an effective date of June 3, 2013; and providing for penalties.

Section 1. The Water Conservation Plan attached as Exhibit A is hereby adopted.

Section 2. The Drought Contingency Plan attached as Exhibit B is hereby adopted.

Section 3. The Corpus Christi Code of Ordinances, Chapter 55, Utilities, Article XII Water Conservation, Sections 55-150 through 55-156, and Sections 55-158 through 55-159 are repealed and replaced with the following sections to read as follows:

ARTICLE XII WATER RESOURCE MANAGEMENT

Sec. 55-150 Scope, purpose, and authorization

(a) *Scope.* There is hereby established a City of Corpus Christi Water Conservation Plan and Drought Contingency Plan. The City of Corpus Christi Water Conservation Plan and Drought Contingency Plan 2013, dated May 28, 2013, a true copy of which is on file in the office of the city secretary, is adopted, and shall be followed in matters concerning water conservation, drought management, and water supply enhancement programs.

(b) *Declaration of policy.*

(1) It is hereby declared that the general welfare requires that the water resources available to the city be put to the maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use of water be prevented, and the conservation of such water is to be extended with a view to the reasonable and beneficial use thereof in the interests of the people of the area served by the city's water resources and for the public welfare.

(2) In making decisions under this article concerning the allocation of water between conflicting interests, highest priority will be given to allocation necessary to support human life and health; i.e., the minimum amount of water necessary for drinking, prevention of disease, and the like. Second highest priority will be given to allocations which will result in the least loss of employment to persons whose income is essential to their families.

(c) *Authorization.* The city manager, or his designee, upon the recommendation of the assistant city manager, public works and utilities, is hereby authorized and directed to implement the applicable provisions of this article upon their determination that such implementation is

necessary to protect the public welfare and safety.

(d) In this Article, "City Manager" means the City Manager or the City Manager's designee.

Sec. 55-151 Water Conservation Measures at All Times.

(a) The following measures are year-round water conservation best management practices that are in effect at all times, regardless of the reservoir levels or drought contingency levels.

(1) **Prohibition on wasting water**: Actions leading to wasting of water are prohibited and will be enforced. No person shall:

a. Allow water to run off property into gutters or streets.
b. Permit or maintain defective plumbing in a home, business establishment or any location where water is used on the premises. Defective plumbing includes out-of-repair water closets, underground leaks, defective or leaking faucets and taps.
c. Allow water to flow constantly through a tap, hydrant, valve, or otherwise by any use of water connected to the City water system.
d. Use any non-recycling decorative water fountain.
e. Allow irrigation heads or sprinklers to spray directly on paved surfaces such as driveways, parking lots, and sidewalks in public right-of-ways.
f. Operate an irrigation system at water pressure higher than recommended, causing heads to mist, or to operate with broken heads.

(2) **Time of Irrigation**: Irrigation by spray or sprinklers is prohibited between the hours of 10:00 AM and 6:00 PM. It is still permissible to water by hand or by drip irrigation at any time of day, unless the City enters Stage 4 Drought.

(3) **Restaurant Water Saving:** Commercial dining facilities must only serve water upon request.

Sec. 55-152 Drought Management: Drought Contingency Stages.

(a) The level of drought severity determines the extent of potential water use restrictions that shall be implemented. Following are the levels of drought in the form of Stages:

1. Stage 1: Mild water shortage condition
2. Stage 2: Moderate water shortage condition
3. Stage 3: Severe water shortage condition
4. Stage 4: Critical water shortage condition
5. Stage 5: Emergency water shortage condition

(b) Criteria for Initiation and Termination of Drought Response Stages

(1) The City Manager, or designee, shall monitor water supply and/or demand conditions on a weekly basis and shall determine when conditions warrant initiation or termination of each stage, that is, when the specified "triggers" are reached. However, the City Manager, in the exercise of the City Manager's discretion, may initiate or terminate any stage when the City Manager deems necessary at any particular time.

(2) The triggering criterion to be monitored for determining drought response stages is (1) the combined reservoir storage levels of Choke Canyon Reservoir and Lake Corpus Christi or (2), in the alternative for Stage 1, Lake Texana's level.

(3) Whenever any of the stages listed below are triggered, the City Manager shall publish a public notice of the particular stage, in the daily newspaper of general circulation in Nueces County.

(4) To the extent of City's legal authority, the City Manager shall require the City's raw water and wholesale treated water customers to issue public notice advising their water customers of conservation and drought management activities consistent with the stages listed below.

(c) The triggering criterions are as follows:

(1) Stage 1 – Mild Water Shortage Condition

Requirements for initiation – The combined storage level of Choke Canyon Reservoir and Lake Corpus Christi declines below **50 percent** or Lake Texana storage level declines below 40%.

Requirement for termination – Stage 1 of the Plan may be rescinded when the combined storage level of Choke Canyon Reservoir and Lake Corpus Christi increases above 60 percent or Lake Texana storage level increases above 50%. Either of these conditions must exist for a period of 15 consecutive days before termination of Stage 1.

(2) Stage 2 – Moderate Water Shortage Condition

Requirements for initiation – The combined storage level for Choke Canyon Reservoir and Lake Corpus Christi declines to below **40 percent**.

Requirement for termination – Stage 2 of the Plan may be rescinded when the combined storage level increases above 50 percent for a period of 15 consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

(3) Stage 3 – Severe Water Shortage Condition

Requirements for initiation – The combined storage levels declines to below **30** percent.

Requirement for termination – Stage 3 of the Plan may be rescinded when the combined storage level increases above 40 percent for a period of 15 consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

(4) Stage 4 – Critical Water Shortage Condition

Requirements for initiation – The combined storage levels of Choke Canyon Reservoir and Lake Corpus Christi declines to below **20 percent**.

Requirement for termination – Stage 4 of the Plan may be rescinded when the combined storage level increases above 30 percent for a period of 15 consecutive days. Upon termination of Stage 4, Stage 3 becomes operative.

(5) Stage 5 – Emergency Water Shortage Condition

Requirements for initiation – When the City Manager, or designee, determines that a water supply emergency exists based on:

- A major water line breaks, or pump or system failures occur, which causes unprecedented loss of capability to provide water service; or
- Water production or distribution system limitations; or
- Natural or man-made contamination of the water supply source occurs.

Requirement for termination – The emergency water shortage condition may be rescinded when the City Manager, or designee, deems appropriate.

Sec. 55-153. Drought Management: Drought Best Management Practices Per Stage

(a) In order to achieve water use reduction during drought, a series of best management practices will be enacted and enforced at each stage of a drought. These best management practices (BMP) are listed below by stage. During Stages 2, 3, and 4, requests for exceptions may be presented to the Director of Water Operations or his designee.

(b) Stage 1 Response – MILD Water Shortage Conditions

(1) Target: Achieve a *voluntary* 5% reduction in daily treated water demand relative to treated water demand with the water use restrictions below.

(2) Best Management Practices for Supply Management:

The City will enact voluntary measures to reduce or discontinue the flushing of water mains if practicable and utilize reclaimed water for non-potable uses to the greatest extent possible.

(3) Water Use Restrictions for Reducing Demand

a. Water customers are requested to voluntarily limit the irrigation of landscaped areas to **once per week.** The watering schedule will be determined by the City Manager or designee.

b. All operations of the City of Corpus Christi shall adhere to water use restrictions prescribed for Stage 2 of the Plan.

c. Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.

(c) Stage 2 Response – MODERATE Water Shortage Conditions

(1) Target: During Stage 2, achieve a 10% reduction in daily treated water demand relative to treated water demand with the water use restrictions below.

(2) Best Management Practices for Supply Management:

In addition to the best management practices for supply management listed under Stage 1, the City will also do the following during Stage 2:

a. Use more repair crews if necessary to allow for a quicker response time for water-line leak repair; and

b. City crews (Water and other departments) begin monitoring customers' compliance with Stage 2 restrictions during the course of their daily rounds.

(3) The following water use restrictions shall apply to all persons during Stage 2:

a. Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to **once per week**. The watering schedule will be determined by the City Manager or designee. Customers will be made aware of their designated watering day in accordance with Drought Contingency Plan.

However, irrigation of landscaped areas is permitted on any day if it is by means of a hand-held hose (with positive shutoff nozzle), a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system with a positive shutoff device. Exceptions for this restriction may be permitted, upon

review and approval by the Director of Water Operations or his designee for the following uses: new plantings (for up to 60 days), vegetable gardens, athletic playing fields, and botanical gardens. In addition, this restriction does not apply to customers irrigating with well water or an aerobic septic system. Customers irrigating with well water or an aerobic septic system must apply for a permit from the City Water Department to be prominently posted on the premises within two (2) feet of the street number located on the premises.

b. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days. However, washing of boats and/or flushing of boat motors is permitted upon immediate exit of water body. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial car wash. Further, such washing may be exempted from these regulations upon review and approval by the Director of Water Operations or his designee if the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.

c. Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or Jacuzzi-type pools is prohibited except on designated watering days.

d. Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life.

e. Use of water from hydrants shall be limited to fire fighting, related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under special permit from the City of Corpus Christi Water Department.

f. Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days. However, if the golf course utilizes a water source other than that provided through City of Corpus Christi Water Department infrastructure, the facility shall not be subject to these regulations.

g. The use of water to maintain integrity of building foundations is limited to designated watering days and is only permitted by use of hand-held hose or drip irrigation.

h. The following uses of water are defined as non-essential and are prohibited:
   1) Wash-down of any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas, except if it is in the interest of public health and safety.

   2) Use of water to wash down buildings or structures for purposes other than immediate fire protection without permit granted by the Director of Water Operations or his designee..

   3) Use of water for dust control without permit granted by the Director of Water Operations or his designee.

(d) Stage 3 Response – SEVERE Water Shortage Conditions

(1) Target: During Stage 3, achieve a 15% reduction in total daily treated water demand relative to treated water demand with the water use restrictions below.

(2) Best Management Practices for Supply Management:

In addition to the best management practices for supply management listed under Stage 2, the City will also do the following during Stage 3:

a. Eliminate the flushing of water mains unless required for decontamination and/or public safety; and
b. Review customers' water usage for compliance based on the previous month's water use and notify violators verbally or in writing as the situation dictates.

(3) Water Use Restrictions for Demand Reduction:

All requirements of Stage 2 shall remain in effect during Stage 3 except as modified below:

a. Irrigation of landscaped areas shall be **limited to once every other week.** The watering schedule will be determined by the City Manager or designee. Customers will be made aware of their designated watering day. However, irrigation of landscaped areas is permitted on any day if it is by means of a hand-held hose (with positive shutoff nozzle), a

faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system with a positive shutoff device. Exceptions for this restriction may be permitted, upon review and approval by the Director of Water Operations or his designee, for the following uses: new plantings (for up to 60 days), vegetable gardens, athletic playing fields, and botanical gardens. In addition, this restriction does not apply to customers irrigating with well water or an aerobic septic system. Customers irrigating with well water or an aerobic septic system shall still apply for a permit from the City Water Department to be prominently posted on the premises within two (2) feet of the street number located on the premises.

b. The watering of golf course fairways with potable water is prohibited. The watering of greens and tees are limited to once every other week unless the golf course utilizes a water source other than that provided through City of Corpus Christi Water Department infrastructure or done by means of hand-held hoses, hand-held buckets, or drip irrigation.

(4) During Stage 3, the following measures are optional water use restrictions that may be implemented by the City Manager, or designee, with City Council approval , as conditions warrant:

a. The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.
b. For residential and multi-unit customers, a drought surcharge of up to and including 100% of the total monthly water bill over the monthly allocation may be added to the customers' bill to deter discretionary water use.

(e) Stage 4 Response – CRITICAL Water Shortage Conditions

(1) Target: During Stage 4, achieve a 30% or greater reduction in daily treated water demand relative to treated water demand with the water use restrictions below. An additional surcharge will be added to each utility bill during Stage 4 water shortage conditions to discourage discretionary water use, as described in Section 55-154 for retail customers and Section 55-159 for wholesale customers.

(2) Best Management Practices for Supply Management:

In addition to the best management practices for supply management listed under Stage 3, the City will also do the following during Stage 4:

- Upon written notice, disconnect the water meters of willful violators if absolutely necessary to prevent the deliberate wasting of water.

(3) Water Use Restrictions for Demand Reduction:

All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except as modified below:

a) Irrigation of landscaped areas shall be **prohibited at all times**.

b) Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle not occurring on the premises of a commercial car wash and not in the immediate interest of public health, safety, and welfare is prohibited.

c) The filling, refilling, or adding of water to swimming pools, wading pools, and jacuzzi-type pools, and water parks (unless utilizing water from a non-city alternative source) is prohibited.

d) The use of water to maintain the integrity of a building foundation is still permitted on the designated Stage 3 watering day and shall be done by hand or drip irrigation method.

(4) During Stage 4, the following measures are optional water use restrictions that may be implemented by the City Manager, or designee, with City Council approval, as conditions warrant:

a) No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby suspended for such time as this drought response stage shall be in effect.
b) For residential and multi-unit customers, a drought surcharge of up to and including 100% of the total monthly water bill over the monthly allocation may be added to the customers' bill to deter discretionary water use.

(f) Stage 5 Response – EMERGENCY Water Shortage Conditions

(1) Target: During Stage 5, achieve a 50% or greater reduction in daily treated water demand relative to treated water demand with the below water use

restrictions. Surcharges and reduced allocations are enforceable during Stage 5 water shortage conditions, as described in Section 55-154.

During emergency conditions such as system outage, supply source contamination, or supply sources draining empty, alternative water sources and/or alternative delivery mechanisms may be necessary with prior approval of the City Manager. For emergency water shortage conditions associated with contamination of Nueces Basin stored supplies, the City, under the City Manager's direction, will cease pumping from the Nueces River and will contact the LNRA to identify additional, temporary water that may be available from Lake Texana on a short-term basis to meet essential water needs. For emergency water shortage conditions associated with contamination of Lake Texana supplies, the City, under the City Manager's direction, will cease pumping from the Mary Rhodes Pipeline.

(2) Best Management Practices for Supply Management:

In addition to the best management practices for supply management listed under Stage 4, the City will also do the following:

- Call the 10 largest water customers in the area affected by the emergency condition, and if necessary, use runners in key areas to begin spreading the message of a major outage.

(3) Water Use Restrictions for Demand Reduction:

During Stage 5, all requirements of Stage 2, 3, and 4 shall remain in effect except as modified below:

a) Irrigation of landscaped areas is absolutely prohibited.

b) Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle is absolutely prohibited.

c) Associated uses of water not related to business process which are discretionary, such as equipment washing, shall be deferred until the Stage 5 emergency has been terminated.

(4)During Stage 5, the following measures are optional water use restrictions that may be implemented by the City Manager, or designee, with City Council approval, as conditions warrant:

For residential and multi-unit customers, a drought surcharge of up to and including 100% of the total monthly water bill over the monthly allocation may be added to the customers' bill to deter discretionary water use.

Sec. 55-154. Surcharges for Drought Stages 3, 4 – 5 and Service Measures

(a) General

(1) The surcharges established herein are solely intended to regulate and deter the use of water during a period of serious drought in order to achieve necessary water conservation. The City Council expressly finds that the drought poses a serious and immediate threat to the public and economic health and general welfare of this community, and that the surcharges and other measures adopted herein are essential to protect said public health and welfare.

(2) This section, and the surcharges and measures adopted herein are an exercise of the City's regulatory and police power, and the surcharges and connection fees are conservation rates intended to meet fixed costs as a result of lost revenue.

(3) With City Council approval, the City Manager or designee is authorized to determine trigger points and surcharges during Stages 3, 4 and 5 Emergency Water Shortage conditions.

(4) In this section, institutional customer means city utility customer which operates as a not-for-profit entity.

(5) A customer may appeal an allocation or drought surcharge triggering point established under this Section to the Director of Water Operations or his designee on grounds of unnecessary hardship through the process outlined in Section 55-155.

(6) Drought surcharge funds will first be applied towards annual debt service payments and operating and maintenance expenses of the Water Department as reflected in the City operating budget to offset revenue loss due to drought conditions. Additional funds will be reported to City Council for City Council direction.

*(*b) *Residential water customers, who are not billed through a master water meter.*

1. A monthly base amount of 3,000 gallons shall be established as a trigger point for each customer. Water consumption up to and including this amount will not include a drought surcharge
2. Above the 3,000 gallon monthly consumption trigger point, with City Council approval, a drought surcharge shall be added up to and including 100% of the customer's total monthly water bill over the allocation.

(c) *Residential customers who are billed from a master water meter.*

1. Once Stage 2 condition has been declared, property managers of multi-tenant units shall notify the City Director of Water Operations of number of residential units in their facility for determination of allocations. Until so notified, the City shall calculate the allocation based on two residential units per master water meter. A monthly base amount of 3,000 gallons shall be established as a trigger point for each residential unit.
2. When consumption for the month is less than or equal to 3,000 gallons times the number of residential units, there will be no surcharge.
3. With City Council approval, when consumption is above the 3,000 gallons times the number of units, a drought surcharge shall be added up to and including 100% of the customer's total monthly water bill over the allocation.

(d) Commercial or institutional customer

(1) A monthly water usage allocation shall be established by the City Manager or designee for each commercial or institutional customer.

(2) Method of establishing allocation:

a. When the combined reservoir capacity is less than 20% of total capacity (Stage 4), the commercial or institutional customer's allocation shall be 90 percent of the customer's usage for the corresponding month's billing period during the previous 12 months prior to the implementation of Stage 2 condition.

b. If the customer's billing history is shorter than 12 months, the monthly average for the period for which there is a record shall be used for any monthly period for which no history exists.

c. Provided, however, a customer, 90 percent of whose monthly usage is less than 6,000 gallons, shall be allocated 6,000 gallons.

d. The City Manager shall give best effort to see that notice of each commercial or institutional customer's allocation is mailed to such customer.

e. If, however, the customer does not receive such notice, it shall be the customer's responsibility to contact the City' Utilities Billing Office to determine the allocation, and the allocation shall be fully effective notwithstanding lack of receipt of written notice.

f. Upon request of the customer or at the initiative of the City Manager, the allocation may be reduced or increased by the City Manager,

1. if one nonresidential customer agrees to transfer part of its allocation to another nonresidential customer, or

2. if other objective evidence demonstrates that the designated allocation is inaccurate under present conditions.

(e) Industrial customers, who use water for processing.

(1) A monthly water usage allocation shall be established by the City Manager or designee for each an industrial customer, which uses water for processing (e.g., an industrial customer).

(2) Method of establishing allocation.

a. When the combined reservoir capacity of Choke Canyon Reservoir and Lake Corpus Christi is less than 20% of total capacity (Stage 4), the industrial customer allocation shall be 90 percent of the customer's usage for the corresponding month's billing period during the previous 12 months prior to the implementation of Stage 2 condition.

b. If the customer's billing history is shorter than 12 months, the monthly allocation shall be 1/12 of 90% of the customer’s maximum annual contracted amount until 12 months of billing history are established. However if the industrial customer does not have a water contract and does not have at least 12 months of billing history, then the new industrial customer will provide data regarding expected water use and City will determine allocation based on 90% of expected use to determine initial allocation until 12 months of billing history are established.

c. The City Manager shall give his best effort to see that notice of each industrial customer's allocation is mailed to such customer.

d. If, however, the industrial customer does not receive such notice, it shall be the customer's responsibility to contact the City Utilities Billing Office to determine the allocation, and the allocation shall be fully effective notwithstanding lack of receipt of written notice.

e. Upon request of the industrial customer or at the initiative of the City Manager, the allocation may be reduced or increased by the City Manager, if:

1. The designated period does not accurately reflect the customer's normal water usage because customer had to shut down a major processing unit for overhaul during the period.

2. The customer has added or is in the process of adding significant additional processing capacity.

3. The customer has shut down or significantly reduced the production of a major processing unit.

4. The customer has previously implemented significant permanent water conservation measures.

5. The customer agrees to transfer part of its allocation to another industrial customer.

6. Other objective evidence demonstrates that the designated allocation is inaccurate under present conditions.

(f) Commercial, institutional, and industrial customers shall pay the following drought surcharges:

(1) Customers whose allocation is 6,000 gallons through 20,000 gallons per month:

a. $5.00 per 1,000 gallons for the first 1,000 gallons over allocation.

b. $8.00 per 1,000 gallons for the second 1,000 gallons over allocation.

c. $16.00 per 1,000 gallons for the third 1,000 gallons over allocation.

d. $40.00 for each additional 1,000 gallons over allocation.

(2) Customers whose allocation is 21,000 gallons per month or more:

a. One times the block rate for each 1,000 gallons in excess of the allocation up through 5 percent above allocation.

b. Three times the block rate for each 1,000 gallons from 5 percent through 10 percent above allocation.

c. Five times the block rate for each 1,000 gallons from 10 percent through 15 percent above allocation.

d. Ten times the block rate for each 1,000 gallons more than 15 percent above allocation.

e. The surcharges shall be cumulative.

f. As used herein, "block rate" means the charge to the customer per 1,000 gallons at the regular water rate schedule at the level of the customer's allocation.

(g) *Nonresidential customer is billed from a master meter*.

(1) When a nonresidential customer is billed from a master meter which jointly measures water to multiple residential dwelling units (for example: apartments, mobile homes), the customer may pass along any surcharges assessed under this plan to the tenants or occupants, provided that:

a. The customer notifies each tenant in writing:

1. That the surcharge will be passed along.

2. How the surcharge will be apportioned.

3. That the landlord must be notified immediately of any plumbing leaks.

4. Methods to conserve water (which shall be obtained from the City).

b. The customer diligently maintains the plumbing system to prevent leaks.

c. The customer installs water saving devices and measures (ideas for which are available from the City) to the extent reasonable and practical under the circumstances.

(h) Water service to the customer may be terminated under the following conditions:

(1) Monthly residential water usage exceeds allocation by 4,000 gallons or more two or more times (which need not be consecutive months).

(2) Monthly water usage on a master meter which jointly measures water usage to multiple residential dwelling units exceeds allocation by 4,000 gallons times the number of dwelling units or more two or more times (which need not be consecutive months).

(3) Monthly nonresidential water usage for a customer whose allocation is 6,000 gallons through 20,000 gallons exceeds its allocation by 7,000 gallons or more two or more times (which need not be consecutive months).

(4) Monthly nonresidential water usage for a customer whose allocation is 21,000 gallons or more exceeds its allocation by 15 percent or more two or more times (which need not be consecutive months).

(5) For residential customers and nonresidential customers whose allocation does not exceed 20,000 gallons, after the first disconnection water service shall be restored upon request for a fee of $50.

(6) For such customers, after the second disconnection, water service shall be restored within 24 hours of the request for a fee of $500.

(7) If water service is disconnected a third time for such customer, water service

(8) shall not be restored until the City re-enters a level of water conservation less than Stage 3.For master meter customers, the service restoration fees shall be the same as above times the number of dwelling units.

(9) For nonresidential customers whose allocation is 21,000 gallons per month or more:

a. After the first disconnection, water service shall be restored upon request for a fee in the amount of "X" in the following formula:

X = $ 50 x Customer's Allocation in gallons / 20,000 gallons

b. After the second disconnection for said customers, water service shall be restored within 24 hours of the request for a fee of 10 times "X".

c. If water service is disconnected a third time for such customer, water service shall not be restored until the City re-enters a level of water conservation less than Stage 3.

d. The City Manager is directed to institute written guidelines for disconnection of water service under this provision, which will satisfy minimum due process requirements, if any.

(i) It shall be a defense to imposition of a surcharge hereunder, or to termination of service, that water used over allocation resulted from loss of water through no fault of the customer (for example, a major water line break) for the following conditions:

1. The customer shall have the burden to prove such defense by objective evidence (for example, a written certification of the circumstances by a plumber).
2. A sworn statement may be required of the customer.
3. This defense shall not apply if the customer failed to take reasonable steps for upkeep of the plumbing system, failed to reasonably inspect the system and discover the leak, failed to take immediate steps to correct the leak after discovered, or was in any other way negligent in causing or permitting the loss of water.

(j) When this section refers to allocation or water usage periods as "month," monthly," "billing period," and the like, such references shall mean the period in the City's ordinary billing cycle which commences with the reading of a meter one month and commences with the next reading of that meter which is usually the next month.

(1) The goal for the length of such period is 30 days, but a variance of two days, more or less, will necessarily exist as to particular meters.
(2) If the meter reader system is prevented from timely reading a meter by any obstacle which is attributable to the customer, the original allocation shall apply to the longer period without modification.

Sec. 55-155. Requests for exemptions and variances.

(a) The Director of Water Operations or his designee, may, in writing, grant a temporary variance to any of the provisions for water users found in this Article XII upon determination that failure to grant such variance would cause an emergency condition adversely affecting the public health, sanitation, or fire protection for the public or person requesting such a variance.

(b) A person requesting an exemption or variance from the provisions of this Ordinance shall file request on City-provided application for exemption/variance with the City Water Department within 5 days after a particular drought response stage has been invoked. All request forms shall be reviewed by the Director of Water Operations or his designee, and shall include the following:

1. Name and address of the water user(s).
2. Purpose of water use.
3. Specific provision(s) of the Ordinance from which the water user is requesting relief.
4. Detailed statement as to how the specific provision of the Ordinance adversely affects the water user or what damage or harm will occur to the water user or others if water user complies with this Plan.
5. Description of the exemption or variance requested
6. Period of time for which the exemption or variance is sought.
7. Alternative water use restrictions or other measures the water user is taking or proposes to take to meet the intent of this Plan and the compliance date.
8. Other pertinent information; or as required on permit application

(c) No exemption nor variance shall be retroactive or otherwise justify any violation of this ordinance occurring prior to the issuance of the exemption/variance.

(d) All requests for variances/exemptions shall be reviewed and determined within three business days of receipt of complete application.

(e) The Director of Water Operations or his designee shall consider requests of water users for special consideration to be given as to their respective particular circumstances and is hereby authorized to, in special cases, grant such variance from the terms of this plan if such compliance would cause an emergency condition adversely affecting the public health, sanitation, or fire protection for the public or person requesting such a variance as will not be contrary to the public interest, where, owing to special conditions, a literal enforcement of the provisions of this plan will result in unnecessary hardship, and so that the spirit of this plan shall be observed and substantial justice done.

(f) Should a permit for special exception be granted, it shall be in effect from the time of granting through the termination of the then current stage, unless revoked by the Director of Water Operations for noncompliance; provided, that the permit is prominently posted on the premises within two (2) feet of the street number located on the premises.

(g) A person denied request for permit or exception from these rules may appeal the decision to the Assistant City Manager for Public Works, Utilities and Transportation by submitting written request for appeal to the Assistant City Manager within five business days from issuance of denial. The decision of the Assistant City Manager shall be final.

(h) Violations of any permit condition may be enforced under Section 55-156.

Sec. 55-156 Violations, penalties, and Enforcement

(a) A violation under this article is a Class C misdemeanor. Any person that violates any provision of this article shall be subject to a fine of not more than five hundred dollars ($500.00) per violation per day. The culpable mental state required by Section 6.02 of the Texas Penal Code is specifically negated and dispensed with and a violation of this article is a strict liability offense.

(b) The commission of a violation of each provision, and each separate violation thereof, shall be deemed a separate offense, in and upon conviction thereof, shall be fined as hereinabove provided.

(c) If any person or a second person in the same household or premises, is found guilty of a second violation of this article, the water superintendent shall be authorized to discontinue water service to the premises where such violation occurs.

(d) Cases filed under this section shall be expedited and given preferential setting in municipal court before all other cases.

(e) Any person whose name is on file with the utilities billing office as the customer on the water account for the property where the violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on said premises shall

constitute prima facie evidence that the customer committed the violation, but said customer shall have the right to show that he did not commit the violation.

(f) If any person fails to respond to a citation or summons issued for a violation of this article within the time allowed, upon receipt of notice from the director or a judge of the municipal courts, the water superintendent is authorized to discontinue water service to the premises where such violation occurs.

Sec. 55-157 Effluent distribution; permit and regulations

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Sec. 55-158. - Operations plan for reservoir system.

To maximize the amount of water reliably available to the city and its water customers, the city manager shall operate the Lake Corpus Christi/Choke Canyon Reservoir System as follows:

(1) A minimum of two thousand (2,000) acre-feet per month will be released from Choke Canyon Reservoir to meet conditions of the release agreement between the City of Corpus Christi and the Texas Parks and Wildlife Department.

(2) In order to provide maximum dependable yield from the two (2) reservoirs, the water level in Lake Corpus Christi will be allowed to drop to elevation seventy-four (74) feet before water is released from Choke Canyon Reservoir in excess of the two thousand (2,000) acre-feet per month requirement.

(3) Under the Agreed Order of the Texas Natural Resource Conservation Commission under Certificate of Adjudication No. 21-3214, City shall (1) reduce targeted inflows of water to Nueces Bay to 1200 acre feet when reservoir system storage falls below forty (40) per cent of capacity, and (2) suspend targeted inflows when reservoir system storage falls below thirty (30) per cent of capacity.

Sec. 55-159. Procedures for allocating water to raw water and wholesale treated water customers on a pro rata basis during a water shortage.

(a) In the event that the triggering criterion specified in Section 55-152 for Stage 3 have been met, the City Manager, or designee, is hereby authorized to initiate allocation preparations of water supplies on a pro rata basis to raw water and wholesale treated water customers in accordance with Texas Water Code §11.039.

(1) A raw water or wholesale treated water customer's monthly allocation shall be a percentage of the customer's water usage baseline. The percentage will be set by

resolution of the city council based on the city manager's assessment of the severity of the water shortage condition and the need to curtail water diversions and deliveries, and may be adjusted periodically by resolution of the city council as conditions warrant. Once pro rata allocation is in effect, water diversions by or deliveries to each raw water or wholesale treated water customer shall be limited to the allocation established for each month.

(2)A monthly water usage allocation shall be established by the City Manager, or the City Manager's designee, for each raw water or wholesale treated water customer. The raw water or wholesale treated water customer's water usage baseline will be computed on the average water usage by month for the previous five-year period. If the raw water or wholesale treated water customer's billing history is less than five (5) years, the monthly average for the period for which there is a record shall be used for any monthly period for which no billing history exists.

(3)The City Manager shall provide notice, by certified mail, to each raw water or wholesale treated water customer informing them of their monthly water usage allocations and shall notify the news media and the Executive Director of the Texas Commission on Environmental Quality upon initiation of pro rata water allocation.

(4)Upon request of the raw water or wholesale treated water customer or at the initiative of the City Manager, the allocation may be reduced or increased if:

a. The designated period does not accurately reflect the raw water or wholesale treated water customer's normal water usage;

b. The customer agrees to transfer part of its allocation to another raw water or wholesale treated water customer; or

c. Other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established under this section to the City Council of the City of Corpus Christi.

(b) Pro Rata Surcharges and Enforcement

(1) During any period when pro rata allocation of available water supplies is in effect, wholesale customers shall pay the following surcharges on excess water diversions:

a. 2.0 times the normal water charge per unit for water diversions and/or deliveries in excess of the monthly allocation up through 5 percent above the monthly allocation.

b. 2.5 times the normal water charge per unit for water diversions and/or deliveries in excess of the monthly allocation from 5 percent through 10 percent above the monthly allocation.

c. 3.0 times the normal water charge per unit for water diversions and/or deliveries in excess of the monthly allocation from 10 percent through 15 percent above the monthly allocation.

d. 3.5 times the normal water charge per unit for water diversions and/or deliveries more than 15 percent above the monthly allocation.

(c) *Variances.*

(1) The city manager, or the City Manager's designee, may, in writing, grant a temporary variance to the pro rata water allocation policies provided by this section if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the public health, welfare, or safety, and if one (1) or more of the following conditions are met:

a. Compliance cannot be technically accomplished during the duration of the water supply shortage or other condition for which the plan is in effect.

b. Alternative methods can be implemented which will achieve the same level of reduction in water use.

(2) Raw water or wholesale treated water customers requesting an exemption from the provisions of this section shall file a petition for variance with the City Manager within five (5) days after pro rata allocation has been invoked.

(3) All petitions for variances shall be reviewed by the City Council, and shall include the following:

a. Name and address of the petitioner(s).

b. Detailed statement with supporting data and information as to how the pro rata allocation of water under the policies and procedures established in this section adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this section.

c. Description of the relief requested.

d. Period of time for which the variance is sought.

e. Alternative measures the petitioner is taking or proposes to take to meet the intent of this section and the compliance date.

f. Other pertinent information.

(4) Variances granted by the City Council shall be subject to the following conditions, unless waived or modified by the City Council.

a. Variances granted shall include a timetable for compliance.

b. Variances granted shall expire when the pro-rata allocation of water to raw water or wholesale treated water customers is no longer in effect, unless the petitioner has failed to meet specified requirements.

c. No variance shall be retroactive or otherwise justify any violation of this section occurring prior to the issuance of the variance.

(d) *Contractual remedies not affected.* Nothing in this section supersedes any remedies available to the City under any contract with a raw water or wholesale treated water customer due to the customer's failure to adopt or impose water conservation measures required by the contract.

Section 4. This ordinance takes effect on June 3, 2013.

Section 5. Severability

It is hereby declared to be the intention of the City that the sections, paragraphs, sentences, clauses, and phrases of this Ordinance are severable and, if any phrase, clause, sentence, paragraph, or section of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such declaration shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Ordinance, since the same would not have been enacted by the City without the incorporation into this Ordinance of any such unconstitutional phrase, clause, sentence, paragraph, or section.

Section 6.

The change in law made by this Ordinance applies only to an offense committed on or after the effective date of this Ordinance. An offense committed before the effective date of this Ordinance is governed by the Ordinance in effect when the offense was committed, and the former Ordinance is continued in effect for that purpose. For purposes of this section, an offense was committed before the effective date of this Ordinance if any element of the offense occurred before that date.

That the foregoing ordinance was read for the first time and passed to its second reading on this the 14th day of May, 2013 by the following vote:

Nelda Martinez	absent	Chad Magill	Aye
Kelley Allen	Aye	Colleen McIntyre	Aye
Rudy Garza	Aye	Lillian Riojas	Aye
Priscilla Leal	Aye	Mark Scott	Aye
David Loeb	Aye		

That the foregoing ordinance was read for the second time and passed finally on this the 28th day of May, 13, by the following vote:

Nelda Martinez	Aye	Chad Magill	Aye
Kelley Allen	absent	Colleen McIntyre	Aye
Rudy Garza	Aye	Lillian Riojas	Aye
Priscilla Leal	Aye	Mark Scott	Aye
David Loeb	Aye		

PASSED AND APPROVED, this the 28th day of May, 2013

ATTEST:

Armando Chapa
City Secretary

Nelda Martinez
Mayor

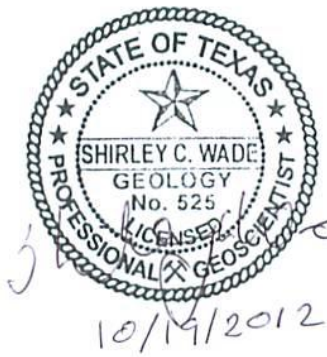
EFFECTIVE DATE
6/3/13

029846

Appendix G - GAM Run Report 12-016: Corpus Christi Aquifer Storage & Recovery Conservation District Management Plan

GAM Run 12-016: Corpus Christi Aquifer Storage and Recovery Conservation District Management Plan

by Shirley C. Wade, Ph.D., P.G.
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 936-0883
October 19, 2012



The seal appearing on this document was authorized by Shirley C. Wade, Ph.D., P.G. 525 on October 19, 2012.

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GAM RUN 12-016: CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY CONSERVATION DISTRICT MANAGEMENT PLAN

by Shirley C. Wade, Ph.D., P.G.
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 936-0883
October 19, 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.

The purpose of this report is to provide Part 2 of a two-part package of information to Corpus Christi Aquifer Storage and Recovery Conservation District for its groundwater management plan. The groundwater management plan for the Corpus Christi Aquifer Storage and Recovery Conservation District Conservation District is due for approval by the Executive Administrator of the TWDB before October 16, 2013.

This report discusses the method, assumptions, and results from GAM run 12-016 using the alternate model developed for Groundwater Management Area 16 (Hutchison and others, 2011). Table 1 summarizes the groundwater availability model data required by the statute, and Figure 1 shows the area of the model from which the values in the tables were extracted. This model run replaces the results of GAM Run 08-03 (Tu, 2008). GAM Run 12-016 meets current standards set after the release of GAM Run 08-03 and is based on the alternate model developed for Groundwater Management Area 16. Differences in the results of the two model runs are mainly due to differences in the assumed areas of the Gulf Coast Aquifer in the district. If after review of Figure 1, the Corpus Christi Aquifer Storage and Recovery Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the Texas Water Development Board immediately.

METHODS:

The groundwater model for the Gulf Coast Aquifer in Groundwater Management Area 16 (Hutchison and others, 2011) was used for this analysis. Water budgets for selected years—1980 though 1999—of the transient model period were extracted using ZONEBUDGET Version 3.01 (Harbaugh, 2009) and the average annual water budget values for recharge, surface water outflow, lateral inflow to the district, lateral outflow from the district, and vertical flow for the portions of the aquifers located within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

Gulf Coast Aquifer

- The alternative model for Groundwater Management Area 16 developed by Hutchison and others (2011) was used for this management plan data analysis. The model was calibrated based on groundwater elevation data from 1963 to 1999; however, data were extracted only for the period from 1980 to 1999 to be consistent with the analysis completed for previous management plan.
- The model has six layers representing the following hydrogeologic units—from top to bottom: Chicot Aquifer (layer 1), Evangeline Aquifer (layer 2), Burkeville Confining Unit (layer 3), Jasper Aquifer (layer 4), Yegua-Jackson

Aquifer (layer 5), and the combined Queen-City, Sparta, and Carrizo-Wilcox aquifers (layer 6). However, the bottom two layers were not simulated in the Corpus Christi Aquifer Storage and Recovery Conservation District.

- 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 41 feet and the average residual is 15 feet.

- As reported by Kalaswad and Arroyo (2006), groundwater in the Gulf Coast Aquifer ranges from fresh, brackish, to saline (1,000 to 10,000 milligrams per liter of total dissolved solids). The reported flow values in this report include all categories of water quality: fresh (less than 1,000 milligrams per liter total dissolved solids), brackish (1,000 to 10,000 milligrams per liter total dissolved solids), and saline (greater than 10,000 milligrams per liter total dissolved solids) groundwater.

- 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 Gulf Coast Aquifer and averaged over the 1980 to 1999 portion of the model runs in the district, as shown in Table 1. The components of the modified budget shown in Table 1 include:

- Precipitation recharge—The spatially-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 and other areas.

- Flow between aquifers—The 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.

The information needed for the District's management plan is summarized in Table 1. 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 Figure 1).

Comparison of the alternative model for Groundwater Management Area 16 and the groundwater availability model for the central portion of the Gulf Coast Aquifer

The Corpus Christi Aquifer Storage and Recovery Conservation District is included in the model areas of both the alternative model for Groundwater Management Area 16 (Hutchison and others, 2011) and the groundwater availability model for the central portion of the Gulf Coast Aquifer (Chowdhury and others, 2004). We ran both models for this analysis and compared the resulting water budgets.

The estimated annual amount of recharge from precipitation to the district from the groundwater availability model for the central portion of the Gulf Coast Aquifer is 7 acre-feet per year and the estimated annual amount from the Gulf Coast Aquifer layers of the alternative model for Groundwater Management Area 16 is 84 acre-feet per year.

The estimated annual volume of water that discharges from springs and any surface water body within the district from the groundwater availability model for the central portion of the Gulf Coast Aquifer is 417 acre-feet per year and the estimated annual amount from the Gulf Coast Aquifer layers of the alternative model for Groundwater Management Area 16 is 255 acre-feet per year. For both models this flow includes discharge to rivers or streams and discharge to the bay represented by general head boundaries.

The estimated annual volume of flow into the district for the groundwater availability model for the central portion of the Gulf Coast Aquifer is 415 acre-feet per year and the estimated annual amount for the Gulf Coast Aquifer layers of the alternative model for Groundwater Management Area 16 is 207 acre-feet per year.

The estimated annual volume of flow out of the district for the groundwater availability model for the central portion of the Gulf Coast Aquifer is 367 acre-feet per year and the estimated annual amount for the Gulf Coast Aquifer layers of the

alternative model for Groundwater Management Area 16 is 210 acre-feet per year. The flows into and out of the district are a sum of flows into and out of Kenedy County Groundwater Conservation District and into and out of portions of the aquifer under the bay.

The estimated net annual volume of flow between each aquifer in the district for the groundwater availability model for the central portion of the Gulf Coast Aquifer is 397 acre-feet per year and the estimated annual amount for the Gulf Coast Aquifer layers of the alternative model for Groundwater Management Area 16 is 147 acre-feet per year. These values are represented by lateral flows from areas within the Corpus Christi Aquifer Storage and Recovery Conservation District representing brackish parts of the Gulf Coast Aquifer.

While both models cover the entire Corpus Christi Aquifer Storage and Recovery Conservation District and provide all of the information required for the district's management plan, the general head boundary conditions representing the bay are more realistic in the alternative model for Groundwater Management Area 16. Consequently, we used the alternative model for Groundwater Management Area 16 to meet the management plan requirements (see Table 1 for a summary).

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 GULF COAST AQUIFER THAT IS NEEDED FOR CORPUS CHRISTI AQUIFER STORAGE AND RECOVERY 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	Gulf Coast Aquifer	84
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Gulf Coast Aquifer	255
Estimated annual volume of flow into the district within each aquifer in the district	Gulf Coast Aquifer	207
Estimated annual volume of flow out of the district within each aquifer in the district	Gulf Coast Aquifer	210
Estimated net annual volume of flow between each aquifer in the district	From brackish units to the Gulf Coast Aquifer	147

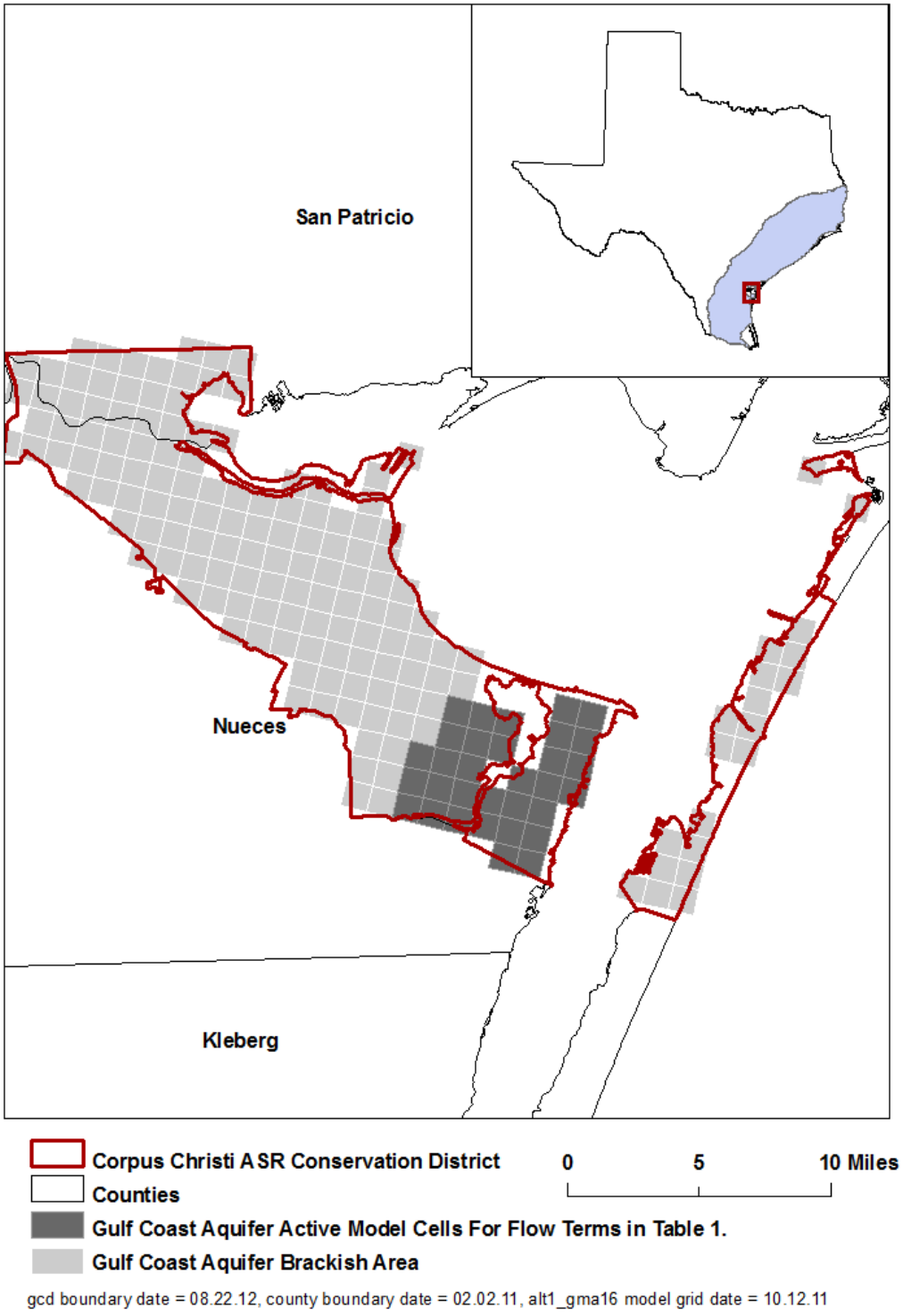


FIGURE 1: AREA OF THE GROUNDWATER MODEL FOR GROUNDWATER MANAGEMENT AREA 16 FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

REFERENCES:

Chowdhury, A.H., Wade, S.W., Mace, R.E., and Ridgeway, C., 2004, Groundwater availability model of the central Gulf Coast Aquifer system—Numerical simulations through 1999: Unpublished Texas Water Development Board report, 114 p. http://www.twdb.texas.gov/groundwater/models/gam/glfc_c/TWDB_Recalibration_Report.pdf

Harbaugh, A. W., 2009, Zonebudget Version 3.01, A computer program for computing subregional water budgets for MODFLOW ground-water flow models, U.S. Geological Survey Groundwater Software.

Harbaugh, A. W., and McDonald, M.G., 1996, User's documentation for MODFLOW-96, an update to the U.S. Geological Survey modular finite-difference ground-water flow model: U.S. Geological Survey Open-File Report 96–485, 56 p.

Hutchison, W. R., Hill, M. E., Anaya, R., Hassan, M. M., Oliver, W., Jigmond, M., Wade, S., and Aschenbach, E., 2011. Groundwater Management Area 16 Groundwater Flow Model. http://www.twdb.texas.gov/groundwater/models/alt/gma16/GMA16_Model_Report_DRAFT.pdf

Kalaswad, S., and Arroyo, J., 2006, Status report on brackish groundwater and desalination in the Gulf Coast Aquifer of Texas *in* Mace, R.E., Davison, S.C., Angle, E.S., and Mullican, III, W.F., eds., Aquifers of the Gulf Coast of Texas: Texas Water Development Board Report 365, p. 231–240.

National Research Council, 2007. Models in Environmental Regulatory Decision Making: Committee on Models in the Regulatory Decision Process, National Academies Press, Washington D.C., 287 p., http://www.nap.edu/catalog.php?record_id=11972.

Tu, K., 2008, GAM run 08-03: Texas Water Development Board, GAM Run 08-03 Report, 5 p. http://www.twdb.texas.gov/groundwater/docs/GAMruns/GR08-03.pdf

Appendix H - Estimated Historical Groundwater Use and 2012 State Water Plan Datasets: Corpus Christi Aquifer Storage and Recovery Conservation District

Estimated Historical Groundwater Use And 2012 State Water Plan Datasets:

Corpus Christi Aquifer Storage and Recovery Conservation District

by Stephen Allen
Texas Water Development Board
Groundwater Resources Division
Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
June 3, 2013

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.state.tx.us/groundwater/doc/GCD/GMPChecklist0113.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 6/3/2013. 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 historical use estimates are currently unavailable for calendar years 2005, 2011 and 2012. TWDB staff anticipates the calculation and posting of these estimates at a later date.

NUECES COUNTY *19.76 % (multiplier)* All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	317	122	0	1	291	89	820
1980	GW	402	103	0	0	53	8	566
1984	GW	637	239	0	387	18	6	1,287
1985	GW	225	40	0	514	5	7	791
1986	GW	76	41	0	422	0	25	564
1987	GW	64	40	0	375	3	6	488
1988	GW	66	40	0	514	14	27	661
1989	GW	74	46	0	107	8	27	262
1990	GW	65	47	0	17	8	29	166
1991	GW	65	40	0	20	16	30	171
1992	GW	72	40	0	0	16	19	147
1993	GW	75	40	0	0	18	21	154
1994	GW	63	41	0	0	20	29	153
1995	GW	295	67	0	0	20	26	408
1996	GW	307	178	0	0	20	22	527
1997	GW	311	278	0	0	19	21	629
1998	GW	339	1,033	0	0	15	22	1,409
1999	GW	351	178	0	0	15	25	569
2000	GW	335	192	0	5	15	22	569
2001	GW	365	293	0	3	8	19	688
2002	GW	387	239	0	3	8	17	654
2003	GW	396	311	0	21	6	19	753
2004	GW	340	360	0	24	6	18	748
2006	GW	234	427	0	173	0	56	890
2007	GW	221	316	0	139	0	38	714
2008	GW	156	578	0	61	0	71	866
2009	GW	213	456	0	49	159	78	955
2010	GW	308	640	0	295	162	61	1,466

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

Groundwater historical use estimates are currently unavailable for calendar years 2005, 2011 and 2012. TWDB staff anticipates the calculation and posting of these estimates at a later date.

SAN PATRICIO COUNTY

2.87 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	72	9	0	170	7	7	265
1980	GW	69	0	0	40	2	6	117
1984	GW	51	0	0	102	3	4	160
1985	GW	49	0	0	48	2	3	102
1986	GW	49	0	0	57	0	3	109
1987	GW	46	0	0	48	1	2	97
1988	GW	37	0	0	59	2	2	100
1989	GW	38	0	0	35	2	2	77
1990	GW	55	0	0	32	2	2	91
1991	GW	54	0	0	32	2	2	90
1992	GW	55	0	0	0	2	2	59
1993	GW	56	0	0	7	2	3	68
1994	GW	55	0	0	9	2	2	68
1995	GW	47	0	0	9	2	2	60
1996	GW	57	0	0	9	2	2	70
1997	GW	56	0	0	6	2	2	66
1998	GW	56	0	0	33	2	2	93
1999	GW	61	0	0	19	2	3	85
2000	GW	60	0	0	131	2	2	195
2001	GW	34	0	0	126	1	1	162
2002	GW	31	0	0	129	1	1	162
2003	GW	33	0	0	226	3	1	263
2004	GW	42	0	0	256	3	1	302
2006	GW	95	0	0	286	0	8	389
2007	GW	94	0	0	168	0	4	266
2008	GW	131	0	0	400	0	7	538
2009	GW	136	0	0	295	3	4	438
2010	GW	138	0	0	206	4	6	354

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

NUECES COUNTY

19.76 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	AGUA DULCE	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	ARANSAS PASS	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	BISHOP	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	CORPUS CHRISTI	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	3,071	3,584	4,024	4,420	4,791	5,119
N	CORPUS CHRISTI	NUECES	TEXANA LAKE/RESERVOIR	2,000	2,000	2,000	2,000	2,000	2,000
N	CORPUS CHRISTI	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	26,343	22,788	27,728	32,162	36,330	40,003
N	CORPUS CHRISTI	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	39,840	39,840	39,840	39,840	39,840	39,840
N	COUNTY-OTHER	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	20	13	13	10	8	7
N	COUNTY-OTHER	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	45	52	52	55	57	58
N	COUNTY-OTHER	NUECES-RIO GRANDE	NUECES RIVER RUN-OF-RIVER	31	31	31	31	31	31
N	DRISCOLL	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	IRRIGATION	NUECES	NUECES RIVER RUN-OF-RIVER	543	543	543	543	543	543
N	IRRIGATION	NUECES-RIO GRANDE	NUECES RIVER RUN-OF-RIVER	140	140	140	140	140	140
N	IRRIGATION	NUECES-RIO GRANDE	NUECES-RIO GRANDE RIVER COMBINED RUN-OF-RIVER IRRIGATION	110	110	110	110	110	110

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	LIVESTOCK	NUECES	LIVESTOCK LOCAL SUPPLY	4	4	4	4	4	4
N	LIVESTOCK	NUECES-RIO GRANDE	LIVESTOCK LOCAL SUPPLY	36	36	36	36	36	36
N	MANUFACTURING	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	290	314	334	353	370	396
N	MANUFACTURING	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	8,676	7,913	6,961	6,116	4,994	3,993
N	MINING	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	2	2	2	0	0	0
N	MINING	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	99	105	67	0	0	0
N	MINING	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	173	183	117	0	0	0
N	NUECES COUNTY WCID #4	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	PORT ARANSAS	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	RIVER ACRES WSC	NUECES	NUECES RIVER RUN-OF-RIVER						
N	ROBSTOWN	NUECES-RIO GRANDE	NUECES RIVER RUN-OF-RIVER						
N	STEAM ELECTRIC POWER	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	619	1,777	1,596	1,509	1,515	1,588
N	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	827	659	770	906	1,072	1,274
	Sum of Projected Surface Water Supplies (acre-feet/year)			**82,869**	**80,094**	**84,368**	**88,235**	**91,841**	**95,142**

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

SAN PATRICIO COUNTY

2.87 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	ARANSAS PASS	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	COUNTY-OTHER	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	0	0	1	1	2	3
N	COUNTY-OTHER	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	30	32	33	33	34	36
N	GREGORY	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	INGLESIDE	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	INGLESIDE ON THE BAY	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	IRRIGATION	SAN ANTONIO-NUECES	SAN ANTONIO-NUECES RIVER COMBINED RUN-OF-RIVER IRRIGATION	2	2	2	2	2	2
N	LIVESTOCK	NUECES	LIVESTOCK LOCAL SUPPLY	5	5	5	5	5	5
N	LIVESTOCK	SAN ANTONIO-NUECES	LIVESTOCK LOCAL SUPPLY	10	10	10	10	10	10
N	MANUFACTURING	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	244	270	292	255	238	174
N	MANUFACTURING	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	189	209	227	245	260	279
N	MATHIS	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	ODEM	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	PORTLAND	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	TAFT	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
	Sum of Projected Surface Water Supplies (acre-feet/year)			**480**	**528**	**570**	**551**	**551**	**509**

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.

NUECES COUNTY

19.76 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	CORPUS CHRISTI	NUECES	5,071	5,584	6,024	6,420	6,791	7,119
N	MANUFACTURING	NUECES	295	319	339	359	375	402
N	RIVER ACRES WSC	NUECES						
N	STEAM ELECTRIC POWER	NUECES	619	2,169	2,536	2,983	3,528	4,193
N	MINING	NUECES	2	2	2	2	2	2
N	IRRIGATION	NUECES	277	239	206	177	153	132
N	LIVESTOCK	NUECES	6	6	6	6	6	6
N	COUNTY-OTHER	NUECES	47	32	22	15	10	7
N	CORPUS CHRISTI	NUECES-RIO GRANDE	56,882	62,628	67,568	72,002	76,170	79,843
N	ROBSTOWN	NUECES-RIO GRANDE						
N	AGUA DULCE	NUECES-RIO GRANDE						
N	PORT ARANSAS	NUECES-RIO GRANDE						
N	BISHOP	NUECES-RIO GRANDE						
N	DRISCOLL	NUECES-RIO GRANDE						
N	COUNTY-OTHER	NUECES-RIO GRANDE	130	85	56	37	24	16
N	MANUFACTURING	NUECES-RIO GRANDE	8,895	9,615	10,218	10,806	11,313	12,109
N	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	827	659	770	906	1,072	1,274
N	MINING	NUECES-RIO GRANDE	103	109	112	115	118	121
N	IRRIGATION	NUECES-RIO GRANDE	9	8	7	6	5	4
N	LIVESTOCK	NUECES-RIO GRANDE	49	49	49	49	49	49
N	NUECES COUNTY WCID #4	NUECES-RIO GRANDE						
N	ARANSAS PASS	SAN ANTONIO-NUECES						
N	MINING	SAN ANTONIO-NUECES	186	196	202	207	212	218
	Sum of Projected Water Demands (acre-feet/year		**73,398**	**81,700**	**88,117**	**94,090**	**99,828**	**105,498**

SAN PATRICIO COUNTY

2.87 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	MANUFACTURING	NUECES	244	270	292	315	335	360
N	MATHIS	NUECES						
N	IRRIGATION	NUECES	10	11	12	13	15	16

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.

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	MINING	NUECES	1	1	1	1	1	1
N	COUNTY-OTHER	NUECES	14	15	16	17	17	18
N	LIVESTOCK	NUECES	5	5	5	5	5	5
N	LAKE CITY	NUECES						
N	INGLESIDE ON THE BAY	SAN ANTONIO-NUECES						
N	ODEM	SAN ANTONIO-NUECES						
N	MINING	SAN ANTONIO-NUECES	2	2	2	2	2	3
N	IRRIGATION	SAN ANTONIO-NUECES	238	263	290	320	354	391
N	LIVESTOCK	SAN ANTONIO-NUECES	11	11	11	11	11	11
N	ARANSAS PASS	SAN ANTONIO-NUECES						
N	GREGORY	SAN ANTONIO-NUECES						
N	INGLESIDE	SAN ANTONIO-NUECES						
N	PORTLAND	SAN ANTONIO-NUECES						
N	SINTON	SAN ANTONIO-NUECES						
N	TAFT	SAN ANTONIO-NUECES						
N	COUNTY-OTHER	SAN ANTONIO-NUECES	42	45	47	49	51	54
N	MANUFACTURING	SAN ANTONIO-NUECES	190	210	227	245	260	280
	Sum of Projected Water Demands (acre-feet/year)		**757**	**833**	**903**	**978**	**1,051**	**1,139**

Projected Water Supply Needs
TWDB 2012 State Water Plan Data

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

NUECES COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	AGUA DULCE	NUECES-RIO GRANDE	0	0	0	0	0	0
N	ARANSAS PASS	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	BISHOP	NUECES-RIO GRANDE	0	0	0	0	0	0
N	CORPUS CHRISTI	NUECES	0	0	0	0	0	0
N	CORPUS CHRISTI	NUECES-RIO GRANDE	9,301	0	0	0	0	0
N	COUNTY-OTHER	NUECES	0	0	0	0	0	0
N	COUNTY-OTHER	NUECES-RIO GRANDE	-261	0	146	260	334	383
N	DRISCOLL	NUECES-RIO GRANDE	0	0	0	0	0	0
N	IRRIGATION	NUECES	1,344	1,536	1,704	1,848	1,971	2,076
N	IRRIGATION	NUECES-RIO GRANDE	1,214	1,221	1,226	1,231	1,235	1,239
N	LIVESTOCK	NUECES	0	0	0	0	0	0
N	LIVESTOCK	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MANUFACTURING	NUECES	0	0	0	0	0	0
N	MANUFACTURING	NUECES-RIO GRANDE	0	-7,411	-15,203	-22,378	-30,560	-39,550
N	MINING	NUECES	0	0	0	0	0	0
N	MINING	NUECES-RIO GRANDE	0	0	-207	-558	-572	-586
N	MINING	SAN ANTONIO-NUECES	0	0	-363	-988	-1,012	-1,038
N	NUECES COUNTY WCID #4	NUECES-RIO GRANDE	0	0	0	0	0	0
N	PORT ARANSAS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	RIVER ACRES WSC	NUECES	-138	-255	-355	-445	-522	-590
N	ROBSTOWN	NUECES-RIO GRANDE	0	0	0	0	0	0
N	STEAM ELECTRIC POWER	NUECES	0	-1,982	-4,755	-7,459	-10,187	-13,183
N	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	0	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet/year)		**-399**	**-9,648**	**-20,883**	**-31,828**	**-42,853**	**-54,947**

SAN PATRICIO COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	ARANSAS PASS	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	COUNTY-OTHER	NUECES	0	0	0	0	0	0
N	COUNTY-OTHER	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	GREGORY	SAN ANTONIO-NUECES	0	0	0	0	0	0

Projected Water Supply Needs
TWDB 2012 State Water Plan Data

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

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	INGLESIDE	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	INGLESIDE ON THE BAY	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	IRRIGATION	NUECES	0	0	-36	-79	-127	-179
N	IRRIGATION	SAN ANTONIO-NUECES	83	83	-714	-1,773	-2,942	-4,235
N	LAKE CITY	NUECES	0	-1	-11	-19	-28	-37
N	LIVESTOCK	NUECES	0	0	0	0	0	0
N	LIVESTOCK	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	MANUFACTURING	NUECES	0	0	0	-2,081	-3,353	-6,455
N	MANUFACTURING	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	MATHIS	NUECES	0	0	0	0	0	0
N	MINING	NUECES	0	0	0	0	0	0
N	MINING	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	ODEM	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	PORTLAND	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	SINTON	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	TAFT	SAN ANTONIO-NUECES	0	0	0	0	0	1
Sum of Projected Water Supply Needs (acre-feet/year)			**0**	**-1**	**-761**	**-3,952**	**-6,450**	**-10,906**

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

NUECES COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
COUNTY-OTHER, NUECES-RIO GRANDE (N)							
VOLUNTARY REDISTRIBUTION	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	261	0	0	0	0	0
MANUFACTURING, NUECES-RIO GRANDE (N)							
CONSTRUCTION OF LAVACA RIVER OFF-CHANNEL RESERVOIR DIVERSION PROJECT (REGION N COMPONENT)	LAVACA RIVER OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	6,914
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	11,667	11,667	11,667	11,667	11,667
MANUFACTURING WATER CONSERVATION	CONSERVATION [NUECES]	1,260	1,418	1,576	1,734	1,892	2,050
O.N. STEVENS WATER TREATMENT PLANT IMPROVEMENTS	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	14,393	13,618	12,956	12,366	11,839	11,220
OFF-CHANNEL RESERVOIR NEAR LAKE CORPUS CHRISTI	NUECES OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	10,114	10,114	10,114	10,114
RECLAIMED WASTEWATER SUPPLIES	INDIRECT REUSE WASTEWATER [SAN PATRICIO]	84	84	84	84	84	84
MINING, NUECES-RIO GRANDE (N)							
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	700	700	700	700	700
MINING WATER CONSERVATION	CONSERVATION [NUECES]	37	78	120	164	210	259
MINING, SAN ANTONIO-NUECES (N)							
CONSTRUCTION OF LAVACA RIVER OFF-CHANNEL RESERVOIR DIVERSION PROJECT (REGION N COMPONENT)	LAVACA RIVER OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	3,914
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	5,498	5,498	5,498	5,498	5,498
O.N. STEVENS WATER TREATMENT PLANT IMPROVEMENTS	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	6,984	6,608	6,287	6,000	5,745	5,444

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
OFF-CHANNEL RESERVOIR NEAR LAKE CORPUS CHRISTI	NUECES OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	5,057	5,057	5,057	5,057
RECLAIMED WASTEWATER SUPPLIES	INDIRECT REUSE WASTEWATER [SAN PATRICIO]	83	83	83	83	83	83
NUECES COUNTY WCID #4, NUECES-RIO GRANDE (N)							
MUNICIPAL WATER CONSERVATION	CONSERVATION [NUECES]	0	0	56	135	261	384
PORT ARANSAS, NUECES-RIO GRANDE (N)							
MUNICIPAL WATER CONSERVATION	CONSERVATION [NUECES]	28	115	238	406	615	843
RIVER ACRES WSC, NUECES (N)							
VOLUNTARY REDISTRIBUTION	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	138	255	355	445	522	590
STEAM ELECTRIC POWER, NUECES (N)							
CONSTRUCTION OF LAVACA RIVER OFF-CHANNEL RESERVOIR DIVERSION PROJECT (REGION N COMPONENT)	LAVACA RIVER OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	5,414
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	11,667	11,667	11,667	11,667	11,667
O.N. STEVENS WATER TREATMENT PLANT IMPROVEMENTS	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	13,968	13,215	12,573	12,000	11,489	10,888
OFF-CHANNEL RESERVOIR NEAR LAKE CORPUS CHRISTI	NUECES OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	10,113	10,113	10,113	10,113
RECLAIMED WASTEWATER SUPPLIES	INDIRECT REUSE WASTEWATER [SAN PATRICIO]	83	83	83	83	83	83
Sum of Projected Water Management Strategies (acre-feet/year)		**37,319**	**65,089**	**89,227**	**88,316**	**87,639**	**102,986**

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

SAN PATRICIO COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

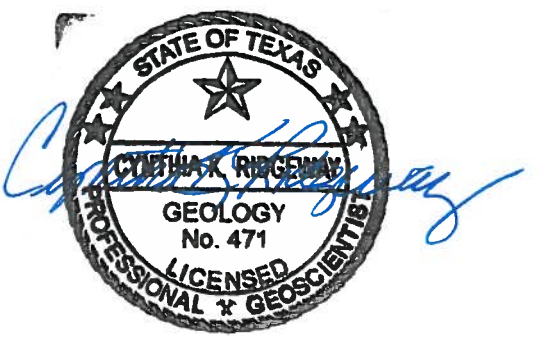
Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
IRRIGATION, NUECES (N)							
GULF COAST AQUIFER SUPPLIES	GULF COAST AQUIFER [SAN PATRICIO]	0	0	365	365	365	365
IRRIGATION, SAN ANTONIO-NUECES (N)							
GULF COAST AQUIFER SUPPLIES	GULF COAST AQUIFER [SAN PATRICIO]	0	0	8,635	8,635	8,635	8,635
LAKE CITY, NUECES (N)							
GULF COAST AQUIFER SUPPLIES	GULF COAST AQUIFER [SAN PATRICIO]	0	80	80	80	80	80
MANUFACTURING, NUECES (N)							
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	5,498	5,498	5,498	5,498	5,498
GULF COAST AQUIFER SUPPLIES (REGIONAL)	GULF COAST AQUIFER [BEE]	0	0	5,500	5,500	5,500	9,000
GULF COAST AQUIFER SUPPLIES (REGIONAL)	GULF COAST AQUIFER [SAN PATRICIO]	0	0	5,500	5,500	5,500	9,000
O.N. STEVENS WATER TREATMENT PLANT IMPROVEMENTS	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	6,984	6,607	6,286	6,000	5,744	5,444
OFF-CHANNEL RESERVOIR NEAR LAKE CORPUS CHRISTI	NUECES OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	5,056	5,056	5,056	5,056
Sum of Projected Water Management Strategies (acre-feet/year)		**6,984**	**12,185**	**36,920**	**36,634**	**36,378**	**43,078**

GAM Run 10-047 MAG: Groundwater Management Area 16 Model Runs to Estimate Drawdowns under Assumed Future Pumping for The Gulf Coast Aquifer

by Mohammad Masud Hassan, P.E.
Texas Water Development Board
Groundwater Availability Modeling Section

Edited and finalized by Marius Jigmond to reflect statutory changes effective September 1, 2011
(512) 463-8499

December 8, 2011



Cynthia K. Ridgeway, the Manager of the Groundwater Availability Modeling Section and Interim Director of the Groundwater Resources Division, is responsible for oversight of work performed by employees under her direct supervision. The seal appearing on this document was authorized by Cynthia K. Ridgeway, P.G. 471 on December 8, 2011.

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GAM RUN 10-047 MAG: GROUNDWATER MANAGEMENT AREA 16 MODEL RUNS TO ESTIMATE DRAWDOWNS UNDER ASSUMED FUTURE PUMPING FOR THE GULF COAST AQUIFER

by Mohammad Masud Hassan, P.E.
Texas Water Development Board
Groundwater Availability Modeling Section

Edited and finalized by Marius Jigmond to reflect statutory changes effective September 1, 2011
(512) 463-8499

December 8, 2011

EXECUTIVE SUMMARY:

The modeled available groundwater for the Gulf Coast Aquifer as a result of the desired future condition adopted by the members of Groundwater Management Area 16 is approximately 358,100 acre-feet per year. This is summarized by county, regional water planning area, and river basin as shown in Table 1 for use in the regional water planning process. Modeled available groundwater is summarized by county, regional water planning area, river basin, and groundwater conservation district in tables 2 through 5. The estimates were extracted from Groundwater Availability Modeling (GAM) Run 09-008, Scenario 10, which Groundwater Management Area 16 used as the basis for developing their desired future condition for the Gulf Coast Aquifer.

REQUESTOR:

Mr. Scott Bledsoe III of Live Oak Underground Water Conservation District on behalf of Groundwater Management Area 1

DESCRIPTION OF REQUEST:

In a letter dated May 30, 2010 and received September 2, 2010, Mr. Scott Bledsoe provided the Texas Water Development Board (TWDB) with the desired future condition of the Gulf Coast Aquifer adopted by the members of Groundwater Management Area (GMA) 16. The desired future condition for the

Gulf Coast Aquifer in Groundwater Management Area 16, as shown in Resolution No. R2010-001, is as follows:

> *"[…]*
>
> *The authorized voting representatives of the [Groundwater Management Area] 16 Districts hereby establish a desired future condition of the Gulf Coast [Aquifer] of a [Groundwater Management Area]-wide average drawdown of approximately 94 feet through 2060 consistent with scenario 10 of GAM [Run] 09-008 by the vote reflected in the above recitals.*
>
> *The authorized voting representatives of the [Groundwater Management Area] 16 Districts hereby decline to establish a desired future condition of the Carrizo-Wilcox, and the Yegua-Jackson aquifer slivers, finding them to not be relevant for purposes of [Groundwater Management Area] 16 joint planning at this time by the vote reflected in the above recitals.*
>
> *[…]"*

In response to receiving the adopted desired future condition, the Texas Water Development Board has estimated the modeled available groundwater for the Gulf Coast Aquifer within Groundwater Management Area 16.

METHODS:

The Texas Water Development Board previously completed several predictive groundwater availability model simulations of the Gulf Coast Aquifer to assist the members of Groundwater Management Area 16 in developing a desired future condition. The location of Groundwater Management Area 16, the Gulf Coast Aquifer, and the groundwater availability model cells that represent the aquifer are shown in Figure 1. As described in Resolution No. R2010-001, the management area considered Scenario 10 of Groundwater Availability Modeling (GAM) Run 09-008 when developing a desired future condition for the Gulf Coast Aquifer (Hutchison, 2010). Since the above desired future condition is met in Scenario 10 of GAM Run 09-008, the modeled available groundwater for Groundwater Management Area 16 presented here was taken directly from this simulation. This was then divided by county, regional water planning area, river basin, and groundwater conservation district (Figure 2).

PARAMETERS AND ASSUMPTIONS:

The parameters and assumptions for the model run using the groundwater availability model for the Gulf Coast Aquifer are described below:

- We used the Groundwater Management Area 16 numerical groundwater flow model, version 1.0 for these predictive simulations (Hutchison and others, 2011).

- The groundwater flow model encompasses the footprint of Groundwater Management Area 16 and its underlying aquifer systems. The Groundwater Management Area 16 model includes portions of the Gulf Coast, Yegua-Jackson, Queen City, Sparta, and Carrizo-Wilcox aquifer systems. Layers 1 through 4 represent the Gulf Coast Aquifer System which is comprised of the Chicot Aquifer, Evangeline Aquifer, Burkeville Confining System, and Jasper Aquifer in descending order. Layer 5 is a bulk representation of the Yegua-Jackson Aquifer System, and Layer 6 is a bulk representation of the Queen-City, Sparta, and Carrizo-Wilcox aquifers (Hutchison and others, 2011).

- Please refer to GAM Run 09-008 (Hutchison, 2011) for the model parameters, assumptions, and methods used for the predictive simulation.

Modeled Available Groundwater and Permitting

As defined in Chapter 36 of the Texas Water Code, "modeled available groundwater" is the estimated average amount of water that may be produced annually to achieve a desired future condition. This is distinct from "managed available groundwater," shown in the draft version of this report dated June 7, 2011, which was a permitting value and accounted for the estimated use of the aquifer exempt from permitting. This change was made to reflect changes in statute by the 82nd Texas Legislature, effective September 1, 2011.

Groundwater conservation districts are required to consider modeled available groundwater, along with several other factors, when issuing permits in order to manage groundwater production to achieve the desired future condition(s). The other factors districts must consider include annual precipitation and production patterns, the estimated amount of pumping exempt from permitting, existing permits, and a reasonable estimate of actual groundwater production under existing permits. The estimated amount of pumping exempt from permitting, which the Texas Water Development Board is now required to develop after soliciting input from applicable groundwater conservation districts, will be provided in a separate report.

RESULTS:

The modeled available groundwater for the Gulf Coast Aquifer in Groundwater Management Area 16 consistent with the above desired future condition is approximately 358,100 acre-feet per year. This has been divided by county, regional water planning area, and river basin for each decade between 2010 and 2060 for use in the regional water planning process (Table 1). The modeled available groundwater for the Gulf Coast Aquifer is also summarized by county, regional water planning area, river basin, and groundwater conservation district as shown in tables 2 through 5. In Table 5, the modeled

available groundwater both excluding and including areas outside of a groundwater conservation district is shown.

LIMITATIONS:

The groundwater model 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 the impacts of future pumping is the need to make assumptions about the location in the aquifer where future pumping will occur. In this case, as noted, pumping in each county is evenly distributed. This assumption was necessary, in part, due to the generally large increases in pumping as compared to historic pumping. There is a fair degree of uncertainty in many of these estimates due to the large increases in pumping in areas that had not historically been stressed. 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 impacts of that pumping. This analysis does not assess the possible impacts of pumping such as reduced water quality or land surface subsidence.

In addition, certain assumptions have been made regarding future precipitation, recharge, and streamflow in evaluating the impacts of future pumping. Those assumptions also need to be considered and compared to actual future data.

Given these limitations, users of this information are cautioned that the results should not be considered a definitive, permanent prediction of the changes in groundwater storage, streamflow and spring flow. 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 future 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.

REFERENCES:

Harbaugh, A.W., Banta, E.R., Hill, M.C., and McDonald, M.G., 2000, MODFLOW-2000, The U.S. Geological Survey modular ground-water model-user guide to modularization concepts and the ground-water flow process: U.S. Geological Survey Open-File Report 00-92, 121 p.

Hutchison, W.R., Hill, M.E., Anaya, R., Hasan, M.M., Oliver, W., Jigmond, M., Wade, S., and Aschenbach, E., 2011. Groundwater Management Area 16 Groundwater Flow Model: Texas Water Development Board.

Hutchison, W.R., 2011. Draft GAM Run 09-08: Groundwater Management Area 16 Model Runs to Estimate Drawdowns under Assumed Future Pumping for the Gulf Coast Aquifer, June 10, 2011, 45p.

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

Wilson, J.D. and Naff, R.L., 2004, The U.S. Geological Survey modular ground-water model-GMG linear equation solver package documentation: U.S. Geological Survey Open-File Report 2004-1261, 47 p.

TABLE 1: MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER IN GROUNDWATER MANAGEMENT AREA 16. 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
Bee	**N**	Nueces	762	762	762	762	762	762
		San Antonio-Nueces	9,898	9,898	9,898	9,898	9,898	9,898
Brooks	**N**	Nueces-Rio Grande	15,595	15,595	15,595	15,595	15,595	15,595
Cameron	**M**	Nueces-Rio Grande	48,576	48,576	48,576	48,576	48,576	48,576
		Rio Grande	1,984	1,984	1,984	1,984	1,984	1,984
Duval	**N**	Nueces	364	364	364	364	364	364
		Nueces-Rio Grande	13,699	13,699	13,699	13,699	13,699	13,699
Hidalgo	**M**	Nueces-Rio Grande	38,941	38,941	38,941	38,941	38,941	38,941
		Rio Grande	2,985	2,985	2,985	2,985	2,985	2,985
Jim Hogg	**M**	Nueces-Rio Grande	20,836	20,836	20,836	20,836	20,836	20,836
		Rio Grande	3,578	3,578	3,578	3,578	3,578	3,578
Jim Wells	**N**	Nueces	3,962	3,962	3,962	3,962	3,962	3,962
		Nueces-Rio Grande	23,924	23,924	23,924	23,924	23,924	23,924
Kenedy	**N**	Nueces-Rio Grande	51,778	51,778	51,778	51,778	51,778	51,778
Kleberg	**N**	Nueces-Rio Grande	50,701	50,701	50,701	50,701	50,701	50,701
Live Oak	**N**	Nueces	11,377	11,377	11,377	11,377	11,377	11,377
		San Antonio-Nueces	57	57	57	57	57	57
McMullen	**N**	Nueces	510	510	510	510	510	510
Nueces	**N**	Nueces	946	946	946	946	946	946
		Nueces-Rio Grande	7,884	7,884	7,884	7,884	7,884	7,884

County	Regional Water Planning Area	River Basin	Year					
			2010	**2020**	**2030**	**2040**	**2050**	**2060**
		San Antonio-Nueces	179	179	179	179	179	179
San Patricio	**N**	Nueces	3,868	3,868	3,868	3,868	3,868	3,868
		San Antonio-Nueces	15,145	15,145	15,145	15,145	15,145	15,145
Starr	**M**	Nueces-Rio Grande	3,079	3,079	3,079	3,079	3,079	3,079
		Rio Grande	4,447	4,447	4,447	4,447	4,447	4,447
Webb	**M**	Nueces	82	82	82	82	82	82
		Nueces-Rio Grande	2,445	2,445	2,445	2,445	2,445	2,445
		Rio Grande	475	475	475	475	475	475
Willacy	**M**	Nueces-Rio Grande	20,013	20,013	20,013	20,013	20,013	20,013
Total			**358,090**	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**

TABLE 2: MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER SUMMARIZED BY COUNTY IN GROUNDWATER MANAGEMENT AREA 16 FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR. NOTE THAT THE PUMPING AMOUNT SHOWN IN THE TABLE BELOW FOR BEE COUNTY REPRESENTS ONLY THE PORTION OF THE COUNTY WITHIN GROUNDWATER MANAGEMENT AREA 16.

County	Year					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Bee	10,660	10,660	10,660	10,660	10,660	10,660
Brooks	15,595	15,595	15,595	15,595	15,595	15,595
Cameron	50,560	50,560	50,560	50,560	50,560	50,560
Duval	14,063	14,063	14,063	14,063	14,063	14,063
Hidalgo	41,926	41,926	41,926	41,926	41,926	41,926
Jim Hogg	24,414	24,414	24,414	24,414	24,414	24,414
Jim Wells	27,886	27,886	27,886	27,886	27,886	27,886
Kenedy	51,778	51,778	51,778	51,778	51,778	51,778
Kleberg	50,701	50,701	50,701	50,701	50,701	50,701
Live Oak	11,434	11,434	11,434	11,434	11,434	11,434
McMullen	510	510	510	510	510	510
Nueces	9,009	9,009	9,009	9,009	9,009	9,009
San Patricio	19,013	19,013	19,013	19,013	19,013	19,013
Starr	7,526	7,526	7,526	7,526	7,526	7,526
Webb	3,002	3,002	3,002	3,002	3,002	3,002
Willacy	20,013	20,013	20,013	20,013	20,013	20,013
Total	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**

TABLE 3: MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER SUMMARIZED BY REGIONAL WATER PLANNING AREA IN GROUNDWATER MANAGEMENT AREA 16 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**
M	147,441	147,441	147,441	147,441	147,441	147,441
N	210,649	210,649	210,649	210,649	210,649	210,649
Total	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**

TABLE 4: MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER SUMMARIZED BY RIVER BASIN IN GROUNDWATER MANAGEMENT AREA 16 FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR.

River Basin	Year					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Nueces	21,871	21,871	21,871	21,871	21,871	21,871
Nueces-Rio Grande	297,471	297,471	297,471	297,471	297,471	297,471
Rio Grande	13,469	13,469	13,469	13,469	13,469	13,469
San Antonio-Nueces	25,279	25,279	25,279	25,279	25,279	25,279
Grand Total	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**

TABLE 5: MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) IN GROUNDWATER MANAGEMENT AREA 16 FOR EACH DECADE BETWEEN 2010 AND 2060. RESULTS ARE IN ACRE-FEET PER YEAR. UWCD REFERS TO UNDERGROUND WATER CONSERVATION DISTRICT. ASRCD REFERS TO AQUIFER STORAGE & RECOVERY CONSERVATION DISTRICT.

Groundwater Conservation District	Year					
	2010	2020	2030	2040	2050	2060
Bee GCD	10,600	10,600	10,600	10,600	10,600	10,600
Brush Country GCD	68,846	68,846	68,846	68,846	68,846	68,846
Corpus Christi ASRCD	2,526	2,526	2,526	2,526	2,526	2,526
Duval County GCD	14,063	14,063	14,063	14,063	14,063	14,063
Kenedy County GCD	97,335	97,335	97,335	97,335	97,335	97,335
Live Oak UGCD	11,434	11,434	11,434	11,434	11,434	11,434
Mcmullen GCD	510	510	510	510	510	510
Red Sands GCD	584	584	584	584	584	584
San Patricio GCD	18,367	18,367	18,367	18,367	18,367	18,367
Starr County GCD	7,526	7,526	7,526	7,526	7,526	7,526
Total (excluding non-district areas)	**231,791**	**231,791**	**231,791**	**231,791**	**231,791**	**231,791**
No District	126,299	126,299	126,299	126,299	126,299	126,299
Total (including non-district areas)	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**	**358,090**

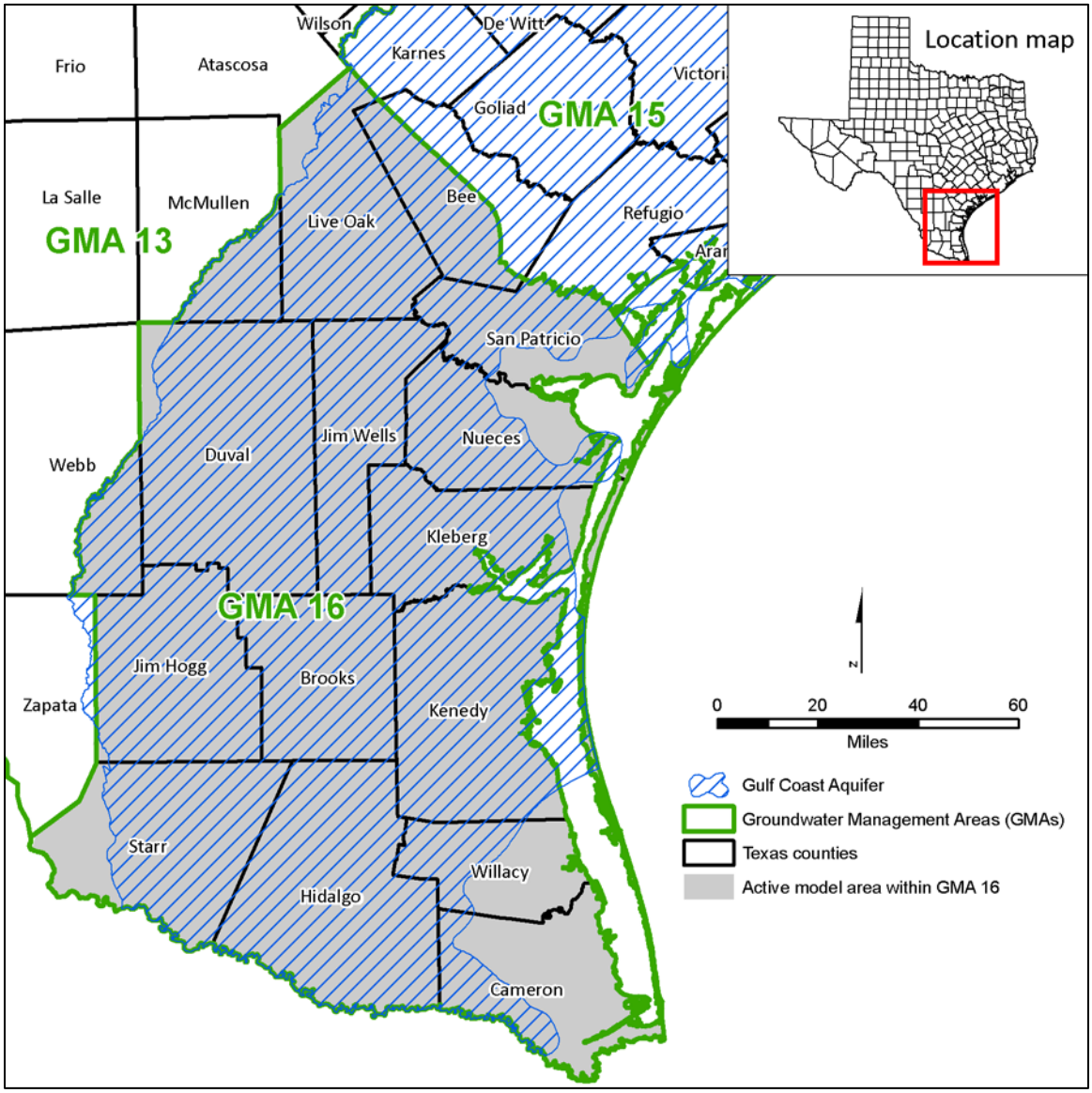

FIGURE 1: MAP SHOWING THE AREAS COVERED BY THE GROUNDWATER MODEL FOR GROUNDWATER MANAGEMENT AREA 16 WHICH INCLUDES THE GULF COAST AQUIFER.

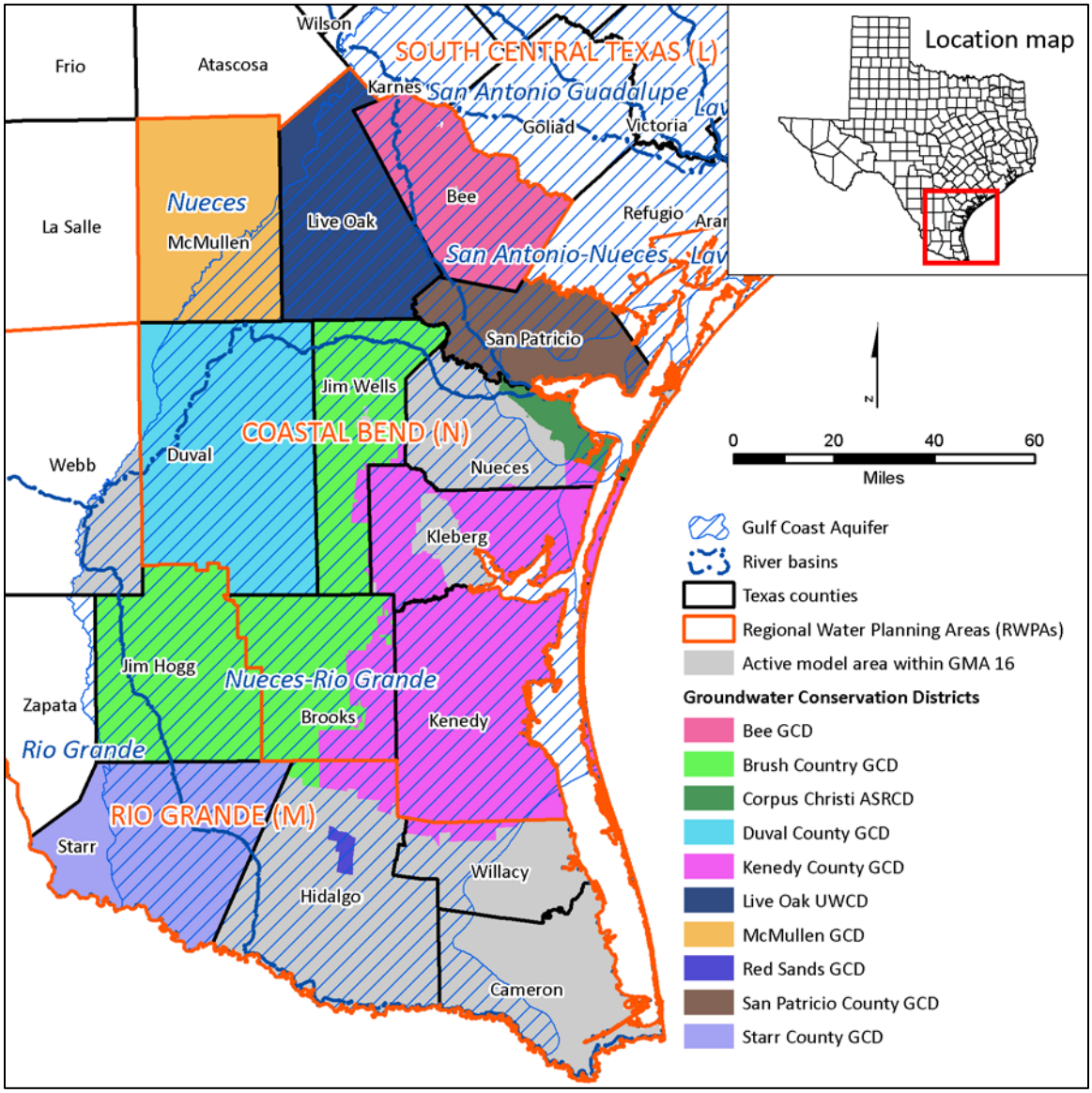

FIGURE 2: MAP SHOWING REGIONAL WATER PLANNING AREAS (RWPAS), GROUNDWATER CONSERVATION DISTRICTS (GCDS), COUNTIES, AND RIVER BASINS IN GROUNDWATER MANAGEMENT AREA 16.