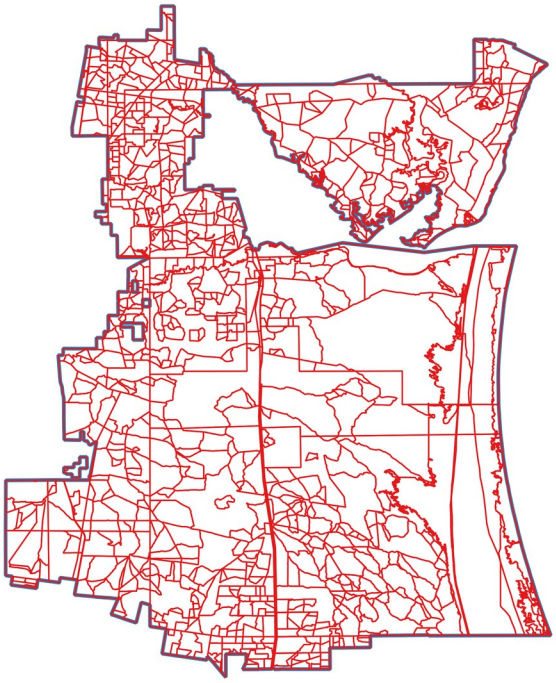
Kenedy County Groundwater Conservation District's Management Plan



Original Plan Adopted by KCGCD: July 6, 2007
Original Plan Approved by TWDB: September 11, 2007
2012 Plan Adopted by KCGCD: July 25, 2012
2017 Plan Adopted by KCGCD: May 24, 2017
2023 Plan Adopted by KCGCD: January 18, 2023

Board of Directors

Esteban Lopez, Secretary(Precinct 1)
Edward Bordovsky, President (Precinct 2)
Sonny Burns, Director (Precinct 3)
Daniel Y. Butler, Director (Precinct 4)
Verl Cash, Vice-President (Precinct 5)

Prepared by:

Andy Garza
General Manager
Kenedy County Groundwater Conservation District
Kenedy County Appraisal District Office Building
361-294-5336

With Assistance by:

Leo Villareal
District Administrator
100 E. Kleberg, Suite 304
P.O. Box 1433
Kingsville, Texas 78364-1433
(361) 592-9347

Venkatesh Uddameri, Ph.D., P.E.
Technical Consultant
Department of Civil and Environmental Engineering, Lamar University, Beaumont, TX
(361)-219-4178

TABLE OF CONTENTS

Table of Contents

TABLE OF EXHIBITS

TABLE OF APPENDICES

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT'S MANAGEMENT PLAN

I. DISTRICT MISSION

The Kenedy County Groundwater Conservation District's (District) mission is to develop and implement an efficient, economical and environmentally sound groundwater management program to manage, protect and conserve the groundwater resources of the District, consistent with Chapter 36 of the Texas Water Code. The District's policies and actions will be consistent with the fact that a landowner owns the groundwater below the surface of the landowner's land as real property.

II. PURPOSE OF THE MANAGEMENT PLAN

Senate Bill 1 (SB 1), enacted in 1997, and Senate Bill 2 (SB 2), enacted in 2001, established a comprehensive statewide planning process, including requirements for groundwater conservation districts under Texas Water Code Chapter 36 to provide conservation, preservation, protection, recharging and prevention of waste for the groundwater resources of the State of Texas. This legislation requires that each groundwater conservation district develop a management plan that defines the district's water needs and supply within the district and establishes goals that the district will use to manage groundwater in order to meet those needs.

House Bill 1763, enacted in 2005, requires joint planning among districts that are in the same Groundwater Management Area (GMA). These districts must establish the desired future conditions of the aquifers within their respective GMAs. Through this process, the districts will submit the desired future conditions to the executive administrator of the Texas Water Development Board (TWDB). The TWDB will calculate the modeled available groundwater in each groundwater district within the management area based on the desired future conditions of the aquifers in the GMA. Once this has been accomplished, each district must include this information in its groundwater management plan.

Further, the District is required to adopt Rules necessary to implement the management plan. The District must consider whether permits are consistent with the management plan. Production limits must be consistent with the plan. More recently, HB 722, enacted in 2019, allows districts to develop production Rules pertaining to brackish groundwater in designated and non-designated zones as well.

III. DISTRICT INFORMATION

A. Creation

The District was created in 2003 by the 78th Texas Legislature under H.B. 3374. It was confirmed by an election held on November 2, 2004. As of January 2011, the District has received petitions from landowners in Brooks, Hidalgo, Jim Wells, Kleberg, and Willacy counties requesting annexation into the District. These petitions were approved by the Board. The maps on the cover and in Exhibit A depict the current boundaries of the District.

B. Directors

The Board of Directors consists of five members - one Director from each Precinct. These five directors are elected by the voters of their Precinct and serve four-year terms. Precinct 1 consists of Kenedy County's Precinct 1 and the King Ranch Laureles Division. Precinct 2 consists of Kenedy County's Precinct 2, part of Kleberg County north of Precinct 2, and the Southeast section of the Santa Gertrudis ISD. Precinct 3 consists of Kenedy County's Precinct 3 and all of the annexed tracts of land in Brooks and Hidalgo counties and westernmost part of Willacy County. Precinct 4 consists of Kenedy County's Precinct 4 and the annexed tracts of land in the easternmost part of Willacy County. Precinct 5 consists of the Santa Gertrudis ISD, less the southeastern section thereof, and all of the annexed tracts of land in Jim Wells and Kleberg County, except for the portion that is part of Precinct 2. Director four-year terms are staggered with a two year interval. Directors from Precincts 1 and 5 serve the same term, while directors from Precincts 2, 3, and 4 serve the same term. Elections are held in November in even numbered years. See Exhibit A for a map of the District showing the five Precincts.

C. Taxing Authority

The District has the taxing authority provided by its enabling legislation and Texas Water Code, Chapter 36, specifically section 36.020. The levy of a maintenance tax at a rate not to exceed 5 cents for each $100 of assessed valuation was approved by the voters on November 2, 2004. To date, the tax rate has not exceeded 5 cents for each $100 of assessed valuation.

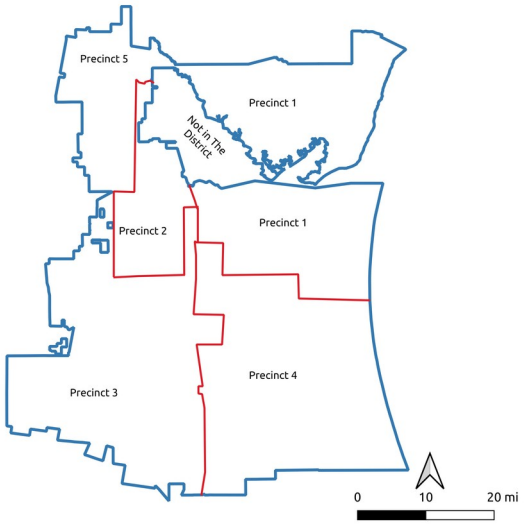


Exhibit A: District Map Showing Directors' Precincts

C. Authority

According to its enabling legislation, the District has all of the powers, authority, and duties of a Texas Water Code Chapter 36 groundwater conservation district. Therefore, it has the duty to provide for the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and to control subsidence. Under Chapter 36 it has the duty to develop this groundwater management plan to express how the District will meet those duties.

Under Chapter 36 the District has the authority to adopt and enforce Rules, including Rules to limit groundwater production, to provide for conserving, preserving, protecting, and recharging groundwater, to control subsidence, to prevent degradation of water quality, and to prevent waste of groundwater. The District has many other powers that are enumerated in Chapter 36 allowing it to accomplish its duties.

D. General Description of the District

The District includes all territory located within Kenedy County, except for a small portion and parts of Brooks, Hidalgo, Jim Wells, Kleberg, Nueces, and Willacy counties. The boundaries are shown in Exhibit B. The District encompasses approximately 3,028 square miles and is part of groundwater management area 16 (GMA-16). The primary economic activities within the District are oil and gas production and agriculture,

primarily livestock. While the District does not include a large-sized city or township, it is close to the City of Kingsville, which has traditionally relied on groundwater supplies.

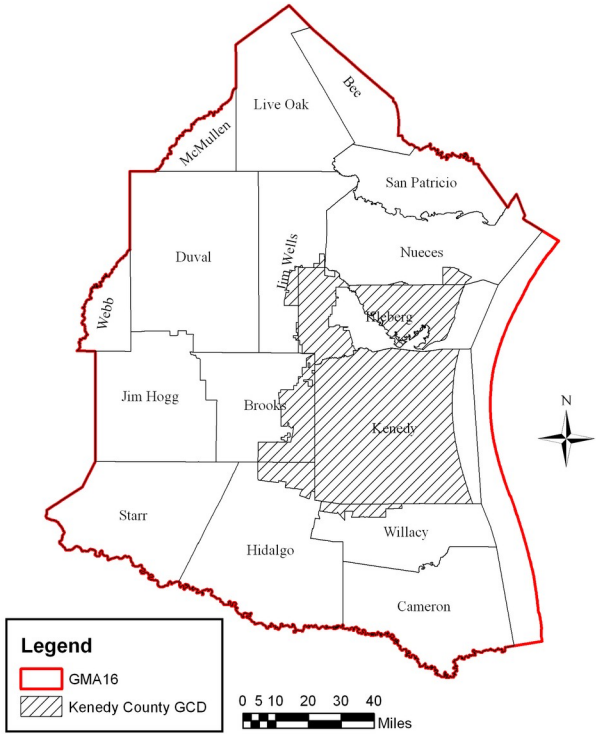


Exhibit B: Kenedy County GCD and GMA-16 (Current as of February 2022)

E. Aquifer and Stratigraphic Units

The District is underlain by the Gulf Coast Aquifer, which is a large, leaky aquifer system that spans along the Gulf of Mexico. The aquifer consists of interbedded deposits of sands, silt and clay. The Gulf Coast aquifer is sometimes further classified into four major aquifers: the Chicot, Evangeline, Burkeville confining unit and Jasper aquifers (Baker, 1979).

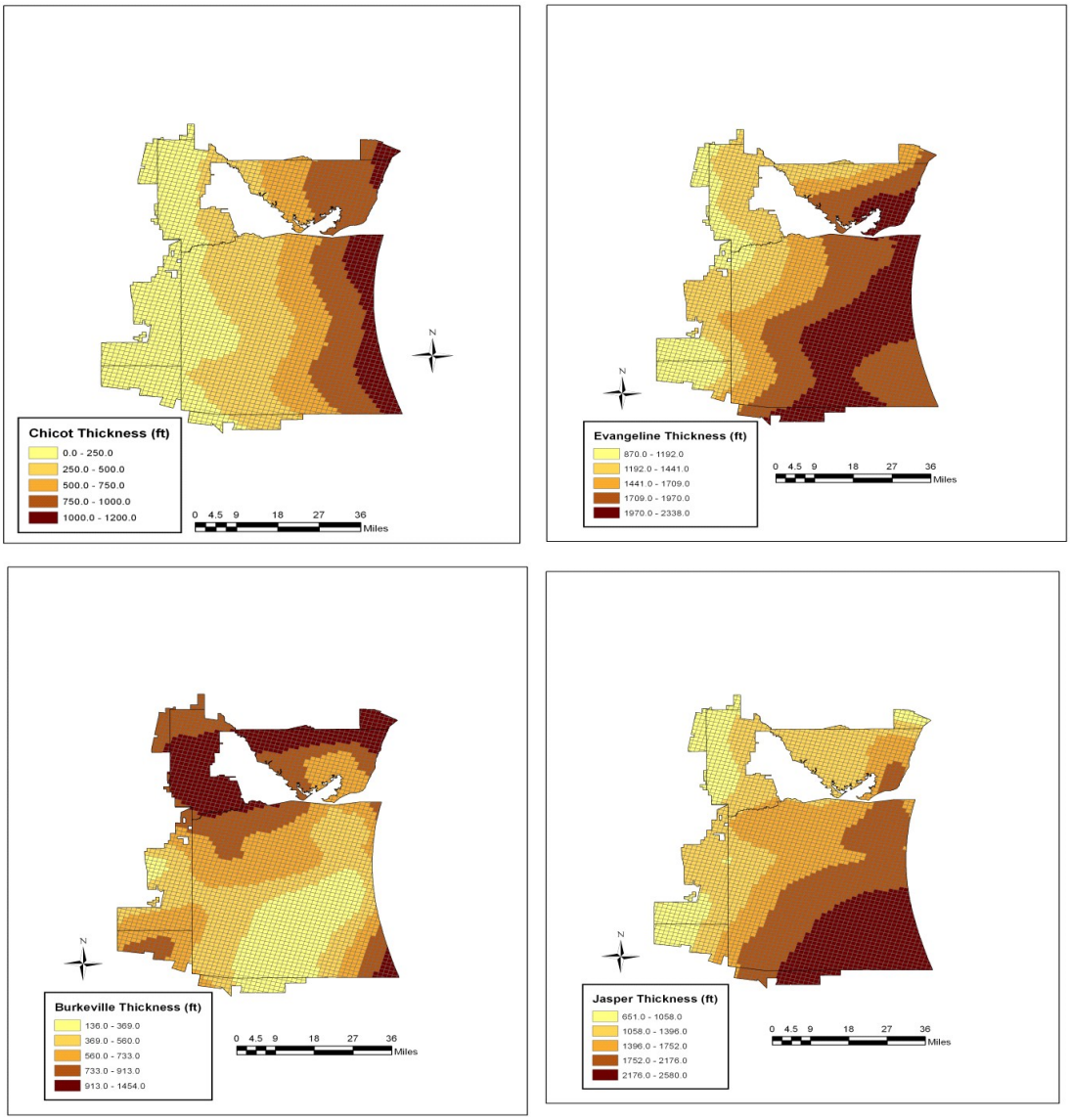


Exhibit C: Aquifer Thickness of the Gulf Coast Aquifer (Data from Hutchinson et al., 2011)

The thicknesses of the aquifers found within the District are depicted in Exhibit C, which is based on the conceptualization used in GMA-16 GAM model (Hutchison et al., 2011). In addition, select cross-sectional maps and general information regarding the thicknesses of these aquifers, their variability and the extent of sand thicknesses have been summarized by Chowdhury and Mace (2007) and Waterstone (2004).

As can be seen from Exhibit C, the thicknesses of the aquifers increase eastward towards the coast (Baker, 1979). The Chicot aquifer covers the surface of the District and is the aquifer that is directly recharged by precipitation. The thickness of the Chicot aquifer is very small: 20 – 100 feet in the western sections of the District. The water quality of this aquifer is characterized by high total dissolved solids (TDS), especially near the coast.

As result, this aquifer currently is not used for major water supply purposes. Based on the thicknesses, groundwater supply wells tap into Chicot and Evangeline aquifers along the eastern sections of the District, while major water supply wells tap into Evangeline and possibly Jasper aquifers along the western sections of the District.

F. Surficial Soil Texture Characteristics

A surficial soil texture map for the District was prepared using the USDA STATSGO database and is depicted in Exhibit D.

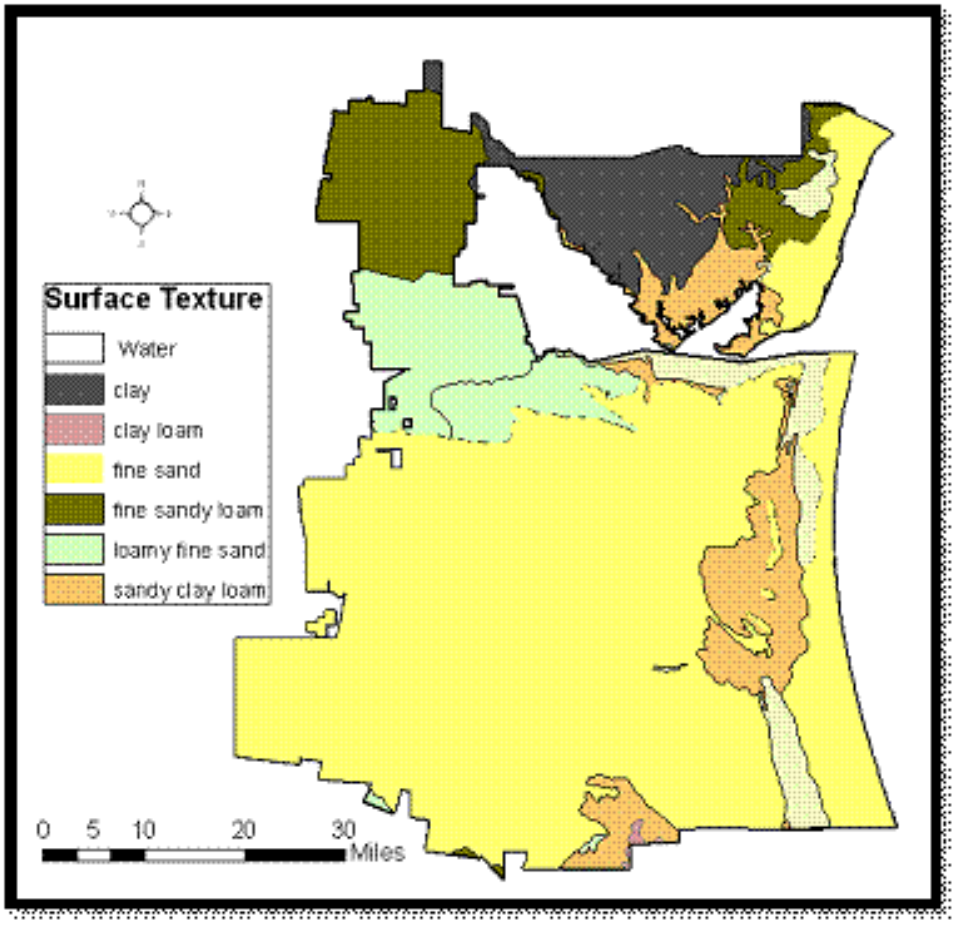


Exhibit D: Major Surfacial Soils within KCGCD (Data from USDA STATSGO, 2012)

The surficial soils within the District range from clayey soils to fine sands. The silt and clay deposits are commonly referred to as the Beaumont Clay and Lissie Formation and they outcrop in the eastern sections of Kleberg, Kenedy and Nueces counties. Most of the District is overlain by tan to white, unfossilferous, fine to very fine sand deposits that are intermixed with clay and sandy clay that are referred to as South Texas eolian plain

deposits. They are primarily comprised of windblown sediments (Shafer and Baker, 1973). The barrier island and beach deposits of the Pleistocene age crop out in an area 4 to 8 miles wide bordering the landward side of the Laguna Madre and are mostly comprised of fine sands (Shafer and Baker, 1973). Beaumont and Lissie clay formations can be found in the southeastern portions of Kenedy County.

While a major portion of the District is covered by fine sandy deposits, these deposits are predominantly windblown and are underlain by Beaumont clays and Lissie formations (consisting of clays, silts and sands). As a result, recharge to the underlying aquifer is expected to be fairly limited. Most of the infiltrated water in these sandy deposits is hypothesized to flow laterally eastwards towards the Gulf of Mexico, especially when it encounters tight clayey units.

G. Land Use and Land Cover Characteristics

The District consists predominantly of range land supporting a mixture of herbaceous and woody vegetation. The District has no urban areas. (See Exhibit E). Agriculture and livestock demands are of critical importance within the District, although there is minimal irrigated agriculture within the District. In addition to livestock and agricultural uses, groundwater supplies for oil and natural gas production are important as well, although to date groundwater use for this purpose has been small. While the District does not include a large-sized city or township, it is close to the City of Kingsville, which has traditionally relied on groundwater supplies. Model results (Chowdhury et al., 2004; Hutchison et al., 2011) indicate a cone of depression around the Kingsville area, indicating that groundwater could be flowing out of the District boundaries, especially in the northwestern sections of the District.

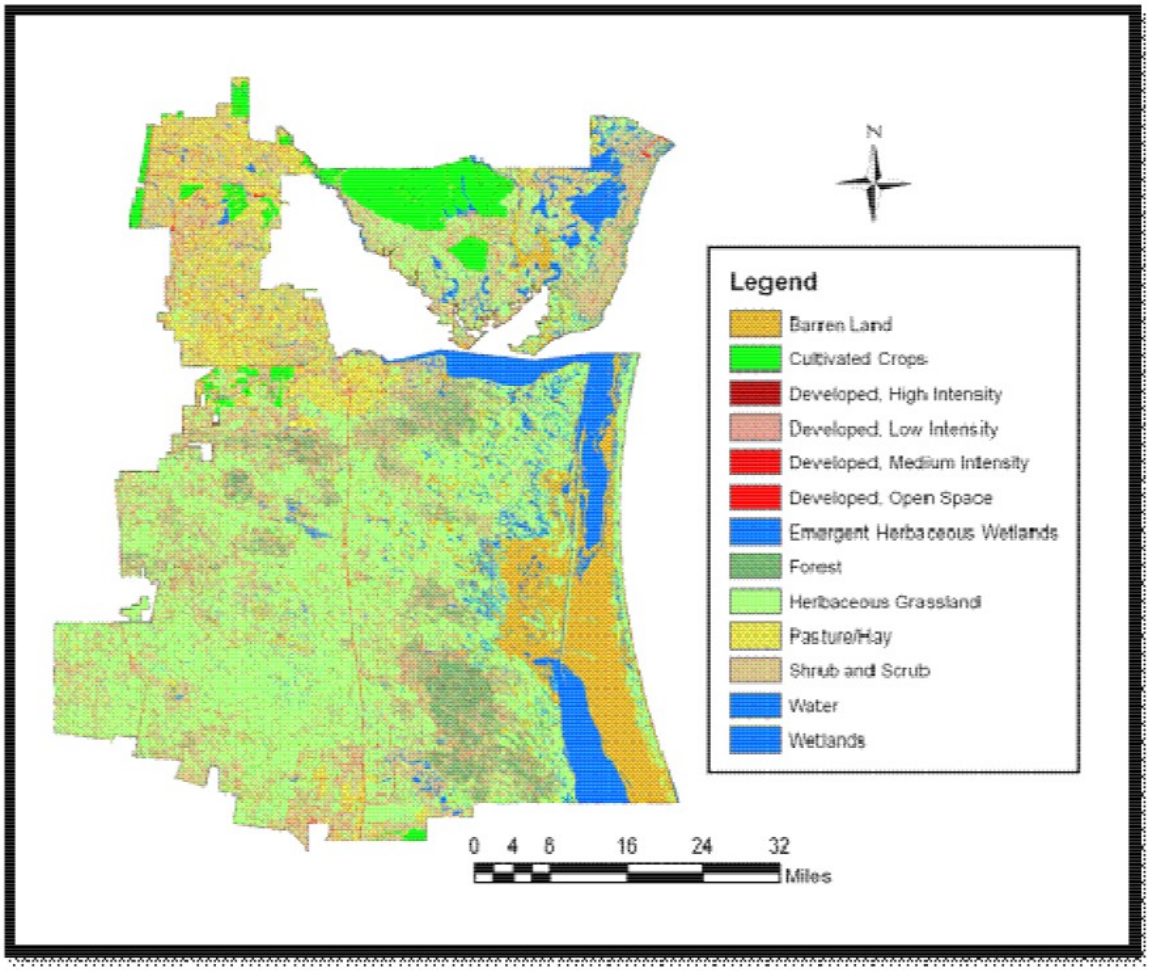


Exhibit E: Land Use Land Cover (LULC) Charcterisics [Based on USGS Multi-Resolution Land Cover (MRLC) Dataset, 2006]

H. Land Slopes

Land slopes were calculated using ArcGIS Spatial Analyst extension using 1:250K Digital Elevation Models (DEM) and are depicted in Exhibit F. The District consists primarily of gently rolling plains with a relatively flat topography especially near the coast. The regional-scale slopes are typically less than 1%. Greater slopes may be found at scales smaller than the one used for this assessment. The gentle slopes are again indicative of relatively small groundwater-surface water interaction.

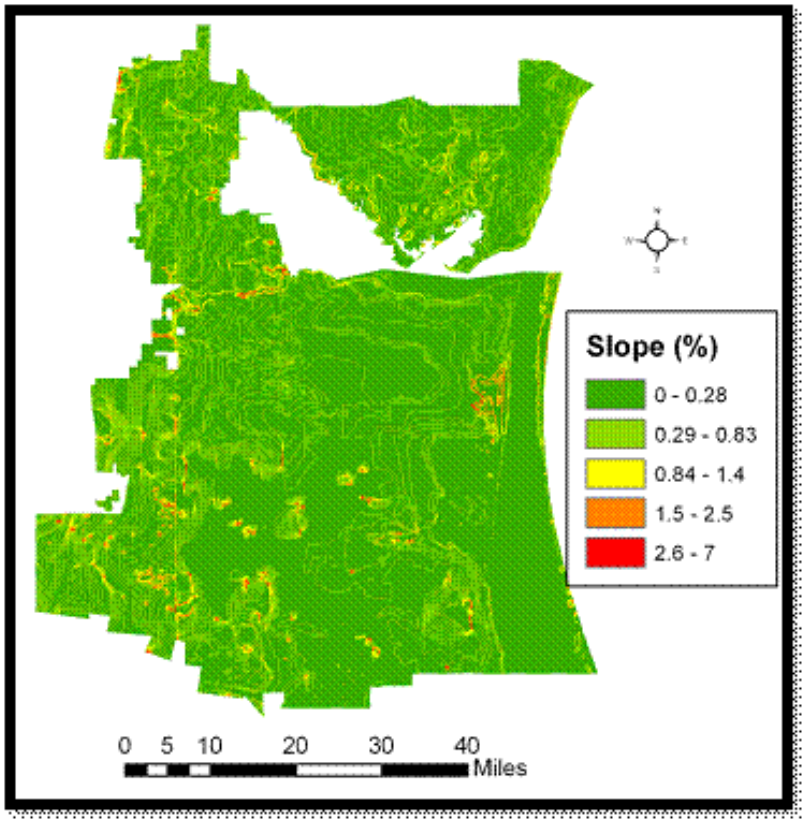
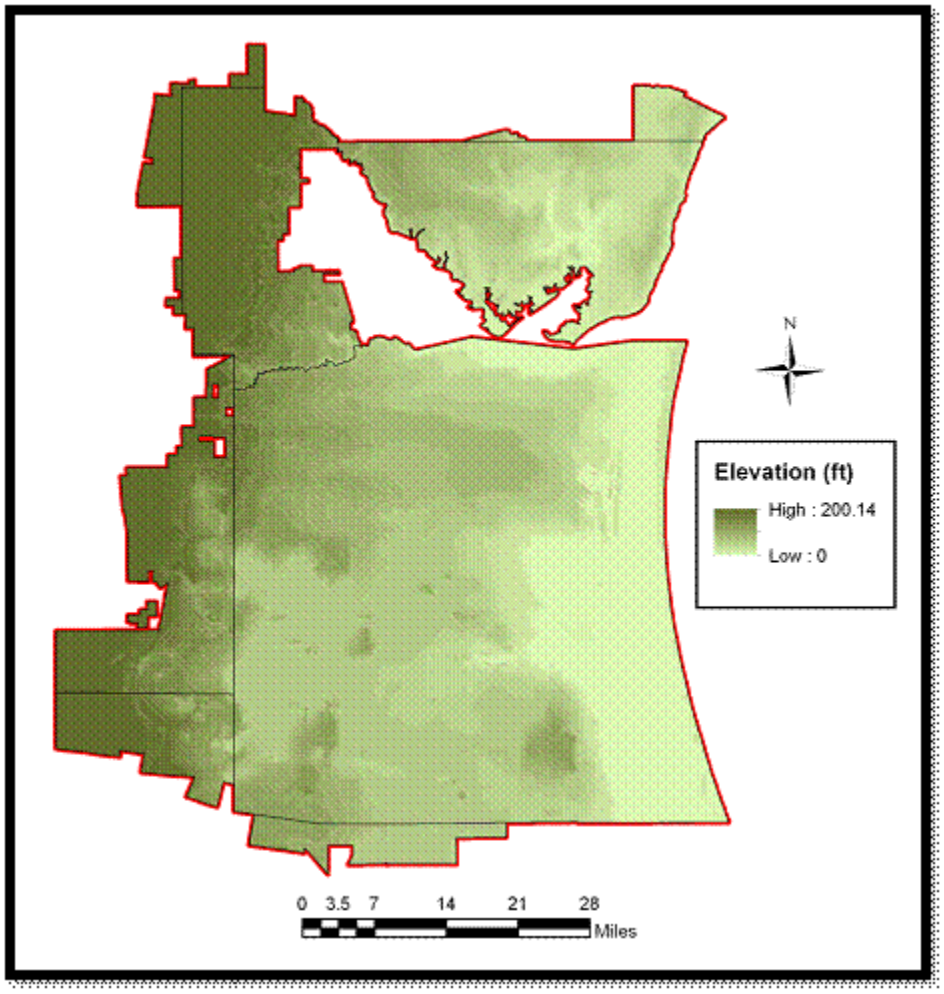


Exhibit F: Calculated Topographic Slopes within KCGCD (Based on USGS 30-M Digital Elevation Model, 2012)

I. Topography

The topographic digital elevation map (DEM) was intersected for the District and is depicted in Exhibit G. The elevation within the District slopes in the east-south-east direction. The elevation ranges from roughly 200 feet in the western sections of the District to about mean sea level in the eastern sections of Nueces, Kleberg and Kenedy counties. The gently sloping topography indicates the general direction of groundwater flow in the aquifers (moving in northwest to southeastern directions).



IV. STATEMENT OF GUIDING PRINCIPLES

The District recognizes that its groundwater resources are of vital importance. The use of this most valuable resource can be managed in a prudent and cost effective manner through education, cooperation and development of a comprehensive understanding of the aquifers in the District. The greatest threat to the District's ability to achieve its stated mission is the inappropriate management of its groundwater resources due to a lack of understanding of local conditions. The District's management plan is intended to to provide focus to the District's Board of Directors and staff, who must implement the District's duties and authority under Texas Water Code Chapter 36 and the District's enabling legislation.

V. CRITERIA FOR PLAN CERTIFICATION

A. Planning Horizon

This 2022 Plan becomes effective upon adoption by the District Board of Directors (Board) and subsequent approval by the Texas Water Development Board (TWDB). This Plan uses a ten-year planning horizon. As required by Texas Water Code §36.1072(e), the plan will be reviewed and readopted, with or without revisions, every five years. The plan may be reviewed and revised annually as necessary to address any changes in law, new or revised data, Groundwater Availability Models, or District management strategies. Under Texas Water Code § 36.1082(b)(5), enacted in 2011, the Plan must be reviewed and revised within two years of the adoption of desired future conditions for GMA-16. This revision fulfills both the required five-year update and the post-DFC adoption update.

B. Board Resolution

Certified copy of the Kenedy County Groundwater Conservation District resolution adopting the 2023 Plan, as required by 31 TAC §356.6(a)(2).

A certified copy of the Kenedy County Groundwater Conservation District resolution adopting the 2023 Plan is attached as Appendix A – Board Resolution.

C. Plan Adoption

Evidence that the plan was adopted after notice and hearing, as required by 31 TAC §356.6(a)(4).

Public notice documenting that the 2023 Plan was adopted following appropriate public notice and hearing is attached as Appendix B – Notice of Hearing.

D. Coordination with Surface Water Management Entities

Evidence that following notice and hearing the District coordinated in the development of its management plan with surface water management entities, as required by Texas Water Code § 36.1071(a).

While South Texas Water Authority is currently not active within the boundaries district, it is acknowledged that its boundaries do extend into the district. Letters transmitting a draft of this 2022 Plan for comments by Region M (Rio Grande Regional Water Planning Area) and Region N (Coastal Bend Regional Water Planning Group) are included in Appendix C – Letter to Surface Water Management Entities/Regional Water Planning Groups. Appendix C also includes letters transmitting the adopted 2022 Plan to these Regional Water Planning Groups.

VI. TECHNICAL INFORMATION REQUIRED BY TEXAS WATER CODE §36.1071 AND 31 TAC § 356.5

A. Modeled available groundwater

Estimate of the modeled available groundwater in the District based on the desired future condition of the aquifers developed under Texas Water Code § 36.108, as required by Texas Water Code § 36.1071(e)(3)(A) and 31 TAC § 356.5(a)(5)(A).

Modeled available groundwater is defined in the Texas Water Code, Section 36.001, Subsection (25), as "the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108." Under Texas Water Code § 36.108(d), the desired future condition may only be determined through joint planning with other GCDs in the same GMA. The District is located in GMA-16. See Exhibit B.

The most recent Modeled Available Groundwater for the District was estimated to be 15,846 AFY for the year 2020 which progressively increases to 17,709 AFY in 2030 to 27,030 in 2080 (see Exhibit H). The MAG values correspond to a Desired Future Condition (DFC) of 78 feet of average drawdown of the Gulf Coast Aquifer System at Dec. 2080 and obtained using the State approved Groundwater Availability Model (GR21-021 MAG). Additional details related to joint planning and modeling runs performed can be found in (Cha, 2022).

Year	**Gulf Coast**	**Kenedy GCD**
2020	229,165	15,846
2030	245,750	17,709
2040	260,295	20,506
2050	274,343	22,369
2060	289,263	25,165
2070	294,103	27,030
2080	294,103	27,030

Exhibit H: Modeled Available Groundwater (Data from Cha, 2022)

B. Annual groundwater use

Estimate of the amount of groundwater being used within the District on an annual basis, as required by Texas Water Code § 36.1071(e)(3)(B) and 31 TAC § 356.5(a)(5)(B). (All site-specific information relied upon in developing this estimate has previously been provided to the Executive Administrator for comment, as required by Texas Water Code §36.1071(b) and 31 TAC § 356.5(b)).

Historical estimates of the amount of groundwater being used within the District on an annual basis were developed based on county-wide estimates for groundwater use that were provided by the Texas Water Development Board (Allen, 2022; Appendix D) and is based on the 2019 Historical Water Use Survey (WUS), and represents the most up-to-date WUS and 2022 State Water Plan (SWP) data available as of 1/10/2022. Because the District encompasses only portions of some counties and site-specific measurements were not available, the county-wide water use was apportioned based on the fraction of the land area within the District. The land fractions and district wide apportionments were provided by Allen (2022) in the January 10, 2022 report (included in Appendix D). Based on the groundwater use data (most recent 15 years for which data are available) presented in Exhibit H, the amount of groundwater used in the District is estimated to be approximately 8,600 acre-feet/year.

County	Municipal	Manufacturing	Mining	Steam & Electric	Irrigation	Livestock	Total
Brooks (27.88%)	356	0	0	0	157	82	595
Hidalgo (7.20%)	766	0	34	86	288	17	1191
Jim Wells (5.14%)	61	0	0	0	91	21	173
Kenedy (100%(	79	0	8	0	0	611	698
Kleberg (81.75%)	2808	812	14	0	172	383	4189
Nueces (4.04%)	46	96	30	0	18	7	197
Willacy (10.92%)	31	0	0	0	0	5	9

Exhibit I: Groundwater Use within KCGCD (Data from Allen, 2022)

As depicted in Exhibit I, the District is predominantly rural. Groundwater is the major source of water supply for the residents of the District. In addition, the District is in close proximity to the City of Kingsville, which historically has relied on groundwater supplies for its municipal use. The City of Kingsville uses nearly 3,500 acre-feet of water annually, which is extracted from the Evangeline (Goliad sands) aquifer formation. There are also mining and oil and gas activities both within the District and in the vicinity of the District that rely on groundwater resources. Hence, it is important to measure and evaluate groundwater levels in the District. Long-term monitoring of groundwater levels is also necessary to evaluate compliance with the adopted desired future conditions (DFCs).

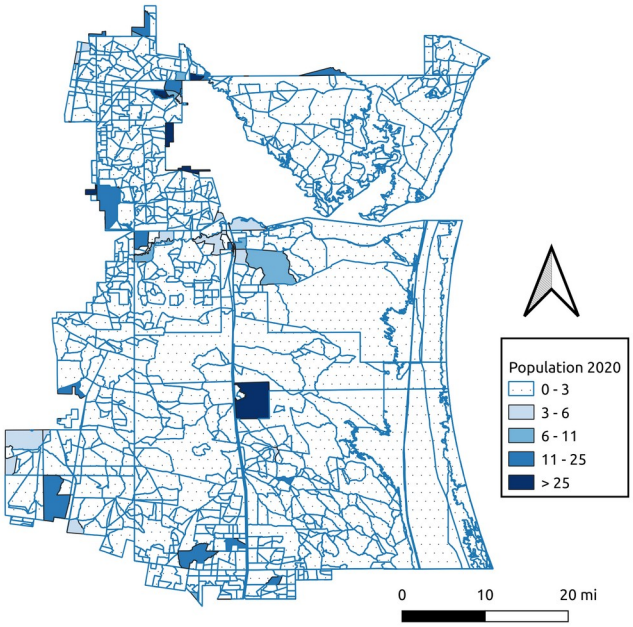


Exhibit J: Population Distribution within KCGCD (Based on Data from US 2020 Census)

The District has established a groundwater monitoring program with the goal of measuring groundwater levels semi-annually in a network of more than 45 water wells. Exhibit K depicts the location of these monitored wells. Beginning in 2012, the District will be performing water quality analyses on a subset of approximately15 of these wells. Water from this subset of monitored wells will be analyzed for electrical conductivity, total dissolved solids, and pH to develop a basic understanding and historical record of water quality in the aquifers. The network provides a comprehensive coverage of the District. The lack of wells in the network along the coast is reflective of limited groundwater production in that area but efforts are underway to identify additional wells for inclusion in the network.

In addition to the long-term monitoring network, the District undertook the collection of water level measurements and water quality samples in 11 water wells as part of a project to establish background water quality data prior to initiation of uranium exploration under a Railroad Commission permit issued for land within the District. These samples were analyzed for metals and uranium, anions, alkalinity, ammonia, Radium 226, and gross alpha and beta activity. This information is available from the District upon request.

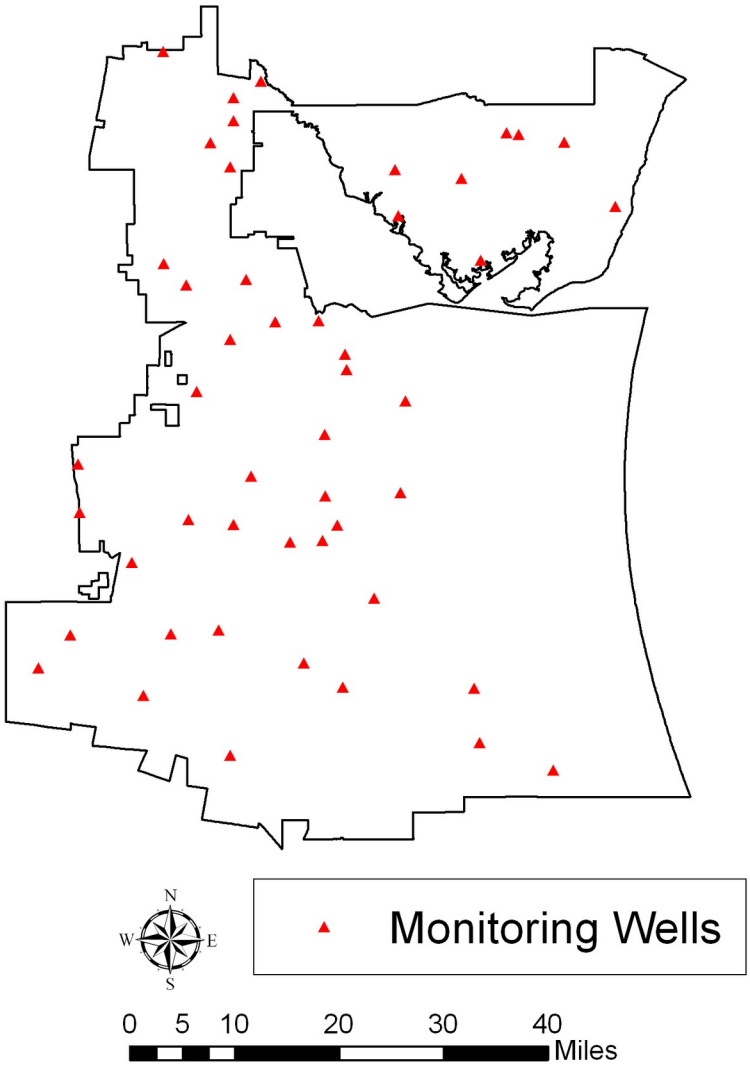


Exhibit K: District's Groundwater Level Monitoring Network as of January 2022

C. Annual recharge from precipitation

Estimate of the annual amount of recharge from precipitation to the groundwater resources within the District, as required by Texas Water Code § 36.1071(e)(3)(C) and 31 TAC § 356.5(a)(5)(C). No site-specific information was used in developing this estimate.

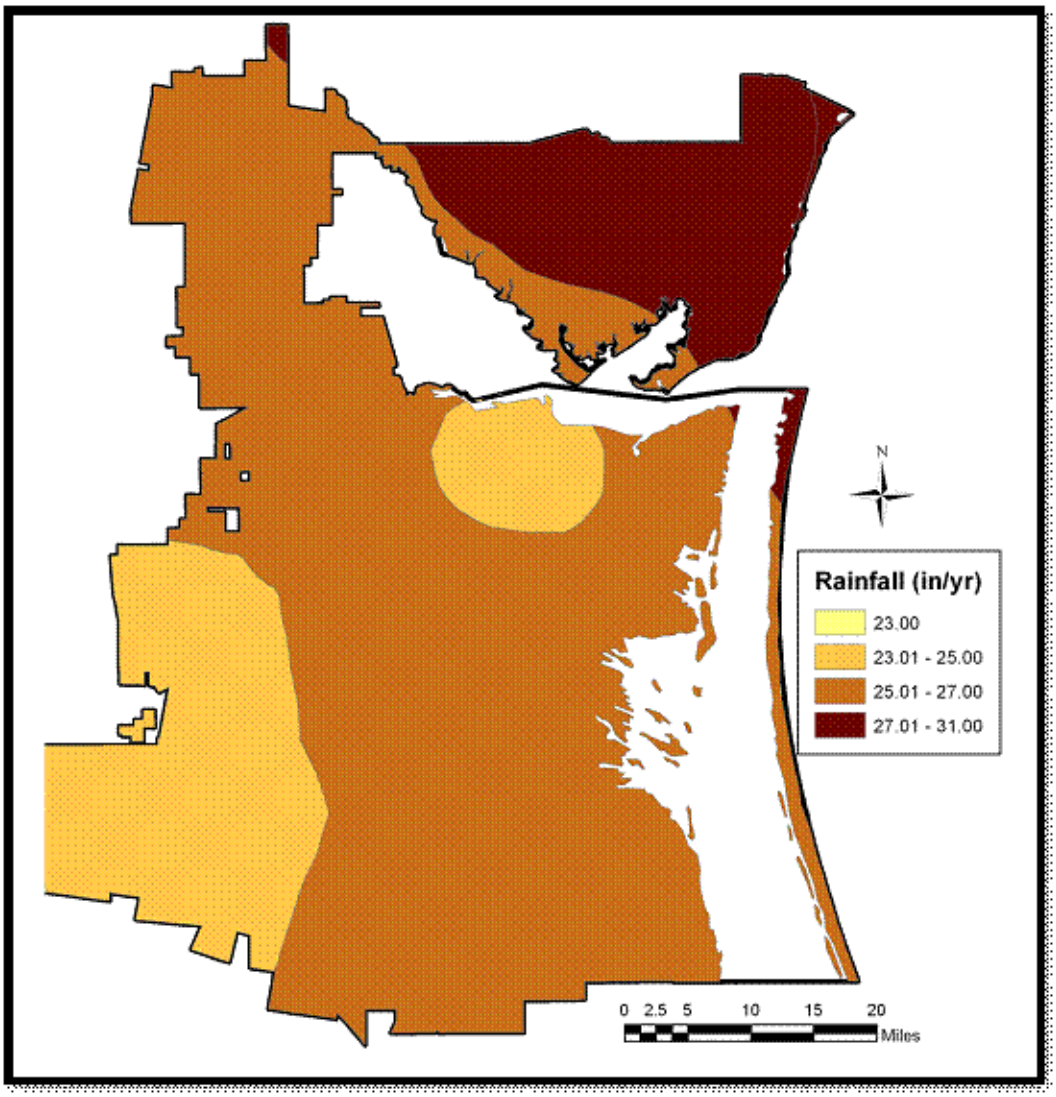


Exhibit L: Long-Term Average Precipitation Profile (Based on Data from PRISM Climate Group 2012)

Precipitation information was used in conjunction with soils information to derive recharge characteristics. The climate in South Texas is characterized by mild winters and dry summers. The long term average precipitation data were used to develop the precipitation contour map depicted in Exhibit L. The average annual precipitation is roughly 24 in/yr indicating that the recharge to the shallow aquifer is probably in the order of 0.024 in/yr. Field measured values for recharge specific to the District could not be found. The estimate is consistent with Groschen (1985), where a recharge value of 0.05 in/yr was used for the unconfined portions of the Evangeline aquifer covering from San Patricio to Jim Hogg counties. Chowdhury and Mace (2003) estimated recharge from precipitation to vary between 0.08 in/yr (toward the coast) to about 0.14 in/yr in the region covered by the District. Recently Hutchinson et al. (2011) developed a GMA-16 GAM that was calibrated over the period of 1963 – 1999. A map of the calibrated

recharge values corresponding to the year 1999 (the last year of the GAM model calibration) was developed and is presented as Exhibit M. The calibrated recharge values are consistent with the estimates presented in earlier studies. As can be seen from Exhibit M, recharge values reflect considerable variability in the District with higher values in the northern sections of the District.

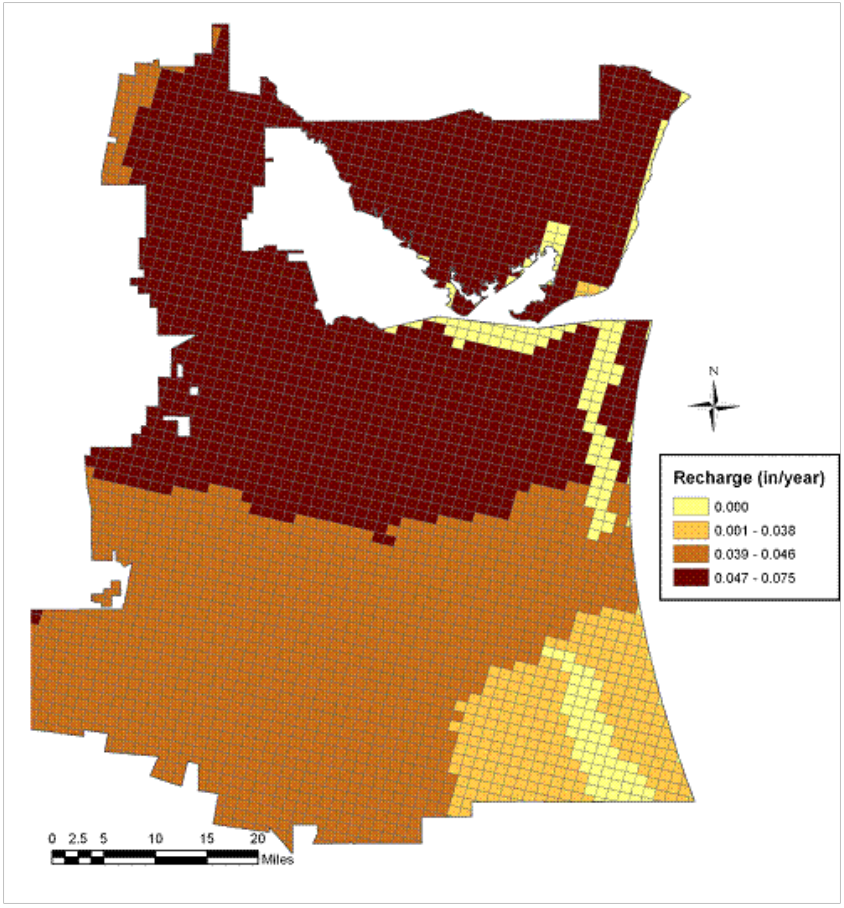


Exhibit M: Recharge Estimates based on GMA-16 GAM (Data corresponds to the last calibrated year of 1999 from Hutchinson et al., 2011)

Groundwater model run, GAM Run GR22-003, was performed by the TWDB (Dowlearn and Wade, 2022; Appendix E) to obtain estimates pertaining to groundwater flow in the District. The GMA-16 GAM (Hutchison et al., 2011) was used to obtain the necessary estimates. As stated in Exhibit N, the recharge from precipitation is estimated to be 6,502 acre-feet/year. For additional details see Dowlearn and Wade, 2022; Appendix E, which includes a copy of GAM Run GR22-003.

Exhibit N: Estimated Recharge from Precipitation using GMA-16 Groundwater Availability Model (Data from Dowlearn and Wade, 2022; see Appendix E).

Parameter	Estimate (AFY)	Remarks
Recharge from Precipitation	6502	Based on GR 22-003

The average estimate of recharge was divided by the area of the District to obtain an approximate average recharge rate of 0.041 inches/year (< 0.2% of average annual rainfall). As seen from exhibit M, there is considerable spatial variability within the District. The water budgets presented by Hutchison et al., 2011, indicate that recharge from precipitation also varies considerably from year to year and is affected by climatic fluctuations. The temporal variations in recharge due to precipitation are summarized in Exhibit O.

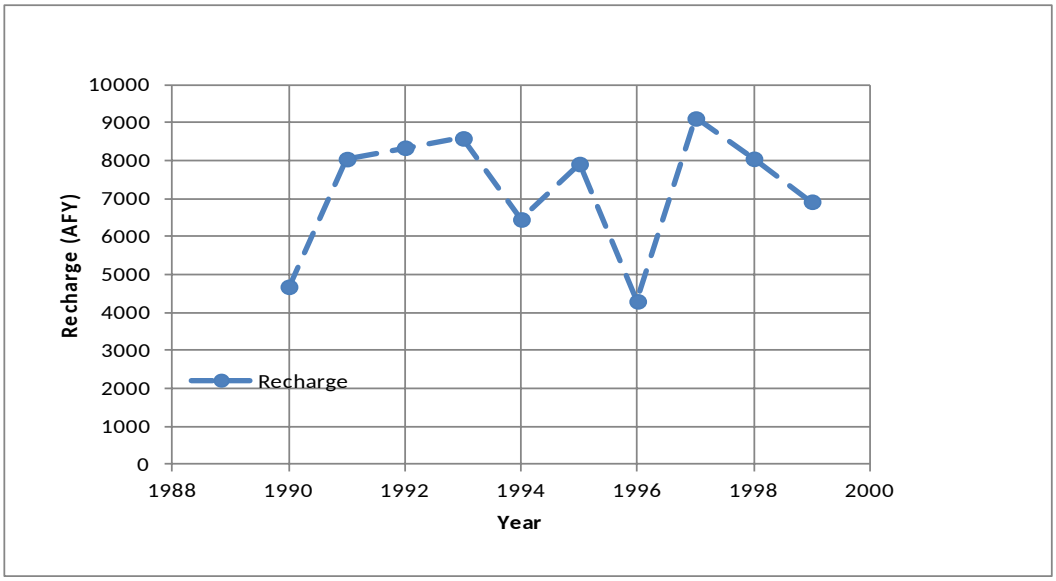


Exhibit O: Temporal Variability in Recharge from Precipitation (in acre-feet/year) Estimated using Water Budgets presented in Hutchison et al., 2011.

D. Annual Discharge to Surface Water Bodies

For each aquifer in the District, estimate the annual volume of water that discharges from the aquifer to springs and any surface water bodies, including lakes, streams, and

rivers, as required by Texas Water Code § 36.1071(e)(3)(D) and 31 TAC §356.5(a)(5)(D). No site-specific information was used in developing this estimate.

No major inland surface water bodies exist within the District (Exhibit P). Also, sensitive coastal water bodies like Baffin Bay and Laguna Madre abut the District. Previous research carried out by Texas A&M University-Kingsville, funded through the National Oceanic and Atmospheric Administration (NOAA), indicates that a significant amount of groundwater (on the order of 1 cm/day) discharges into Baffin Bay at select locations. Hence, coastal groundwater interactions are of local significance along the coast.

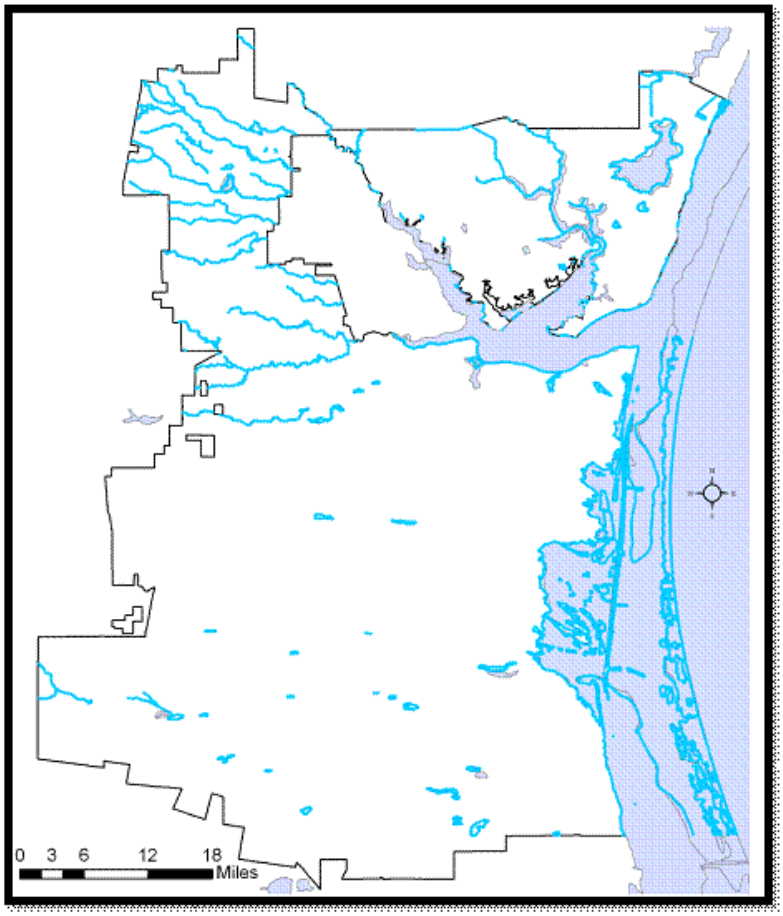


Exhibit P: Major Surface Water Bodies in KCGCD (Based on USGS NHD Dataset 2012)

While there are no major water bodies present, there are several creeks and streams, primarily in the western and northeastern sections of the District. In addition, there are springs arising from artesian flow conditions in the District. Recharge to the shallow aquifer can also occur when rainwater is channelized through gullies and streams. The District did not perform field measurements quantifying stream-aquifer interactions.

Stream gain-loss studies could be performed to better estimate groundwater-surface water interactions. In the absence of field data, surface water-groundwater interactions have been ascertained using model derived groundwater budgets summarized in Exhibit Q.

Exhibit Q: Estimated Groundwater Discharges to Surface Water Bodies using GMA-16 Groundwater Availability Model (Data from Dowlearn and Wade, 2022; see Appendix E).

Parameter	Estimate (AFY)	Remarks
Estimated Annual Volume of Water that Discharges from the aquifer to springs and any surface water body including lakes, streams and rivers	20,158	Obtained from GR 22-003

As with recharge, groundwater discharges to surface water bodies also exhibit considerable temporal variability. Exhibit R depicts the temporal variability over the last 10 years of the calibration period. As can be seen, the groundwater discharges are significantly curtailed during dry periods.

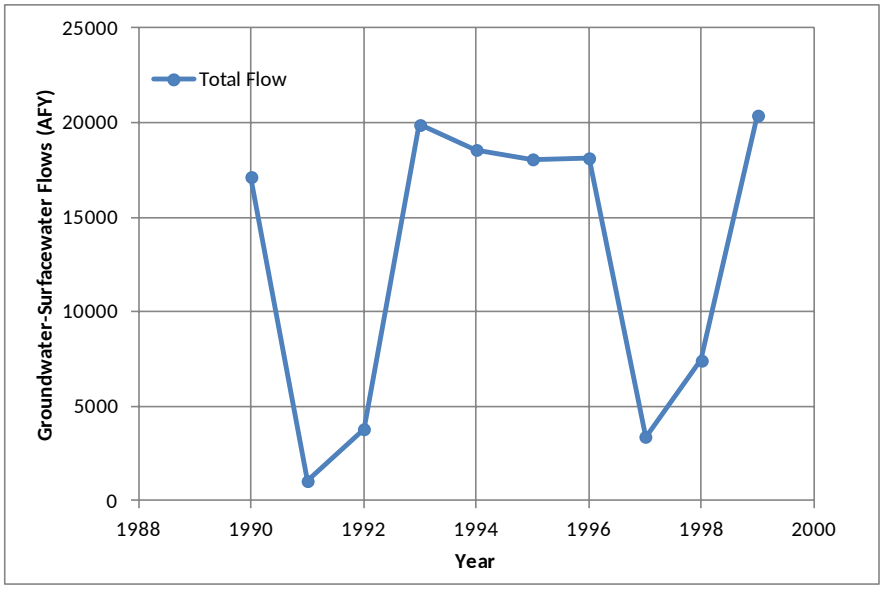


Exhibit R: Temporal Variability of Groundwater Discharges to Surface Water Bodies (in acre-feet/year) in KCGCD using GMA-16 GAM (Based on data from Hutchison et al., 2011 for the period of 1990-1999).

E. Groundwater Flow Into and Out of the District and Between Aquifers in the District

Estimate of the annual volume of flow into and out of the District within each aquifer, and between aquifers, in the District, if a groundwater availability model is available, as required by Texas Water Code § 36.1071(e)(3)(E) and 31 TAC § 356.5(a)(5)(E). Nosite-specific information was used in developing this estimate.)

The groundwater flows into and out of the District are estimated using the horizontal exchange components of the GAM water budget. Generally, flows into the District occur along the western boundaries. The water budget results indicate that there is a net gain from all the inflows into the District under ambient conditions. This result is to be expected because a significant portion of the District lies in the down-dip areas of the Gulf Coast Aquifer. However, it is important to recognize that large-scale groundwater withdrawals in neighboring areas can alter groundwater flow patterns and cause greater amounts of groundwater to leave the District. Exhibit S presents the average annual inflows and outflows from the District. The values are obtained from GAM Run 22-003.

Exhibit S: Estimated Groundwater Discharges along District Boundaries Calculated using GMA-16 Groundwater Availability Model (Data from Dowlearn and Wade, 2022; see Appendix E)

Parameter	Estimate (AFY)	Remarks
Estimated annual volume of flow into the district within each aquifer of the district	39,440	Obtained from GAM Run 22-003
Estimated annual volume of flow out of the district within each aquifer of the district	26,146	Obtained from GAM Run 22-003

Exhibit T: Net Annual Flow Between Each Aquifer within the District (Data from Dowlearn and Wade, 2022; see Appendix E)

Parameter	Estimate (AFY)	Remarks
Estimated net annual volume of flow between each aquifer in the district	1,339	From Gulf Coast Aquifer System to brackish water containing formations. GAM model does not simulate the interaction between the Gulf Coast Aquifer system and the underlying units

The Gulf Coast Aquifer is the major aquifer formation underlying the District. While the Gulf Coast formation is sometimes differentiated as Chicot, Evangeline, Burkeville Confining Unit and Jasper aquifer formations (Baker, 1979) the Gulf Coast Aquifer is represented as a single aquifer unit in State and Regional Water Planning Process. Most Groundwater Availability Models do not explicitly model the interaction between the Gulf Coast Aquifer System and underlying units. Currently, only the shallow sections of the Gulf Coast Aquifer are used within the District. Because of the thickness of the Gulf Coast Aquifer in most of the District, anthropogenic influences are unlikely to have a major influence on cross-aquifer flows at this point in time. Flows within the different formations of the Gulf Coast Aquifer, however, could be locally significant and can become important over a larger geographic scale, if and when brackish groundwater resources within Burkeville Confining Unit and the Jasper Aquifer are tapped into at a larger scale.

F. Projected Surface Water Supply

Estimate of the projected surface water supply within the District, according to the most recently adopted state water plan, as required by Texas Water Code § 36.1071(e)(3)(F) and 31 TAC § 356.5(a)(5)(F).

Exhibit U presents the projected surface water supply data. These data were estimated from the basin-wide data made available by the TWDB in the report dated Jan 10, 2022 (Allen, 2022; Appendix D), which is the most recent 2022 State Water Plan Data. 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 the district.

Exhibit U: Projected Surface Water Supply Data within KCGCD (Data from Allen, Jan 10, 2022; see Appendix D)

Year	2020	2030	2040	2050	2060	2070
Brooks	35	35	35	35	35	35
Hidalgo	130,719	130,749	127,055	127,041	127,077	127,082
JimWells	4,505	4,755	4,989	5,278	5,559	5,823
Kenedy	0	0	0	0	0	0
Kleberg	796	901	956	1,021	1,347	1,534
Nueces	70,952	75,321	77,811	79,361	80,863	81,990
Willacy	7,089	7,050	7,009	6,990	6,973	6,961

G. Projected Demand for Water

Estimate of the projected total demand for water within the District according to the most recently adopted state water plan, as required by Texas Water Code § 36.1071(e)(3)(G) and 31 TAC § 356.5(a)(5)(G). (No site-specific information was relied upon in developing this estimate. It is taken from the 2017 State Water Plan.)

The apportioned county-wide projected water demands as per the 2022 State Water Plan Data were obtained from the Texas Water Development Board (TWDB) (Allen, 2022; Appendix D). The demands for each county within the District were then aggregated over all water user groups and presented in Exhibit U. As can be seen, demands are expected to increase considerably in Hidalgo, Nueces, and Willacy counties in the long-term planning horizon covered by the State Water Plan. The projected water supply needs for various counties in which KCGCD exists are also presented in Appendix D.

The projected demands presented in Exhibit V were estimated by apportioning any county-wide water user group estimates 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 the district. TWDB relies on GCDs to make this determination.

Exhibit V: Estimate of Total Demands in Acre-ft/year Obtained from TWDB Based on 2022 State Water Plan Dataset (Data from Allen, Jan 10, 2022; see Appendix D)

Year	2020	2030	2040	2050	2060	2070
Brooks	2,257	2,293	2,328	2,374	2,422	2,485
Hidalgo	208,922	241,337	274,367	308,311	342,071	377,010
JimWells	6,244	6,590	6,911	7,304	7,681	8,036
Kenedy	1,097	1,118	1,089	1,066	1,041	1,025
Kleberg	8,378	8,914	9,229	9,591	9,975	10,347
Nueces	75,514	80,271	82,848	84,455	86,042	87,231
Willacy	14,125	14,079	14,037	14,046	14,067	14,084

VII. CONSIDERATION OF ADOPTED STATE WATER PLAN

Consideration of water supply needs and water management strategies that are included in the adopted state water plan, as required by Texas Water Code § 36.1071(e)(4) and 31 TAC § 356.5(a)(7).

The District reviewed the 2022 State Water Plan for comparisons of water demands and supply estimates on a county-by-county basis prepared by Region M (Rio Grande Regional Water Planning Area) and Region N (Coastal Bend Regional Water Planning Group). The District identified potential water needs and management strategies that could have an impact on the groundwater resources within the District (Exhibit V). In addition to covering almost all of the Kenedy County, the District partially covers several counties (Brooks, Hidalgo, Jim Wells, Kleberg, Nueces, and Willacy). As stated earlier, the projected needs in the parts of these counties that are not within the District, were also evaluated because groundwater from within the District could potentially be tapped for meeting these needs.

A county-by-county analysis of the demands for different water use groups was carried out with an emphasis on groundwater related strategies (see Appendix D for a list of all strategies). Obtaining additional water from the Gulf Coast Aquifer, demand reduction (conservation), direct reuse, brackish groundwater desalination are the major strategies that are being considered within the region. In particular, there is a growing interest in using groundwater or brackish groundwater in the Lower Rio Grande Valley areas and

coastal seawater desalination in Corpus Christi area. The District will continue to track the progress of water management strategies in the regional water planning process and evaluate new proposals and projects as appropriate. A detailed tabulation of all projected water management strategies can be found in Appendix D.

VIII. MANAGEMENT OF GROUNDWATER SUPPLIES

The District will manage the supply of groundwater within the District in order to utilize the resource while seeking to maintain the economic viability of all resource user groups, public and private. The District will:

- identify and engage in such activities and practices, that, if implemented, would manage groundwater resources in the District while considering the economic and cultural activities occurring within the District;
- maintain and expand its water monitoring network in order to monitor changing groundwater quality and storage conditions of groundwater supplies within the District;
- make a regular assessment of water supply and groundwater storage conditions and report those conditions to the Board and to the public;
- continue to undertake, as necessary, and co-operate with evaluations of the groundwater resources within the District, including those associated with uranium exploration and mining; and
- make the results of evaluations available to the public upon adoption by the Board.

The District adopted Rules based on its original management plan. The first set of Rules became effective October 8, 2008 and implemented the management plan. Rule amendments have been carried out periodically to keep the district policies up to date with current conditions within the district and in response to statutory changes. A time-line of Rules adopted and modified by the district is presented in Exhibit W. District Rules allow issuance of operating permits for perpetual terms. The production allowed for a new non-exempt well is based on surface acreage reflecting the GMA-16 adopted desired future condition. The District has prohibited waste of groundwater; has required all water wells to be registered; has issued operating permits to all existing non-exempt wells; and considers all applications for new operating permits based on surface acreage production limit. Under District Rules, the District may, at the Board's discretion, amend or revoke any permits after notice and hearing based on certain criteria listed in the Rules, including aquifer conditions. The District will enforce the terms and conditions of permits and the Rules of the District by enjoining the permit holder in a court of competent jurisdiction as provided for in Texas Water Code § 36.102.

The District will continue to employ all technical resources at its disposal to evaluate the resources available within the District and to determine the effectiveness of regulatory or conservation measures.

Exhibit W: Time-Line of Rule Making and Amendments by the District

Date Adopted	Effective Date	Affected Rules
Oct 8, 2008	Oct 8, 2008	Original Rules
Jan 14, 2009	Jan 14, 2009	Amendment of Rules 3.8, 8.3, 8.4 and 11.3
July 25, 2012	July 25, 2012	Amendments including Repeals and New Provisions
Jan 20, 2016	Jan 20, 2016	Amendment of Rules 1.3, 1.5, 2.3.1, 3.8, 7.5, 8.3, 8.4, 8.6, 8.8
Mar 21, 2018	Mar 21, 2018	Amendment of Rules 2, 3.5, 3,6, 3.7, 3.8, 8.8, 11
Jun 16, 2021	Jun 16, 2021	New Rules 4.7 and 14

Uranium ore deposits are present within the District and its immediate vicinity. Groundwater is used for exploration and extraction of uranium. Groundwater is also affected by the associated reclamation and restoration activities. These activities can impact groundwater quality and quantity. The District monitors all applications for uranium exploration within and in close proximity to the District. If an exploration or mining permit is issued by the Texas Railroad Commission and Texas Commission on Environmental Quality, the District plays an active role in reviewing and commenting on those authorizations and performs background groundwater measurement collection prior to initiation of those activities.

The District will continue to monitor State law to ensure it is protective of groundwater resources within the District.

IX. ACTIONS, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION

Detailed description of actions, procedures, performance and avoidance necessary to effectuate the management plan, including specifications and proposed Rules, as required by Texas Water Code § 36.1071(e)(2) and 31 TAC § 356.5(a)(4).

The District will implement the provisions of this plan and will utilize the provisions of this plan as a guidepost for determining the direction or priority for all District activities. All operations of the District, all agreements entered into by the District and any additional planning efforts in which the District may participate will be consistent with the provisions of this plan.

The district has adopted Rules relating to the permitting of wells and the production of groundwater. The most current version of the District's Rules are found on the District's website at: http://www.kenedygcd.com/Forms_Rules/rules.aspx and can also be found in Appendix F of this document. All Rules adopted by the District are pursuant to TWC chapter 36 and the provisions of this plan. All Rules will be adhered to and enforced. The promulgation and enforcement of the Rules will be based on the best technical evidence available. The District has revised its Rules to make them consistent with new changes in state law applicable to the District; to make them consistent with the adopted desired future condition for GMA-16; and to address issues of groundwater management that may not have been anticipated by the existing Rules. Once the Rules are amended, the amended Rules will be found on the District's website at the web address provided above.

The District will treat all citizens equally. Citizens may apply to the District for discretion in enforcement of the Rules on grounds of adverse economic effect or unique local conditions. In granting a variance to any rule, the Board shall consider the potential for adverse effect on adjacent landowners.

The District will seek the cooperation from other entities in order to implement this plan and to manage groundwater supplies within the District. All activities of the District will be undertaken in cooperation and coordination with the appropriate state, regional or local water management entity. To this end, the District will continue to be actively engaged with the GMA-16 Joint Planning Committee; Regions N and M Water Planning Groups; the TWDB; Texas Alliance of Groundwater Districts; Texas Water Conservation Association; Texas A&M University-Kingsville; USDA-Natural Resources Conservation Service; Kleberg-Kenedy Soil and Water Conservation District; and Texas AgriLife Extension.

Rules

Currently, the District has Rules covering the following:

Well Registration, Drilling Permits, and Operating Permits

As required by Texas Water Code 36.117(h), the District requires all wells to be registered, regardless of when they were drilled and whether they have been plugged. All previous oil and gas wells for which the operator submitted a RRC P-13 indicating conversion to use as a water well, must also be registered. The District Rules implement the exemptions from permitting set out in § 36.117 and establish additional exemptions reflecting the large area and small population of the District. The District Rules include

the criteria for consideration and approval of operating permits and production limits, as authorized by §§ 36.101(a) and 36.116.

Fees

Because the District is financed through ad valorem taxes, it does not impose fees for activities associated with water wells, such as registration fees, application fees, production fees, or export fees.

Well Construction and Completion Standards

The District has adopted well construction and completion standards, at a minimum requiring that construction of all wells and installation of all pumps located within the District must be in accordance with the Texas Occupations Code Chapter 1901, "Water Well Drillers" and Chapter 1902, "Water Well Pump Installers," as amended, and the Administrative Rules of the Texas Department of Licensing and Regulation, 16 Texas Administrative Code ("TAC"), Chapter 76, as amended. Additional standards include requiring a sampling port on all new wells. In evaluating each operating permit application, the District evaluates whether additional standards are needed to protect water quality in the area of the well.

Reporting and Recordkeeping

The District has established annual recordkeeping and reporting for water production from all wells with an operating permit and for all temporary rig supply wells. Well owners/water well drillers are also required to submit well drilling and completion reports, pump reports, and other reports that may be helpful to the District in fulfilling its statutory duties. Permitted wells must report all water quality data obtained for raw water from the wells. Uranium exploration companies must submit all water quality data required by statute and District Rule. All data is included in the District Water Well Database.

Plugging, Sealing, and Capping of Wells

The District Rules include the requirement that a deteriorated or abandoned well shall be plugged in accordance with Texas Department of Licensing and Regulation, 16 Texas Administrative Code, Chapter 76, as amended. The Rules will also address circumstances requiring the sealing and capping of wells. If a landowner becomes aware of a plugged well, or if a P-13 is filed with the Railroad Commission to convert an oil and gas well (usually a dry hole) into a water well, these are considered water wells under District Rules and must be registered with the District.

Well Spacing

The District has adopted the spacing requirements of the Water Well Driller's Rules, 16 Texas Administrative Code Section 76.1000, as amended. The District has also adopted spacing from property boundaries based on the capacity of the proposed water well.

Enforcement

The District has adopted Rules setting out its enforcement authority and policies, as authorized by Texas Water Code §§ 36.101 and 36.102. The Rules authorize entry onto

property as authorized by Texas Water Code §36.123. They also establish the process by which the District will undertake an enforcement action and the steps to be followed.

Procedural Rules
The District has adopted procedural Rules establishing required notice and hearing for various District activities such as approval of Rules, including emergency Rules; actions on operating permits; permit actions requiring a contested case hearing; and enforcement matters. These Rules have recently been updated to implement changes in state law applicable to the District (see Exhibit V for sections of the Rules that have been amended and updated.)

Prohibition Against Waste
The District prohibits waste of groundwater.

X. GOALS, MANAGEMENT OBJECTIVES AND PERFORMANCE STANDARDS

Identify the performance standards and management objectives for effecting the plan, as required by Texas Water Code § 36.1071(e)(1) and 31 TAC § 356.5(a)(2) & (3).

A. Efficient Use of Groundwater

Management objectives and performance standards for providing the most efficient use of groundwater, as required by Texas Water Code § 36.1071(a)(1) and 31 TAC §356.5(a)(1)(A).

1. Objective: The District will continue to register all new wells and locate and register any existing well that may not yet have been registered.

1. Performance Standard: All registered wells are entered into the District's water well database. This includes information from the registration forms, the registration certificate, and for new wells, the drilling log. All information reported to the District regarding each registered well will be entered into the District's water well database. The number of registered wells will be presented in the District's annual report.

4. Objective: The District will continue to require an operating permit for all non-exempt wells.

4. Performance Standard: All permitted non-exempt wells with be entered into the District's water well database, including the application, the permit, annual water use reports, any water quality reports, the driller's log, and any other information available to the District about the wells. The number of wells permitted by the District will be noted in the District annual report.

5. Objective: The District will develop a method of tracking acreage associated with all wells permitted under District Rules as "new wells" under the District's correlative rights production limits.

5. Performance Standard: The District will provide a certificate to each permittee designating the total acreage allocated to each permit. A copy of these certificates will be entered into the District database for each of these permitted wells. The number of such certificates that are issued will be included in the District annual report.

6. Objective: Each year, the district will contact all water well service companies doing business in the District and will provide written educational information about District Rules and policies.

6. Performance Standard: The Board of Directors will approve the content of each year's letter based on activities and emerging issues within the District. A file copy of these letters will be kept in the District Office. Each year, the District's annual report will include a list of licensed water well drillers and pump installers doing business in the District and a copy of the educational information provided.

7. Objective: The District will continue to maintain a database that is current with all data acquired by the District about all registered and permitted wells in the District.

7. Performance Standard: Each year, the District's annual report pertinent to items A.1 through A.5 will be derived from the database. Additionally, the report will contain an evaluation of the software being used for the database, and any recommendations regarding needed changes.

B. Preventing Waste of Groundwater

Management objectives and performance standards for controlling and preventing waste of groundwater, as required by Texas Water Code § 36.1071(a)(2) and 31 TAC §356.5(a)(1)(B).

1. Objective: The District will conduct an on-site investigation within two working days of receiving a report of waste of groundwater.

1. Performance Standard: If the District receives a report of waste of groundwater, the General Manager will prepare a written report of the outcome of the investigation and will present it to the Board of Director's at the next Board meeting. A discussion of the waste of groundwater observed by the District, including the number of reports of waste received during the year and the District's response to the reports will be included in the District's annual report.

C. Controlling Subsidence

Management objectives and performance standards for controlling and preventing subsidence, as required by Texas Water Code § 36.1071(a)(3) and 31 TAC §356.5(a)(1)(C).

1. Objective: The Gulf Coast Aquifer contains sufficient amounts of clays interbedded within fairly prolific sand and gravel formations to be vulnerable to subsidence. The current groundwater uses, especially near the coastal areas of the District, are not sufficient to cause dewatering from the clay with a resultant loss of support pressure. The District will evaluate possible subsidence impacts of any near coast, large-scale groundwater production proposal (greater than 100 acre-feet/year).

1. Performance Standard: As part of the Operating Permit Application process, the District will be appropriately evaluate possible subsidence impacts of any near coast, large-scale groundwater production proposal (greater than 100 acre-feet/year). The evaluation will be presented to the Board of Directors during the Operating Permit Application consideration. The number and a description of any near coast, large-scale groundwater production proposals will be presented in the District's annual report, and will include the District's evaluation for possible subsidence impacts from the proposals.

D. Conjunctive Surface Water Management

Management objectives and performance standards for addressing conjunctive surface water management issues, as required by Texas Water Code § 36.1071(a)(4) and 31 TAC §356.5(a)(1)(D).

1. Objective: Each year the District will participate in the regional planning process by attending a minimum of two meetings of the Region N Regional Water Planning Group per fiscal year.

1. Performance Standard: The District representative will give an oral report at the District Board meeting following the Region N meeting and the report will be reflected in the minutes of that Board meeting. Additionally, the District’s annual report will include the number of Region N meetings attended during the year and the dates of those meetings.

E. Natural Resource Issues and Groundwater

Management objectives and performance standards for addressing natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater, as required by Texas Water Code § 36.1071(a)(5) and 31 TAC §356.5(a)(1)(E).

1. Objective: The District will continue to require registration of and a plugging report on all wells that are plugged each year. Additionally the District will require a landowner to register all plugged wells when the landowner becomes aware of their existence.

1. Performance Standard: The number of plugging reports received by the District will be noted in the District annual report. All registered plugged wells will be entered into the District's water well database, including the registration application, the registration certificate, and the plugging report, if the well is newly plugged.

2. Objective: The District will require registration of all wells covered by a P-13 submitted to the Railroad Commission. When an oil and gas operator abandons an oil and gas well and desires to convert it into a potential water well, he must submit a P-13. These wells are considered to be water wells under District Rules, regardless of whether water is ever produced from them.

2. Performance Standard: After approval of this management plan, the District will include information about this requirement in the first annual education letter to all water well service companies and to all oil and gas operators doing business in the District. The District will also study the feasibility of identifying P-13 wells by working with the Railroad Commission. The number of P-13 wells registered with the District will be noted in the District annual report.

3. Objective: Once each year, the District will monitor total dissolved solids, pH, and electric conductivity by taking measurements of at least 15 wells through the voluntary monitoring project described in A.8.

3. Performance Standard: The number of wells to be measured may be increased as necessary. The water quality data will be entered into the District's water well database. The results of each round of annual measurement events will be provided to the Board of Directors within 30 days after completion of measurement collection and analysis and included in the annual report.

F. Drought Conditions

Management objectives and performance standards for addressing drought conditions, as required by Texas Water Code § 36.1071(a)(6) and 31 TAC §356.5(a)(1)(F).

1. Objective: Links to the NOAA Climate Prediction Center (https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/palmer_drought/) and to the Texas Water Development Drought Program page (http://www.twdb.state.tx.us/drought) will be maintained on the District website to provide short-term and long-term drought information.

1. Performance Standard: At least quarterly, the website will be checked to ensure that the links are still current. The General Manager will assess the status of drought in the District using information from the Drought Monitor Dashboard (https://waterdatafortexas.org/drought/drought-monitor?period=2022-09-20&areaType=state&areaName=tx) and prepare a quarterly briefing to the Board showing the impact of drought or weather conditions on water levels. The District's

annual report will include the downloaded drought maps, Situation Reports, and copies of the quarterly briefing. This information will be made available to the public upon request.

G. Conservation Measures

Management objectives and performance standards for addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, brush control where appropriate and cost effective, as required by Texas Water Code § 36.1071(a)(7) and 31 TAC §356.5(a)(1)(G).

1.a. Conservation Objective: The District will collaborate with the local USDA-Natural Resources Conservation Service (NRCS) field office and compose an article on water conservation and groundwater issues..

1.a. Conservation Performance Standard: A copy of the published article on water conservation/groundwater issues will be included in the District's annual report.

1.b. Conservation Objective: The General Manager will be available to present water conservation programs to schools, 4-H clubs, scouting units and community groups on a request basis. These programs will be scheduled through the District office and will be appropriate for the various audiences. Depending on availability, the District will make every effort to distribute, on an annual basis, conservation education materials to schools that serve students from the District.

1.b. Conservation Performance Standard: A summary of programs presented, content and audience group will be included in the annual report. A bibliography of any conservation literature provided to the audience by the District will be included in the report with the summary.

1.c. Conservation Objective: The General Manager will monitor all continuing education classes on drought and conservation that would be beneficial and attend with the Board's approval.

1.c. Conservation Performance: A summary of classes attended will be included in the annual report.

2. Recharge Enhancement Objective: The District, with the services of a consultant, will attempt to identify recharge areas within the District and present them in connection with the biennial report on water monitoring results.

2. Recharge Performance Standard: All recharge areas identified within the District will be listed in the annual report.

3. Rainwater Harvesting: This management goal category is not applicable to the District due to a low population number.

4. Precipitation Enhancement: The District has no plans to participate in precipitation enhancement because it has not been proven to be cost effective and is not feasible for the District.

5. Brush Control Objective: Annually, the District will contact the USDA-NRCS and the Kleberg-Kenedy Soil and Water Conservation District (SWCD) offices to obtain information about brush control and make that information available to the public.

5. Brush Control Performance Standard: All information on brush control obtained from the USDA-NRCS and the Kleberg-Kenedy SWCD offices and provided to the public will be reported in the District's annual report and posted on the website.

H. Desired Future Conditions

Management objectives and performance standards for addressing the desired future condition of the groundwater resources in the District (if available from the districts in the groundwater management area), as required by Texas Water Code § 36.1071(a)(8) and 31 TAC §356.5(a)(1)(H).

1. Objective: The District-wide, voluntary monitoring project will be maintained and includes biennial measurements of hydrostatic levels from approximately 15 wells and the hydrostatic level to bottom of screen measurements in those wells where the screen depth is known.

1. Performance Standard: The number of wells to be included in the monitoring project may be increased as necessary. The respective hydrostatic levels and other related data will be entered into the District's water well database. The results of each round of biennial measurements will be provided to the Board of Directors within 30 days of completion of the measuring round. The number of wells involved in the project and the respective static levels will be included in the District's annual report.

2. Objective: The District will monitor groundwater withdrawals in the District to evaluate compliance with the desired future condition.

2. Performance Standard: As part of the biennial report on water level measurements from the monitoring program described in A.8, above, the General Manager will include in his written report to the Board an evaluation of the drawdown relative to the DFC.

XI. METHODOLOGY FOR TRACKING PROGRESS

Methodology for tracking progress in meeting management goals, objectives, and performance standards, as required by 31 TAC § 356.5(a)(6).

As mentioned in the management objectives and performance standards above, written reports will be presented to the Board of Directors on a timely manner, based on the objective. Additionally, as described in section X, all data related to water wells in the District will be entered into the District's water well database.

The General Manager will prepare and present to the board of directors (BOD) an Annual Report covering District performance in achieving management goals and objectives for the preceding fiscal year. The report will be presented to the BOD in January of the following year. The District will maintain the report in its files and will have copies available to the public. Once the report is approved by the Board, it will be posted on the website.

APPENDIX A

Resolution Adopting the 2023 Kenedy County Groundwater Conservation District Groundwater Management Plan

RESOLUTION
ADOPTING KENEDY COUNTY
GROUNDWATER CONSERVATION DISTRICT
2022 MANAGEMENT PLAN
January 18, 2023

Whereas, on December 21, 2022, the Kenedy County Groundwater Conservation District Board of Directors directed that Notice of a Public Hearing to be held on January 18, 2023,at 9:10 AM at the Kenedy County Courthouse Courtroom in Sarita, TX regarding the adoption of the proposed 2023 District Management Plan to be posted in a place readily accessible to the public at the Kenedy County Courthouse; by posting on the GCD's website; by providing notice to individuals who requested notice; and by making a copy of proposal accessible to the public during normal hours at the District office; and

WHEREAS, on January 18, 2023, the Kenedy County Groundwater Conservation District Board of Directors, with a quorum present, held the January 18, 2023 Public Hearing regarding the adoption of the proposed 2023 Kenedy County Groundwater Conservation District Management Plan; and

WHEREAS, the Kenedy County Groundwater Conservation District Board of Directors, after the Public Hearing was held, convened to consider the adoption of the proposed 2023 Kenedy County Groundwater Conservation District Management Plan; and

The Kenedy County Groundwater Conservation District Board of Directors, after a motion being made and seconded, it was unanimously passed and it was

RESOLVED that the 2023 Kenedy County Groundwater Conservation District Management Plan be ADOPTED as presented as is more particularly described in the Kenedy County Groundwater Conservation District 2023 Management Plan attached hereto and made part of hereof for all purposes.

DATED this 18th Day of January, 2023

Attested by: _____

Edward Bordovsky

Edward Bordovsky
President

Kenedy County Groundwater Conservation District
Certification of Resolution

I, Andy Garza, General Manager of the Kenedy County Groundwater Conservation District, hereby certify that the attached Resolution adopting the Kenedy County Groundwater Conservation District's Management Plan is a true and correct copy of the Resolution; that on January 18, 2023, the Kenedy County Groundwater Conservation District Board of Directors, by majority vote, passed and approved said Resolution.

SIGNED on January 18, 2023

Andy Garza

Andy Garza

APPENDIX B

Notice of Hearing on the 2023 Kenedy County Groundwater Conservation District Groundwater Management Plan

NOTICE OF PUBLIC HEARING
Kenedy County Groundwater Conservation District's
Amended Management Plan

The Kenedy County Groundwater Conservation District will hold a Public Hearing regarding the adoption of the proposed Kenedy County Groundwater Conservation District's Amended Management Plan.

The Public Hearing will be held at 9:10 AM on January 18, 2023 at the Kenedy County Courthouse Courtroom in Sarita, TX.

A copy of the proposed amended District Management Plan may be obtained at the District Office located at 365 La Parra Avenue in Sarita, TX. District Office phone number is 361-294-5336.

POSTED: January 4, 2023, at 2:22 PM

Andy Garza

Andy Garza, General Manager

FILED FOR RECORD
AT 2:22 O'CLOCK P M
JAN 04 2023
VERONICA VELA
COUNTY CLERK, KENEDY COUNTY
BY DEPUTY

COUNTY COURT · KENEDY COUNTY · TEXAS

Andy Garza Log Off

Open Meeting Submission

TRD:	2023000163
Date Posted:	01/11/2023
Status:	Accepted
Agency Id:	1103
Date of Submission:	01/11/2023
Agency Name:	Kenedy County Groundwater Conservation District
Board:	Kenedy County Groundwater Conservation District
Committee:	Board of Directors
Date of Meeting:	01/18/2023
Time of Meeting:	09:10 AM **(##:## AM Local Time)**
Street Location:	151 N. Mallory
City:	Sarita
State:	TX
Liaison Name:	Andy Garza
Liaison Id:	1
Additional Information Obtained From:	Andy Garza

Agenda:

NOTICE OF PUBLIC HEARING
Kenedy County Groundwater Conservation District's
Amended Management Plan

The Kenedy County Groundwater Conservation District will hold a Public Hearing regarding the adoption of the proposed Kenedy County Groundwater Conservation District's Amended Management Plan.

The Public Hearing will be held at 9:10 AM on January 18, 2023 at the Kenedy County Courthouse Courtroom in Sarita, TX.

A copy of the proposed amended District Management Plan may be obtained at the District Office located at 365 La Parra Avenue in Sarita, TX. District Office phone number is 361-294-5336.

New Submission

AGENDA
KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT
Regular Meeting of the Board of Directors
Kenedy County Courthouse Courtroom, Sarita, TX
January 18, 2023-9:00 AM

1. Call Meeting to Order/Establish Quorum
2. Public Comments
3. Administer Oath of Office to Directors Elected in November, 2022
4. Discuss & Act to Elect Officers
5. Discuss & Act on Minutes of December 21, 2022 Regular Meeting
6. Receive General Manager's Activity Report and Act, If Necessary, Regarding:
    a. Communications
    b. Well registrations
    c. Brush Country GCD meeting
    d. Duval County GCD meeting
    e. TAGD quarterly meeting, January 31-February 1, 2023
    f. SWARA interim report
    g. Texas 88th Legislative Session
    h. TWCA annual convention; March 1-3, 2023
    i. Desal plant visit
    j. 2023 mileage rate
    k. News articles
    l. Other
7. Hold Public Hearing on District Management Plan
8. Discuss & Act on Adopting District Management Plan
9. Discuss & Act on Adopting Desired Future Condition by Resolution
10. Discuss & Act on Approving 4th Quarter, 2022 Financial Report
11. Discuss & Act on Renewal of Officials' Bonds
12. Discuss & Act, If Necessary, On Need for Additional Office Space
13. Discuss & Act on Date for Next Regular Meeting
14. Discuss & Act on Payment of Bills for January, 2023
15. Adjournment

FILED FOR RECORD
AT 2:44 o'clock P M
JAN 12 2023
VERONICA VELA
COUNTY CLERK, KENEDY COUNTY
By _____ DEPUTY

Posted: January 12, 2023 at 2:44 p.m.

Andy Garza, General Manager

At any time during the meeting and compliance with the Texas Open Meetings Act, Chapter 551, Gov't Code, Vernon's Texas Codes, Annotated, the Kenedy County Groundwater Conservation District's Board of Directors may meet in executive session on any of the above agenda items or other lawful items for consultation concerning attorney-client matters (Sec. 551.071); deliberation regarding real property (Sec. 551.072; deliberation regarding prospective gift (Sec. 551.073);

personnel matters (Sec. 551.074) and deliberation regarding security devices (Sec. 551.076). Any subject discussed in executive session may be subject to action during an open meeting.

Andy Garza Log Off

Open Meeting Submission

TRD:	2023000200
Date Posted:	01/12/2023
Status:	Accepted
Agency Id:	1103
Date of Submission:	01/12/2023
Agency Name:	Kenedy County Groundwater Conservation District
Board:	Kenedy County Groundwater Conservation District
Committee:	Board of Directors
Date of Meeting:	01/18/2023
Time of Meeting:	09:00 AM **(##:## AM Local Time)**
Street Location:	151 N. Mallory
City:	Sarita
State:	TX
Liaison Name:	Andy Garza
Liaison Id:	1
Additional Information Obtained From:	Andy Garza
Agenda:	1. Call Meeting to Order/Establish Quorum 2. Public Comments 3. Administer Oath of Office to Directors Elected in November, 2022 4. Discuss & Act to Elect Officers 5. Discuss & Act on Minutes of December 21, 2022 Regular Meeting 6. Receive General Manager's Activity Report and Act, If Necessary, Regarding: a. Communications b. Well registrations c. Brush Country GCD meeting d. Duval County GCD meeting e. TAGD quarterly meeting, January 31-February 1, 2023 f. SWARA interim report g. Texas 88th Legislative Session h. TWCA annual convention; March 1-3, 2023 i. Desal plant visit j. 2023 mileage rate k. News articles l. Other 7. Hold Public Hearing on District Management Plan 8. Discuss & Act on Adopting District Management Plan

9. Discuss & Act on Adopting Desired Future Condition by Resolution
10. Discuss & Act on Approving 4th Quarter, 2022 Financial Report
11. Discuss & Act on Renewal of Officials' Bonds
12. Discuss & Act, If Necessary, On Need for Additional Office Space
13. Discuss & Act on Date for Next Regular Meeting
14. Discuss & Act on Payment of Bills for January, 2023
15. Adjournment

New Submission

APPENDIX C

Letters to the Relevant Regional Water Planning Groups and South Texas Water Authority

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. Box 212
Sarita, Texas 78385

January 23, 2023

Mr. Jim Darling
C/O Debbie Morales
Region M Water Planning Group
301 W. Railroad St.
Weslaco, TX 78596

Dear Mr. Darling,

Please find enclosed a copy of amended Management Plan that was adopted by the Kenedy County Groundwater Conservation District on January 18, 2023. The District invites your feedback on the enclosed copy.

You may call me at 361-294-5336 if you have any questions or need additional information.

Sincerely,

Andy Garza
General Manager

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. BOX 212
SARITA, TEXAS 78385

January 23, 2023

Mr. Scottie Bledsoe
Region N Water Planning Group
P.O. Box 3
Oakville, TX 78060

Dear Mr. Bledsoe,

Please find enclosed a copy of amended Management Plan that was adopted by the Kenedy County Groundwater Conservation District on January 23, 2023. The District invites your feedback on the enclosed copy.

You may call me at 361-294-5336 if you have any questions or need additional information.

Sincerely,

Andy Garza
General Manager

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. BOX 212
SARITA, TEXAS 78385

January 23, 2023

South Texas Water Authority
C/O John Marez
2301 E. Sage Road
Kingsville, TX 78363

Dear Mr. Marez,

Please find enclosed a copy of amended Management Plan that was adopted by the Kenedy County Groundwater Conservation District on January 23, 2023. The District invites your feedback on the enclosed copy.

You may call me at 361-294-5336 if you have any questions or need additional information.

Sincerely,

Andy Garza
General Manager

APPENDIX D

Estimated Historical Groundwater Use and 2022 State Water Plan Datasets – Kenedy County Groundwater Conservation District, Dated January 10 2022 (Author: Stephen Allen, 2022)

Estimated Historical Groundwater Use And 2022 State Water Plan Datasets:

Kenedy County Groundwater Conservation District

Texas Water Development Board
Groundwater Division
Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
January 10, 2022

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:

https://www.twdb.texas.gov/groundwater/docs/GCD/GMPChecklist0113.pdf

The five reports included in this part are:

1. Estimated Historical Groundwater Use (checklist item 2)

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

   from the 2022 Texas State Water Plan (SWP)

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

DISCLAIMER:

The data presented in this report represents the most up-to-date WUS and 2022 SWP data available as of 1/10/2022. Although it does not happen frequently, either of these datasets are subject to change pending the availability of more accurate WUS data or an amendment to the 2022 SWP. District personnel must review these datasets and correct any discrepancies in order to ensure approval of their groundwater management plan.

The WUS dataset can be verified at this web address:

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

The 2022 SWP dataset can be verified by contacting Sabrina Anderson (sabrina.anderson@twdb.texas.gov or 512-936-0886).

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

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

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

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

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

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

Groundwater and surface water historical use estimates are currently unavailable for calendar year 2020. TWDB staff anticipates the calculation and posting of these estimates at a later date.

BROOKS COUNTY

27.98% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	356	0	0	0	157	82	595
	SW	0	0	0	0	0	44	44
2018	GW	377	0	1	0	189	82	649
	SW	0	0	0	0	0	44	44
2017	GW	412	0	1	0	187	80	680
	SW	0	0	0	0	0	43	43
2016	GW	408	0	1	0	236	96	741
	SW	0	0	0	0	0	51	51
2015	GW	378	0	0	0	65	95	538
	SW	0	0	0	0	0	51	51
2014	GW	441	0	3	0	112	92	648
	SW	0	0	1	0	0	50	51
2013	GW	445	0	2	0	207	93	747
	SW	0	0	1	0	0	50	51
2012	GW	511	0	0	0	210	72	793
	SW	0	0	0	0	0	39	39
2011	GW	544	0	2	0	325	82	953
	SW	0	0	1	0	0	44	45
2010	GW	515	0	50	0	225	82	872
	SW	0	0	44	0	0	44	88
2009	GW	614	0	49	0	676	98	1,437
	SW	0	0	43	0	0	53	96
2008	GW	502	0	48	0	183	92	825
	SW	0	0	42	0	0	50	92
2007	GW	459	0	0	0	87	119	665
	SW	0	0	0	0	0	64	64
2006	GW	508	0	0	0	158	126	792
	SW	0	0	0	0	0	68	68
2005	GW	488	0	0	0	175	129	792

	SW	0	0	0	0	0	69	69
2004	GW	444	0	0	0	175	20	639
	SW	0	0	0	0	0	177	177

HIDALGO COUNTY

7.2% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	766	0	34	86	288	17	1,191
	SW	8,328	153	3	271	44,097	26	52,878
2018	GW	738	0	33	83	259	17	1,130
	SW	8,064	171	7	433	47,096	26	55,797
2017	GW	711	0	34	89	108	16	958
	SW	8,690	195	7	289	49,935	25	59,141
2016	GW	938	0	46	85	7	22	1,098
	SW	8,250	257	0	308	35,547	32	44,394
2015	GW	903	0	46	39	9	21	1,018
	SW	7,057	201	0	343	17,992	31	25,624
2014	GW	1,012	0	50	0	42	20	1,124
	SW	7,673	136	1	0	29,505	31	37,346
2013	GW	927	0	48	0	4	21	1,000
	SW	8,227	128	1	10	21,776	31	30,173
2012	GW	889	0	49	0	16	21	975
	SW	8,142	123	1	17	35,640	32	43,955
2011	GW	947	0	29	0	0	25	1,001
	SW	8,587	134	0	15	49,584	39	58,359
2010	GW	628	0	84	0	0	24	736
	SW	6,844	161	73	0	29,160	36	36,274
2009	GW	677	0	131	0	110	29	947
	SW	8,213	157	71	21	44,285	43	52,790
2008	GW	513	1	89	0	5	25	633
	SW	7,827	162	84	1	43,956	38	52,068
2007	GW	388	1	55	0	82	22	548
	SW	6,764	181	0	79	37,342	33	44,399
2006	GW	378	1	52	0	75	23	529
	SW	7,456	169	0	66	38,114	35	45,840
2005	GW	371	1	52	84	120	21	649
	SW	8,804	175	0	33	36,842	31	45,885
2004	GW	298	1	52	82	109	15	557
	SW	7,588	161	0	87	22,486	27	30,349

JIM WELLS COUNTY

5.14% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	61	0	0	0	91	21	173
	SW	209	0	0	0	4	14	227
2018	GW	60	0	0	0	92	21	173
	SW	203	0	0	0	5	14	222
2017	GW	78	0	0	0	86	20	184
	SW	186	0	0	0	5	14	205
2016	GW	76	2	0	0	63	24	165
	SW	192	0	0	0	3	16	211
2015	GW	75	4	0	0	68	24	171
	SW	190	0	0	0	11	16	217
2014	GW	95	4	0	0	65	23	187
	SW	214	0	0	0	5	16	235
2013	GW	107	4	0	0	81	23	215
	SW	224	0	0	0	17	16	257
2012	GW	135	4	0	0	57	22	218
	SW	236	0	0	0	21	14	271
2011	GW	150	4	0	0	65	36	255
	SW	240	0	0	0	24	24	288
2010	GW	115	4	1	0	75	35	230
	SW	203	0	2	0	6	23	234
2009	GW	121	6	0	0	100	32	259
	SW	379	0	0	0	18	21	418
2008	GW	115	6	0	0	78	30	229
	SW	354	0	0	0	17	20	391
2007	GW	102	6	0	0	109	32	249
	SW	213	0	0	0	10	22	245
2006	GW	125	6	0	0	196	31	358
	SW	287	0	0	0	0	21	308
2005	GW	122	6	0	0	176	32	336
	SW	368	0	0	0	13	22	403
2004	GW	109	6	0	0	176	4	295
	SW	162	0	0	0	13	51	226

KENEDY COUNTY

100% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	79	0	8	0	0	611	698
	SW	0	0	2	0	0	32	34

2018	GW	88	0	6	0	0	611	705
	SW	0	0	1	0	0	32	33
2017	GW	84	0	4	0	0	587	675
	SW	0	0	1	0	0	31	32
2016	GW	76	0	0	0	0	606	682
	SW	0	0	0	0	0	32	32
2015	GW	86	0	0	0	0	584	670
	SW	0	0	0	0	0	31	31
2014	GW	93	0	1	0	0	581	675
	SW	0	0	0	0	0	31	31
2013	GW	123	0	2	0	0	595	720
	SW	0	0	0	0	0	31	31
2012	GW	113	0	2	0	0	716	831
	SW	0	0	1	0	0	38	39
2011	GW	118	0	0	0	0	799	917
	SW	0	0	0	0	0	42	42
2010	GW	109	0	60	0	0	798	967
	SW	0	0	22	0	0	42	64
2009	GW	132	0	47	0	0	689	868
	SW	0	0	17	0	0	36	53
2008	GW	126	0	34	0	0	880	1,040
	SW	0	0	13	0	0	46	59
2007	GW	112	0	0	0	0	433	545
	SW	0	0	0	0	0	23	23
2006	GW	253	0	0	0	0	529	782
	SW	0	0	0	0	0	28	28
2005	GW	250	0	0	0	0	528	778
	SW	0	0	0	0	0	28	28
2004	GW	123	0	0	0	0	64	187
	SW	0	0	0	0	0	577	577

KLEBERG COUNTY

81.75% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	2,808	812	14	0	172	383	4,189
	SW	590	0	0	0	0	20	610
2018	GW	3,065	656	28	0	180	383	4,312
	SW	560	0	0	0	0	20	580
2017	GW	3,317	777	7	0	68	371	4,540
	SW	529	0	0	0	0	20	549
2016	GW	3,190	210	11	0	113	470	3,994

	SW	522	0	0	0	0	25	547
2015	GW	3,604	713	18	0	45	459	4,839
	SW	518	0	2	0	0	25	545
2014	GW	3,864	1,479	44	0	180	451	6,018
	SW	579	0	7	0	0	24	610
2013	GW	3,662	777	186	0	203	468	5,296
	SW	441	0	2	0	0	25	468
2012	GW	4,091	568	156	0	293	534	5,642
	SW	393	0	3	0	0	28	424
2011	GW	947	906	175	0	695	595	3,318
	SW	3,326	0	0	0	0	31	3,357
2010	GW	787	1,042	317	0	471	564	3,181
	SW	2,510	0	139	0	0	29	2,678
2009	GW	3,624	1,020	306	0	0	496	5,446
	SW	410	0	128	0	0	26	564
2008	GW	3,395	920	327	0	235	628	5,505
	SW	324	0	117	0	0	33	474
2007	GW	2,962	979	251	0	198	1,436	5,826
	SW	378	0	0	0	0	76	454
2006	GW	2,995	1,114	211	0	460	1,258	6,038
	SW	609	0	0	0	0	66	675
2005	GW	3,832	1,590	173	0	429	1,136	7,160
	SW	240	0	0	0	0	60	300
2004	GW	2,786	1,265	168	0	388	129	4,736
	SW	579	0	0	0	0	1,166	1,745

NUECES COUNTY

4.04% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	46	96	30	0	18	7	197
	SW	1,536	1,419	0	88	0	0	3,043
2018	GW	43	85	27	0	18	7	180
	SW	1,472	1,493	0	82	0	0	3,047
2017	GW	60	99	26	0	17	7	209
	SW	1,670	1,420	0	75	0	0	3,165
2016	GW	61	109	33	0	20	10	233
	SW	2,454	1,216	0	78	0	0	3,748
2015	GW	63	95	29	0	11	10	208
	SW	2,240	1,271	0	83	3	0	3,597
2014	GW	67	98	28	0	15	10	218
	SW	2,085	1,289	0	16	0	0	3,390

2013	GW	78	110	32	0	30	12	262
	SW	2,065	1,363	0	16	0	0	3,444
2012	GW	69	100	147	0	1	10	327
	SW	2,308	1,466	0	14	61	0	3,849
2011	GW	85	108	133	0	26	12	364
	SW	2,632	1,328	0	16	0	0	3,976
2010	GW	62	131	34	0	60	12	299
	SW	2,055	1,255	16	16	0	0	3,342
2009	GW	44	93	33	0	10	16	196
	SW	2,945	1,329	26	8	0	0	4,308
2008	GW	32	91	33	0	13	15	184
	SW	2,404	1,371	23	5	0	0	3,803
2007	GW	28	65	14	0	28	8	143
	SW	1,896	1,380	10	67	0	0	3,353
2006	GW	34	67	21	0	35	11	168
	SW	2,306	1,558	11	0	0	0	3,875
2005	GW	33	101	21	0	12	11	178
	SW	2,677	1,417	10	5	4	0	4,113
2004	GW	32	110	15	0	5	4	166
	SW	2,087	1,442	22	5	3	7	3,566

WILLACY COUNTY

10.92% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	31	0	0	0	5	9	45
	SW	290	0	0	0	6,003	13	6,306
2018	GW	35	0	0	0	9	9	53
	SW	266	0	0	0	7,714	13	7,993
2017	GW	34	0	0	0	8	8	50
	SW	281	0	0	0	7,593	12	7,886
2016	GW	46	0	0	0	4	9	59
	SW	290	0	0	0	8,315	13	8,618
2015	GW	46	0	0	0	3	9	58
	SW	262	0	0	0	4,177	13	4,452
2014	GW	66	0	0	0	18	10	94
	SW	307	0	0	0	5,789	15	6,111
2013	GW	82	0	0	0	2	9	93
	SW	311	0	0	0	5,818	14	6,143
2012	GW	91	0	0	0	0	10	101
	SW	302	0	0	0	7,644	15	7,961
2011	GW	87	0	0	0	0	11	98

	SW	304	0	0	0	10,877	17	11,198
2010	GW	99	0	2	0	0	11	112
	SW	308	0	2	0	4,914	17	5,241
2009	GW	51	0	1	0	0	10	62
	SW	383	0	1	0	6,519	14	6,917
2008	GW	20	0	0	0	0	11	31
	SW	382	0	0	0	6,476	16	6,874
2007	GW	12	0	0	0	0	14	26
	SW	355	0	0	0	6,274	21	6,650
2006	GW	12	0	0	0	0	12	24
	SW	358	16	0	0	6,224	19	6,617
2005	GW	10	0	0	0	0	10	20
	SW	371	16	0	0	6,282	15	6,684
2004	GW	6	0	0	0	0	3	9
	SW	334	13	0	0	4,075	24	4,446

Projected Surface Water Supplies
TWDB 2022 State Water Plan Data

BROOKS COUNTY

27.98% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
N	LIVESTOCK, BROOKS	NUECES-RIO GRANDE	NUECES-RIO GRANDE LIVESTOCK LOCAL SUPPLY	35	35	35	35	35	35
Sum of Projected Surface Water Supplies (acre-feet)				**35**	**35**	**35**	**35**	**35**	**35**

HIDALGO COUNTY

7.2% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
M	AGUA SUD	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7,148	7,148	7,149	7,147	7,148	7,148
M	AGUA SUD	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,357	1,357	1,357	1,358	1,358	1,357
M	ALAMO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,694	1,694	1,694	1,694	1,694	1,694
M	COUNTY-OTHER, HIDALGO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	138	138	138	138	138	138
M	COUNTY-OTHER, HIDALGO	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7	7	7	7	7	7
M	DONNA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,126	3,125	3,125	3,125	3,125	3,125
M	EDCOUCH	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	262	262	262	262	262	262
M	EDINBURG	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6,139	6,139	4,222	4,222	4,222	4,222
M	ELSA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	568	568	568	567	567	567
M	HIDALGO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	136	136	136	136	136	136
M	HIDALGO	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	1	1	1	1	1
M	HIDALGO COUNTY MUD 1	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	604	604	604	604	604	604
M	IRRIGATION, HIDALGO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	18,836	18,831	18,825	18,797	18,815	18,810
M	IRRIGATION,	RIO GRANDE	AMISTAD-FALCON	784	783	783	782	783	783

	HIDALGO		LAKE/RESERVOIR SYSTEM						
M	LA JOYA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	288	288	288	288	288	288
M	LA JOYA	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	76	76	76	76	76	76
M	LA VILLA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	236	236	236	236	236	236
M	LIVESTOCK, HIDALGO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	1	1	1	1
M	LIVESTOCK, HIDALGO	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5	4	4	4	4	4
M	MANUFACTURING, HIDALGO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	30	30	30	30	30	30
M	MCALLEN	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	33,544	33,544	31,744	31,744	31,744	31,744
M	MERCEDES	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,267	2,267	2,267	2,267	2,267	2,267
M	MILITARY HIGHWAY WSC	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	327	327	327	327	327	327
M	MILITARY HIGHWAY WSC	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6	6	6	6	6	6
M	MINING, HIDALGO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	87	87	87	87	87	86
M	MINING, HIDALGO	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7	7	7	7	7	7
M	MISSION	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11,550	11,550	11,550	11,550	11,550	11,550
M	MISSION	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6	6	6	6	6	6
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11,707	11,744	11,772	11,789	11,805	11,817
M	PHARR	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7,978	7,978	7,978	7,978	7,978	7,978
M	PHARR	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	2	2	2	2	2
M	SAN JUAN	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,166	3,166	3,166	3,166	3,166	3,166
M	SHARYLAND WSC	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	13,195	13,195	13,195	13,195	13,195	13,195
M	STEAM ELECTRIC POWER, HIDALGO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	25	25	25	25	25	25
M	STEAM ELECTRIC	RIO GRANDE	AMISTAD-FALCON	9	9	9	9	9	9

	POWER, HIDALGO		LAKE/RESERVOIR SYSTEM						
M	WESLACO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5,408	5,408	5,408	5,408	5,408	5,408
	Sum of Projected Surface Water Supplies (acre-feet)			**130,719**	**130,749**	**127,055**	**127,041**	**127,077**	**127,082**

JIM WELLS COUNTY

5.14% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
N	ALICE	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	2,247	2,372	2,489	2,634	2,774	2,906
N	ALICE	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	2,247	2,372	2,489	2,633	2,774	2,906
N	LIVESTOCK, JIM WELLS	NUECES	NUECES LIVESTOCK LOCAL SUPPLY	2	2	2	2	2	2
N	LIVESTOCK, JIM WELLS	NUECES-RIO GRANDE	NUECES-RIO GRANDE LIVESTOCK LOCAL SUPPLY	9	9	9	9	9	9
	Sum of Projected Surface Water Supplies (acre-feet)			**4,505**	**4,755**	**4,989**	**5,278**	**5,559**	**5,823**

KLEBERG COUNTY

81.75% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
N	COUNTY-OTHER, KLEBERG	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	16	17	18	20	20	21
N	COUNTY-OTHER, KLEBERG	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	16	16	18	19	20	21
N	KINGSVILLE	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	211	252	268	289	438	518
N	KINGSVILLE	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	213	255	270	288	439	520
N	RICARDO WSC	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	170	180	191	202	215	227
N	RICARDO WSC	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	170	181	191	203	215	227
	Sum of Projected Surface Water Supplies (acre-feet)			**796**	**901**	**956**	**1,021**	**1,347**	**1,534**

NUECES COUNTY

4.04% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
N	ARANSAS PASS	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	1	1	1	1	1	1
N	ARANSAS PASS	SAN ANTONIO-NUECES	TEXANA LAKE/RESERVOIR	1	1	1	1	1	1
N	BISHOP	NUECES-RIO	CORPUS CHRISTI-	196	219	225	229	231	232

		GRANDE	CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	BISHOP	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	115	126	138	149	159	167
N	CORPUS CHRISTI	NUECES	COLORADO RUN-OF-RIVER	328	426	517	608	802	1,094
N	CORPUS CHRISTI	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	3,702	3,692	3,666	3,702	3,644	3,451
N	CORPUS CHRISTI	NUECES	TEXANA LAKE/RESERVOIR	842	1,064	1,174	1,153	1,122	1,097
N	CORPUS CHRISTI	NUECES-RIO GRANDE	COLORADO RUN-OF-RIVER	3,980	5,182	6,291	7,400	9,754	13,298
N	CORPUS CHRISTI	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	45,026	44,879	44,573	45,011	44,300	41,965
N	CORPUS CHRISTI	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	10,232	12,937	14,272	14,014	13,636	13,335
N	CORPUS CHRISTI NAVAL AIR STATION	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	543	589	619	636	648	658
N	CORPUS CHRISTI NAVAL AIR STATION	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	542	589	618	635	648	657
N	COUNTY-OTHER, NUECES	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	2	2	2	2	2	2
N	COUNTY-OTHER, NUECES	NUECES	TEXANA LAKE/RESERVOIR	2	2	2	2	2	2
N	COUNTY-OTHER, NUECES	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	2	2	2	3	3	3
N	COUNTY-OTHER, NUECES	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	2	2	2	3	3	3
N	COUNTY-OTHER, NUECES	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
N	COUNTY-OTHER, NUECES	SAN ANTONIO-NUECES	TEXANA LAKE/RESERVOIR	0	0	0	0	0	0
N	DRISCOLL	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	52	55	56	57	58	59
N	DRISCOLL	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	53	55	56	57	58	58
N	IRRIGATION, NUECES	NUECES-RIO GRANDE	NUECES-RIO GRANDE RUN-OF-RIVER	0	0	0	0	0	0
N	LIVESTOCK, NUECES	NUECES	NUECES LIVESTOCK LOCAL SUPPLY	2	2	2	2	2	2
N	MANUFACTURING, NUECES	NUECES	COLORADO RUN-OF-RIVER	0	0	0	0	2	2
N	MANUFACTURING, NUECES	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR	0	2	2	2	0	0

			SYSTEM						
N	MANUFACTURING, NUECES	NUECES-RIO GRANDE	COLORADO RUN-OF-RIVER	1,212	1,159	1,111	1,063	958	803
N	MANUFACTURING, NUECES	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	340	356	368	350	378	479
N	MANUFACTURING, NUECES	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	202	69	0	0	0	0
N	NUECES COUNTY WCID 3	NUECES-RIO GRANDE	NUECES RUN-OF-RIVER	192	192	192	192	192	192
N	NUECES COUNTY WCID 4	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	1,233	1,331	1,391	1,427	1,456	1,475
N	NUECES COUNTY WCID 4	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	1,232	1,330	1,391	1,427	1,456	1,476
N	NUECES WSC	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	6	8	9	10	11	13
N	NUECES WSC	NUECES	TEXANA LAKE/RESERVOIR	6	8	9	10	12	13
N	NUECES WSC	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	223	287	325	371	424	486
N	NUECES WSC	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	222	286	325	371	424	487
N	RIVER ACRES WSC	NUECES	NUECES RUN-OF-RIVER	192	192	192	192	192	192
N	STEAM ELECTRIC POWER, NUECES	NUECES	COLORADO RUN-OF-RIVER	23	23	23	23	23	23
N	STEAM ELECTRIC POWER, NUECES	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	22	22	22	22	22	22
N	STEAM ELECTRIC POWER, NUECES	NUECES	TEXANA LAKE/RESERVOIR	23	23	23	23	23	23
N	STEAM ELECTRIC POWER, NUECES	NUECES-RIO GRANDE	COLORADO RUN-OF-RIVER	5	5	5	5	5	5
N	STEAM ELECTRIC POWER, NUECES	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	5	5	5	5	5	5
N	STEAM ELECTRIC POWER, NUECES	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	5	5	5	5	5	5
N	VIOLET WSC	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	93	96	98	99	100	102
N	VIOLET WSC	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR	93	97	98	99	101	102
	Sum of Projected Surface Water Supplies (acre-feet)			**70,952**	**75,321**	**77,811**	**79,361**	**80,863**	**81,990**

WILLACY COUNTY

10.92% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
M	COUNTY-OTHER, WILLACY	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	53	53	53	53	53	53

M	EAST RIO HONDO WSC	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5	5	5	5	5	5
M	IRRIGATION, WILLACY	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,253	2,252	2,252	2,251	2,250	2,250
M	LIVESTOCK, WILLACY	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	26	26	15	15	15	15
M	LYFORD	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	588	588	588	588	588	588
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	460	422	392	374	358	346
M	PORT MANSFIELD PUD	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	98	98	98	98	98	98
M	RAYMONDVILLE	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,402	3,402	3,402	3,402	3,402	3,402
M	SEBASTIAN MUD	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	204	204	204	204	204	204
	Sum of Projected Surface Water Supplies (acre-feet)			**7,089**	**7,050**	**7,009**	**6,990**	**6,973**	**6,961**

Projected Water Demands
TWDB 2022 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.

BROOKS COUNTY

27.98% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	COUNTY-OTHER, BROOKS	NUECES-RIO GRANDE	63	69	75	83	91	95
N	FALFURRIAS	NUECES-RIO GRANDE	1,639	1,668	1,703	1,745	1,790	1,852
N	IRRIGATION, BROOKS	NUECES-RIO GRANDE	325	325	325	325	325	325
N	LIVESTOCK, BROOKS	NUECES-RIO GRANDE	130	130	130	130	130	130
N	MANUFACTURING, BROOKS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MINING, BROOKS	NUECES-RIO GRANDE	100	101	95	91	86	83
	Sum of Projected Water Demands (acre-feet)		**2,257**	**2,293**	**2,328**	**2,374**	**2,422**	**2,485**

HIDALGO COUNTY

7.2% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
M	AGUA SUD	NUECES-RIO GRANDE	6,198	7,465	8,781	10,138	11,533	12,904
M	AGUA SUD	RIO GRANDE	1,177	1,418	1,668	1,926	2,191	2,451
M	ALAMO	NUECES-RIO GRANDE	3,230	3,908	4,607	5,326	6,064	6,786
M	COUNTY-OTHER, HIDALGO	NUECES-RIO GRANDE	196	244	304	361	418	478
M	COUNTY-OTHER, HIDALGO	RIO GRANDE	10	13	16	19	22	25
M	DONNA	NUECES-RIO GRANDE	2,610	3,126	3,659	4,218	4,802	5,374
M	EDCOUCH	NUECES-RIO GRANDE	343	401	463	531	603	675
M	EDINBURG	NUECES-RIO GRANDE	12,974	15,730	18,573	21,484	24,459	27,374
M	ELSA	NUECES-RIO GRANDE	832	987	1,150	1,322	1,504	1,683
M	HIDALGO	NUECES-RIO GRANDE	1,841	2,233	2,637	3,051	3,473	3,888
M	HIDALGO	RIO GRANDE	17	20	24	28	32	35
M	HIDALGO COUNTY MUD 1	NUECES-RIO GRANDE	816	896	979	1,063	1,147	1,228
M	IRRIGATION, HIDALGO	NUECES-RIO GRANDE	47,604	46,075	44,547	43,019	41,491	39,963
M	IRRIGATION, HIDALGO	RIO GRANDE	1,981	1,917	1,853	1,790	1,726	1,663
M	LA JOYA	NUECES-RIO GRANDE	515	619	727	839	955	1,068
M	LA JOYA	RIO GRANDE	136	164	192	221	252	282
M	LA VILLA	NUECES-RIO GRANDE	277	332	388	448	509	570
M	LIVESTOCK, HIDALGO	NUECES-RIO GRANDE	51	51	51	51	51	51
M	LIVESTOCK, HIDALGO	RIO GRANDE	5	5	5	5	5	5
M	MANUFACTURING, HIDALGO	NUECES-RIO GRANDE	161	196	196	196	196	196
M	MCALLEN	NUECES-RIO GRANDE	39,787	48,510	57,403	66,492	75,765	84,820
M	MERCEDES	NUECES-RIO GRANDE	2,222	2,648	3,090	3,558	4,048	4,530
M	MILITARY HIGHWAY WSC	NUECES-RIO GRANDE	2,891	3,395	3,919	4,479	5,062	5,650
M	MILITARY HIGHWAY WSC	RIO GRANDE	57	67	77	88	100	111
M	MINING, HIDALGO	NUECES-RIO GRANDE	190	242	280	322	369	429

M	MINING, HIDALGO	RIO GRANDE	15	19	22	25	29	34
M	MISSION	NUECES-RIO GRANDE	20,059	24,519	29,070	33,699	38,393	42,978
M	MISSION	RIO GRANDE	11	13	16	18	21	24
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	26,417	32,031	37,785	43,670	49,653	55,513
M	PHARR	NUECES-RIO GRANDE	9,920	11,930	14,016	16,178	18,410	20,601
M	PHARR	RIO GRANDE	3	3	4	4	5	5
M	SAN JUAN	NUECES-RIO GRANDE	4,947	5,990	7,063	8,166	9,298	10,407
M	SHARYLAND WSC	NUECES-RIO GRANDE	12,901	15,628	18,421	21,302	24,263	27,160
M	STEAM ELECTRIC POWER, HIDALGO	NUECES-RIO GRANDE	545	545	545	545	545	545
M	STEAM ELECTRIC POWER, HIDALGO	RIO GRANDE	286	286	286	286	286	286
M	WESLACO	NUECES-RIO GRANDE	7,697	9,711	11,550	13,443	15,391	17,218
	Sum of Projected Water Demands (acre-feet)		**208,922**	**241,337**	**274,367**	**308,311**	**343,071**	**377,010**

JIM WELLS COUNTY

5.14% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	ALICE	NUECES-RIO GRANDE	4,494	4,744	4,978	5,267	5,548	5,812
N	COUNTY-OTHER, JIM WELLS	NUECES	21	22	23	25	26	27
N	COUNTY-OTHER, JIM WELLS	NUECES-RIO GRANDE	87	91	95	100	106	111
N	IRRIGATION, JIM WELLS	NUECES	18	18	18	18	18	18
N	IRRIGATION, JIM WELLS	NUECES-RIO GRANDE	80	80	80	80	80	80
N	JIM WELLS COUNTY FWSD 1	NUECES-RIO GRANDE	131	141	151	161	170	178
N	LIVESTOCK, JIM WELLS	NUECES	8	8	8	8	8	8
N	LIVESTOCK, JIM WELLS	NUECES-RIO GRANDE	39	39	39	39	39	39
N	MANUFACTURING, JIM WELLS	NUECES-RIO GRANDE	4	5	5	5	5	5
N	MINING, JIM WELLS	NUECES	0	0	0	0	0	0
N	MINING, JIM WELLS	NUECES-RIO GRANDE	3	4	3	2	1	1
N	ORANGE GROVE	NUECES-RIO GRANDE	476	506	534	566	596	625
N	PREMONT	NUECES-RIO GRANDE	709	752	791	841	886	928
N	SAN DIEGO MUD 1	NUECES-RIO GRANDE	174	180	186	192	198	204
	Sum of Projected Water Demands (acre-feet)		**6,244**	**6,590**	**6,911**	**7,304**	**7,681**	**8,036**

KENEDY COUNTY

100% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	COUNTY-OTHER, KENEDY	NUECES-RIO GRANDE	244	260	262	263	263	263
N	LIVESTOCK, KENEDY	NUECES-RIO GRANDE	735	735	735	735	735	735
N	MINING, KENEDY	NUECES-RIO GRANDE	118	123	92	68	43	27
	Sum of Projected Water Demands (acre-feet)		**1,097**	**1,118**	**1,089**	**1,066**	**1,041**	**1,025**

KLEBERG COUNTY

81.75% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	BAFFIN BAY WSC	NUECES-RIO GRANDE	237	253	268	285	303	320
N	COUNTY-OTHER, KLEBERG	NUECES-RIO GRANDE	210	222	237	254	271	285
N	IRRIGATION, KLEBERG	NUECES-RIO GRANDE	695	695	695	695	695	695
N	KINGSVILLE	NUECES-RIO GRANDE	4,205	4,453	4,706	4,992	5,301	5,599

N	LIVESTOCK, KLEBERG	NUECES-RIO GRANDE	550	550	550	550	550	550
N	MANUFACTURING, KLEBERG	NUECES-RIO GRANDE	1,479	1,681	1,681	1,681	1,681	1,681
N	MINING, KLEBERG	NUECES-RIO GRANDE	292	294	278	265	252	244
N	NAVAL AIR STATION KINGSVILLE	NUECES-RIO GRANDE	256	284	303	327	347	366
N	RICARDO WSC	NUECES-RIO GRANDE	340	361	382	405	430	454
N	RIVIERA WATER SYSTEM	NUECES-RIO GRANDE	114	121	129	137	145	153
	Sum of Projected Water Demands (acre-feet)		**8,378**	**8,914**	**9,229**	**9,591**	**9,975**	**10,347**

NUECES COUNTY

4.04% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	ARANSAS PASS	SAN ANTONIO-NUECES	2	2	2	2	2	2
N	BISHOP	NUECES-RIO GRANDE	593	627	645	660	672	681
N	CORPUS CHRISTI	NUECES	4,872	5,182	5,357	5,463	5,568	5,642
N	CORPUS CHRISTI	NUECES-RIO GRANDE	59,238	62,998	65,136	66,425	67,690	68,598
N	CORPUS CHRISTI NAVAL AIR STATION	NUECES-RIO GRANDE	1,085	1,178	1,237	1,271	1,296	1,315
N	COUNTY-OTHER, NUECES	NUECES	4	4	5	5	5	4
N	COUNTY-OTHER, NUECES	NUECES-RIO GRANDE	56	60	64	65	64	63
N	COUNTY-OTHER, NUECES	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	DRISCOLL	NUECES-RIO GRANDE	105	110	112	114	116	117
N	IRRIGATION, NUECES	NUECES	2	2	2	2	2	2
N	IRRIGATION, NUECES	NUECES-RIO GRANDE	60	60	60	60	60	60
N	LIVESTOCK, NUECES	NUECES	2	2	2	2	2	2
N	LIVESTOCK, NUECES	NUECES-RIO GRANDE	10	10	10	10	10	10
N	MANUFACTURING, NUECES	NUECES	27	29	29	29	29	29
N	MANUFACTURING, NUECES	NUECES-RIO GRANDE	1,808	2,005	2,005	2,005	2,005	2,005
N	MINING, NUECES	NUECES	26	31	34	37	41	45
N	MINING, NUECES	NUECES-RIO GRANDE	2	2	3	3	3	4
N	MINING, NUECES	SAN ANTONIO-NUECES	1	1	2	2	2	2
N	NUECES COUNTY WCID 3	NUECES	965	962	953	948	947	947
N	NUECES COUNTY WCID 3	NUECES-RIO GRANDE	3,039	3,030	2,999	2,985	2,982	2,981
N	NUECES COUNTY WCID 4	NUECES-RIO GRANDE	2,465	2,661	2,782	2,854	2,912	2,951
N	NUECES WSC	NUECES	12	16	18	20	23	26
N	NUECES WSC	NUECES-RIO GRANDE	445	573	650	742	848	973
N	RIVER ACRES WSC	NUECES	426	450	462	470	479	485
N	STEAM ELECTRIC POWER, NUECES	NUECES	67	67	67	67	67	67
N	STEAM ELECTRIC POWER, NUECES	NUECES-RIO GRANDE	16	16	16	16	16	16
N	VIOLET WSC	NUECES-RIO GRANDE	186	193	196	198	201	204
	Sum of Projected Water Demands (acre-feet)		**75,514**	**80,271**	**82,848**	**84,455**	**86,042**	**87,231**

WILLACY COUNTY

10.92% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
M	COUNTY-OTHER, WILLACY	NUECES-RIO GRANDE	6	6	7	8	8	9
M	EAST RIO HONDO WSC	NUECES-RIO GRANDE	5	6	6	7	7	8
M	IRRIGATION, WILLACY	NUECES-RIO GRANDE	10,877	10,528	10,179	9,830	9,481	9,131

M	LIVESTOCK, WILLACY	NUECES-RIO GRANDE	26	26	26	26	26	26
M	LYFORD	NUECES-RIO GRANDE	290	314	338	367	399	431
M	MINING, WILLACY	NUECES-RIO GRANDE	5	6	4	3	2	1
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	1,038	1,148	1,259	1,383	1,506	1,628
M	PORT MANSFIELD PUD	NUECES-RIO GRANDE	231	259	285	313	342	369
M	RAYMONDVILLE	NUECES-RIO GRANDE	1,490	1,618	1,747	1,904	2,072	2,239
M	SEBASTIAN MUD	NUECES-RIO GRANDE	157	168	186	205	224	242
	Sum of Projected Water Demands (acre-feet)		**14,125**	**14,079**	**14,037**	**14,046**	**14,067**	**14,084**

Projected Water Supply Needs
TWDB 2022 State Water Plan Data

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

BROOKS COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	COUNTY-OTHER, BROOKS	NUECES-RIO GRANDE	-192	-214	-237	-265	-292	-309
N	FALFURRIAS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	IRRIGATION, BROOKS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	LIVESTOCK, BROOKS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MANUFACTURING, BROOKS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MINING, BROOKS	NUECES-RIO GRANDE	-179	-182	-162	-146	-130	-120
	Sum of Projected Water Supply Needs (acre-feet)		**-371**	**-396**	**-399**	**-411**	**-422**	**-429**

HIDALGO COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
M	AGUA SUD	NUECES-RIO GRANDE	950	-317	-1,632	-2,991	-4,385	-5,756
M	AGUA SUD	RIO GRANDE	180	-61	-311	-568	-833	-1,094
M	ALAMO	NUECES-RIO GRANDE	-1,014	-1,692	-2,391	-3,110	-3,848	-4,570
M	COUNTY-OTHER, HIDALGO	NUECES-RIO GRANDE	-564	-1,223	-2,057	-2,850	-3,648	-4,472
M	COUNTY-OTHER, HIDALGO	RIO GRANDE	-40	-70	-113	-155	-197	-241
M	DONNA	NUECES-RIO GRANDE	516	-1	-534	-1,093	-1,677	-2,249
M	EDCOUCH	NUECES-RIO GRANDE	-81	-139	-201	-269	-341	-413
M	EDINBURG	NUECES-RIO GRANDE	-6,835	-9,591	-14,351	-17,262	-20,237	-23,152
M	ELSA	NUECES-RIO GRANDE	-264	-419	-582	-755	-937	-1,116
M	HIDALGO	NUECES-RIO GRANDE	-103	-331	-735	-1,149	-1,571	-1,986
M	HIDALGO	RIO GRANDE	-1	-3	-7	-11	-15	-18
M	HIDALGO COUNTY MUD 1	NUECES-RIO GRANDE	-212	-292	-375	-459	-543	-624
M	IRRIGATION, HIDALGO	NUECES-RIO GRANDE	-394,005	-372,832	-351,678	-330,853	-309,369	-288,215
M	IRRIGATION, HIDALGO	RIO GRANDE	-16,391	-15,511	-14,630	-13,765	-12,870	-11,989
M	LA JOYA	NUECES-RIO GRANDE	-227	-331	-439	-551	-667	-780
M	LA JOYA	RIO GRANDE	-60	-88	-116	-145	-176	-206
M	LA VILLA	NUECES-RIO GRANDE	-41	-96	-152	-212	-273	-334
M	LIVESTOCK, HIDALGO	NUECES-RIO GRANDE	0	0	0	0	0	0
M	LIVESTOCK, HIDALGO	RIO GRANDE	0	0	0	0	0	0
M	MANUFACTURING, HIDALGO	NUECES-RIO GRANDE	679	194	194	194	194	194
M	MCALLEN	NUECES-RIO GRANDE	-2,872	-11,595	-22,288	-31,377	-40,650	-49,705
M	MERCEDES	NUECES-RIO GRANDE	671	245	-197	-665	-1,155	-1,637
M	MILITARY HIGHWAY WSC	NUECES-RIO GRANDE	461	-43	-567	-1,127	-1,710	-2,298
M	MILITARY HIGHWAY WSC	RIO GRANDE	8	-2	-12	-23	-35	-46
M	MINING, HIDALGO	NUECES-RIO GRANDE	-798	-1,517	-2,054	-2,630	-3,290	-4,127
M	MINING, HIDALGO	RIO GRANDE	-113	-170	-212	-257	-310	-376

M	MISSION	NUECES-RIO GRANDE	-8,509	-12,969	-17,520	-22,149	-26,843	-31,428
M	MISSION	RIO GRANDE	-5	-7	-10	-12	-15	-18
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	-5,443	-10,798	-16,503	-22,356	-28,312	-34,151
M	PHARR	NUECES-RIO GRANDE	448	-1,361	-3,238	-5,184	-7,192	-9,164
M	PHARR	RIO GRANDE	1	1	0	0	-1	-1
M	SAN JUAN	NUECES-RIO GRANDE	1	-1,042	-2,115	-3,218	-4,350	-5,459
M	SHARYLAND WSC	NUECES-RIO GRANDE	294	-2,433	-5,226	-8,107	-11,068	-13,965
M	STEAM ELECTRIC POWER, HIDALGO	NUECES-RIO GRANDE	-1,137	-1,014	-948	-948	-948	-948
M	STEAM ELECTRIC POWER, HIDALGO	RIO GRANDE	-655	-589	-555	-555	-555	-555
M	WESLACO	NUECES-RIO GRANDE	-1,519	-3,332	-5,090	-6,983	-8,931	-10,758
	Sum of Projected Water Supply Needs (acre-feet)		**-440,889**	**-449,869**	**-466,839**	**-481,789**	**-496,952**	**-511,851**

JIM WELLS COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	ALICE	NUECES-RIO GRANDE	0	0	0	0	0	0
N	COUNTY-OTHER, JIM WELLS	NUECES	-412	-433	-453	-479	-504	-529
N	COUNTY-OTHER, JIM WELLS	NUECES-RIO GRANDE	-1,646	-1,731	-1,813	-1,916	-2,021	-2,121
N	IRRIGATION, JIM WELLS	NUECES	-39	-39	-39	-39	-39	-39
N	IRRIGATION, JIM WELLS	NUECES-RIO GRANDE	-294	-294	-294	-294	-294	-294
N	JIM WELLS COUNTY FWSD 1	NUECES-RIO GRANDE	0	0	0	0	0	0
N	LIVESTOCK, JIM WELLS	NUECES	0	0	0	0	0	0
N	LIVESTOCK, JIM WELLS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MANUFACTURING, JIM WELLS	NUECES-RIO GRANDE	0	-16	-16	-16	-16	-16
N	MINING, JIM WELLS	NUECES	-4	-4	-3	-2	-1	-1
N	MINING, JIM WELLS	NUECES-RIO GRANDE	-48	-51	-33	-19	-6	0
N	ORANGE GROVE	NUECES-RIO GRANDE	0	0	0	0	0	0
N	PREMONT	NUECES-RIO GRANDE	0	0	0	0	0	0
N	SAN DIEGO MUD 1	NUECES-RIO GRANDE	0	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet)		**-2,443**	**-2,568**	**-2,651**	**-2,765**	**-2,881**	**-3,000**

KENEDY COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	COUNTY-OTHER, KENEDY	NUECES-RIO GRANDE	0	0	0	0	0	0
N	LIVESTOCK, KENEDY	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MINING, KENEDY	NUECES-RIO GRANDE	-58	-63	-32	-8	0	0
	Sum of Projected Water Supply Needs (acre-feet)		**-58**	**-63**	**-32**	**-8**	**0**	**0**

KLEBERG COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
N	BAFFIN BAY WSC	NUECES-RIO GRANDE	0	0	0	0	0	0
N	COUNTY-OTHER, KLEBERG	NUECES-RIO GRANDE	0	0	1	0	0	0
N	IRRIGATION, KLEBERG	NUECES-RIO GRANDE	0	0	0	0	0	0
N	KINGSVILLE	NUECES-RIO GRANDE	0	0	0	0	0	0
N	LIVESTOCK, KLEBERG	NUECES-RIO GRANDE	0	0	0	0	0	0

N	MANUFACTURING, KLEBERG	NUECES-RIO GRANDE	0	-247	-247	-247	-247	-247
N	MINING, KLEBERG	NUECES-RIO GRANDE	-139	-142	-122	-106	-90	-80
N	NAVAL AIR STATION KINGSVILLE	NUECES-RIO GRANDE	0	0	0	0	0	0
N	RICARDO WSC	NUECES-RIO GRANDE	0	0	0	0	0	0
N	RIVIERA WATER SYSTEM	NUECES-RIO GRANDE	0	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet)		**-139**	**-389**	**-369**	**-353**	**-337**	**-327**

NUECES COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
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	0	0	0	0	0	0
N	CORPUS CHRISTI NAVAL AIR STATION	NUECES-RIO GRANDE	0	0	0	0	0	0
N	COUNTY-OTHER, NUECES	NUECES	0	0	0	0	0	0
N	COUNTY-OTHER, NUECES	NUECES-RIO GRANDE	-1,245	-1,356	-1,430	-1,435	-1,417	-1,364
N	COUNTY-OTHER, NUECES	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	DRISCOLL	NUECES-RIO GRANDE	0	0	0	0	0	0
N	IRRIGATION, NUECES	NUECES	-51	-51	-51	-51	-51	-51
N	IRRIGATION, NUECES	NUECES-RIO GRANDE	0	0	0	0	0	0
N	LIVESTOCK, NUECES	NUECES	0	0	0	0	0	0
N	LIVESTOCK, NUECES	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MANUFACTURING, NUECES	NUECES	0	0	0	0	0	0
N	MANUFACTURING, NUECES	NUECES-RIO GRANDE	0	-9,084	-11,685	-13,339	-15,228	-16,587
N	MINING, NUECES	NUECES	-600	-715	-798	-864	-961	-1,077
N	MINING, NUECES	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MINING, NUECES	SAN ANTONIO-NUECES	-29	-34	-38	-41	-45	-50
N	NUECES COUNTY WCID 3	NUECES	-965	-962	-953	-948	-947	-947
N	NUECES COUNTY WCID 3	NUECES-RIO GRANDE	-2,847	-2,838	-2,807	-2,793	-2,790	-2,789
N	NUECES COUNTY WCID 4	NUECES-RIO GRANDE	0	0	0	0	0	0
N	NUECES WSC	NUECES	0	0	0	0	0	0
N	NUECES WSC	NUECES-RIO GRANDE	0	0	0	0	0	0
N	RIVER ACRES WSC	NUECES	-234	-258	-270	-278	-287	-293
N	STEAM ELECTRIC POWER, NUECES	NUECES	0	0	0	0	0	0
N	STEAM ELECTRIC POWER, NUECES	NUECES-RIO GRANDE	0	0	0	0	0	0
N	VIOLET WSC	NUECES-RIO GRANDE	0	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet)		**-5,971**	**-15,298**	**-18,032**	**-19,749**	**-21,726**	**-23,158**

WILLACY COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
M	COUNTY-OTHER, WILLACY	NUECES-RIO GRANDE	434	428	439	432	426	419
M	EAST RIO HONDO WSC	NUECES-RIO GRANDE	1	1	1	0	-1	-2
M	IRRIGATION, WILLACY	NUECES-RIO GRANDE	-78,979	-75,786	-72,475	-69,283	-66,091	-62,898
M	LIVESTOCK, WILLACY	NUECES-RIO GRANDE	0	0	0	0	0	0

M	LYFORD	NUECES-RIO GRANDE	298	274	250	221	189	157
M	MINING, WILLACY	NUECES-RIO GRANDE	-49	-51	-18	-8	2	8
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	-213	-387	-551	-708	-858	-1,002
M	PORT MANSFIELD PUD	NUECES-RIO GRANDE	-133	-161	-187	-215	-244	-271
M	RAYMONDVILLE	NUECES-RIO GRANDE	1,916	1,789	1,660	1,503	1,335	1,168
M	SEBASTIAN MUD	NUECES-RIO GRANDE	47	36	18	-1	-20	-38
	Sum of Projected Water Supply Needs (acre-feet)		**-79,374**	**-76,385**	**-73,231**	**-70,215**	**-67,214**	**-64,211**

Projected Water Management Strategies
TWDB 2022 State Water Plan Data

BROOKS COUNTY

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

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, BROOKS, NUECES-RIO GRANDE (N)							
GULF COAST SUPPLIES - BROOKS COUNTY OTHER	GULF COAST AQUIFER SYSTEM [BROOKS]	309	309	309	309	309	309
		309	**309**	**309**	**309**	**309**	**309**
FALFURRIAS, NUECES-RIO GRANDE (N)							
MUNICIPAL CONSERVATION - FALFURRIAS	DEMAND REDUCTION [BROOKS]	0	132	266	406	546	688
		0	**132**	**266**	**406**	**546**	**688**
MINING, BROOKS, NUECES-RIO GRANDE (N)							
GULF COAST SUPPLIES - BROOKS MINING	GULF COAST AQUIFER SYSTEM [BROOKS]	182	182	182	182	182	182
MINING WATER CONSERVATION	DEMAND REDUCTION [BROOKS]	9	18	26	32	39	45
		191	**200**	**208**	**214**	**221**	**227**
Sum of Projected Water Management Strategies (acre-feet)		**500**	**641**	**783**	**929**	**1,076**	**1,224**

HIDALGO COUNTY

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

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
AGUA SUD, NUECES-RIO GRANDE (M)							
ADVANCED MUNICIPAL CONSERVATION - AGUA SUD	DEMAND REDUCTION [HIDALGO]	0	0	0	338	901	1,581
AGUA SUD - EAST WWTP POTABLE REUSE	DIRECT REUSE [HIDALGO]	0	0	1,874	1,874	1,874	1,874
AGUA SUD - WEST WWTP POTABLE REUSE	DIRECT REUSE [HIDALGO]	468	468	1,874	1,874	1,874	1,874
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	291	347	404	460	516
HIDALGO COUNTY ID NO. 16 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	236	273	308	345	382	419
HIDALGO COUNTY ID NO. 6 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	603	669	737	804	871	939
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	1,189	2,091	2,804	3,381

		1,307	**1,701**	**6,329**	**7,730**	**9,166**	**10,584**
AGUA SUD, RIO GRANDE (M)							
ADVANCED MUNICIPAL CONSERVATION - AGUA SUD	DEMAND REDUCTION [HIDALGO]	0	0	0	64	171	300
AGUA SUD - EAST WWTP POTABLE REUSE	DIRECT REUSE [HIDALGO]	0	0	356	356	356	356
AGUA SUD - WEST WWTP POTABLE REUSE	DIRECT REUSE [HIDALGO]	89	89	356	356	356	356
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	55	66	77	88	98
HIDALGO COUNTY ID NO. 16 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	45	52	59	66	72	79
HIDALGO COUNTY ID NO. 6 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	114	127	140	153	165	178
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	225	398	534	643
		248	**323**	**1,202**	**1,470**	**1,742**	**2,010**
ALAMO, NUECES-RIO GRANDE (M)							
ADVANCED MUNICIPAL CONSERVATION - ALAMO	DEMAND REDUCTION [HIDALGO]	0	0	46	278	587	952
ALAMO - BRACKISH GROUNDWATER DESALINATION PLANT	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	896	896	896	896	896
ALAMO - FRESH GROUNDWATER WELL	GULF COAST AQUIFER SYSTEM [HIDALGO]	1,120	1,120	1,120	1,120	1,120	1,120
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	118	146	175	203	232	260
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	8	57	107	156	205	254
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	245	606	1,185	1,591	1,948	2,230
		1,491	**2,825**	**3,529**	**4,244**	**4,988**	**5,712**
COUNTY-OTHER, HIDALGO, NUECES-RIO GRANDE (M)							
DONNA ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	27	93	155	216	280	340
URBANIZATION - WUG REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	546	1,139	1,911	2,643	3,378	4,141
		573	**1,232**	**2,066**	**2,859**	**3,658**	**4,481**
COUNTY-OTHER, HIDALGO, RIO GRANDE (M)							
DONNA ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	12	11	13	17	18	23
URBANIZATION - WUG REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	29	60	101	139	179	219
		41	**71**	**114**	**156**	**197**	**242**
DONNA, NUECES-RIO GRANDE (M)							
ADVANCED MUNICIPAL	DEMAND REDUCTION	0	0	0	69	300	578

CONSERVATION - DONNA	[HIDALGO]						
DONNA - WTP EXPANSION, NEW RAW WATER RESERVOIR, AND RAW WATER PUMP STATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	950	950	2,240	2,240	2,240	2,240
DONNA ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	64	170	276	382	488	594
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	0	147	171	195	218
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,415	2,240	2,361	2,721	2,943	3,107
		2,429	**3,360**	**5,024**	**5,583**	**6,166**	**6,737**

EDCOUCH, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - EDCOUCH	DEMAND REDUCTION [HIDALGO]	0	0	0	0	0	16
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	13	16	19	23	26	29
EDCOUCH - NEW GROUNDWATER SUPPLY	GULF COAST AQUIFER SYSTEM [HIDALGO]	725	725	725	725	725	725
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	14	24	35	45	56	66
		752	**765**	**779**	**793**	**807**	**836**

EDINBURG, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - EDINBURG	DEMAND REDUCTION [HIDALGO]	0	0	329	1,290	2,549	4,035
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	488	606	724	843	961	1,076
EDINBURG NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	3,243	3,920	3,920	3,920	3,920	3,920
HIDALGO COUNTY ID NO. 1 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	259	350	216	261	305	350
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	11	79	146	214	281	349
URBANIZATION - WUG REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,499	210	2,097	302	0	0
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,737	4,862	8,661	12,109	13,824	14,969
		7,237	**10,027**	**16,093**	**18,939**	**21,840**	**24,699**

ELSA, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - ELSA	DEMAND REDUCTION [HIDALGO]	0	0	0	0	44	128
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	30	38	45	52	60	67
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	33	58	82	107	132	157
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	225	355	499	655	799	934
		288	**451**	**626**	**814**	**1,035**	**1,286**

HIDALGO, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - HIDALGO	DEMAND REDUCTION [HIDALGO]	0	0	46	182	361	572
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	43	54	63	73	84	94
HIDALGO - EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	0	297	297	297	297
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	76	294	656	916	1,580	1,339
		119	**348**	**1,062**	**1,468**	**2,322**	**2,302**

HIDALGO, RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - HIDALGO	DEMAND REDUCTION [HIDALGO]	0	0	0	2	3	5
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	0	1	1	1	1
HIDALGO - EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	0	3	3	3	3
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	2	4	6	8	14	13
		2	**4**	**10**	**14**	**21**	**22**

HIDALGO COUNTY MUD 1, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - HIDALGO COUNTY MUD #1	DEMAND REDUCTION [HIDALGO]	0	0	0	39	93	153
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	60	68	75	82	89	96
HIDALGO COUNTY ID NO. 1 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	42	56	71	85	100	115
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	148	218	254	293	284	292
		250	**342**	**400**	**499**	**566**	**656**

IRRIGATION, HIDALGO, NUECES-RIO GRANDE (M)

ARUNDO DONAX BIOLOGICAL CONTROL	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,177	1,177	1,177	1,177	1,177	1,177
DELTA LAKE ID - ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,387	2,481	3,573	4,666	5,757	6,848
DONNA ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	576	1,537	2,498	3,458	4,418	5,377
ENGLEMAN ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	566	650	734	818	901	985
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,996	3,490	4,984	6,477	7,968	9,459
HIDALGO COUNTY ID NO. 1 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,537	2,078	2,617	3,157	3,696	4,235
HIDALGO COUNTY ID NO. 13 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	69	82	94	107	119	131

HIDALGO COUNTY ID NO. 16 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,045	1,205	1,366	1,526	1,687	1,847
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	204	1,408	2,612	3,816	5,019	6,221
HIDALGO COUNTY ID NO. 5 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	829	829	829	829	829	830
HIDALGO COUNTY ID NO. 6 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,209	1,343	1,478	1,613	1,747	1,882
HIDALGO COUNTY WCID NO. 18 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	81	86	91	96	101	106
HIDALGO COUNTY WID NO. 19 (SHARYLAND) CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	377	394	410	426	442	458
HIDALGO COUNTY WID NO. 3 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	375	375	375	375	375	375
LA FERIA ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	6,305	6,305	6,305	6,305	6,305	6,305
ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION [HIDALGO]	12,149	12,149	12,149	12,149	12,149	12,149
SANTA CRUZ ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	2,020	2,759	3,497	4,236	4,974	5,711
UNITED ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	2,286	2,286	2,286	2,286	2,286	2,286
VALLEY ACRES ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	300	402	503	605	706	807
		34,488	**41,036**	**47,578**	**54,122**	**60,656**	**67,189**

IRRIGATION, HIDALGO, RIO GRANDE (M)

ARUNDO DONAX BIOLOGICAL CONTROL	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	49	49	49	49	49	49
DELTA LAKE ID - ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	58	103	149	194	240	285
DONNA ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	24	64	104	144	184	224
ENGLEMAN ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	24	27	31	34	38	41
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	83	145	207	269	332	394
HIDALGO COUNTY ID NO. 1 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	64	86	109	131	154	176
HIDALGO COUNTY ID NO. 13 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	3	3	4	4	5	5
HIDALGO COUNTY ID NO. 16 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	43	50	57	64	70	77

HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	8	59	109	159	209	259
HIDALGO COUNTY ID NO. 5 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	34	34	34	35	35	35
HIDALGO COUNTY ID NO. 6 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	50	56	62	67	73	78
HIDALGO COUNTY WCID NO. 18 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	3	4	4	4	4	4
HIDALGO COUNTY WID NO. 19 (SHARYLAND) CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	16	16	17	18	18	19
HIDALGO COUNTY WID NO. 3 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	16	16	16	16	16	16
LA FERIA ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	262	262	262	262	262	262
ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION [HIDALGO]	505	505	505	505	505	505
SANTA CRUZ ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	84	115	146	176	207	238
UNITED ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	95	95	95	95	95	95
VALLEY ACRES ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	13	17	21	25	29	34
		1,434	**1,706**	**1,981**	**2,251**	**2,525**	**2,796**

LA JOYA, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - LA JOYA	DEMAND REDUCTION [HIDALGO]	0	0	0	24	70	126
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	13	17	20	23	26	28
HIDALGO COUNTY ID NO. 16 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	31	36	40	45	50	55
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	298	309	398	484	534	583
		342	**362**	**458**	**576**	**680**	**792**

LA JOYA, RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - LA JOYA	DEMAND REDUCTION [HIDALGO]	0	0	0	6	19	33
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	4	4	5	6	7	8
HIDALGO COUNTY ID NO. 16 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	8	9	11	12	13	14
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	79	82	105	127	141	154
		91	**95**	**121**	**151**	**180**	**209**

LA VILLA, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - LA VILLA	DEMAND REDUCTION [HIDALGO]	0	0	0	6	29	59
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	8	10	12	14	16	18
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	11	19	27	35	43	51
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	37	97	141	188	202	218
		56	**126**	**180**	**243**	**290**	**346**

MANUFACTURING, HIDALGO, NUECES-RIO GRANDE (M)

IMPLEMENTATION OF INDUSTRIAL BEST MANAGEMENT PRACTICES	DEMAND REDUCTION [HIDALGO]	224	272	272	272	272	272
		224	**272**	**272**	**272**	**272**	**272**

MCALLEN, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - MCALLEN	DEMAND REDUCTION [HIDALGO]	0	3,558	8,804	15,340	22,992	28,889
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	1,071	1,330	1,589	1,850	2,110	2,363
HIDALGO COUNTY ID NO. 1 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	196	264	333	402	471	540
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	29	204	378	552	727	901
HIDALGO COUNTY WID NO. 3 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,672	1,672	1,672	1,672	1,672	1,672
MCALLEN - AMI PROJECT	DEMAND REDUCTION [HIDALGO]	1,140	1,140	1,140	1,140	1,140	1,140
MCALLEN - BRACKISH GROUNDWATER DESALINATION PLANT	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	2,688	2,688	2,688	2,688	2,688
MCALLEN - NORTH WWTP POTABLE REUSE	DIRECT REUSE [HIDALGO]	0	3,880	3,880	6,060	6,060	6,060
MCALLEN - RAW WATER LINE PROJECT	NUECES-RIO GRANDE RUN-OF-RIVER [HIDALGO]	800	800	800	800	800	800
UNITED ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,227	1,227	1,227	1,227	1,227	1,227
URBANIZATION - WUG REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	33	0	1,085
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	2,968	3,589	5,223	7,285
		6,135	**16,763**	**25,479**	**35,353**	**45,110**	**54,650**

MERCEDES, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - MERCEDES	DEMAND REDUCTION [HIDALGO]	0	0	0	0	170	399
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	0	128	150	171	191
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	95	167	239	310	382	453

URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	220	448	609
		95	**167**	**367**	**680**	**1,171**	**1,652**

MILITARY HIGHWAY WSC, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - MILITARY HIGHWAY WSC	DEMAND REDUCTION [HIDALGO]	0	0	134	337	600	910
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	88	103	118	134	149
HARLINGEN ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	17	25	34	43	43	43
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	44	375	648	888	1,091	1,369
		61	**488**	**919**	**1,386**	**1,868**	**2,471**

MILITARY HIGHWAY WSC, RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - MILITARY HIGHWAY WSC	DEMAND REDUCTION [HIDALGO]	0	0	3	7	12	18
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	2	2	2	3	3
HARLINGEN ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	1	1	1	1
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1	7	13	17	22	27
		1	**10**	**19**	**27**	**38**	**49**

MINING, HIDALGO, NUECES-RIO GRANDE (M)

IMPLEMENTATION OF INDUSTRIAL BEST MANAGEMENT PRACTICES	DEMAND REDUCTION [HIDALGO]	263	336	389	447	513	596
		263	**336**	**389**	**447**	**513**	**596**

MINING, HIDALGO, RIO GRANDE (M)

IMPLEMENTATION OF INDUSTRIAL BEST MANAGEMENT PRACTICES	DEMAND REDUCTION [HIDALGO]	21	26	31	35	40	47
		21	**26**	**31**	**35**	**40**	**47**

MISSION, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - MISSION	DEMAND REDUCTION [HIDALGO]	0	1,915	4,632	7,717	10,203	12,951
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	948	1,177	1,407	1,638	1,869	2,093
MISSION - BRACKISH GROUNDWATER DESALINATION PLANT	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	2,687	2,687	2,687	2,687	2,686
MISSION - POTABLE REUSE	DIRECT REUSE [HIDALGO]	3,913	3,918	3,918	7,556	7,556	7,556
UNITED ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,482	1,482	1,482	1,482	1,482	1,482
URBANIZATION - WUG REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	452	0	0	0	0	0
URBANIZATION - WWP REDUCTION	AMISTAD-FALCON	1,748	2,585	5,269	4,126	6,284	8,079

- CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	LAKE/RESERVOIR SYSTEM [RESERVOIR]						
		8,543	**13,764**	**19,395**	**25,206**	**30,081**	**34,847**
MISSION, RIO GRANDE (M)							
ADVANCED MUNICIPAL CONSERVATION - MISSION	DEMAND REDUCTION [HIDALGO]	0	1	3	4	6	7
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	1	1	1	1	1	1
MISSION - BRACKISH GROUNDWATER DESALINATION PLANT	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	1	1	1	1	2
MISSION - POTABLE REUSE	DIRECT REUSE [HIDALGO]	7	2	2	4	4	4
UNITED ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1	1	1	1	1	1
URBANIZATION - WUG REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	2	3	2	3	4
		9	**8**	**11**	**13**	**16**	**19**
NORTH ALAMO WSC, NUECES-RIO GRANDE (M)							
ADVANCED MUNICIPAL CONSERVATION - NORTH ALAMO WSC	DEMAND REDUCTION [HIDALGO]	0	1,265	2,910	5,142	7,916	11,105
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	711	879	1,048	1,217	1,386	1,551
ERHWSC & NAWSC - NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	GULF COAST AQUIFER SYSTEM [CAMERON]	0	752	754	755	756	757
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	155	272	390	508	625	743
HIDALGO COUNTY ID NO. 1 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	64	87	110	133	156	179
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	13	83	154	226	297	369
NAWSC - DELTA AREA BRACKISH GROUNDWATER DESALINATION PLANT	GULF COAST AQUIFER SYSTEM [CAMERON]	0	2,105	2,110	2,114	2,116	2,118
NAWSC - DELTA WTP EXPANSION PHASE I-II	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	4,220	5,813	5,819	5,825
SANTA CRUZ ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	45	61	78	94	111	127
URBANIZATION - WUG REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1,608	478	2,595	3,094	1,239
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	5,024	7,855	16,255	23,121	25,362	29,483
		6,012	**14,967**	**28,507**	**41,718**	**47,638**	**53,496**
PHARR, NUECES-RIO GRANDE (M)							

ADVANCED MUNICIPAL CONSERVATION - PHARR	DEMAND REDUCTION [HIDALGO]	0	0	0	458	1,354	2,432
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	555	664	773	882	988
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	39	271	502	734	965	1,190
PHARR - DIRECT POTABLE REUSE	DIRECT REUSE [CAMERON]	6,719	6,719	6,719	6,719	6,719	6,719
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	19	19	19	19	19
		6,758	**7,564**	**7,904**	**8,703**	**9,939**	**11,348**

PHARR, RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - PHARR	DEMAND REDUCTION [HIDALGO]	0	0	0	0	0	1
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	1	1	1	1	1
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	7
PHARR - DIRECT POTABLE REUSE	DIRECT REUSE [CAMERON]	2	2	2	2	2	2
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	1	1	1	1
		2	**4**	**4**	**4**	**4**	**12**

SAN JUAN, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - SAN JUAN	DEMAND REDUCTION [HIDALGO]	0	0	93	451	928	1,491
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	0	128	153	179	204	228
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	10	71	133	194	255	316
SAN JUAN - BRACKISH GROUNDWATER WELL AND DESALINATION	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	1,120	1,120	1,120	1,120	1,120
SAN JUAN - POTABLE REUSE	DIRECT REUSE [HIDALGO]	0	0	2,240	2,240	2,240	2,240
SAN JUAN - WTP NO. 1 UPGRADE, EXPANSION, AND BGD	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	1,792	1,792	1,792	1,792	1,792
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	612	1,181	1,643
		10	**3,111**	**5,531**	**6,588**	**7,720**	**8,830**

SHARYLAND WSC, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - SHARYLAND WSC	DEMAND REDUCTION [HIDALGO]	0	831	2,016	3,143	4,560	6,172
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	287	356	425	495	565	633
HIDALGO COUNTY ID NO. 1 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	483	653	823	993	1,163	1,333
SANTA CRUZ ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR	127	174	220	267	313	360

	SYSTEM [RESERVOIR]						
SHARYLAND WSC - WELL AND RO UNIT AT WTP #2	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	900	900	900	900	900
SHARYLAND WSC - WELL AND RO UNIT AT WTP #3	GULF COAST AQUIFER SYSTEM [HIDALGO]	0	900	900	900	900	900
UNITED ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	639	639	639	639	639	639
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	343	1,836	3,475	4,904	6,076
		1,536	**4,796**	**7,759**	**10,812**	**13,944**	**17,013**
STEAM ELECTRIC POWER, HIDALGO, NUECES-RIO GRANDE (M)							
EDINBURG NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	444	0	0	0	0	0
IMPLEMENTATION OF INDUSTRIAL BEST MANAGEMENT PRACTICES	DEMAND REDUCTION [HIDALGO]	757	757	757	757	757	757
		1,201	**757**	**757**	**757**	**757**	**757**
STEAM ELECTRIC POWER, HIDALGO, RIO GRANDE (M)							
EDINBURG NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	233	0	0	0	0	0
IMPLEMENTATION OF INDUSTRIAL BEST MANAGEMENT PRACTICES	DEMAND REDUCTION [HIDALGO]	397	397	397	397	397	397
		630	**397**	**397**	**397**	**397**	**397**
WESLACO, NUECES-RIO GRANDE (M)							
ADVANCED MUNICIPAL CONSERVATION - WESLACO	DEMAND REDUCTION [HIDALGO]	0	547	1,219	1,924	2,829	3,844
DROUGHT MANAGEMENT	DEMAND REDUCTION [HIDALGO]	258	333	401	470	539	603
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	235	411	588	764	940	1,117
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1,000	1,792	2,735	3,533	4,105
WESLACO - GROUNDWATER DEVELOPMENT AND BLENDING	GULF COAST AQUIFER SYSTEM [HIDALGO]	560	560	560	560	560	560
WESLACO NORTH WWTP POTABLE REUSE	DIRECT REUSE [HIDALGO]	1,120	1,120	1,120	1,120	1,120	1,120
		2,173	**3,971**	**5,680**	**7,573**	**9,521**	**11,349**
Sum of Projected Water Management Strategies (acre-feet)		**84,822**	**132,175**	**190,973**	**241,883**	**285,868**	**328,704**

JIM WELLS COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
ALICE, NUECES-RIO GRANDE (N)							
CITY OF ALICE - GROUNDWATER DESALINATION	GULF COAST AQUIFER SYSTEM [JIM WELLS]	2,369	2,825	3,251	3,360	3,360	3,360
CITY OF ALICE - NON POTABLE REUSE	DIRECT REUSE [JIM WELLS]	0	897	897	897	897	897

MUNICIPAL CONSERVATION - ALICE	DEMAND REDUCTION [JIM WELLS]	0	345	725	899	938	981
		2,369	**4,067**	**4,873**	**5,156**	**5,195**	**5,238**

COUNTY-OTHER, JIM WELLS, NUECES (N)

GULF COAST SUPPLIES - JIM WELLS COUNTY OTHER	GULF COAST AQUIFER SYSTEM [JIM WELLS]	529	529	529	529	529	529
		529	**529**	**529**	**529**	**529**	**529**

COUNTY-OTHER, JIM WELLS, NUECES-RIO GRANDE (N)

GULF COAST SUPPLIES - JIM WELLS COUNTY OTHER	GULF COAST AQUIFER SYSTEM [JIM WELLS]	2,121	2,121	2,121	2,121	2,121	2,121
		2,121	**2,121**	**2,121**	**2,121**	**2,121**	**2,121**

IRRIGATION, JIM WELLS, NUECES (N)

GULF COAST SUPPLIES - JIM WELLS IRRIGATION	GULF COAST AQUIFER SYSTEM [JIM WELLS]	39	39	39	39	39	39
IRRIGATION CONSERVATION - JIM WELLS COUNTY	DEMAND REDUCTION [JIM WELLS]	9	18	26	35	44	53
		48	**57**	**65**	**74**	**83**	**92**

IRRIGATION, JIM WELLS, NUECES-RIO GRANDE (N)

GULF COAST SUPPLIES - JIM WELLS IRRIGATION	GULF COAST AQUIFER SYSTEM [JIM WELLS]	294	294	294	294	294	294
IRRIGATION CONSERVATION - JIM WELLS COUNTY	DEMAND REDUCTION [JIM WELLS]	39	78	117	156	195	234
		333	**372**	**411**	**450**	**489**	**528**

MANUFACTURING, JIM WELLS, NUECES-RIO GRANDE (N)

GULF COAST SUPPLIES - JIM WELLS MANUFACTURING	GULF COAST AQUIFER SYSTEM [JIM WELLS]	16	16	16	16	16	16
MANUFACTURING WATER CONSERVATION	DEMAND REDUCTION [JIM WELLS]	2	5	7	10	12	14
		18	**21**	**23**	**26**	**28**	**30**

MINING, JIM WELLS, NUECES (N)

GULF COAST SUPPLIES - JIM WELLS MINING	GULF COAST AQUIFER SYSTEM [JIM WELLS]	4	4	4	4	4	4
MINING WATER CONSERVATION	DEMAND REDUCTION [JIM WELLS]	0	0	0	0	0	0
		4	**4**	**4**	**4**	**4**	**4**

MINING, JIM WELLS, NUECES-RIO GRANDE (N)

GULF COAST SUPPLIES - JIM WELLS MINING	GULF COAST AQUIFER SYSTEM [JIM WELLS]	51	51	51	51	51	51
MINING WATER CONSERVATION	DEMAND REDUCTION [JIM WELLS]	2	4	4	4	3	3
		53	**55**	**55**	**55**	**54**	**54**

ORANGE GROVE, NUECES-RIO GRANDE (N)

MUNICIPAL CONSERVATION - ORANGE GROVE	DEMAND REDUCTION [JIM WELLS]	0	40	83	131	181	232
		0	**40**	**83**	**131**	**181**	**232**

PREMONT, NUECES-RIO GRANDE (N)

MUNICIPAL CONSERVATION - PREMONT	DEMAND REDUCTION [JIM WELLS]	0	58	120	194	268	302

		0	**58**	**120**	**194**	**268**	**302**
SAN DIEGO MUD 1, NUECES-RIO GRANDE (N)							
MUNICIPAL CONSERVATION - SAN DIEGO MUD 1	DEMAND REDUCTION [JIM WELLS]	0	13	21	19	19	20
		0	**13**	**21**	**19**	**19**	**20**
Sum of Projected Water Management Strategies (acre-feet)		**5,475**	**7,337**	**8,305**	**8,759**	**8,971**	**9,150**

KENEDY COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, KENEDY, NUECES-RIO GRANDE (N)							
MUNICIPAL CONSERVATION - COUNTY OTHER (KENEDY)	DEMAND REDUCTION [KENEDY]	0	23	45	65	84	101
		0	**23**	**45**	**65**	**84**	**101**
MINING, KENEDY, NUECES-RIO GRANDE (N)							
GULF COAST SUPPLIES - KENEDY MINING	GULF COAST AQUIFER SYSTEM [KENEDY]	63	63	63	63	63	63
MINING WATER CONSERVATION	DEMAND REDUCTION [KENEDY]	3	6	7	7	5	4
		66	**69**	**70**	**70**	**68**	**67**
Sum of Projected Water Management Strategies (acre-feet)		**66**	**92**	**115**	**135**	**152**	**168**

KLEBERG COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, KLEBERG, NUECES-RIO GRANDE (N)							
MUNICIPAL CONSERVATION - COUNTY OTHER (KLEBERG)	DEMAND REDUCTION [KLEBERG]	0	10	6	6	6	6
		0	**10**	**6**	**6**	**6**	**6**
MANUFACTURING, KLEBERG, NUECES-RIO GRANDE (N)							
GULF COAST SUPPLIES - KLEBERG MANUFACTURING	GULF COAST AQUIFER SYSTEM [KLEBERG]	247	247	247	247	247	247
MANUFACTURING WATER CONSERVATION	DEMAND REDUCTION [KLEBERG]	45	103	154	206	257	308
		292	**350**	**401**	**453**	**504**	**555**
MINING, KLEBERG, NUECES-RIO GRANDE (N)							
GULF COAST SUPPLIES - KLEBERG MINING	GULF COAST AQUIFER SYSTEM [KLEBERG]	142	142	142	142	142	142
MINING WATER CONSERVATION	DEMAND REDUCTION [KLEBERG]	9	18	26	32	39	45
		151	**160**	**168**	**174**	**181**	**187**
NAVAL AIR STATION KINGSVILLE, NUECES-RIO GRANDE (N)							

MUNICIPAL CONSERVATION - NAVAL AIR STATION KINGSVILLE	DEMAND REDUCTION [KLEBERG]	0	26	54	84	114	144
		0	**26**	**54**	**84**	**114**	**144**
Sum of Projected Water Management Strategies (acre-feet)		**443**	**546**	**629**	**717**	**805**	**892**

NUECES COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
BISHOP, NUECES-RIO GRANDE (N)							
MUNICIPAL CONSERVATION - BISHOP	DEMAND REDUCTION [NUECES]	0	43	26	23	22	22
		0	**43**	**26**	**23**	**22**	**22**
CORPUS CHRISTI, NUECES (N)							
CITY OF CORPUS CHRISTI SEAWATER DESALINATION (INNER HARBOR)	GULF OF MEXICO [GULF OF MEXICO]	0	426	426	426	426	426
MUNICIPAL CONSERVATION - CORPUS CHRISTI	DEMAND REDUCTION [NUECES]	0	382	793	802	809	819
		0	**808**	**1,219**	**1,228**	**1,235**	**1,245**
CORPUS CHRISTI, NUECES-RIO GRANDE (N)							
CITY OF CORPUS CHRISTI SEAWATER DESALINATION (INNER HARBOR)	GULF OF MEXICO [GULF OF MEXICO]	0	5,174	5,174	5,174	5,174	5,174
MUNICIPAL CONSERVATION - CORPUS CHRISTI	DEMAND REDUCTION [NUECES]	0	4,646	9,646	9,748	9,839	9,960
		0	**9,820**	**14,820**	**14,922**	**15,013**	**15,134**
CORPUS CHRISTI NAVAL AIR STATION, NUECES-RIO GRANDE (N)							
MUNICIPAL CONSERVATION - CORPUS CHRISTI NAVAL AIR STATION	DEMAND REDUCTION [NUECES]	0	109	220	325	423	515
		0	**109**	**220**	**325**	**423**	**515**
COUNTY-OTHER, NUECES, NUECES-RIO GRANDE (N)							
GULF COAST SUPPLIES - NUECES COUNTY OTHER	GULF COAST AQUIFER SYSTEM [NUECES]	1,435	1,435	1,435	1,435	1,435	1,435
		1,435	**1,435**	**1,435**	**1,435**	**1,435**	**1,435**
IRRIGATION, NUECES, NUECES (N)							
GULF COAST SUPPLIES - NUECES IRRIGATION	GULF COAST AQUIFER SYSTEM [NUECES]	51	51	51	51	51	51
IRRIGATION CONSERVATION - NUECES COUNTY	DEMAND REDUCTION [NUECES]	0	0	0	0	0	0
		51	**51**	**51**	**51**	**51**	**51**
IRRIGATION, NUECES, NUECES-RIO GRANDE (N)							
IRRIGATION CONSERVATION - NUECES COUNTY	DEMAND REDUCTION [NUECES]	1	3	4	5	6	8
		1	**3**	**4**	**5**	**6**	**8**
MANUFACTURING, NUECES, NUECES (N)							

MANUFACTURING WATER CONSERVATION	DEMAND REDUCTION [NUECES]	16	36	55	73	91	109
O.N. STEVENS WATER TREATMENT PLANT IMPROVEMENTS	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,409	1,417	1,422	1,425	1,426	1,426
		1,425	**1,453**	**1,477**	**1,498**	**1,517**	**1,535**

MANUFACTURING, NUECES, NUECES-RIO GRANDE (N)

CITY OF CORPUS CHRISTI ASR	GULF COAST AQUIFER SYSTEM ASR (CORPUS CHRISTI) [NUECES]	0	14,573	14,573	14,573	14,573	14,573
CITY OF CORPUS CHRISTI SEAWATER DESALINATION (INNER HARBOR)	GULF OF MEXICO [GULF OF MEXICO]	0	5,601	5,601	5,601	5,601	5,601
EVANGELINE/LAGUNA TREATED GROUNDWATER PROJECT	GULF COAST AQUIFER SYSTEM [SAN PATRICIO]	0	9,949	9,949	9,949	11,394	11,394
MANUFACTURING WATER CONSERVATION	DEMAND REDUCTION [NUECES]	1,119	2,482	3,722	4,963	6,204	7,445
PORT OF CORPUS CHRISTI AUTHORITY SEAWATER DESALINATION - HARBOR ISLAND	GULF OF MEXICO [GULF OF MEXICO]	0	28,022	28,022	28,022	28,022	28,022
		1,119	**60,627**	**61,867**	**63,108**	**65,794**	**67,035**

MINING, NUECES, NUECES (N)

GULF COAST SUPPLIES - NUECES MINING	GULF COAST AQUIFER SYSTEM [NUECES]	1,077	1,077	1,077	1,077	1,077	1,077
MINING WATER CONSERVATION	DEMAND REDUCTION [NUECES]	1	2	3	4	5	7
		1,078	**1,079**	**1,080**	**1,081**	**1,082**	**1,084**

MINING, NUECES, NUECES-RIO GRANDE (N)

MINING WATER CONSERVATION	DEMAND REDUCTION [NUECES]	0	0	0	0	1	1
		0	**0**	**0**	**0**	**1**	**1**

MINING, NUECES, SAN ANTONIO-NUECES (N)

GULF COAST SUPPLIES - NUECES MINING	GULF COAST AQUIFER SYSTEM [NUECES]	50	50	50	50	50	50
MINING WATER CONSERVATION	DEMAND REDUCTION [NUECES]	0	0	0	0	0	0
		50	**50**	**50**	**50**	**50**	**50**

NUECES COUNTY WCID 3, NUECES (N)

LOCAL BALANCING RESERVOIR	LOCAL BALANCING RESERVOIR [RESERVOIR]	965	916	913	911	909	908
MUNICIPAL CONSERVATION - NUECES COUNTY WCID 3	DEMAND REDUCTION [NUECES]	0	79	154	226	294	356
		965	**995**	**1,067**	**1,137**	**1,203**	**1,264**

NUECES COUNTY WCID 3, NUECES-RIO GRANDE (N)

LOCAL BALANCING RESERVOIR	LOCAL BALANCING RESERVOIR [RESERVOIR]	2,859	2,884	2,875	2,869	2,862	2,857
MUNICIPAL CONSERVATION - NUECES COUNTY WCID 3	DEMAND REDUCTION [NUECES]	0	249	484	710	925	1,121
		2,859	**3,133**	**3,359**	**3,579**	**3,787**	**3,978**

NUECES COUNTY WCID 4, NUECES-RIO GRANDE (N)

MUNICIPAL CONSERVATION - NUECES COUNTY WCID 4	DEMAND REDUCTION [NUECES]	0	233	473	706	929	1,134
		0	**233**	**473**	**706**	**929**	**1,134**

NUECES WSC, NUECES (N)

MUNICIPAL CONSERVATION - NUECES WSC	DEMAND REDUCTION [NUECES]	0	1	1	1	1	1
		0	**1**	**1**	**1**	**1**	**1**

NUECES WSC, NUECES-RIO GRANDE (N)

MUNICIPAL CONSERVATION - NUECES WSC	DEMAND REDUCTION [NUECES]	0	30	27	28	29	34
		0	**30**	**27**	**28**	**29**	**34**

RIVER ACRES WSC, NUECES (N)

LOCAL BALANCING RESERVOIR	LOCAL BALANCING RESERVOIR [RESERVOIR]	234	258	270	278	287	293
		234	**258**	**270**	**278**	**287**	**293**

Sum of Projected Water Management Strategies (acre-feet)	**9,217**	**80,128**	**87,446**	**89,455**	**92,865**	**94,819**

WILLACY COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, WILLACY, NUECES-RIO GRANDE (M)							
DELTA LAKE ID - ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	3	6	8	11	14	16
		3	**6**	**8**	**11**	**14**	**16**
EAST RIO HONDO WSC, NUECES-RIO GRANDE (M)							
ADVANCED MUNICIPAL CONSERVATION - EAST RIO HONDO WSC	DEMAND REDUCTION [WILLACY]	0	0	0	0	1	1
CAMERON COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1	1	1	1	1	1
DROUGHT MANAGEMENT	DEMAND REDUCTION [WILLACY]	0	1	1	1	1	1
ERHWSC & NAWSC - NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	GULF COAST AQUIFER SYSTEM [CAMERON]	0	1	1	1	1	1
ERHWSC - FM 2925 WATER TRANSMISSION LINE	DEMAND REDUCTION [WILLACY]	0	0	0	0	0	0
ERHWSC - SURFACE WTP PHASE I	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	1	1	1	1
		1	**4**	**4**	**4**	**5**	**5**
IRRIGATION, WILLACY, NUECES-RIO GRANDE (M)							
ARUNDO DONAX BIOLOGICAL CONTROL	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	178	178	178	178	178	178

DELTA LAKE ID - ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,104	1,973	2,843	3,711	4,580	5,448
ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION [WILLACY]	1,830	1,830	1,830	1,830	1,830	1,830
		3,112	**3,981**	**4,851**	**5,719**	**6,588**	**7,456**

LYFORD, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - LYFORD	DEMAND REDUCTION [WILLACY]	0	0	0	0	12	33
DELTA LAKE ID - ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	32	58	83	108	134	159
LYFORD - BRACKISH GROUNDWATER WELL AND DESALINATION	GULF COAST AQUIFER SYSTEM [WILLACY]	0	1,120	1,120	1,120	1,120	1,120
		32	**1,178**	**1,203**	**1,228**	**1,266**	**1,312**

MINING, WILLACY, NUECES-RIO GRANDE (M)

IMPLEMENTATION OF INDUSTRIAL BEST MANAGEMENT PRACTICES	DEMAND REDUCTION [WILLACY]	5	5	4	3	2	1
		5	**5**	**4**	**3**	**2**	**1**

NORTH ALAMO WSC, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - NORTH ALAMO WSC	DEMAND REDUCTION [WILLACY]	0	45	97	163	240	326
DROUGHT MANAGEMENT	DEMAND REDUCTION [WILLACY]	28	31	35	39	42	45
ERHWSC & NAWSC - NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	GULF COAST AQUIFER SYSTEM [CAMERON]	0	27	25	24	23	22
HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	6	10	13	16	19	22
HIDALGO COUNTY ID NO. 1 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	3	3	4	4	5	5
HIDALGO COUNTY ID NO. 2 CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	3	5	7	9	11
NAWSC - DELTA AREA BRACKISH GROUNDWATER DESALINATION PLANT	GULF COAST AQUIFER SYSTEM [CAMERON]	0	75	70	67	64	62
NAWSC - DELTA WTP EXPANSION PHASE I-II	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	141	184	177	171
SANTA CRUZ ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	2	2	3	3	3	4
URBANIZATION - WUG REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	58	16	83	94	36
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	197	282	541	733	768	864
		236	**536**	**950**	**1,323**	**1,444**	**1,568**

PORT MANSFIELD PUD, NUECES-RIO GRANDE (M)

ADVANCED MUNICIPAL CONSERVATION - PORT	DEMAND REDUCTION [WILLACY]	3	26	52	80	112	144

MANSFIELD PUD							
DELTA LAKE ID - ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	5	9	13	17	21	24
DROUGHT MANAGEMENT	DEMAND REDUCTION [WILLACY]	7	8	9	10	11	11
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	138	143	143	143	140	135
		153	**186**	**217**	**250**	**284**	**314**
RAYMONDVILLE, NUECES-RIO GRANDE (M)							
ADVANCED MUNICIPAL CONSERVATION - RAYMONDVILLE	DEMAND REDUCTION [WILLACY]	0	0	0	14	110	221
DELTA LAKE ID - ID CONSERVATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	190	339	489	638	788	937
		190	**339**	**489**	**652**	**898**	**1,158**
SEBASTIAN MUD, NUECES-RIO GRANDE (M)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [WILLACY]	0	0	0	11	12	13
URBANIZATION - WWP REDUCTION - CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	1	20	38
		0	**0**	**0**	**12**	**32**	**51**
Sum of Projected Water Management Strategies (acre-feet)		**3,732**	**6,235**	**7,726**	**9,202**	**10,533**	**11,881**

APPENDIX E

GAM Run 22-003: Kenedy County Groundwater Conservation District Management Plan (Author: Dowlearn and Wade, 2022)

GAM Run 22-003: Kenedy County Groundwater Conservation District Management Plan

Grayson Dowlearn, GIT and Shirley C. Wade, Ph.D., P.G.
Texas Water Development Board
Groundwater Division
Groundwater Modeling Department
(512) 475-1552
March 22, 2022

Shirley C. Wade
3/22/22

This page is intentionally blank

GAM RUN 22-003: KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

Grayson Dowlearn, GIT and Shirley C. Wade, Ph.D., P.G.
Texas Water Development Board
Groundwater Division
Groundwater Modeling Department
(512) 475-1552
March 22, 2022

EXECUTIVE SUMMARY:

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

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

1. the annual amount of recharge from precipitation, if any, to the groundwater resources within the district;

2. for each aquifer within the district, the annual volume of water that discharges from the aquifer to springs and any surface-water bodies, including lakes, streams, and rivers; and

3. the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The groundwater management plan for the Kenedy County Groundwater Conservation District should be adopted by the district on or before April 19, 2022 and submitted to the executive administrator of the TWDB on or before May 19, 2022. The current management plan for the Kenedy County Groundwater Conservation District expires on July 18, 2022.

We used one groundwater availability model to estimate the management plan information for the aquifers within the Kenedy County Groundwater Conservation District. Information for the Gulf Coast Aquifer System is from the Groundwater Management Area 16 alternative groundwater availability model (Hutchison and others, 2011).

This report replaces the results of GAM Run 16-009 (Goswami, 2016). Values may differ from the previous report as a result of routine updates to the spatial grid file used to define county, groundwater conservation district, and aquifer boundaries, which can impact the calculated water budget values. Additionally, the approach used for analyzing model results is reviewed during each update and may have been refined to better delineate groundwater flows. Table 1 summarizes the groundwater availability model data required by statute. Figure 1 shows the area of the model from which the values in Table 1 were extracted. Figure 2 provides a generalized diagram of the groundwater flow components provided in Table 1. If, after review of the figures, the Kenedy County Groundwater Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the TWDB at your earliest convenience.

METHODS:

In accordance with the provisions of the Texas State Water Code, Section 36.1071, Subsection (h), the groundwater availability model mentioned above was used to estimate information for the Kenedy County Groundwater Conservation District management plan. Water budgets were extracted for the historical model period for the Gulf Coast Aquifer System (1980-1999) using ZONEBUDGET Version 3.01 (Harbaugh, 2009). The average annual water budget values for recharge, surface-water outflow, inflow to the district, outflow from the district, and the flow between aquifers within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

Gulf Coast Aquifer System

- The alternative model developed by Hutchison and others (2011) was used because it contains the entirety of Groundwater Management Area 16, with Kenedy County Groundwater Conservation District located approximately at the

center of the model domain. The central portion of the Gulf Coast Aquifer System groundwater availability model (Chowdhury and others, 2004) only covers the northern portion of Kenedy County Groundwater Conservation District while the southern portion of the Gulf Coast Aquifer System groundwater availability model (Chowdhury and Mace, 2007) only covers the southern portion of Kenedy County Groundwater Conservation District.

- The model developed by Hutchison and others (2011) was calibrated based on groundwater elevation data from 1963 to 1999.
- The Groundwater Management Area 16 alternative groundwater availability model contains six layers that generally represent the following: Layer 1 (Chicot Aquifer), Layer 2 (Evangeline Aquifer), Layer 3 (Burkeville Confining Unit), Layer 4 (Jasper Aquifer), Layer 5 (Yegua-Jackson Aquifer and parts of the Catahoula Formation), and Layer 6 (aggregate of the Carrizo-Wilcox Aquifer, Queen City Aquifer, and Sparta Aquifer). Layers 5 and 6 are not active within Kenedy County Groundwater Conservation District and act as a no-flow boundary beneath the Gulf Coast Aquifer System.
- Wetlands and springs were simulated with the MODFLOW Drains package. Rivers, reservoirs, creeks, and streams were simulated using the MODFLOW River package. Bays and the Gulf of Mexico were simulated by the MODFLOW General Heads package.
- The model was run using 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 groundwater budget components listed below were extracted from the groundwater availability model results for the Gulf Coast Aquifer System located within the Kenedy County Groundwater Conservation District and averaged over the historical calibration period, as shown in Table 1.

1. Precipitation recharge—the areally distributed recharge sourced from precipitation falling on the outcrop areas of the aquifers (where the aquifer is exposed at land surface) within the district.
2. Surface-water outflow—the total water discharging from the aquifer (outflow) to surface-water features such as streams, reservoirs, and springs.

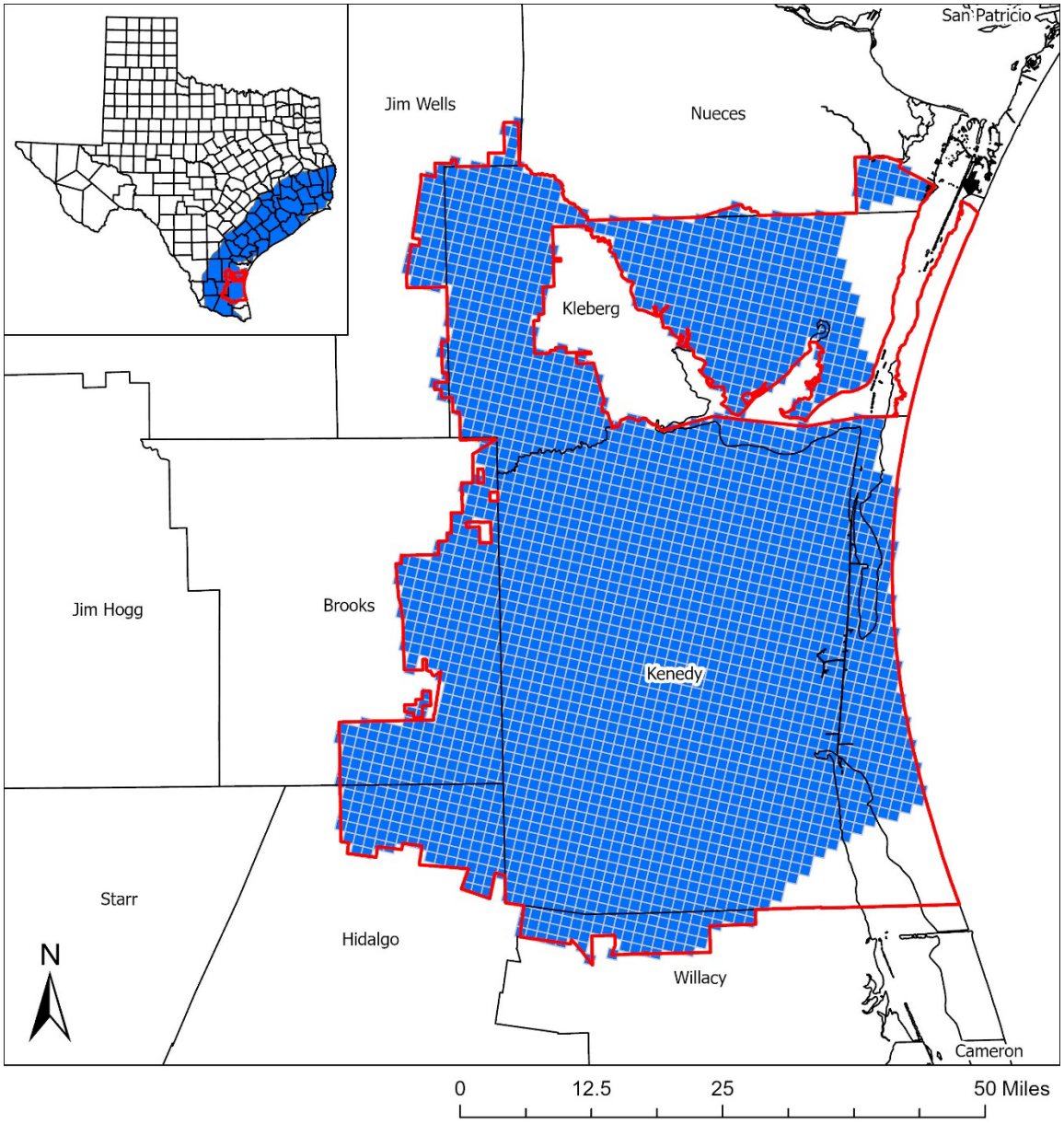
3. Flow into and out of district—the lateral flow within the aquifer between the district and adjacent counties.

4. Flow between aquifers—the net vertical flow between the aquifer and adjacent aquifers or confining units. This flow is controlled by the relative water levels in each aquifer and aquifer properties of each aquifer or confining unit that define the amount of leakage that occurs.

The information needed for the district's management plan is summarized in 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 a district or county boundary, is assigned to one side of the boundary based on the location of the centroid of the model cell. For example, if a cell contains two counties, the cell is assigned to the county where the centroid of the cell is located.

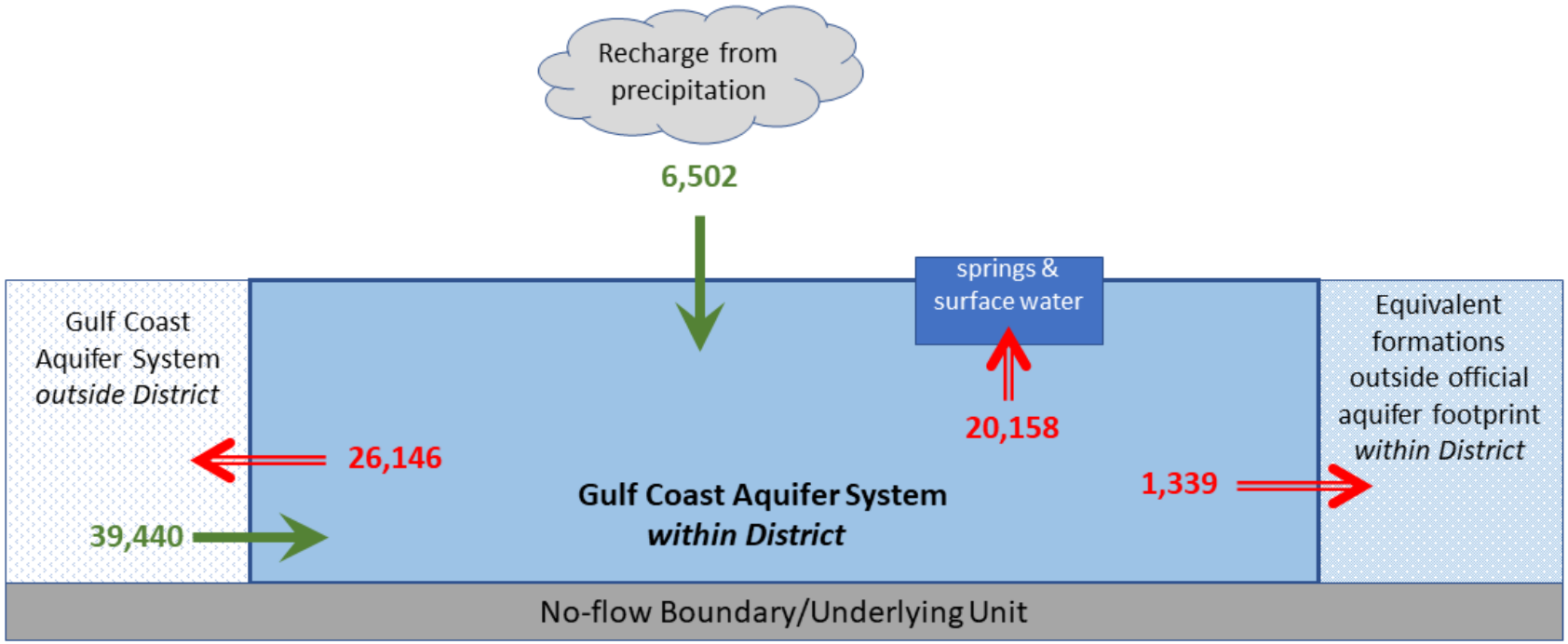
TABLE 1: SUMMARIZED INFORMATION FOR THE GULF COAST AQUIFER SYSTEM THAT IS NEEDED FOR THE KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Gulf Coast Aquifer System	6,502
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 System	20,158
Estimated annual volume of flow into the district within each aquifer in the district	Gulf Coast Aquifer System	39,440
Estimated annual volume of flow out of the district within each aquifer in the district	Gulf Coast Aquifer System	26,146
Estimated net annual volume of flow between each aquifer in the district	From the Gulf Coast Aquifer System to equivalent units outside the official aquifer footprint	1,339



alt_gma16 grid date = 02.24.2022, groundwater conservation district boundaries date = 06.26.2020, county boundaries date = 07.03.2019

FIGURE 1: AREA OF THE GROUNDWATER MANAGEMENT AREA 16 GROUNDWATER AVAILABILITY MODEL FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE GULF COAST AQUIFER SYSTEM EXTENT WITHIN THE DISTRICT BOUNDARY).



Caveat: This diagram only includes the water budget items provided in Table 1. A complete water budget would include additional inflows and outflows. If the District requires values for additional water budget items, please contact TWDB.

FIGURE 2: GENERALIZED DIAGRAM OF THE SUMMARIZED BUDGET INFORMATION FROM TABLE 1, REPRESENTING DIRECTIONS OF FLOW FOR THE GULF COAST AQUIFER SYSTEM WITHIN KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT. FLOW VALUES EXPRESSED IN ACRE-FEET PER YEAR (AFY).

LIMITATIONS:

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

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

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

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

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

REFERENCES:

Chowdhury, A. H. and Mace, R. E., 2007, Groundwater Resource Evaluation and Availability Model of the Gulf Coast Aquifer in the Lower Rio Grande Valley of Texas.

Chowdhury, A. H., Wade, S., Mace, R. E., and Ridgeway, C., 2004, Groundwater Availability Model of the Central Gulf Coast Aquifer System: Numerical Simulations through 1999.

Goswami, R., 2016, GAM Run 16-009: Texas Water Development Board, GAM Run 16-009 Report, 10 p., https://www.twdb.texas.gov/groundwater/docs/GAMruns/GR16-009.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., 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., Hassan, M. M., Oliver, W., Jigmond, M., Wade, S., and Aschenbach, E., 2011, Groundwater Management Area 16 Groundwater Flow Model.

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.

Texas Water Code, 2011, http://www.statutes.legis.state.tx.us/docs/WA/pdf/WA.36.pdf

APPENDIX F

Rules of the Kenedy County Groundwater Conservation District

RULES OF THE KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

Effective June 16, 2021

RULE REVISION RECORD

The history of each specific Rule is noted following that Rule.

Date Adopted	Effective Date	Affected Rules
Oct. 8, 2008	Oct. 8, 2008	Original Rules
Jan. 14, 2009	Jan. 14, 2009	Amendment Rules 3.8, 8.3, 8.4, and 11.3
July 25, 2012	July 25, 2012	Amendments, Including Repeals and New Provisions
January 20, 2016	January 20, 2016	Amendment Rules 1.3, 1.5, 2, 3.1, 3.8, 7.5, 8.3, 8.4, 8.6, 8.8
March 21, 2018	March 21, 2018	Amendment Rules 2, 3.5, 3.6, 3.7, 3.8, 8.8, 11
June 16, 2021	June 16, 2021	Amendments, Including New Rules 4.7 and 14.

Table of Contents

Rule 1: GENERAL PROVISIONS

1.1 Authority to Promulgate Rules

A. The Kenedy County Groundwater Conservation District is a political subdivision of the State of Texas. The District was created by the 78th Legislature (2003) by House Bill 3374, subject to voter approval. House Bill 3374 gives the District all of the rights, powers, privileges, authority, functions and duties provided under the general law of this state, including Texas Water Code Chapter 36, applicable to Groundwater Conservation Districts created under Section 59, Article XVI, of the Texas Constitution. Senate Bill 2570, enacted by the 81st Legislature (2009), amended the District's Enabling Legislation.

B. In a confirmation election held on November 2, 2004, District voters confirmed the creation of the District and elected five Directors to the Board of Directors. As a duly created and confirmed Groundwater Conservation District, the District may exercise any and all statutory authority or power conferred under its Enabling Legislation and under Chapter 36 of the Texas Water Code, including the adoption and Enforcement of Rules under Section 36.101 Rule Making Power. All references to statutory provisions in these Rules are to those provisions as may be amended from time to time.

C. The District is located within Groundwater Management Area 16. Most of the District is in the Coastal Bend Regional Water Planning Area (N). District territory in Hidalgo and Willacy counties is in the Region M Regional Water Planning Area.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

1.2 District Boundaries

The District includes all territory located within Kenedy County, and parts of Brooks, Hidalgo, Jim Wells, Kleberg, Nueces, and Willacy counties. Territory has been annexed from time to time in response to landowner petitions. A current description and map of the District is available at the District Office and on the District website.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

1.3 Purpose of the Rules

A. The District Rules are promulgated under its Enabling Legislation and the Texas Water Code Chapter 36 authority to make and enforce Rules to provide for the Conservation, preservation, protection, and Recharge of Groundwater and aquifers within the District, in order to control subsidence, prevent degradation of water quality, and to prevent Waste, while recognizing the ownership and rights of the owners of the land and their lessees and assigns in Groundwater. Consistent with Texas Water Code

section 36.0015, the District through these Rules will manage Groundwater in a manner that protects property rights, balances the Conservation and development of Groundwater to meet the needs of this state, and uses the Best Available Science in the Conservation and development of Groundwater.

B. The District recognizes that a landowner owns the Groundwater below the surface of his land as real property and has any other right recognized under common law. This entitles the landowner, his lessees, heirs, or assigns, to drill for and produce the Groundwater without causing Waste or malicious drainage of other property or negligently causing subsidence, but it does not give them the right to capture a specific amount of Groundwater and does not affect any defenses to liability under the rule of capture.

C. While the District does not have the authority to deprive or divest a landowner, his lessees, heirs, or assigns of the Groundwater ownership and rights described in Rule 1.3.B, the District does have the authority to adopt and enforce Rules:

(1) to limit or prohibit the drilling of a Water Well if the location does not comply with minimum spacing or tract size requirements adopted by the District;

(2) to regulate Groundwater Production as authorized under Texas Water Code Chapter 36 or a special law governing the District; and

(3) to allocate to each landowner a proportionate share of available Groundwater for Production from an aquifer based on the number of acres owned.

D. These Rules, and any orders, requirements, resolutions, policies, directives, standards, guidelines, Groundwater Management Plan, or other regulatory measures implemented by the Board, have been promulgated to fulfill these objectives. These Rules may not be construed to limit, restrict, or deprive the District or Board of any exercise of any power, duty, or jurisdiction conferred by the District's Enabling Legislation, Texas Water Code Chapter 36, or any other applicable law or statute.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016.

1.4 Effective Date

These Rules and any amendment are effective on the effective dates indicated following each subsection.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

1.5 Action on Rules

A. The Board may from time to time, following notice and Public Hearing, amend or revoke these Rules or adopt new Rules following the procedures of Rule 8.1.

B. The Board may adopt an Emergency Rule without prior notice or hearing, or with an abbreviated notice and hearing, according to Rule 8.2.

C. In adopting, amending, or revoking a Rule, the District must:

(1) consider all Groundwater needs and uses;

(2) develop Rules that are fair and impartial;

(3) consider the Groundwater ownership rights described in Texas Water Code 36.002 and District Rule 1.3.B;

(4) consistent with the objectives of Section 59, Article XVI of the Texas Constitution, consider the public interest in Conservation, preservation, protection, recharging and prevention of Waste of Groundwater; and controlling subsidence;

(5) consider the goals of the District's Management Plan;

(6) not discriminate between land that is irrigated for Production and land that was irrigated for Production and enrolled or participating in a federal Conservation program; and

(7) protect property rights, balance the conservation and development of groundwater to meet the needs of this state, and use the Best Available Science in the conservation and development of groundwater.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended January 20, 2016 by Board Order; effective January 20, 2016.

1.6 Regulatory Compliance

All Water Wells located within the District, Water Well Owners and Water Well Operators of those Wells, and others under the jurisdiction of the District, shall be in compliance with all applicable Rules, orders, regulations, requirements, resolutions, policies, directives, standards, guidelines, or any other regulatory measures implemented by the District.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

1.7 Variance

Any exception or Variance to the requirements imposed by District Rules shall be considered on a case-by-case basis. A request for Variance shall be submitted in writing and include the reasons for the request. This Rule 1.7 is not applicable to a request for a Variance from an Operating Permit requirement. A Variance from any requirements contained in an Operating Permit requires an Application for an amendment pursuant to Rule 3.8.E. Rule 14.13 controls Variances to the requirements of Rule 14.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended June 16, 2021, by Board Order; effective June 16, 2021.

1.8 Administrative Fees

A. Texas Water Code Section 36.205 authorizes the District to assess Fees for administrative acts of the District. Such Fees shall not unreasonably exceed the cost to the District of providing the administrative function for which the Fee is charged. Fees shall be assessed in accordance with the District Fee Schedule set by the Board. If the Board adopts a Fee Schedule, a copy will be available at the District Office and on the District website.

B. Class D Production Permit Application Fee

(1) A deposit of $10,000.00 is due and payable at the time a Class D Production Permit Application is filed with the District.

(2) A Class D Production Permit Application Fee shall by set by the District on a case-by-case basis when a Class D Production Permit Application is deemed Administratively Complete, or for a Class D Municipal/Electric Zone Production Permit Application, when it is deemed Administratively and Technically Complete. The Fee shall recover the District's costs associated with technical review of the Application by the District's outside consultant.

(3) The deposit required under subsection B(1) of this Rule shall be applied to payment of the Application Fee assessed under subsection B(2) of this Rule. The unused portion of the deposit, if any, shall be refunded to the Applicant. If the deposit does not fully cover the Application Fee, the balance shall be due and payable within 10 days of receipt of the invoice from the District.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended June 16, 2021, by Board Order; effective June 16, 2021.

1.9 Annexation

A. Unless this restriction is waived by the Board, petitions for annexation of territory into the District shall only be considered by the Board each October.

B. A petition by an owner of land not already in the District and filed under Texas Water Code Sections 36.321 – 36.324 shall comply with those sections and must include the following information:

(1) An executed and notarized annexation Application on a form obtained from the District;

(2) A description of the annexed property by metes and bounds;

(3) A plat or map identifying and designating the property to be considered for annexation;

(4) A copy of the landowner's most recent property tax statement;

(5) Population and census data; and

(6) Other information requested by the District.

C. A petition of a defined area of territory, whether or not contiguous, filed under Texas Water Code Sections 36.325 – 36.331 shall comply with those sections. The petitioner must have a pre-petition meeting with the General Manager during which the petition process will be detailed.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended January 20, 2016, by Board Order; effective January 20, 2016.

Rule 2: DEFINITIONS

Abandoned Oil or Gas Well - an artificial penetration into or through water-bearing strata for the purpose of exploring for or producing oil or gas, which the Railroad Commission deems as being abandoned.

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

(1) a non-Deteriorated Water Well containing the casing, pump, and pump column in good condition; or

(2) a non-Deteriorated Water Well that has been Capped.

Administratively Complete – the status of an Operating Permit Application received by the District that includes all documentation and Fees required by Texas Water Code Sections 36.113 and 36.1131 and District Rules. In order for an Application to be deemed Administratively Complete, it must include all administrative and technical information required by the District and there must be no unresolved District Enforcement Actions against the Applicant or involving the Water Well.

Agent – one who is authorized to act for or in place of another; a representative. For purposes of these Rules, this includes a Person who reasonably appears to have authority to act for another, regardless of whether actual authority has been conferred.

Aggrieved Party - for purposes of District Rule 7.1 and Texas Water Code Section 36.119, a landowner or other Person who has a right to produce Groundwater from land that is adjacent to the land on which the Well subject to a complaint is located, or who owns or otherwise has a right to produce Groundwater from land that lies within one-half mile of the subject Water Well.

Agricultural Use or Purpose – the Use of Groundwater for:

(1) cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;

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

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

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

(5) engaging in wildlife management as defined in Texas Tax Code Section 23.51(7);

(6) raising or keeping equine animals; and

(7) operating a confined animal feeding operation under a permit issued by the Texas Commission on Environmental Quality.

Agricultural Well - a Water Well used as a water supply for an Agricultural Use or Purpose.

Annual Water Production Report for Non-Exempt Wells - a District form required to be completed and submitted under Rule 5.2.

Annual Water Production Report for Exempt Oil and Gas Water Supply Wells - a District form required to be completed and submitted under Rule 5.4.

Applicant – a Person who signs an Application submitted to the District.

Application – a written submission to the District requesting authorization from the District for certain actions set out in District Rules.

Aquifer Exemption – approval by the U.S. Environmental Protection Agency required in conjunction with approving a Class III Underground Injection Control (UIC) permit under the Safe Drinking Water Act and Texas Water Code Chapter 27, finding under 40 Code of Federal Regulations Section 144.7(b) and 30 Texas Administrative Code Section 331.13 that an underground aquifer is not suitable for or used for drinking water purposes.

Area of Review– a geographic area, the boundaries of which are determined in accordance with Rule 4.2.E.

Area of Review Mitigation Plan - a plan for avoiding any natural conduits and the proper Plugging of any artificial penetrations identified when evaluating an AoR under Rules 4.2.E and 14.3.C.

Area Permit – a Class III Injection Well Permit issued pursuant to Texas Water Code Section 27.011 and 30 Texas Administrative Code Chapter 331 for In Situ Mining of Uranium that authorizes the construction and operation of Production and Monitoring Wells used in operations and restoration associated with In Situ Mining

of Uranium. It may authorize two or more similar Class III Injection Wells within a specified area for In Situ Mining of Uranium.

Area Permit Applicant – a Person applying for an Area Permit.

Area Permit Application - an Application submitted to the Texas Commission on Environmental Quality to obtain an Area Permit for In Situ Mining of Uranium under Texas Water Code Chapter 27 and 30 Texas Administrative Code Chapter 331.

Area Permit Registered Well – a Water Well that is used during the development of an Area Permit Application to obtain required pre-Mining geologic, hydrologic, and water quality information. The Well must be registered with the Texas Commission on Environmental Quality under Texas Water Code Section 27.023(b) and 30 Texas Administrative Code 331.221.

Area Permit Registered Well Production Report - a report required under Texas Water Code 27.024(a)(4), 30 Texas Administrative Code 331.223, and District Rule 9.2.B.

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

Back-Up Well - a Replacement Water Well intended to be used on a temporary basis to replace Production from a Water Well that is not functioning at its Production Capacity due to aquifer conditions or the need for repair or maintenance. The Water Well Owner or Water Well Operator shall notify the District in writing within 2 business days of beginning Production from the Back-Up Well.

Beneficial Use or Purpose - the use of Groundwater for:

(1) Agricultural, gardening, Domestic, Livestock, municipal, mining, manufacturing, Industrial, Commercial, recreational, or pleasure Purposes;

(2) exploring for, producing, handling, or treating oil, gas, sulphur, or other minerals; or

(3) any other Purpose that is useful and beneficial to the user.

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

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

Brackish Groundwater Production Zone – a three-dimensional area of an aquifer or geologic unit identified and designated by the Texas Water Development Board implementing House Bill 30, R.S. 84th Sess. (2015) as an area for brackish Groundwater development, which is located within the District. Also referred to as a Zone or a Designated Brackish Groundwater Production Zone.

Buffer Area – an area determined using the method described in Rule 14.3.B(1) for the distance required by any relevant District Rule.

Cap or Capping – In reference to a Water Well, placing on a Water Well a covering that is capable of preventing surface Pollutants from entering the Well and sustaining a weight of at least 400 pounds per square inch and constructed in such a way that the covering cannot be easily removed by hand.

Cased Exploration Completion Report - Railroad Commission Form SMRD-8U.

Cased Uranium Exploration Well – a cased Well subject to a Uranium Exploration Permit.

Cased Well Production Report - a monthly report required under District Rule 9.1.B, which includes the total amount of water produced by each Cased Uranium Exploration Well used for Monitoring or for Rig Supply and that is located in the area subject to the Uranium Exploration Permit.

Certificate of Production-Limit-Acreage - documentation reflecting the Production Limit under an Operating Permit including the acreage upon which the Production Limit is based.

Class III Injection Well – an injection well used for the extraction of minerals, including solution mining of uranium.

Class A Production Well – Non-Exempt Well or Wells operated under a single Operating Permit collectively capable of producing Groundwater at an annualized rate of not more than 45 gallons per minute.

Class B Production Well – Non-Exempt Well or Wells operated under a single Operating Permit collectively capable of producing Groundwater at an annualized rate of over 45 and not more than 80 gallons per minute.

Class C Production Well – Non-Exempt Well or Wells operated under a single Operating Permit collectively capable of producing Groundwater at an annualized rate of more than 80 gallons per minute, except those screened to produce from either a Zone or those screened in the Burkeville Confining Unit or the Jasper Aquifer outside a Zone.

Class D Municipal/Electric Zone Production Well – a Class D Production Well screened to produce Groundwater from a Zone, if the water produced by the Well will be for Municipal/Electric Use.

Class D Municipal/Electric Zone Production Permit – a Production Permit covering Production Wells producing Groundwater from a Zone, if the water produced under the Permit will be for Municipal/Electric Use.

Class D Non-Zone Production Well – Class D Production Well screened to produce water from the Burkeville Confining Unit or Jasper Aquifer outside a Zone.

Class D Production Permit Application Fee – as established by Rule 1.8.B, an amount of money assessed an Applicant for a Class D Production Permit designed to cover the cost to the District of hiring an outside consultant to perform a technical review of the Application.

Class D Production Well – Non-Exempt Well or Wells operated under a single Operating Permit collectively capable of producing Groundwater from a Zone or the Burkeville Confining Unit or Jasper Aquifer outside a Zone at an annualized rate of more than 80 gallons per minute.

Class D Zone Production Well - Class D Production Well screened to produce water from the GCML1 Zone or the GCUL1 Zone other than for Municipal/Electric Use.

Commercial Use or Purpose - the use of Groundwater to supply water to properties or establishments that are in business to build, supply or sell products, or provide goods, services or repairs and that use water in those processes, or to supply water to the business establishment primarily for employee and customer conveniences (i.e., flushing of toilets, sanitary purposes, or limited landscape watering). Does not include Agricultural, Livestock, Industrial, Oil and Gas, Temporary Rig Supply, Oil or Gas Secondary Recovery Supply, or Irrigation Uses.

Commercial Well - a Water Well used as a water supply for a Commercial Use or Purpose.

Complaint Under Texas Water Code Section 36.119 – a written complaint filed pursuant to Rule 7.1 by an Aggrieved Party citing to Texas Water Code Section 36.119 alleging drilling or operating a Water Well without the required District authorization or producing Groundwater in violation of a District Rule adopted under Texas Water Code Section 36.116(a)(2).

Completion of a Well or Well Completion – when construction of a Water Well is finished, excluding setting the pump. Includes drilling, setting casing, cementing, and constructing the surface pad.

Confidential Information – in the context of District Rules 9.1.C(4) and 9.2.A(4) information submitted to the Texas Railroad Commission that has been deemed not essential for public review as determined by the Texas Railroad Commission under Natural Resources Code section 131.048 and 16 Texas Administrative Code section 11.74.

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

Contested Case Hearing – an Operating Permit hearing requested as authorized by Rule 8.5.A, which is noticed and conducted according to the procedures of Rule 8.5 and as applicable, Rule 8.6.

Contested Case Hearing Fee Deposit - Under Texas Water Code 36.416(c) and District Rule 8.6.C, the amount required to be provided to the District by a Person who submits a SOAH Hearing Request.

Contested Case Hearing Request - A written request asking that the District convene a Contested Case Hearing, made within 20 days of issuance of an order or resolution under Rule 8.4.I ruling on an Operating Permit Application.

DFC Hearing Summary Report - the report required by Texas Water Code section 36.108(d-2) that includes a summary of relevant comments received on GMA-16's proposed DFC, any suggested revisions to the proposed DFC, and the basis for the revisions.

DFC Explanatory Report - the report prepared by the GCDs in GMA-16 after final adoption of the DFC, as required by Texas Water Code 36.108(d-4).

Depth to the Bottom of the Screen - distance from the surface to the deepest point at which water can enter the Well, expressed in feet.

Designated Brackish Groundwater Production Zone – see definitions of Brackish Groundwater Production Zone and Zone.

Desired Future Conditions (DFC) - a quantitative description, adopted in accordance with Texas Water Code section 36.108, of the desired condition of the Groundwater resources in a GMA at one or more specified future times.

Deteriorated Water Well – a Water Well that, because of its condition, will cause or is likely to cause Pollution of any water in the State, including Groundwater.

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

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

District – the Kenedy County Groundwater Conservation District (KCGCD) or one of its authorized representatives.

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

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

District Well Number – a four-digit number assigned to each Water Well at the time it is Registered with the District. The District Well Number is reflected in the Well Registration Certificate.

Domestic Use or Purpose - the use of Groundwater by an individual or household to support domestic activity. Such use may include water for drinking, washing, or culinary Purposes; for Irrigation of lawns, or of a family garden and orchard; for watering domestic animals; and for water recreation including aquatic and wildlife enjoyment. This includes non-commercial temporary lodging for Purposes of recreational enjoyment. Domestic Use does not include water used to support activities for which a Person is being paid or for which the product of the activity is sold.

Domestic Well - a Water Well used as a water supply for a Domestic Use or Purpose. A Public Water Supply Well is not a Domestic Well.

Driller's Log - see definition of State of Texas Well Report.

Drought Contingency Plan - a written plan reflecting a Water Well Owner's temporary supply management and demand management response to temporary and potentially recurring water supply shortages and other water supply emergencies.

Electric Log - a record of certain electrical characteristics (such as resistivity and conductivity) of formations traversed by the borehole. It is made to identify the formations, determine the nature and amount of fluids they contain, and estimate their depth. It is a type of Geophysical Log.

Emergency Rule – a Rule adopted under Rule 8.2.

Emergency Temporary Order – an order issued under Rule 12.5 when the District finds that an imminent peril to public health, safety, or welfare requires the immediate entry of an order to prohibit Waste or Pollution.

Enabling Legislation – special law enactments that created the District, as summarized in Rule 1.1.A and as may be amended or codified.

Enforcement Action – an action taken by the District to enforce District Rules, orders, or permits, or any other law within its enforcement authority.

Enforcement Hearing – a hearing held under Rule 8.7.

Environmental Soil Borings - an artificial excavation constructed to measure or Monitor the quality and quantity or movement of substances, elements, chemicals or fluids beneath the surface of the ground. The term does not include any Well that is used in conjunction with the Production of oil, gas, or any other minerals.

Exempt Oil and Gas Water Supply Well – a Temporary Rig Supply Well or a Secondary Recovery Supply Well.

Exempt Well – a Water Well that is not required to obtain an Operating Permit, as described in Rule 3.1.A.

Existing Well – a Water Well drilled prior to or on October 8, 2008.

Existing Well Control Data – at the time a potential Applicant begins to collect physical data of its own in the Class D Production Application process, existing publicly available data regarding Wells within a 3-mile Buffer Area determined as described in Rule 14.3.B(1). The data includes the information listed in Rule 14.3.B(2)

Exploration Groundwater Quality Information – Groundwater quality information collected or obtained by a Uranium Exploration Permittee pursuant to Texas Natural Resources Code Section 131.357 and 16 Texas Administrative Code 11.141. This information must be provided to the District under Rule 9.1.C.

Fees – charges imposed by the District pursuant to Texas Water Code Chapter 36.

GCML1 Zone – one of the Zones defined in the Zone Designation Memo that is partially within District boundaries.

GCUL1 Zone – one of the Zones defined in the Zone Designation Memo that is partially within District boundaries.

GMA-16 Joint Planning Committee - the group comprised of all GCDs in GMA-16 organized for the purposes required under Texas Water Code section 36.108, including adoption of a DFC.

General Manager – the general manager of the Kenedy County Groundwater Conservation District.

Geophysical Log – physical measurements of various geophysical properties of subsurface rock formations. The Log is made by instruments lowered into the borehole and can be open borehole. An Electric Log is one category of Geophysical Log.

Groundwater– water percolating beneath the earth's surface, except the underflow of rivers, streams and lakes, which is considered State water under Texas Water Code 11.021(a).

Groundwater Conservation District (GCD) - a governmental entity formed by special legislation or through a petition to the Texas Commission on Environmental Quality with the power and duties to manage Groundwater resources within its boundaries.

Hearings Examiner – a Person, other than a District Director, appointed by the Board to conduct a hearing on a Permit, Rule, or Enforcement Action.

Inactive Well - a Water Well that must be Capped or Plugged under District Rule 6.

Industrial Use or Purpose - Groundwater used in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, including commercial fish and shellfish Production, aquaculture, and the development of power by means other than hydroelectric, but does not include Agricultural Use or Purpose. Water used in the oil and gas industry, other than for Temporary Rig Supply or as a secondary recovery supply as defined in this District Rule 2, is considered Industrial Use or Purpose.

Industrial Well - a Water Well used as a water supply for an Industrial Use or Purpose.

In Situ Mining of Uranium - the use of an injection Well for recovery of uranium.

Involuntary Amendment - the Amendment of an Operating Permit initiated by the District under Rule 3.8.F.

Irrigation Use or Purpose - the use of Groundwater for watering crops, trees, and pasture land and golf courses and parks that do not receive water through a municipal distribution system. Watering crops or pasture for Livestock Use is

considered an Irrigation Use, except to the extent it falls within the definition of Domestic Use.

Irrigation Well - a Water Well used as a water supply for an Irrigation Use or Purpose.

Joint Planning - the process required under Texas Water Code Section 36.108 during which Groundwater Conservation Districts wholly or partially within GMA-16 conduct Groundwater resource planning, including adopting a DFC. Also referred to as GMA Joint Planning.

Lift Method - methods of developing Injection or Recovery Wells associated with In Situ Uranium Mining, which must be appropriate for local conditions. Well development removes remaining drilling mud, cuttings, and fine particles (i.e., silt and clay) from inside the Well, the screen, and the surrounding gravel/sand pack.

Lithological Log – a graphic representation of geological formations being drilled through and drawn on a log called a mud log. As cuttings are circulated out of the borehole, they are sampled and examined to create the mud log or Lithological Log.

Livestock Use or Purpose – the use of water for the watering of livestock, poultry, or wildlife, including exotic livestock, game animals, fur-bearing animals, birds, or waterfowl and for maintaining aquatic life. Aquaculture is not Livestock Use but is Industrial Use. Livestock Use includes watering livestock that are kept for pleasure, recreational use, or Commercial Use, but does not include the use of water at confined animal feeding operations permitted by the Texas Commission on Environmental Quality.

Livestock Well - a Water Well used as a water supply for a Livestock Use or Purpose.

Major Amendment – a change made to an Operating Permit reflecting an increase in the Production of Groundwater or in the Production Capability of a Water Well to produce Groundwater, or other change in a Permitted Well as described in Rule 3.8.E(3).

Management Plan or Groundwater Management Plan – a plan developed by the District pursuant to Texas Water Code Section 36.1071.

Minor Amendment – a change made to an Operating Permit reflecting a change in the type of use of a Well; the Well size or Well Depth, including Depth to the Bottom of the Screen, the Well pump, or its pumping volume that does not increase the Production Capability or amount; or a change to the approved water Conservation plan or Drought Contingency Plan, or other change in a Permitted Well as described in Rule 3.8.E(4).

Modeled Available Groundwater - the amount of water calculated by the Texas Water Development Board under Texas Water Code 36.1084(b) based upon the Desired Future Condition(s) adopted by the Groundwater Conservation Districts in a Groundwater Management Area and is one of the elements to be considered by a district when making permitting decisions. Also referred to as MAG.

Monitoring Use or Purpose - to measure the level, quality, quantity, or movement of subsurface water.

Monitoring Well – a Well used solely to measure one or more properties of Groundwater or the aquifer or geologic unit that the Well penetrates.

Municipal/Electric Use or Purpose – the use and treatment of Groundwater for a municipal project designed to treat brackish Groundwater to drinking water standards for the purpose of providing a public source of drinking water or for use in an electric generation project to treat brackish Groundwater to water quality standards sufficient for the project needs, as described in Texas Water Code section 36.1015(d).

New Well – a Water Well drilled after October 8, 2008 or an Existing Water Well that has been changed after October 8, 2008 in such a manner that the Well requires an Operating Permit or a Major Amendment.

Non-Zone Underground Strata – in the context of an Application for a Class D Non-Zone Production Permit, the aquifer in which the Production Wells are screened, all adjacent aquifers, subdivision of aquifers, and geologic strata.

Non-Exempt Well – a Water Well that requires an Operating Permit under Rule 3.1.B.

Notice of Application – notification that an Applicant for a Class D Production Permit shall provide under Rule 14.5 when the Application is filed with the District.

Notice of Violation (NOV) – written correspondence from the District notifying a Person that they are in violation of District Rules, orders, or Permit, or other law within the District's enforcement authority.

Oil and Gas Use or Purpose or Oil or Gas Use or Purpose - the use of Groundwater for cooling water or boiler water at gas plants; use as solution of underground salt in mining brine or hydrocarbon storage cavern creation; hydrostatic test water for pipelines and tanks; rig wash water; coolant for internal combustion engines for rigs, compressors, and other equipment; for sanitary purposes; for laboratory purposes; or any other use by an oil or gas company, excluding Commercial Use or Purpose or use for Temporary Rig Supply or Oil or Gas Secondary Recovery Supply.

Open Meetings Act – Texas Government Code, chapter 551.

Open or Uncovered – when referring to a Water Well, a non-Deteriorated Water Well that is open at the surface. This includes a Well that is left unattended without a pump installed or with the pump removed.

Operating Permit or Production Permit – an authorization issued by the District under Rule 3, which allows a Non-Exempt Well to be drilled and operated, producing Groundwater.

P-13 - Railroad Commission form, "Application of Landowner to Condition an Abandoned Well for Fresh Water Production," used to comply with Railroad Commission rule 3.14.

Party – In the context of a Contested Case Hearing, the Applicant and any other Person designated as a party by the Presiding Officer under Rule 8.5.B.

Permit Amendment – approval required for a change to the operation, use, or condition of a Water Well with an Operating Permit. Permit Amendments are either Minor Amendments or Major Amendments, as described in Rule 3.8.E.

Permittee or Permit Holder – a Person who holds an Operating Permit issued by the District.

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

Piezometer Well – a Well of a temporary nature constructed to Monitoring Well standards used to measure water levels or used to install a piezometer to determine the appropriate location and Well Depth of permanent Monitoring Well.

Plug or Plugging – With reference to a Well, an absolute Sealing of the Well bore, resulting in the permanent closure of a Well in accordance with approved State and District standards.

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

Pre-Application Meeting – a conference required under Rule 14.2 prior to submittal of an Application for a Class D Production Permit.

Pre-Application Monitoring Well – a Monitoring Well required under Rule 14.3.D to be constructed prior to submitting an Application for a Class D Production Permit.

Pre-Application Test Well – a Well constructed to obtain information about Groundwater quality and aquifer conditions to support an Application for a Class D Production Permit, as required by Rule 14.3.D.

Pre-Application Well Control Data – in the Class D Production Permit Application process, data developed as required under Rule 14.3.B.

Pre-Mining Water Quality Information – water quality information collected or obtained by an Area Permit Applicant under Texas Water Code Section 27.024(a), and 30 Texas Administrative Code Chapter 331 and to be reported to the District under 30 Texas Administrative Code 331.223(a)(3) and District Rule 9.2.A(3).

Preliminary Hearing - the hearing held under Rules 8.5.C through 8.5.F to consider issues relevant to a Contested Case Hearing Request. It is considered to be the beginning of a Contested Case Hearing unless it results in a finding that no person requesting a Contested Case Hearing has standing or that no justiciable issue related to the Application has been raised.

Presiding Officer – either the President of the Board, a Director, or the Hearings Examiner designated under Rule 8.5.H to conduct a Contested Case Hearing. Also refers to the Person under Rule 8.7.F who is designated to conduct an Enforcement Hearing.

Production – withdrawal of Groundwater from a Well.

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

Production Limit - a numerical limitation on the annual amount of Groundwater authorized to be produced under an Operating Permit. The Production Limit is generally expressed in acre-feet per year or gallons per year and is calculated as provided in Rule 11.

Production-Limit-Acreage - contiguous acreage owned by the Applicant or for which the Applicant has Groundwater Production rights and upon which the Production Limit in an Operating Permit is based.

Production Monitoring Well – a Monitoring Well designed to measure Groundwater quantity and quality in water produced from a Water Well.

Production Monitoring Well Plan – a plan containing all requirements of Rule 14.4.H designed to measure Groundwater quantity and quality under a Class D Production Permit.

Production Permit – see definition of Operating Permit.

Public Hearing - a District Board Meeting that, at a minimum, has been noticed under the Open Meetings Act, at which the District Board considers a matter and provides an opportunity for the public to comment on that matter.

Public Water Supply Well – a Well used as the source of water for a public water system as defined in 30 Texas Administrative Code Section 290.38(47).

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

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

Regional Water Planning Areas – areas established by the Texas Water Development Board under Texas Water Code Section 16.053. Planning groups in these areas generate Regional Water Plans every five years as required by Texas Water Code Section 16.053.

Registration, Register, or Registering – In the context of a Water Well, the process required for all Water Wells in the District under Rule 3.2 whereby the District maintains an inventory of Water Wells and determines if a Water Well requires an Operating Permit.

Replacement Well – a Water Well designed to replace a Registered or permitted Water Well that fulfills the requirements of Rule 3.8.G.

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

Rig Supply Use or Purpose - supplying water to a rig actively engaged in drilling or exploration operations for minerals or oil or gas.

Rig Supply Well - a Water Well used as a water supply for a Rig Supply Use or Purpose.

Rules – standards and regulations promulgated by the District.

Secondary Recovery Supply Well – a Water Well supplying water for secondary recovery of oil or gas. A Water Well is considered to be a Secondary Recovery Supply Well during any period that water from the Water Well is used solely or

partially for this purpose. A type of Exempt Oil and Gas Water Supply Well. Does not include uses that qualify as Oil and Gas Uses.

SOAH Contested Case Hearing - a Contested Case Hearing administered by the State Office of Administrative Hearings because of a request made under Texas Water Code 36.416(b).

Special Permit Conditions – requirements in an Operating Permit determined on a case-by-case basis based on the data provided during the Permit Application process or as otherwise authorized by District Rule.

State Office of Administrative Hearings (SOAH) - the executive branch State agency with jurisdiction to hold Contested Case Hearings for administrative agencies and for Groundwater Conservation Districts as provided in Texas Water Code Chapter 36 and District Rule 8.6.

State of Texas Plugging Report – the report that a Person who Plugs a Water Well is required to complete under 16 Texas Administrative Code Section 76.700(2).

State of Texas Well Report – the report that every Water Well driller who drills, completes, deepens, or alters a Water Well is required to complete under the Texas Department of Licensing and Regulation Rules, as defined in 16 Texas Administrative Code Sections 76.10(45) and 76.700(1). Also commonly referred to as the Driller's Log or Well Log.

Subsidence Minimization Plan – a document describing measures to halt or minimize subsidence as required by Rule 14.12.B.

Subsidence Monitoring Plan – a document describing measures to monitor subsidence during the duration of a Class D Production Well Permit under Rule 14.4.I.

Tag or Tagging - In the context of Water Wells, placing an official seal, tag, or label on a Water Well or its equipment, to indicate that further pumping of Groundwater, or operation of the Well is unauthorized and will be in violation of District Rules.

TDS – total dissolved solids or an estimate based on specific conductance.

Technically Complete – the status of an Application for a Class D Municipal/Electric Zone Production Permit containing all technical information and data in compliance with the Rules and the TWDB Technical Report.

Temporary Rig Supply Well – a Well supplying water to a rig actively engaged in drilling or exploration operations for an oil or gas Well permitted by the Railroad Commission of Texas, including drilling or workover rigs. Exploration operations include Well Completion and workover, including hydraulic fracturing operations.

A Water Well is considered to be a Temporary Rig Supply Well during any period that water from the Well is used solely or partially for this purpose. If the source of water for this use is a stock tank and the source of water for the stock tank is a Water Well, during the period of such use, the stock tank Well is considered to be a Temporary Rig Supply Well. A type of Exempt Oil and Gas Water Supply Well. Does not include uses that qualify as Oil and Gas Uses.

Test Well – A Well used to assess and/or test the geologic and hydraulic properties of an aquifer or geologic unit. A series of Test Wells may be drilled to determine the most effective location for a Production Well.

TWDB – Texas Water Development Board.

TWDB Technical Report – a document and associated digital information prepared by the staff of the Texas Water Development Board as required by Texas Water Code section 36.1015(h) containing the review of a Class D Municipal/Electric Zone Production Permit Application that includes:

(1) findings regarding the compatibility of the proposed Well Field design with the Designated Brackish Groundwater Production Zone; and

(2) recommendations for the Production Monitoring Well Plan described by Texas Water Code section 36.1015 (e)(4) and District Rule 14.4.H.

Uncontested Matter or Uncontested Permit Application - an Application under District Rule 8.3 that (1) is decided by the District's General Manager or (2) is referred to the Board of Directors for consideration under Rule 8.4 and for which no Request for Contested Case Hearing is submitted under Rule 8.5.A.

Uranium Exploration Activities – the disturbance of the surface or subsurface for the purpose of or related to determining the location, quantity, or quality of a uranium deposit.

Uranium Exploration Permit – a Permit issued by the Railroad Commission of Texas pursuant to Texas Natural Resources Code, Chapter 131, Subchapter I, as amended, and 16 Texas Administrative Code, Chapter 11, Subchapter C, as amended, authorizing the exploration for uranium.

Uranium Exploration Permittee or Permit Holder – a Person who holds a Uranium Exploration Permit.

Uranium Exploration Permit Year - the initial year during which a Uranium Exploration Permit is in effect and every additional year it remains in effect under a renewal.

Variance – an authorized exception to requirements or provisions of the Rules granted by the District in accordance with Rules 1.7, 10.5, or 14.13.

Waste –

(1) The withdrawal of Groundwater from a Groundwater reservoir at a rate and in an amount that causes or threatens to cause intrusion into the reservoir of water unsuitable for Agricultural, gardening, Domestic, or Livestock Purposes. The flowing or producing of Wells from a Groundwater reservoir if the water produced is not used for a Beneficial Purpose.

(2) The escape of Groundwater from one Groundwater reservoir to any other reservoir or geologic strata that does not contain Groundwater.

(3) The Pollution or harmful alteration of Groundwater in a Groundwater reservoir by saltwater or by other deleterious matter admitted from another stratum or from the surface of the ground.

(4) 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 Water Well unless such discharge is authorized by Permit, Rule, or order issued by the Texas Commission on Environmental Quality under Texas Water Code Chapter 26 "Water Quality Control."

(5) Groundwater pumped for Irrigation that escapes as irrigation tailwater onto land other than that of the Owner of the Water Well unless permission has been granted by the occupant of the land receiving the discharge.

(6) With regard to water from an artesian Water Well, the following also is considered Waste. Unless the water from an artesian Water Well is used for a purpose and in a manner in which it may be lawfully used on the Owner's land, it is Waste and unlawful to willfully cause or knowingly permit the water to run off the Owner's land or to percolate through the stratum above which the water is found.

(7) Drilling or operating a Water Well or Water Wells without a required permit or producing Groundwater in violation of a District Rule adopted under Texas Water Code Section 36.116(a)(2).

Water Pollution Event - the discovery of a spill or release of contaminants into the environment that is required by State law to be reported to the Texas Commission on Environmental Quality or the Railroad Commission of Texas because of its potential or actual Pollution of surface water or Groundwater.

Water Table - the surface between the vadose zone and the saturated zone. That surface of unconfined Groundwater at which the pressure is equal to that of the atmosphere.

Water Well – an artificial excavation constructed to explore for or produce Groundwater or test or monitor Groundwater quality. The term does not include a test or blast hole in a quarry or mine or a Well or excavation constructed to explore for or produce oil, gas, or other minerals or an injection water source Well associated with oil or gas activities that penetrates the base of usable quality water. The term does include an Abandoned Oil or Gas Well that can be conditioned for usable quality Groundwater Production.

Water Well Operator – a Person who has the right to produce or use Groundwater, but who does not own the Water Well.

Water Well Owner – a Person who has the right to drill a Water Well and to produce or use Groundwater and who owns the Water Well once drilled.

Water Wells Associated with Uranium Exploration and Mining - Water Wells subject to District Rule 9.

Well – an artificial excavation to explore for or produce water or minerals or to inject water or other substances into the subsurface.

Well Depth - distance from the surface to the bottom of the borehole, expressed in feet.

Well Field – a group of Water Wells producing Groundwater under one Operating Permit.

Well Log - see definition of State of Texas Well Report.

Well Registration Certificate – a document issued to the Water Well Owner when a Water Well is Registered with the District. The Well Registration Certificate includes the District Well Number, the WGS 84 Decimal Degrees GPS co-ordinates of the Well, and Water Well Owner's name, and the Water Well Owner's name for the Well.

WGS 84 Coordinates - The most common geodetic system upon which latitude and longitude values can be based. This is the most common global coordinate system used by, and often the default system on, all GPS equipment. Same as WGS 84 Decimal Degrees.

WGS 84 Decimal Degrees - See WGS 84 Coordinates.

Zone – see definition of Brackish Groundwater Production Zone.

Zone Designation Memo – Texas Water Development Board October 6, 2016 intraoffice correspondence designating, among other Zones, the GCUL1 and the GCML1 located, at least partially, in the District. (A copy of the Zone Designation Memo is found in Appendix A of these Rules and can also be obtained from the District office.)

Zone Underground Strata – in the context of an Application for a Class D Production Permit for a Water Well screened in a Zone, the same or an adjacent aquifer, subdivision of an aquifer, or geologic stratum in which the Zone is located.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016. Amended March 21, 2018, by Board Order; effective March 21, 2018. Amended June 16, 2021, by Board Order; effective June 16, 2021.

Rule 3: REGISTRATION AND PERMITTING

3.1 Wells Subject to Operating Permits and Exemptions

A. Wells Exempt From Obtaining an Operating Permit (Exempt Wells)

(1) A Water Well used solely for Domestic or Livestock Use unless the Well will be used to supply water for a subdivision of land for which a plat approval is required by Chapter 232, Local Government Code.

(2) A Water Well used to supply water for a rig that is actively engaged in drilling or exploration operations permitted by the Railroad Commission of Texas located on the same lease or field on which the drilling rig is located or is in close proximity to the drilling rig. Under District Rules, these Wells are referred to as Temporary Rig Supply Wells and are a type of Exempt Oil and Gas Water Supply Well.

(3) A Well used to supply water for secondary recovery of oil or gas. Under District Rules, these Wells are referred to as Secondary Recovery Supply Wells and are a type of Exempt Oil and Gas Water Supply Well.

(4) A Well authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, Natural Resources Code (Texas Surface Coal Mining and Restoration Act), or for Production from such a Well to the extent the withdrawals are required for mining purposes regardless of any subsequent use of the water.

(5) A Well Exempt under Rule 9: Water Wells Associated With Uranium Exploration and Mining.

(6) A Well drilled and Completed solely for purposes of aquifer testing, including a Test Well, or for Monitoring water levels or water quality.

(7) An otherwise Exempt Well remains exempt during the temporary use or sale of water for construction purposes during the duration of a specific project.

(8) An otherwise Exempt Well remains exempt during the temporary use or sale of water for Exempt Oil and Gas Water Supply use, but water produced for that purpose must be metered, and reported, as required by Rule 5.4.

(9) An otherwise Exempt Well with the capacity to produce water at a rate greater than 80 gpm that is screened to produce water from a Zone, the Burkeville Confining Unit, or the Jasper Aquifer remains exempt, but water produced must be metered, and reported as required by Rule 5.2.A.

B. Wells Requiring an Operating Permit (Non-Exempt Wells)

(1) A Water Well that requires an Operating Permit under this Rule 3.1.B is referred to as a Non-Exempt Well.

(2) An Operating Permit must be obtained under Rule 3.4 for a Water Well that does not qualify for an exemption under Rule 3.1.A or a Water Well that was exempt under Rule 3.1.A(1) if the Groundwater withdrawal is no longer used solely for Domestic Use or to provide water for livestock or poultry.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016. Amended June 16, 2021, by Board Order; effective June 16, 2021.

3.2 Required Registration of Wells

A. All Water Wells must be Registered with the District.

B. All Water Wells that were drilled prior to or on October 8, 2008 must be Registered with the District no later than October 8, 2009. Such Wells are referred to as Existing Wells.

C. Beginning on October 9, 2008, no Water Well shall be drilled or operated without first Registering the proposed Water Well with the District. Such Wells are referred to as New Wells.

D. As part of the District's continuing effort to ensure the quality of its Groundwater by including in its database as much information as possible related to artificial penetrations into or through water-bearing strata, the District requires Registration of Abandoned Oil or Gas Wells as set out in this Rule 3.2.D. Ownership of these Abandoned Oil or Gas Wells generally has been transferred to the landowner. This transfer may or may not be evidenced by submittal of a P-13 to the Railroad Commission.

(1) When the Owner of an Abandoned Oil or Gas Well that was abandoned prior to or on October 8, 2008, becomes aware of its existence and locates the Abandoned Oil or Gas Well, the Owner must Register it with the District by January 25, 2013 or within six months after locating the Abandoned Oil or Gas Well. It will be considered an Existing Well and if it is not being used as a Water Well, it must be Capped or Plugged as required in Rule 6.

(2) After July 25, 2012**,** if an Abandoned Oil or Gas Well will be conditioned for usable quality water Production, the Well Owner must Register the Well with the District prior to submitting to the Railroad Commission, Form P-13, "Application of Landowner to Condition an Abandoned Well for Fresh Water Production." It will be considered to be a New Water Well.

(3) A Water Well that is the subject of a P-13 that was filed with the Railroad Commission prior to July 25, 2012 but has not been Registered with the District as of that date, must be Registered by January 25, 2013.

(4) If a P-13 Well is not equipped to produce water, it must be Registered as an Inactive Well and must be Capped under the requirements of District Rule 6.2 until such time as it becomes operational. The District must be notified when it becomes operational, as required by Rule 3.8.A(2).

E. At the time of Registration, the District will determine whether the Water Well is a Non-Exempt Well. An Operating Permit must be obtained for a Non-Exempt Well. A Non-Exempt Well shall not be drilled or operated prior to District approval of an Operating Permit, except as stated in Rule 3.4.D.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

3.3 Information Required for Registration

A. Well Registration Application forms are available at the District Office and on the District website. If multiple Water Wells are being Registered at the same time by the same Water Well Owner, the District may establish an alternative method of Registration, for example, submittal of the Water Well Owner's existing Well database.

B. The following information is required to Register a New or proposed Water Well. For Registration of an Existing Well, the Water Well Owner shall provide as much of the following information as is reasonably available:

(1) Name, address, phone number, facsimile number, and e-mail address of the Water Well Owner.

(2) Name, address, phone number, facsimile number, and e-mail address of the Person submitting the Registration, if different from the Water Well Owner. This Person will be considered to be the Water Well Owner's Agent.

(3) The Water Well location in WGS 84 Decimal Degrees co-ordinate system and a signed statement by the Registration Applicant that the location complies with the spacing requirements of District Rules 10.3 and 10.4, or that the Applicant has been granted a Variance under Rule 10.5. No statement is required for Existing Wells.

(4) Casing size, estimated Well Depth, Depth to the Bottom of the Screen, pump size, and Production Capability.

(5) The type of use for water from the Water Well based on the definitions in Rule 2.

(6) For New Wells, as defined in Rule 2, the Registration Fee if one has been established under Rule 1.8.

C. The District shall issue a District Well Number.

D. For New Wells, if the District determines that the information is complete; that the Registration Applicant has stated that the location of the proposed Water Well complies with Rule 10.3 and 10.4 spacing requirements, or that the Applicant has been granted a Variance under Rule 10.5; that no Operating Permit is required; and that there are no unresolved District Enforcement Actions against the Registrant or involving the Water Well, the District shall approve Registration of the Water Well. If the Registration is for a New Well, the Registration will serve as authorization to drill and operate the Water Well as described in the Registration. The District will issue a Well Registration Certificate to the Water Well Owner.

E. For Existing Wells, if the District determines that the essential information is complete, that no Operating Permit is required, and that there are no unresolved District Enforcement Actions against the Registrant, the District shall approve Registration of the Water Well. Existing Wells are not required to comply with Rule 10 spacing requirements. The District will issue a Well Registration Certificate to the Water Well Owner.

F. If no Operating Permit is required, upon approval of the Registration the Water Well Owner may drill the Water Well. A copy of the approved Well Registration Application and Well Registration Certificate must be on-site while the Water Well is being drilled.

G. If the Water Well has not been drilled within 180 days of approval of the Registration and issuance of the Well Registration Certificate, the Registration and Certificate will be voided by the District.

H. If the District determines that the Water Well is a Non-Exempt Well, the Water Well Owner shall obtain an Operating Permit under Rule 3.4 prior to drilling or operating the Well.

I. For proposed Class D Production Wells, the timing of submittal of the Well Registrations for the proposed Water Wells will be determined at the Pre-Application Meeting required by Rule 14.2.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended June 16, 2021, by Board Order; effective June 16, 2021.

3.4 Required Operating Permit for Non-Exempt Wells

A. An Operating Permit is required for drilling and operating a Non-Exempt Well.

B. Operating Permits generally are issued without a termination date. However, all Operating Permits are subject to District Rules as they may be amended from time to time, which may include changes to perpetual term permits based on factors including but not limited to changing Groundwater conditions in the District, changes in demand for Groundwater in the District, or changes in Desired Future Conditions for the District.

C. A Non-Exempt Well that was drilled prior to or on October 8, 2008 must apply for an Operating Permit within 60 days of the date the Water Well is Registered with the District under Rule 3.2.B.

D. Beginning on October 9, 2008, a Non-Exempt Well shall not be drilled, be operated, or produce water unless an Operating Permit has been obtained from the District. An Existing Non-Exempt Well shall not be operated or produce water after the deadline established in Rule 3.4.C unless the Existing Non-Exempt Well is covered by an Operating Permit or an Operating Permit Application has been filed and approval is diligently being pursued.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended June 16, 2021, by Board Order; effective June 16, 2021.

3.5 Information Required in an Operating Permit Application

A. An Application for an Operating Permit shall be submitted on a form obtained from the District and shall be signed and sworn to by the Water Well Owner as required by Texas Water Code Section 36.113(b). Generally, a separate Application is required for each Water Well, unless more than one Water Well will be covered by the same Production Limit. In that case, each Water Well must be Registered separately but an Operating Permit authorizing the collective operation of the Water Wells shall require a single Application.

B. An Application for Operating Permit for a New Well shall include the information listed in this Rule 3.5. An Application for an Operating Permit for an Existing Well shall include as much of the information as possible. The information required by this Rule 3.5 has been deemed necessary by the District to comply with the requirements of Texas Water Code Chapter 36, its Enabling Legislation, and general law, and is reasonably related to issues that the District is authorized to consider.

C. The proposed Production Capacity and source aquifer determine what information is required for an Application for an Operating Permit to be deemed Administratively Complete, as set out in subsections D – G of this Rule 3.5.

D. Class A Production Wells. The following information is required in an Application for a Non-Exempt Well or Wells operated under a single Operating Permit with the

Capacity to produce Groundwater at an annualized rate of not more than 45 gallons per minute. These Water Wells are referred to in these Rules as Class A Production Wells.

(1) Name, mailing address, phone number, facsimile number, and e-mail address of the Water Well Owner.

(2) Name, mailing address, phone number, facsimile number, and e-mail of the Person submitting the Operating Permit Application, if different from the Water Well Owner. This Person will be considered to be the Water Well Owner's Agent and the Applicant.

(3) Name, mailing address, phone number, facsimile number, and e-mail address of the owner of the land on which the Water Well will be located, if different from the Water Well Owner.

(4) Location and property description of the proposed Water Well, including a location map or property plat. The map or plat must include the name of the county, must have a direction indicator, and must identify the scale of the map. The map or plat must be drawn on a scale that adequately details the Water Well site to show compliance with Rule 10 spacing requirements. The map shall include: the property lines; the location of other Water Wells; any existing or proposed wastewater systems; and other potential sources of contamination, including septic systems, within 500 feet of the Water Well. The location map or property plat must include the location of each Water Well to be permitted and provide the GPS co-ordinate location of each Water Well using WGS 84.

(5) If the Production Limit is based on Rule 11.2, the legal description of the Production-Limit-Acreage, and documentation that the Applicant has the authority to tie the land to the Operating Permit when issued. If the Applicant is other than the owner of the property on which the Water Well will be located, documentation is required establishing the authority to construct and operate the Water Well for the proposed use.

(6) A copy of the Well Registration Certificate and approved Well Registration Application for each Water Well to be covered by the Permit. If the Water Well or Wells to be covered by the Operating Permit were Registered as part of a multi-Well Registration, the Application must include a completed Well Registration Application for each covered Water Well.

(7) A statement of the nature and purpose of the proposed use.

(8) The annual maximum Production Limit requested (in gallons per year or acre-feet per year). For an Existing Well, include documentation showing the annual Production from the Water Well during each of the previous five years. See Rule 11.1. For a New Well, provide documentation relating the requested Production Limit to the contiguous acreage owned by the Applicant or for which the Applicant has Groundwater Production rights, also referred to as the Production-Limit-Acreage. Include the annual amount of water for each of the proposed uses.

(9) Proposed Well Depth and proposed screening intervals and the aquifer(s) in which each screened interval is to be located. Initial determination can be made using information from the State-approved GAM model.

(10) The location of other Water Wells located on the Production-Limit-Acreage property.

(11) The size of the pump to be installed at the Water Well, indicating whether submersible or above ground; the maximum Production Capacity of the pump being installed; and the estimated annualized rate of withdrawal for each Water Well to be permitted, including the instantaneous Production rate in gallons per minute.

(12) Declaration that the Applicant will adhere to the District Management Plan.

(13) A water Conservation plan showing what water conservation measures the Permittee has adopted, what water conservation goals the Permittee has established, and what measures and time frames are necessary to achieve the Permittee's established water conservation goals.

(14) A Drought Contingency Plan. A Drought Contingency Plan that has been approved under the requirements of other local, state, or federal law, for example, a Drought Contingency Plan approved under 30 Texas Administrative Code chapter 288, is presumed adequate for purposes of this requirements.

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

(16) A statement of the anticipated duration of time required for the proposed use of the water.

(17) For New Wells, as defined in Rule 2, the Operating Permit Application Fee established under Rule 1.8, if any.

(18) A sworn statement that the Production-Limit-Acreage property is not subject to Permit for Uranium Mining or an Aquifer Exemption under 40 Code of Federal Regulations Section 144.7 and 30 Texas Administrative Code Section 331.13 (see Rule 11.2.C) and that the Water Well Owner agrees to notify the District 60 days prior to any changes that would require a change in this sworn statement.

(19) A sworn statement that the Water Well Owner agrees to notify the District of any changes in Well condition or operations as required by Rule 3.8, to Cap or Plug the Well according to Rules 6.1 and 6.2 if the operation or condition of the Well so warrants, and to report Plugging of the Well to the Texas Department of Licensing and Regulation and to the District as required by Rule 6.1.A.

E. Class B Production Wells. The following information is required in an Application for a Non-Exempt Well, or Wells operated under a single Operating Permit, with the Capacity to produce Groundwater at an annualized rate of more than 45 and not more than 80 gallons per minute. These Water Wells are referred to as Class B Production Wells.

(1) All information necessary for Class A Production Wells.

(2) Driller's Log for the closest Water Well if data can be obtained from publicly available sources.

(3) Location and Production Limits of other Water Wells within a 1-mile Buffer Area of all proposed Wells, including those outside the Production-Limit-Acreage property boundaries, if any.

(4) Preliminary determination of potential drawdown at the closest Production-Limit-Acreage property boundary due to Production from the Water Well after 1, 5, 10, and 25 years of operation (other times may be used with prior approval of the District if the Water Well is to be used for a shorter period). Analytical solutions (e.g., Theis solution) can be used for this purpose.

(5) Adjacent landowner waiver of Water Well spacing if the potential drawdown estimated at the Production-Limit-Acreage property boundary, calculated under Rule 3.5.E(4), exceeds 5 feet in 1 year or 10 feet in 5 years.

F. Class C Production Wells. The following information is required in an Application for Non-Exempt Well or Wells operated under a single Operating Permit with the Capacity to produce Groundwater at an annualized rate of more than 80 gallons per minute, except those screened to produce from a Zone or outside a Zone and screened in the Burkeville Confining Unit or the Jasper Aquifer. These Water Wells are referred to as Class C Production Wells.

(1) All information necessary for Class A Production Wells.

(2) Driller's Log for the closest Water Well if data can be obtained from publicly available sources.

(3) Location and Production Limits of other Water Wells within 3-mile Buffer Area of all proposed Wells, including those outside the Production-Limit-Acreage property boundaries, if any.

(4) Proximity to surface water bodies including but not limited to springs, intermittent creeks, and perennial streams.

(5) Preliminary determination of potential drawdown at the closest Production-Limit-Acreage property boundary due to Production from the Water Well after 1, 5 10, and 25 years of operation (other time intervals can be used with prior approval of the District if the Water Well is to be used for a shorter period). Analytical solutions (e.g., Theis solution) can be used for this purpose.

(6) Site-specific lithological information obtained from test borehole or an existing well on the contiguous parcel of the property where the Water Well is proposed to be drilled.

(7) Available groundwater level data describing the historical response of the aquifer within a 3-mile Buffer Area of all proposed Wells. Data from TWDB Groundwater Database, data collected by private third-party consultants, and other information collected by the district can be used for this purpose.

(8) Available groundwater quality data describing the historical response of the aquifer within a 3-mile Buffer Area of all proposed Water Wells. Data from a TWDB Groundwater Database, data collected by private third-party consultants, and information collected by the District can be used for this purpose.

G. Class D Production Wells. A Class D Production Permit is required for a Non-Exempt Well or Wells operated under a single Operating Permit with the capacity to produce Groundwater at an annualized rate of more than 80 gpm from a Zone or from the

Burkeville Confining Unit or the Jasper Aquifer outside of a Zone. Rule 14.4 establishes the information required in a Class D Production Permit Application.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended March 21, 2018, by Board Order, effective March 21, 2018. Amended June 16, 2021, by Board Order; effective June 16, 2021.

3.6 Processing an Operating Permit Application and Issuance of Permit

A. Administrative Completeness of Application

(1) An Application for an Operating Permit will not be deemed Administratively Complete until it includes all information required in Rules 3.5 and 14.4, as applicable. In order to adequately address the purposes and requirements of Texas Water Code Chapter 36, the District's Enabling Legislation, general law, and District Rules, after an Operating Permit Application is submitted the District may require further clarification or additional documentation from the Applicant, so long as the clarification or documentation falls within the requirements listed in Rule 3.5 or 14.4, as applicable.

(2) No Application shall be deemed Administratively Complete if there are unresolved District Enforcement Actions against the Applicant or involving the Water Well.

(3) If an Application remains administratively incomplete for more than 180 days following either the original Application date or the date that the District notified the Applicant of the need to submit additional clarification or documentation, the Application will expire.

B. Completeness of an Operating Permit Application

(1) The District will notify the Applicant in writing when the Application is deemed Administratively Complete. For a Class D Municipal/Electric Zone Production Permit Application, the District will notify the Applicant in writing when the Application is deemed Administratively and Technically Complete according to Rule 14.6.

(2) Within 60 days of the date of written notice under Rule 3.6.B(1), the District will act on the Application according to Rule 8.3.

(3) The decision whether to approve the Operating Permit as requested in the Application, approve the Operating Permit with terms other than those requested in the Application, or deny the Application shall be made using the process described in Rule 8.3. The Board or its designee shall make this decision based on the considerations in Rule 3.7. For Class D Production

Permit Applications, the decision shall be made based on the applicable Rule 3.7 and Rule 14.8 considerations.

C. Contents of an Operating Permit

An Operating Permit shall include the following, in addition to any other conditions set by the District:

(1) A requirement that a totalizing flow meter or other reliable water measuring device as required by Rule 5.2, be installed when the pump is set and that the District be notified within 30 days of installation.

(2) The authorized annual maximum Production Limit for the Water Well as provided by Rule 11. For New Wells, the Permit will include a Certificate of Production-Limit- Acreage, which will reflect the annual maximum Production Limit.

(3) An approved map or drawing showing the Water Well site and the following features, if any, within 500 feet of the Water Well site: the property lines, the boundaries of the Production-Limit-Acreage property, the location of other Water Wells, existing or proposed wastewater systems, and other potential sources of contamination.

(4) An approved water Conservation Plan.

(5) An approved Drought Contingency Plan.

(6) Special Permit Conditions.

(7) A Class D Operating Permit shall include the requirements set out in Rule 14.7 in addition to the requirements set out in this Rule 3.6.C, if applicable.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended March 21, 2018, by Board Order, effective March 21, 2018. Amended June 16, 2021, by Board Order; effective June 16, 2021.

3.7 Considerations for Issuing an Operating Permit

A. The District shall be guided by these Rules and Chapter 36, Texas Water Code when considering each Operating Permit Application.

B. In issuing all Classes of Operating Permits, except Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, the District will manage total Groundwater Production on a long-term basis to achieve the adopted applicable Desired Future Condition for the Water Well location and Production zone.

C. In issuing Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, the District will manage total Groundwater Production on a long-term basis to ensure that Production of Groundwater is in addition to the amount of the most recent Modeled Available Groundwater established in the GMA-16 Joint Planning process, including addressing any double counting as between the most recent MAG and designation of the Zones.

D. The District shall consider the following, which include the considerations required by Texas Water Code Section 36.113(d) and 36.1132(b):

(1) Does the Application conform to the requirements of Texas Water Code Chapter 36 and these Rules?

(2) Will the use of water unreasonably affect existing Groundwater and surface water resources or existing Permit Holders? For Existing Wells, a Permit establishing the Production Limits required under Rule 11.1 will fulfill this requirement.

(3) Is the use of water considered Beneficial Use, as defined by Texas Water Code Section 36.001(9) and District Rule 2?

(4) Is the use of water consistent with the District's approved Management Plan?

(5) Has the Applicant agreed to avoid Waste and achieve Water Conservation?

(6) Will the conditions and limitations in the Permit prevent Waste, achieve water Conservation, minimize as far as practicable the drawdown of the water table or the reduction of Artesian Pressure, or lessen interference between Water Wells?

(7) Does the Application include an acceptable water Conservation plan?

(8) For all Operating Permit Applications except for Class D Production Permit Applications, does the Application include an acceptable Drought Contingency Plan?

(9) Has the Applicant agreed to use reasonable diligence to protect Groundwater quality? For a proposed Water Well other than a Class D Production Well, if the location complies with spacing Rule 10.3 and the Water Well will be constructed according to the construction standards of Rule 4, this requirement is fulfilled. For an Existing Well, the District will evaluate the location based on Rule 10.3 and evaluate the Water Well

construction based on Rule 4 and may impose Special Permit Conditions designed to protect Groundwater quality.

(10) Has the Applicant agreed to follow the District's Rules on Well Plugging at the time of Water Well closure?

(11) Does the Application provide sufficient documentation to support the requested Production Limit, including required information about In Situ Uranium Mining, if applicable?

(12) Are there any unresolved District Enforcement Actions against the Applicant or involving the Water Well?

(13) For all Operating Permit Applications except for Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, is the requested Production Limit, when considered in conjunction with the most recent Modeled Available Groundwater, consistent with achieving the Desired Future Condition applicable to the Water Well location and Production zone?

(14) For all Operating Permit Applications except for Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, is the requested Production Limit, when considered in conjunction with the Texas Water Development Board's estimate of current and projected amount of Groundwater produced under exemptions granted by District Rules and Texas Water Code section 36.117, consistent with achieving the Desired Future Condition applicable to the Water Well location and Production zone?

(15) For all Operating Permit Applications except for Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, is the requested Production Limit, when considered in conjunction with the amount of Groundwater authorized under Operating Permits previously issued by the District, consistent with achieving the Desired Future Condition applicable to the Water Well location and Production zone?

(16) For all Operating Permit Applications except for Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, is the requested Production Limit, when considered in conjunction with the amount of Groundwater actually being produced under Operating Permits previously issued by the District, consistent with achieving the Desired Future Condition applicable to the Water Well location and Production zone?

(17) For all Operating Permit Applications except for Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, is the requested Production Limit, when considered in conjunction with yearly precipitation and Production patterns, consistent with achieving the Desired Future Condition applicable to the Water Well location and Production zone?

F. For Applications for a Class D Production Permit the District shall also consider the issues in Rule 14.8.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended March 21, 2018, by Board Order; effective March 21, 2018. Amended June 16, 2021, by Board Order; effective June 16, 2021.

3.8 Change in Well Conditions or Operations, Permit Amendment and Revocation, Replacing a Well

A. Change in Well Conditions or Operations

(1) No Person may take any of the following actions related to a Water Well located in the District without notifying the District in writing 14 days prior to the making the change. The Change in Well Conditions or Operations form is available at the District Office and on the District website.

(a) Change the type of use of a Water Well from an exempt use to a non-exempt use. This change requires District authorization prior to making the change under Rule 3.8.B.

(b) For all Water Wells, a change in the pumping capacity that would change the spacing from property lines authorized under Rule 10.4. This change requires District authorization prior to making the change.

(c) Plugging a Water Well. This change does not require District authorization; however, prior notification is required. A Plugging Report must be submitted as required by Rules 5.3 and 6.1.A.

(d) Change or add Exempt Oil and Gas Water Supply use to a Water Well Registered with the District for other use. This change does not require District authorization; however, prior notification is required. The notification must include the date of the expected change and the estimated duration of the change. For purposes of this Rule 3.8.A(1)(d), the well operator is responsible for notifying the District. For purposes of this requirement, the well operator is the Person holding the Railroad Commission oil or gas permit as described in

Texas Water Code Section 36.117(b)(2). The water produced for this purpose must be metered, recorded, and reported as required by Rule 5.4. The District will not issue an amended Well Registration Certificate for such changed use unless the changed use is expected to be permanent and is the sole use of the Water Well.

(2) Other than changes under Rule 3.8.A(1)(b), which require prior notification, a Person shall not alter the Well size or Well Depth, Depth to the Bottom of the Screen, the Well pump, or its pumping capacity without submitting a Change in Well Conditions or Operations form within 30 business days after the change is made.

(3) Because Production Limits are based on contiguous acreage under Rule 11.2, any change in the status of the contiguous acreage upon which the Production Limit in an Operating Permit is based, including a change in conditions related to In Situ Uranium Mining described in Rule 11.2.C, requires prior notification to the District and an Amendment to the Operating Permit or issuance of an updated Certificate of Production-Limit-Acreage.

(4) The Person who submits the Change in Well Conditions or Operations form will be notified by the District within 5 business days whether the change will be processed administratively; will require an Amendment to an existing Operating Permit; will make an Exempt Well be required to obtain an Operating Permit; or will make a Water Well subject to the Production Limits of Rule 11.

(5) Changes that affect compliance with spacing requirements of Rule 10.4 will be denied unless a Variance is obtained under Rule 10.5.

B. Change in Use That Requires a Well to Have an Operating Permit

An Exempt Well will lose its exemption and will require an Operating Permit if its use or conditions change in such a way that it no longer falls into an Exempt Well category under Rule 3.1.A. It is the responsibility of the Water Well Owner of such a Well to apply for an Operating Permit no later than 90 days prior to making the changes that render the Water Well subject to this Rule.

C. Change in Well Ownership

Any change in ownership of a Water Well shall be reported by submitting a Change in Ownership form to the District within 60 days after the change. The form is available at the District office and on the District website. The form must be signed by the original Water Well Owner and the new Water Well Owner and must be submitted by the new

Water Well Owner. For a Water Well with an Operating Permit, failure to timely notify the District may result in the Permit being revoked.

D. Operating Permit Term

(1) Operating Permits issued by the District are perpetual unless an expiration date is otherwise specified by the District as a Special Permit Condition. Such a Special Permit Condition may include the need for additional data regarding the impact of the Water Well on the aquifer or surrounding Water Wells. The term for a Class D Municipal/Electric Zone Production Permit shall be no less than thirty (30) years.

(2) If an Operating Permit has been issued with an expiration date as authorized under District Rule 3.8.D(1), renewal of the Permit is required as follows:

(a) The District shall renew or approve an Application to renew if the Application is submitted at least 90 days prior to the expiration date and the Permittee is not requesting a change that would require an Amendment under Rule 3.8.E, however,

(b) The District is not required to renew an Operating Permit under this Rule 3.8.D(2) if:

(i) the Applicant is delinquent paying a Fee required by the District;

(ii) is subject to a pending enforcement action for a substantive violation of a District Permit, Order or Rule; or

(iii) has not paid a civil penalty or otherwise failed to comply with an order resulting from a final adjudication of a violation if a District Permit, Order or Rule.

(c) If the District is not required to renew an Operating Permit under Rule 3.8.D(2)(b)(ii), the Permit remains in effect until the final settlement or adjudication on the matter of the substantive violation.

E. Well Changes That Require an Amendment to an Operating Permit

(1) An Amendment to an Operating Permit is required for any change to the operation, use, or condition of a Non-Exempt Well, including changing the Production Limit, the type of use of the Water Well, the Well size or Well Depth, Depth to the Bottom of the Screen, a Well pump, or its pumping volume, and any change in the status of the contiguous acreage upon

which the Production Limit is based, including a change in conditions related to In Situ Uranium Mining described in Rule 11.2.C.

(2) Amendments are characterized as Major or Minor according to the requirements of this Rule 3.8.E. Such characterization will determine the process involved for consideration and approval of an Amendment.

(3) Major Amendment

(a) A Major Amendment to an Operating Permit for a Non-Exempt Well is required to increase the Production of Groundwater or to increase the Production Capability of a Well to produce Groundwater.

(b) A Major Amendment is also required when a change in the status of the contiguous acreage upon which the Production Limit is based, including a change in conditions related to In Situ Uranium Mining described in Rule 11.2.C requires a change in Production Limit.

(c) An Application for a Major Amendment, on a form obtained from the District, must be submitted at least 90 days prior to the date the change is to take place. A Major Amendment Application Fee must also be submitted if one has been established under Rule 1.8.

(d) The Major Amendment Application will be processed according to Rule 3.6.

(e) No pump installer or Water Well driller shall make changes to a Water Well if the Water Well Owner has not applied for and obtained the appropriate authorization under this Rule.

(4) Minor Amendment

(a) A Minor Amendment to an Operating Permit for a Non-Exempt Well is required to change the type of use of a Water Well; to alter the Well size or Well Depth or Depth to the Bottom of the Screen, the Well pump, or its pumping volume that does not increase the Production Capability or amount; or a change in the approved water Conservation plan.

(b) An Application for a Minor Amendment, on a form obtained from the District, must be submitted at least 10 days prior to the date the change is to take place. A Minor Amendment Application Fee must also be submitted if one has been established under Rule 1.8.

(c) The General Manager may process and approve a Minor Amendment.

(d) No pump installer or Water Well driller shall make changes to a Water Well if the Water Well Owner has not applied for and obtained the appropriate authorization under this Rule.

(5) Current Permit to Remain in Effect

If an Application for an Amendment to an Operating Permit is timely filed, the Permit as it exists at the time the Application is filed, remains in effect until the conclusion of the Permit Amendment process or final settlement or adjudication on the matter of whether the change to the Permit requires an Amendment, whichever is later.

F. Involuntary Amendment or Revocation of an Operating Permit

(1) An Operating Permit is subject to Involuntary Amendment or revocation for violation of District Rules; violation of the Permit, including Special Permit Conditions; violation of the provisions of Texas Water Code Chapter 36; Waste of Groundwater; a negative finding in a TWDB Investigation Report under Texas Water Code section 36.1015(j); or other actions that the District determines to be detrimental to the Groundwater resources within the District. An Involuntary Amendment or revocation under this provision shall be approved by the District only after notice and hearing as provided in Rules 7.2 and 8.7.

(2) An Operating Permit is subject to Involuntary Amendment if the Board finds that changes in the law or in the Groundwater resources within the District necessitate such an Amendment. An Involuntary Amendment under this provision shall be approved by the District only after the procedure provided in Rules 8.3 and 8.4.

(3) If the District initiates an amendment to an Operating Permit, the Permit as it existed before the Involuntary Amendment process remains in effect until the conclusion of the process under Rules 8.3 and 8.4.

G. Replacing a Well

(1) In order to qualify as a Replacement Well, the Water Well that is being replaced must be properly Registered or have an Operating Permit and be in compliance with District Rules.

(2) The Replacement Well must be no nearer to adjoining property lines than the Water Well it is replacing unless the Replacement Well is an Exempt Well and the Owner of the Replacement Well complies with Rule 10.5.

(3) The Replacement Well may not have the Production Capability of producing more water than the Water Well it is replacing unless the Replacement Well is an Exempt Well and the Owner of the Replacement Well complies with Rule 10.5.

(4) Prior to drilling a Replacement Well, the Water Well Owner must submit a Replacement Well Application to the District. The Replacement Well Application form is available at the District Office and on the District website. If the General Manager determines that the Water Well is a Replacement Well as described in this Rule 3.8.G, the District will make changes in the approved Registration and Operating Permit, as applicable, authorizing drilling and operation of the Replacement Well.

(5) In case of emergency with the potential to affect human or livestock health or safety, a Replacement Well may be drilled and the required Replacement Well Application must be submitted within 2 business days.

(6) A Water Well that has been replaced under this Rule 3.8.G must be Plugged within 30 days and the Plugging Report must be submitted to the District as required under Rules 5.3 and 6.1.A.

(7) A Back-Up Well is a Replacement Well intended to be used on a temporary basis to replace Production from a Water Well that is not functioning at its Production Capacity due to aquifer conditions or the need for repair or maintenance. The Water Well Owner or Water Well Operator shall notify the District in writing within 2 business days of beginning Production from the Back-Up Well.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended January 14, 2009, by Board Order; effective January 14, 2009. Amended July 25, 2012 by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016. Amended March 21, 2018 by Board Order; effective March 21, 2018. Amended June 16, 2021, by Board Order; effective June 16, 2021.

Rule 4: WELL CONSTRUCTION STANDARDS AND INTEGRITY TESTING

4.1 State Standards Applicable

All new construction of Water Wells and installation of pumps shall be in accordance with the Texas Occupations Code Chapter 1901, "Water Well Drillers" and Chapter 1902, "Water Well Pump Installers," as amended and the Rules of the Texas Department of Licensing and Regulation, 16 Texas Administrative Code, Chapter 76, as amended, and additional standards as required in this Rule. In this Rule 4, except where specifically excluded, Wells include Monitoring Wells.

Adopted October 8, 2008, by Board Order; effective October 8, 2008; amended June 16, 2021 by Board Order, effective June 16, 2021.

4.2 Additional Well Construction Standards

A. All Public Water Supply Wells must be completed using the engineer-designed criteria approved by the Texas Commission on Environmental Quality under 30 Texas Administrative Code Chapter 290.

B. All Non-Exempt Wells that are not Public Water Supply Wells must be pressure cemented or grouted from the top of the uppermost screen back to the surface. A Geophysical or Lithological Log must be run during Well construction.

C. All Class D Production Wells must be completed according to the requirements of Texas Licensing and Regulation Commission Rule 16 Texas Administrative Code section 76.101. These Wells are also subject to the Integrity Testing requirements of Rule 4.7.

D. All Class D Production Wells are prohibited from being screened in more than one geologic unit.

E. Before Production from any Class D Production Well, the Permit Holder shall determine an Area of Review (AoR) based on the projected cone of depression or extending within at least ¼ mile radius of the Water Well (whichever is greater). The AoR shall be evaluated to identify any natural conduits or artificial penetrations that could cause upward movement of groundwater from the Production zone to an upper geologic unit. If any artificial penetrations or natural conduits are identified, an Area of Review Mitigation Plan for avoiding such conduits and for Plugging such artificial penetrations shall be submitted to the District. Once approved by the District, the plan shall be implemented prior to construction of the Well.

Adopted October 8, 2008, by Board Order; effective October 8, 2008; amended June 16, 2021, by Board Order, effective June 16, 2021.

4.3 Watertight Sanitary Seal

To prevent pollutants from entering the wellhead, all Water Wells shall be completed with a watertight sanitary seal. Any Water Well not meeting this requirement is required to comply with this Rule at the time the wellhead is next removed. Water Wells with odd-sized casing or those having wellheads for which there is no factory made watertight sanitary seal available shall be completed or modified in such a manner that shall meet the intent of this Rule.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

4.4 Access for Testing

All Water Wells must allow access to the Water Table for the purposes of measuring water levels or disinfecting the Water Well. All New Wells shall be equipped with a faucet or hose bib at the wellhead.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

4.5 Well Depth

A Water Well Owner who drills a Water Well after July 25, 2012 and does not ensure that it is completed to a minimum Well Depth of 500 feet, cannot rely on that Water Well as the basis for seeking Party status to request a Contested Case Hearing on an Operating Permit. This minimum depth is based on the Desired Future Condition adopted by the District under Texas Water Code 36.108 et seq. This Rule 4.5 does not apply to Class D Production Wells.

Adopted July 25, 2012, by Board Order; effective July 25, 2012. Amended June 16, 2021, by Board Order; effective June 16, 2021.

4.6 Responsibility for Compliance

The Person who performs work on the Water Well or pump is responsible for compliance with Rules 4.1 through 4.6. The Permit Holder is responsible for ensuring compliance with the Integrity Testing requirements of Rule 4.7.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Renumbered July 25, 2012, by Board Order, effective July 25, 2012; amended June 16, 2021 by Board Order, effective June 16, 2021.

4.7 Integrity Testing of Class D Production Wells

A. For each Class D Production Well, the Water Well Owner, or Permittee if different from the Water Well Owner, shall conduct the following procedures every five (5) years beginning five (5) years after Production from the Well begins:

(1) a mechanical integrity test (MIT) such as the Standard Annular Pressure Test (SAPT) or the ADA Pressure Test (ADAPT) outlined in 40 CFR §146.8(b)(1) Monitoring of Annulus Pressure MIT to evaluate the integrity of the tubing and casing materials used to pump water from deeper zones containing lower quality water.

(2) a water injection slug test with high resolution monitoring of water level rise and fall of injected water in the Well, which must be evaluated to detect any changes in connection between the casing and the screen with the surrounding formation or aquifer.

(a) The water injection slug test shall be conducted using ASTM D4044 / D4044M – 15 Standard Test Method for (Field Procedure) for Instantaneous Change in Head (Slug) Tests for Determining Hydraulic Properties of Aquifers.

(b) If the slug test shows a 25% change in the measured hydraulic conductivity in either direction from the previous year's data an MIT and borehole video inspection shall be conducted within 60 days.

B. Once every five (5) years, a video inspection to document Water Well annulus and screen performance shall be conducted on each Class D Production Well and on each Production Monitoring Well covered by a Class D Production Well Permit.

C. Any change in operating conditions related to the integrity of any Class D Production Well shall be reported to the District within 10 business days of the date the Permit Holder becomes aware of the change in conditions. The Permit Holder shall initiate an investigation of the change by submitting to the District a monitoring and testing plan that shall include one or more methods in this Rule 4.7. Once approved by the District, the plan shall be implemented within 60 days.

Adopted June 16, 2021 by Board Order, effective June 16, 2021.

Rule 5: REPORTING AND RECORDKEEPING

5.1 Well Drilling, Completion, and Water Data Reporting

A. Within 60 days from: (1) the cessation of drilling, for a Water Well that will not be completed; (2) Well Completion; (3) deepening; or (4) otherwise altering a Water Well, a copy of the State of Texas Well Report shall be submitted to the District by the Water Well driller.

B. All Geophysical or Lithological Logs required under District Rules or State law shall be submitted to the District within 60 days from the date the Log is run.

C. All raw water quality data collected on water from a Non-Exempt Well shall be submitted to the District within 60 days from the date the data are collected.

D. If raw water quality data are collected during drilling a New Exempt Well, such data shall be submitted to the District within 60 days from the date the data are collected or within 10 days from receiving the lab report.

E. A Railroad Commission Form P-13, "Application of Landowner to Condition an Abandoned Well for Fresh Water Production," shall be submitted to the District within 30 days of receipt of Railroad Commission approval of the Application. This must be submitted by either the well owner or operator, whichever has received the Railroad Commission approval notice.

F. For Class D Production Wells and related activities, this Rule 5.1 applies unless it conflicts with Rule 14, in which case, the requirements of Rule 14 apply.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended June 16, 2021, by Board Order; effective June 16, 2021.

5.2 Annual Water Production Report for Non-Exempt Wells

A. The Production from all Water Wells required under Rule 3.4 to obtain an Operating Permit shall be recorded using a totalizing flow meter or other reliable water measuring device, installed at the Water Well Owner's expense. The Water Well Owner shall keep a record of monthly water Production. The monthly water Production records shall be submitted to the District on an annual basis on January 31st of each year for the previous 12 months unless the District imposes alternate recordkeeping and reporting requirements in the Operating Permit for the Water Well.

B. For Class D Production Wells and related activities, this Rule 5.2 applies unless it conflicts with Rule 14, in which case, the requirements of Rule 14 apply.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended June 16, 2021, by Board Order; effective June 16, 2021.

5.3 Plugging Report

Within 30 days after Plugging a Water Well, the Person Plugging the Water Well shall submit to the District a copy of the State of Texas Plugging Report.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

5.4 Annual Water Production Report for Exempt Oil and Gas Water Supply Wells

A. The Production from all Wells Exempted under Rules 3.1.A(2) and (3) from obtaining an Operating Permit (Exempt Oil and Gas Water Supply Wells) shall be recorded using a meter or other reliable water measuring device. The meter or device shall be installed at the well operator's expense.

B. The well operator, as defined in Rule 5.4.C, shall keep a record of water Production being used for Exempt Oil and Gas Water Supply purposes. On January 31st of each year, the well operator shall submit to the District an Annual Water Production Report for Exempt Oil and Gas Water Supply Wells reflecting water Production during the previous calendar year. The Report must be submitted as long as the Well is reflected in District records as being used for Exempt Oil and Gas Water Supply purposes, even if no Production for this purpose has occurred during the previous year. In such a case the Report would show no Production for this purpose during that year. The reporting form is available at the District Office and on the District website.

C. For purposes of this Rule 5.4, the well operator is the Person holding the Railroad Commission oil or gas permit as described in Texas Water Code Section 36.117(b)(2).

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

5.5 Water Wells Associated with Uranium Exploration and Mining

A. A Person who applies for or obtains authorization for Uranium Exploration, Mining, or related activities shall comply with the reporting and recordkeeping requirements of Rule 9.

B. The holder of an Aquifer Exemption shall submit to the District a map or legal description of any portion of the aquifer that becomes off limits for use as a drinking water source under the Safe Drinking Water Act and Texas Water Code chapter 27 Aquifer Exemption process of 40 Code of Federal Regulations Section 144.7(b) and 30 Texas Administrative Code Section 331.13. A submittal is due within 30 days of approval,

amendment, and removal of the Aquifer Exemption by the U.S. Environmental Protection Agency. The holder of the Aquifer Exemption is responsible for submitting this documentation. Additionally, because under Rule 11.2.C(1) an Aquifer Exemption affects the landowner's Groundwater allocation, the landowner is also responsible for this submittal.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

5.6 Texas Surface Coal Mining and Restoration Act and Water Wells

A. An entity holding a permit issued by the Railroad Commission under Texas Natural Resources Code, Chapter 134 (Texas Surface Coal Mining and Restoration Act) shall report monthly to the District on or before the last day of each month:

(1) The total amount of water withdrawn during the previous month;

(2) The quantity of water for mining activities during the same period; and

(3) The quantity of water withdrawn for other purposes during the same period.

B. An entity holding a permit issued by the Railroad Commission under Texas Natural Resources Code, Chapter 134 (Texas Surface Coal Mining and Restoration Act) shall comply with Rules 5.1.A and B.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

5.7 Water Pollution Event Reporting

Any Person required under State law to report a Water Pollution Event to the Texas Commission on Environmental Quality or to the Railroad Commission of Texas shall send a copy of the initial written report regarding the event to the District and to the surface landowner at the same time that they send the report to the State agency.

Adopted July 25, 2012, by Board Order; effective July 25, 2012.

5.8 Class D Production Well Reporting

A Person who applies for or obtains a Class D Production Well Permit shall comply with the reporting and recordkeeping requirements of Rule 14.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

Rule 6: PLUGGING, CAPPING, AND TAGGING OF WELLS

6.1 Plugging Water Wells

A. Not later than the 180th day after the date a landowner learns of the condition and location of a Deteriorated or Abandoned Water Well located on his land, or a Water Well Owner learns of its Deteriorated condition the Water Well shall be Plugged in accordance with the Rules of the Texas Department of Licensing and Regulation, 16 Texas Administrative Code, Chapter 76, as amended. It is the responsibility of the landowner or the Water Well Owner to ensure that such a Well is Plugged to prevent Pollution of the Groundwater and to prevent injury to Persons. Not later than the 30th day after the date the Well is Plugged, a State of Texas Plugging Report shall be submitted to the District as required by Rule 5.3.

B. If the Water Well is not Plugged in compliance with State law, the District may take action under Rule 7 as authorized by Texas Occupations Code, Section 1901.256, or otherwise enforce Texas Occupations Code Section 1901.255 related to a landowner or Water Well Owner possessing a Deteriorated or Abandoned Water Well.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

6.2 Capping a Water Well

A Water Well that is Open or Uncovered at the surface in a non-Deteriorated condition must be Capped to prevent Waste, Pollution, or prevent deterioration. The Well shall remain Capped until conditions that led to the capping are eliminated. If the Water Well Owner fails to Cap the Well in compliance with District Rules, the District may do so after first taking action under Rule 7. Reasonable expenses incurred by the District in Capping a Water Well constitute a lien on the land on which the Well is located pursuant to Texas Water Code Section 36.118.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

6.3 Tagging Wells

A. Following the procedure of Rule 7, (enforcement procedure) the District may require the Tagging of a Water Well that is in violation of District Rules or that the District has prohibited from producing Groundwater.

B. If the District believes that continued operation of a Water Well may cause a threat of imminent endangerment to human health, safety, or the environment, the District may require the Tagging of a Water Well on an emergency basis. In such a case, the District shall provide an opportunity for notice and hearing under Rule 8.7 no later than the next regularly scheduled Board meeting.

C. If the District requires the Tagging of a Well and the Water Well Owner fails to seal the Water Well, the District may Tag and seal the Well following the procedures of Texas Water Code Section 36.123 and Rule 7.4 (access to property).

D. A Water Well shall be sealed by physical means and Tagged to indicate that the Well has been sealed as required by the District. The seal is intended to preclude operation of the Well and identify unauthorized operation of the Well.

E. Tampering with, altering, damaging, removing, or violating the seal or Tag of a sealed Water Well in any way, or pumping Groundwater from a Well that has been sealed or Tagged constitutes a violation of District Rules and subjects the Person who performs that action, as well as the Water Well Owner to Enforcement under District Rules.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended DATE by Board Order ;to be effective DATE.

Rule 7: ENFORCEMENT

7.1 Complaints and Investigations

A. All complaints shall be reflected on a District complaint form. These forms are available at the District Office and on its website. If a complaint is made verbally, by telephone, or in Person, District Personnel will ensure that the information is memorialized on a District complaint form. The complainant must inform the District if they want to qualify as an Aggrieved Party under the citizen suit provision of Texas Water Code Section 36.119. The District may initiate an investigation without receiving a complaint and shall follow the procedures of this Rule 7.

B. For purposes of this Rule 7.1 and Section 36.119, an Aggrieved Party is a landowner or other Person who has a right to produce Groundwater from land that is adjacent to the land on which the Water Well subject to the complaint is located, or who owns or otherwise has a right to produce Groundwater from land that lies within one-half mile of the subject Well.

C. A complainant may ask to remain anonymous, unless they want to qualify as an Aggrieved Party under the citizen suit provision of Texas Water Code Section 36.119.

D. A District representative will investigate the complaint promptly and will memorialize his findings in a written District Investigation Report.

E. A copy of the District Investigation Report will be sent to the Person about whom the complaint was made. If the complainant has provided his name and address, a copy of the District Investigation Report will be sent to the complainant.

F. Board Consideration of District Investigation Reports

(1) A District Investigation Report must be presented to the Board for consideration not later than 90 days from the date of receipt of the complaint.

(2) Notice of the date, time, and location of the Board meeting at which the District Investigation Report will be considered, and a copy of the District Investigation Report shall be mailed to the Person about whom the complaint was made and to the complainant by certified mail, return receipt requested, at least 20 days prior to the scheduled Board meeting.

(3) At the Board meeting, the Board may decide that there was no violation and close the complaint file. If the Board decides that there has been a violation, it may direct the District staff to issue a Notice of Violation under Rule 7.2 or initiate civil enforcement under Rule 7.5.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended June 16, 2021, by Board Order; effective June 16, 2021.

7.2 Notice of Violation

The District will send a Notice of Violation to a Person who is believed to be in violation of law, including violation of a District Rule, order, or permit. The notice shall include a copy of the District Investigation Report. The Notice of Violation may require remedial action and may assess a penalty. The notice shall provide the opportunity for the Respondent to take remedial action and to meet with the District regarding the alleged violation. The Respondent will also be provided an opportunity for Public Hearing under Rule 8.7.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended June 16, 2021, by Board Order.

7.3 Penalty Schedule

The District may assess penalties for non-compliance with District Rules including failure to comply with conditions of a permit issued by the District. Penalties will be assessed in accordance with the following schedule. Penalties may include actual reasonable expenses of a successful Enforcement Action.

Schedule of Penalties for Non-Compliance

Non-Compliant Action	Minimum Penalty
Drilling a Water Well without District authorization	$1,000.00
Producing water from a Non-Exempt Well without an Operating Permit	$1,000.00
Violation of District Rule or permit requirement	$250.00
Exceeding Production rate or volume specified in Operating Permit	$1,000.00
Making changes to an Existing Well or its Operation prior to obtaining pre-authorization required by Rule 3.8	$500.00

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

7.4 Notice and Access to Property

The District has authority under Texas Water Code Section 36.123 to enter any public or private property located within the District at any reasonable time for purposes of inspecting and investigating conditions relating to water quality, Water Wells, or

compliance with District Rules, regulations, permits, or orders. The District respects individual property rights and shall endeavor to minimize any inconvenience to property Owners while conducting District business. The District shall notify, coordinate, and schedule Water Well and property access in advance with the property owner, his Agent, tenant, or other local contact. Notice is not required if prior written permission to enter land or access Water Wells has been granted by the property owner, his Agent, tenant, or other local contact. District employees or Agents accessing public or private Water Wells or property shall exhibit proper credentials upon request. District employees or Agents acting under this authority shall observe all applicable Rules and regulations concerning safety, internal security, and fire protection.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

7.5 Civil Enforcement

A. As authorized by Texas Water Code Section 36.102, the violation of any District Rule may be subject to a civil penalty.

B. The Board may seek Enforcement of such civil penalties by injunction, mandatory injunction, or other appropriate remedy through a suit filed in a court of competent jurisdiction.

C. If the District prevails in any suit to enforce its Rules, the District may seek, and the court shall grant, in the interests of justice and as provided in subsection E of this Rule, recovery of attorney's Fees, costs for expert witnesses, and any other costs incurred by the District before the court.

D. In an Enforcement Action by the District against any Person that is a governmental entity for a violation of District Rules, the limits on the amount of Fees, costs, and penalties that a district may impose under Sections 36.122, 36.205, or 36.102 or under a special law governing a GCD, constitute a limit of liability of the governmental entity for the violation. The District is not prohibited the recovery of Fees and costs under District Rule 7.5.C in an action against any Person that is a governmental entity.

E. If the District prevails on some, but not all, of the issues in a suit described in subsection C of this Rule, the court shall aware attorney's fees and costs only for those issues on which the District prevails and the District has the burden of segregating the attorney's fees and costs so the court can make an award.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016.

Rule 8: PROCEDURAL RULES

8.1 Hearing on Rules Other Than Emergency Rules

A. All proposed changes to District Rules must comply with District Rule 1.5. Once the District has developed a proposal involving its Rules, other than Emergency Rules, the District will decide at which Board meeting the proposed Rules will be considered for action. The Board meeting at which the proposed Rules are considered under this Rule shall be considered the Public Hearing on the proposed Rules and fulfills the requirement, if any, for a Public Hearing.

B. Notice required by the Open Meetings Act shall be provided for the hearing.

C. In addition to the notice required by the Open Meetings Act, not later than the 20th day before the date of the hearing, notice shall be provided as follows:

(1) Post notice in a place readily accessible to the public at the District Office;

(2) Provide notice to the county clerks of Brooks, Hidalgo, Jim Wells, Kenedy, Kleberg, Nueces, and Willacy counties;

(3) Publish notice in one or more newspapers of general circulation in the county or counties in which the District is located; and

(4) Provide notice by mail, facsimile, or electronic mail to any Person who has requested notice under Rule 8.1.F. Failure to provide notice under this Rule 8.1.C(4) does not invalidate an action taken by the District at a rulemaking hearing.

D. Notice of the Public Hearing on the proposed Rules required by Rule 8.1.C shall include:

(1) A brief explanation of the subject of the rulemaking hearing, including a statement that the District's Board of Directors will consider changes to the District's Rules, which will serve as the Public Hearing on the matter.

(2) The time, date, and location of the hearing.

(3) The agenda of the hearing.

(4) A statement that the proposed Rules are available to be reviewed or copied at the District Office prior to the hearing.

(5) A statement that the District will accept written comments and give the deadline for submitting written comments.

(6) A statement that oral public comment will be taken at the hearing.

E. Copies of the proposed Rules shall be available at the District Office during normal business hours at least 20 days prior to the hearing.

F. A Person may submit to the District a written request for notice of a rulemaking hearing. A request is effective for the remainder of the calendar year in which the request is received by the District. To receive notice of a rulemaking hearing in a later year, a Person must submit a new request.

G. To ensure that written comments about the proposed Rules will be considered by the Board, such written comments should be submitted to the District at least 5 days prior to the scheduled hearing.

H. Anyone interested in the proposal may attend the hearing and comment on the proposed Rules.

I. The District shall make and keep in its files a court reporter transcription or an audio or video recording of the hearing.

J. The Board shall issue a written order or resolution reflecting its decision. The proposed Rules that the Board has approved shall be an attachment to that written order or resolution.

K. The effective date of the written order or resolution shall be the date on which the President of the District signs the order or resolution. The order or resolution shall include a statement that the proposed Rules become effective and final on that date. Any appeal authorized by Texas Water Code Chapter 36, Subchapter H shall run from the effective date, because it is the date on which all administrative appeals to the District are final.

L. If during the deliberation during the meeting, the Board decides it wants to substantially change the proposed Rules, the Board shall "continue" or postpone the matter until a future Board meeting. Prior to consideration of the substantially changed proposed Rules, the District shall provide notice and opportunity for comment and hold a hearing under this Rule on the substantially changed proposed Rules. It is solely within the discretion of the Board what constitutes a substantial change to the proposed Rules requiring further notice and hearing.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

8.2 Adoption of Emergency Rules

A. The District may adopt an Emergency Rule, consistent with District Rule 1.5, without following the notice and hearing provisions of Rule 8.1, if the Board:

(1) Finds that a substantial likelihood of imminent peril to the public health, safety, or welfare, or a requirement of state or federal law, requires adoption of a Rule on less than 20 days' notice; and

(2) Prepares a written statement of the reasons for its finding under Rule 8.2.A(1).

B. An Emergency Rule under this Rule 8.2 must be adopted at a meeting of the Board subject to the requirements of the Open Meetings Act. Notice required by the Open Meetings Act shall be provided.

C. Except as provided by Rule 8.2.D., a Rule adopted under this Rule may not be effective for longer than 90 days.

D. If notice of a hearing under Rule 8.1 is given before the Emergency Rule expires under Rule 8.2.C., the Emergency Rule is effective for an additional 90 days.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

8.3 Actions on Operating Permit Applications

A. Within 60 days after the date it is deemed Administratively Complete by the District under Rule 3.6.A, an Application for an Operating Permit shall be acted on by the District's General Manager or set on a specific date for action at a meeting of the District Board, which is considered a Public Hearing under Texas Water Code sections 36.402 and 36.403. For an Application for a Class D Municipal/Electric Zone Production Permit, the 60 days shall run from the date the Application is deemed Administratively and Technically Complete by the District under Rules 3.6.A and 14.6.E.

B. An Application for an Operating Permit for a Non-Exempt Well requesting Production of less than 500 acre-feet per year may be approved by the District's General Manager without further Board action. Denial of such an Application shall be referred to the Board for action under Rule 8.4. An Application for an Operating Permit for a Non-Exempt Well requesting Production of 500 acre-feet per year or more, shall be referred to the Board for action under Rule 8.4. All Class D Production Permit Applications shall be referred to the Board for action under Rule 8.4.

C. An Application for a Minor Amendment to an Operating Permit under Rule 3.8.E(4) may be approved by the District's General Manager without further Board action. Denial of a Minor Amendment shall be referred to the Board for action under Rule 8.4.

D. An Application for a Major Amendment to an Operating Permit under Rule 3.8.E(3) or an Involuntary Amendment proposed by the General Manager under Rule 3.8.F(2) shall be referred to the Board for action under Rule 8.4.

E. An Application to renew an Operating Permit issued with a Special Permit Condition setting a permit term or permit expiration date under Rule 3.8.D may be approved by the District's General Manager without further Board action. Denial of a renewal shall be referred to the Board for action under Rule 8.4.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended January 14, 2009, by Board Order; effective January 14, 2009. Amended July 25, 2012 by Board Order; effective July 25, 2012. Amended January 20, 2016 by Board Order; effective January 20, 2016. Amended June 16, 2021, by Board Order; effective June 16, 2021.

8.4 Public Hearing on Operating Permit Applications

A. In this Rule, "Applications" refers to Applications referred to the Board for action under the requirements of Rule 8.3

B. Within 60 days of the date on which the District determines that an Application is Administratively Complete, it shall be set on the agenda for a Public Hearing at a Board meeting. For an Application for a Class D Municipal/Electric Zone Production Well Permit, the 60 days shall run from the date it is deemed Administratively and Technically Complete by the District under Rules 3.6.A and 14.6.E. This setting serves to fulfill the requirement of Texas Water Code 36.114(e). Such setting shall be no later than the next regularly scheduled Board meeting that would allow sufficient time for the notice required by Rule 8.4.C. This Public Hearing must be held within 35 days after the setting of the date.

C. Notice of the Public Hearing on the Application shall be provided by the District and shall include the following:

(1) The name of the Applicant;

(2) The address or approximate location of the Water Well or proposed Water Well;

(3) A brief explanation of the proposed Permit or Permit Amendment, including any requested amount of Groundwater, the purpose of the proposed use, and any change in use;

(4) The time, date and location of the Public Hearing; and

(5) Any other information the District considers relevant and appropriate.

D. In addition to the notice required by the Open Meetings Act, not later than the 10th day before the date of the Public Hearing, the District shall provide notice as follows:

(1) Post notice in a place readily accessible to the public at the District Office;

(2) Provide notice to the county clerk of each county in the District;

(3) Mail notice to the Applicant by regular mail;

(4) Provide notice by mail, facsimile, or electronic mail to any Person who has requested notice under Rule 8.4.F. Failure to provide notice under this Rule 8.4.D(4) does not invalidate an action taken by the District at the Public Hearing.

E. Once the District has approved the wording of the notice, the Applicant shall provide notice for a Public Hearing on a Class D Production Well Permit Application as follows:

(1) Publish notice in a newspaper regularly published and distributed throughout the District and the county where the proposed Water Well or Well Field will be located. It must be published for once a week for two consecutive weeks with the second publication being at least 10 days prior to the Public Hearing.

(2) Mail notice to all Water Well Owners of Registered Water Wells within the 3-mile Buffer Area for the Class D Production Well project and to any Applicants who have scheduled a Pre-Application Meeting regarding a Water Well to be located within the 3-mile Buffer Area for the Class D Production Well project.

(3) Mail notice to all Groundwater Conservation Districts adjacent to the District.

F. A Person may submit to the District a written request for notice of a Public Hearing on a Permit or Permit Amendment. A request is effective for the remainder of the calendar year in which the request is received by the District. To receive notice of a Public Hearing in a later year, a Person must submit a new request.

G. Anyone interested in the Application may attend the meeting and make oral comments at the time designated for comments.

H. The Board, at its sole discretion, may administer an oath to the staff, the Applicant, and anyone who makes oral comments on the Application.

I. The Board shall issue a written order or resolution reflecting its decision on the Application. It may grant the Application, grant the Application with Special Conditions, or deny the Application. If the Board approves the Operating Permit or Permit Amendment, the Permit shall be an attachment to that written order or resolution. The Board's decision shall be made within 60 days after the Board meeting at which the Application was considered.

J. Unless a Contested Case Hearing is requested, the effective date of the Board's written order or resolution reflecting its decision on the Application under Rule 8.4.I shall be 21 days after the date on which the President of the District signs the order or resolution. This effective date shall be written in the order or resolution. Any appeal authorized by Texas Water Code Chapter 36, Subchapter H shall run from the effective date, because it is the date on which all administrative appeals to the District are final, unless there is a Contested Case Hearing Request.

K. If a Contested Case Hearing request is timely submitted to the District, the Board or its designee shall hold a Preliminary Hearing on the request according to Rule 8.5.C through F.

L. If after a Preliminary Hearing the Board determines that there will be no Contested Case Hearing, the effective date of the Board's written order or resolution reflecting its decision on the Application under Rule 8.4.I shall be the date on which the Board signs a written order or resolution under 8.5.F denying the Contested Case Hearing Request. Any appeal authorized by Texas Water Code Chapter 36, Subchapter H shall run from the effective date, because it is the date on which all administrative appeals to the District are final.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended January 14, 2009, by Board Order; effective January 14, 2009. Amended July 25, 2012 by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016. Amended June 16, 2021, by Board Order; effective June 16, 2021.

8.5 Contested Case Hearings on Permitting Actions

A. A Request for Contested Case Hearing on the Board's decision on an Application under Rule 8.4.I must be in writing and must be received by the District not later than 20 days after the date on which the President of the District signs the order or resolution under Rule 8.4.I. If a Contested Case Hearing requester intends to request that the Hearing be sent to the State Office of Administrative Hearings, as authorized by Texas Water Code 36.416(b) and District Rule 8.6, the request must be included in the Request for Contested Case Hearing, or it is waived.

B. The following individuals who submit a Contested Case Hearing Request may be named Parties at the Preliminary Hearing:

(1) The Applicant; or

(2) A Person who has a Personal justiciable interest related to a legal right, duty, privilege, power, or economic interest that is within the District's regulatory authority that is not merely an interest common to members of the public; and is affected by the Board's action on the Application under Rule 8.4.I.

C. If the District receives a written Contested Case Hearing Request during the period required under District Rule 8.5.A the District shall schedule a Preliminary Hearing no later than the next regularly scheduled Board meeting that would allow sufficient time for the notice required by this Rule 8.5.

D. If the Preliminary Hearing is conducted by a quorum of the Board, notice required by the Open Meetings Act shall be provided. Additionally, at least 10 days prior to the Preliminary Hearing, the District shall mail notice to the Applicant and to all persons requesting a Contested Case Hearing.

E. The Preliminary Hearing may be conducted by a quorum of the Board; an individual to whom the Board has delegated in writing the responsibility to preside as a hearing examiner over the hearing or matters related to the hearing; or an administrative law judge at the State Office of Administrative Hearings under Texas Water Code § 36.416 and District Rule 8.6. In any event, the Board shall make the final determination as to whether any person requesting the Contested Case Hearing has standing to make that request and whether a justiciable issue related to the Application has been raised.

F. At the Preliminary Hearing any matter that may expedite the hearing or otherwise facilitate the hearing process may be considered, including,

(1) whether a valid Contested Case Hearing Request has been submitted and if so, the designation of Parties. If the District's decision on an Application is opposed by one or more individuals requesting a Contested Case Hearing, the General Manager is automatically a Party.

(2) if a request under District Rule 8.5.A has been made to send the Contested Case Hearing to the State Office of Administrative Hearings, the amount of the Contested Case Hearing Fee Deposit under Texas Water Code section 36.416(c).

(3) if a request under District Rule 8.5.A has been made to send the Contested Case Hearing to the State Office of Administrative Hearings, the location of the hearing either in Travis County, Texas, or as described in Texas Water Code 36.403(c).

(4) formulation and simplification of issues.

(5) the hearing schedule, including any necessary discovery.

G. The Board's decisions made during the Preliminary Hearing will be in the form of a written order. If the Board determines that there will be a Contested Case Hearing, the written order shall also specify, if applicable, a ten (10) day deadline to submit to the District the required Contested Case Hearing Fee Deposit under Texas Water Code section 36.416(c). The ten day deadline shall run from the date of the written order. If

the Contested Case Hearing Fee Deposit is not submitted to the District by the deadline, the Contested Case Hearing Request is considered withdrawn and the Board's decision on the Application under Rule 8.4.I becomes final under the terms of Rule 8.4.J.

H. The Contested Case Hearing shall be conducted by a quorum of the Board, or the Board, at its sole discretion, may appoint a hearing examiner to preside at and conduct the hearing on the Application. In the alternative, a hearing may be held by the State Office of Administrative Hearings under District Rule 8.6. The appointment of a hearing examiner shall be made in writing. If the hearing is conducted by a quorum of the Board, the President shall preside. If the President is not present, the Board shall select one of the Directors who are present to preside.

I. The Presiding Officer has the following authority and obligations:

(1) May convene the hearing at the time and place specified in the notice;

(2) May set any necessary additional hearing dates;

(3) May designate the parties regarding a contested Application;

(4) May establish the order for presentation of evidence;

(5) May administer oaths to all Persons presenting testimony;

(6) May examine Persons presenting testimony;

(7) May ensure that information and testimony are introduced as conveniently and expeditiously as possible without prejudicing the rights of any Party;

(8) Shall admit relevant evidence and may exclude evidence that is irrelevant, immaterial, or unduly repetitious;

(9) May prescribe reasonable time limits for testimony and the presentation of evidence.

(10) May allow testimony to be submitted in writing and may require that written testimony be sworn to. On the motion of a Party to the hearing, the Presiding Officer may exclude written testimony if the Person who submits the testimony is not available for cross-examination by phone, a deposition before the hearing, or other reasonable means.

(11) May refer Parties to an alternative dispute resolution (ADR) procedure on any matter at issue in the hearing, apportion costs for ADR, and appoint an impartial third party as provided by Section 2009.053 of the Government Code to facilitate that procedure;

(12) May continue a hearing from time to time and from place. If the continuance is not announced on the record at the hearing, the Presiding Officer shall provide notice of the continued hearing by regular mail to the parties. In any event, if the hearing is being conducted by a quorum of the Board, Open Meetings notice shall be provided.

(13) May exercise the procedural rules under District Rules 8.4 and 8.5;

(14) May apportion among the Parties the costs related to:

(a) a contract for the services of a Presiding Officer; and

(b) the preparation of the official hearing record.

J. The Presiding Officer shall prepare and keep a record of each hearing in the form of an audio or video recording or a court reporter transcription. On the request of a Party to the Contested Case Hearing and payment of an appropriate deposit, as set by the Presiding Officer, the hearing shall be transcribed by a court reporter. The costs of such court reporter may be assessed against the Party requesting it or among the parties to the hearing. The Presiding Officer may exclude a Party from further participation in the hearing for failure to pay in a timely manner costs assessed against that Party under this Rule 8.5.J.

K. If the Board has appointed a hearing examiner to be the Presiding Officer at the hearing, the hearing examiner shall submit a Proposal for Decision to the Board not later than the 30th day after the date the evidentiary hearing is concluded. A copy shall be provided to the Applicant and each Party to the hearing. The Applicant and other parties to the hearing may submit to the Board written exceptions to the Proposal for Decision within 10 days of issuance of the Proposal for Decision. The Proposal for Decision shall include:

(1) A summary of the subject matter of the hearing;

(2) A summary of the evidence received; and

(3) The hearing examiner's recommendations for Board action on the subject matter of the hearing.

L. The Board shall consider the Proposal for Decision at a Board meeting held after the deadline for written exceptions to the Proposal for Decision has passed. This Board meeting shall be the final hearing as contemplated by Texas Water Code section 36.410(f). Additional evidence may not be presented during the final hearing. The Parties may present oral argument at the final hearing to summarize the evidence, present legal argument, or argue an exception to the Proposal for Decision. A final hearing may be continued as provided by Texas Water Code section 36.409 and Rule 8.5.I(12).

M. The Board shall issue a written order or resolution reflecting its decision, which shall be made at the hearing or at a meeting subject to the requirements of the Open Meetings Act. A copy of the permit shall be an attachment to that written order or resolution. The Board's decision shall be made within 60 days after the final hearing on the Application is concluded.

N. Request for rehearing or findings and conclusions shall be considered as follows:

(1) Not later than the 20th day after the date of the Board's decision, an Applicant or a Party to a Contested Hearing may administratively appeal a decision of the Board on an Application by requesting written findings and conclusions or a rehearing before the Board.

(2) On receipt of a timely written request, the Board shall make written findings and conclusions regarding a decision of the Board on an Application. The Board shall provide certified copies of the findings and conclusions to the Person who requested them, and to each designated Party, not later than the 35th day after the date the Board receives the request. The Applicant or a Party to the Contested Case Hearing may request a rehearing before the Board not later than the 20th day after the date the Board issues the findings and conclusions.

(3) A request for rehearing must be filed in the District Office and must state the grounds for the request. The Person requesting a rehearing must provide copies of the request to all parties to the hearing.

(4) If the Board grants a request for rehearing, the Board shall schedule the rehearing not later than the 45th day after the date the request is granted. Any action by the Board on a request for rehearing shall be made at a Board meeting subject to the Open Meetings Act.

(5) The failure of the Board to grant or deny a request for rehearing before the 91st day after the date the request is submitted is a denial of the request.

O. A decision by the Board on an Application is final if:

(1) A request for rehearing is not filed on time, on the expiration of the period for filing a request for rehearing; or

(2) A request for rehearing is filed on time, on the date:

(3) the Board denies the request for rehearing; or

(4) the Board renders a written decision after rehearing.

P. An Applicant or a Party to a Contested Hearing may file a suit against the District under Texas Water Code Section 36.251 to appeal a decision on an Application not later than the 60th day after the date on which the decision becomes final. A timely filed request for rehearing is a prerequisite to any such suit.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016. Amended June 16, 2021, by Board Order; effective June 16, 2021.

8.6 Contested Case Hearing Referred to SOAH

A. If the Board determines that a Contested Case Hearing will be held, a request by the Applicant or other Party was timely filed under District Rule 8.5.A, and the Contested Case Hearing Deposit Fee was timely received by the District under District Rule 8.5.G, the District shall contract with the State Office of Administrative Hearings to conduct the hearing.

B. The Contested Case Hearing shall be conducted in Travis County or at the District Office or regular meeting location of the Board unless the Board provides for hearings to be held at a different location.

C. The Party requesting the hearing before SOAH shall pay all costs associated with the contract for the hearing and shall deposit with the District an amount sufficient to pay the contract amount. This Contested Case Hearing Deposit Fee shall be received by the District within 10 days of issuance of the order or resolution under District Rule 8.5.G. At the conclusion of the Contested Case Hearing, the District shall refund any excess money to the paying Party. All other costs may be assessed as authorized by Texas Water Code Chapter 36 or District Rules.

D. The hearing shall be conducted as provided in District Rule 8.5, to the extent District Rule 8.5 does not conflict with subchapters C, D, and F of the Texas Government Code, Chapter 2011 and the procedural rules of the State Office of Administrative Hearings.

E. An administrative law judge who conducts a contested case hearing shall consider applicable District Rules or policies in conducting the hearing, which shall be provided to the judge by the District.

F. The District order or resolution under District Rule 8.5.G shall control on the issues addressed in that order.

G. The District Board has the authority to make a final decision on consideration of a Proposal for Decision issued by an administrative law judge from the State Office of Administrative Hearings. The Board may change a finding of fact or conclusion of law made by the administrative law judge, or may vacate or modify an order issued by the judge, only if the Board determines:

(1) that the judge did not properly apply or interpret applicable law, District Rules, or written policies provided under Rule 8.6.E, or prior District administrative decisions;

(2) that a prior District administrative decision on which the judge relied is incorrect or should be changed; or

(3) that a technical error in a finding of fact should be changed.

Adopted July 25, 2012, by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016.

8.7 Enforcement Hearing

A. If the District receives a timely filed written request for hearing from a Respondent who has received a Notice of Violation from the District, the District shall decide at which Board meeting the Enforcement Action will be considered. The Board meeting at which the Enforcement Action is considered under this Rule shall be considered the Public Hearing on the matter and fulfills the requirement, if any, for a Public Hearing.

B. Notice required by the Open Meetings Act shall be provided for the meeting.

C. Notice of the Enforcement Hearing shall be mailed to the Respondent by certified mail, return receipt requested, at least ten days prior to the scheduled hearing date.

D. Anyone attending the meeting on the Enforcement Action may make oral comments at the time designated for comments.

E. The Board, at its sole discretion, may administer an oath to the staff, the Respondent, and anyone who makes oral comments on the Enforcement Action.

F. The hearing shall be conducted by a quorum of the Board, or the Board, at its sole discretion, may appoint a Hearings Examiner to preside at and conduct the Enforcement Hearing. Appointment of a Hearings Examiner shall be made in writing. If the hearing is conducted by a quorum of the Board, the President shall preside. If the President is not present, the Board shall select one of the Directors who are present to preside. If the matter is referred to a Hearings Examiner, upon completion of the hearing the Hearings Examiner shall submit a written recommendation to the Board of Directors.

G. At the close of the Enforcement Hearing, the Board of Directors shall make a decision on the issues before it. If that matter was referred for hearing, the Board of Directors is not required to approve the written recommendation submitted by the Hearings Examiner. The Board of Directors shall issue a written order or resolution reflecting its decision.

H. The effective date of the written order shall be the date on which the President of the District signs the order or resolution. The order or resolution shall include a statement that the order or resolution becomes effective and final on that date. Any appeal authorized by Texas Water Code Chapter 36, Subchapter H shall run from the effective date, because it is the date on which all administrative appeals to the District are final.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Renumbered July 25, 2012, by Board Order; effective July 25, 2012.

8.8 Procedures for Joint Planning

A. Notice and Public Hearing on Proposed Relevant DFCs

(1) When the GMA-16 Joint Planning Committee mails a copy of the proposed Desired Future Conditions proposed under Texas Water Code 36.108(d), a 90-day comment period begins.

(2) During the public comment period, the District shall post notice and hold a Public Hearing on any proposed DFCs relevant to the District.

(3) During the public comment period, the District shall make available in the District Office a copy of the proposed DFC and any supporting materials, such as the documentation of factors considered under Texas Water Code 36.108(d) and Groundwater availability model run results.

(4) At least 10 days before a hearing on the proposed Desired Future Conditions proposed by the GMA-16 Joint Planning Committee under Texas Water Code 36.108(d), the District must post notice of Public Hearing on the proposed DFC that includes the following:

(a) the proposed Desired Future Conditions and a list of any other agenda items;

(b) the date, time, and location of the Public Hearing;

(c) the name, telephone number, and address of the Person to whom questions or requests for additional information may be submitted;

(d) the names of the other districts in GMA-16; and

(e) information on how the public may submit comments

(5) The notice must be:

(a) posted in a place readily accessible to the public at the District Office;

(b) provided to the county clerk of each county in the District;

(c) published in one or more newspapers of general circulation in the counties in which the District is located;

(d) provided by mail, facsimile, or electronic mail to any Person who has requested notice under District Rule 8.1.F;

(6) At least 10 days before a hearing on the proposed Desired Future Conditions proposed by the GMA-16 Joint Planning Committee under Texas Water Code 36.108(d), the District must make available a copy of the proposed Desired Future Conditions at a place accessible to the public during normal business hours and on the District website.

(7) Anyone interested in the proposal may submit written comments about the proposal to the District at least 5 days prior to the scheduled hearing at which the proposal will be considered by the Board.

(8) Anyone interested in the proposal may attend the hearing and make oral comments at the time designated for comments.

(9) The District shall make and keep in its files an audio recording of the hearing.

(10) The Board shall issue a written order or resolution reflecting its decision. The proposal that the Board has approved shall be an attachment to that written order or resolution.

(11) After the close of the public comment period, the District shall compile for consideration at the next GMA-16 Joint Planning meeting a summary of relevant comments received, any suggested revisions to the proposed Desired Future Conditions, and the basis for the revisions. This summary is the DFC Hearing Summary Report.

B. District Adoption of the DFCs

(1) After the District receives notification from the Texas Water Development Board that the DFC Resolution and Explanatory Report are administratively complete, the District shall adopt the DFCs in the Resolution and Report that apply to the District.

(2) The notice and hearing provisions of District Rule 8.8.A(2) - (9) apply to the District's adoption of the DFCs.

C. Appeal of a DFC

(1) If the District receives, within 120 days from the District's adoption of a DFC under District Rule 8.8.B, a petition from an affected person appealing the reasonableness of a DFC, the District shall take the following actions.

(a) Submit a copy of the petition to the Texas Water Development Board within 10 days of receipt.

(b) Within 60 days of receipt, submit a copy of the petition to SOAH and contract with SOAH to conduct a contested case hearing on the petition, as provided by Texas Water Code section 36.1083.

(2) During the period between receipt of a petition described in subsection (1) of this Rule 8.8.C and receipt of the Texas Water Development Board study required under Texas Water Code section 36.1083(e), the District may enter into mediation with the petitioner to resolve the issues raised in the petition.

(3) If there is no resolution of the petition, the District shall provide at least 10 days prior to the SOAH hearing:

(a) general notice of the SOAH hearing following the requirements of District Rule 8.8.A; and

(b) notice of the SOAH hearing mailed to the petitioner; any person who has requested notice; each non-party groundwater conservation district and regional water planning group located in the same Groundwater Management Area as the District; the Texas Water Development Board; and the Texas Commission on Environmental Quality.

(c) notice under District Rule 8.8(3)(a) and (b) shall include the following information:

(i) a statement of the time, place, and nature of the hearing;

(ii) a statement of the legal authority and jurisdiction under which the hearing is to be held, citing specifically to 1 Texas Administrative Code Chapter 155;

(iii) a reference to the particular sections of the statutes and Rules involved; and

(iv) a short, plain statement of the matters asserted.

(4) The petitioner shall pay the costs associated with the SOAH contract and prior to the beginning of the SOAH hearing shall deposit with the District an amount sufficient to pay the contract amount, such amount to be set by the District on a case-by-case basis depending on the SOAH contract for each petition hearing.

(5) SOAH may apportion costs among the parties to the petition hearing and the District will implement such apportionment, including refund of any excess deposit money to the petitioner.

(6) On receipt of SOAH's findings of fact and conclusions of law in a proposal for decision on the petition, the District shall issue a final order stating the District's decision on the petition, including findings of fact and conclusions of law. The District may change a finding of fact or conclusion of law made by SOAH or may vacate or modify an order issued by SOAH, as provided by District Rule 8.6.G.

(7) If the District vacates or modifies the proposal for decision, the District shall issue a report describing in detail the District's reasons for disagreement with SOAH's findings of fact and conclusions of law. The report shall provide the policy, scientific, and technical justifications for the District's decision.

Adopted July 25, 2012, by Board Order; effective July 25, 2012. Amended January 20, 2016, by Board Order; effective January 20, 2016. Amended March 21, 2018, by Board Order; effective March 21, 2018. Amended June 16, 2021, by Board Order; effective June 16, 2021.

Rule 9: WATER WELLS ASSOCIATED WITH URANIUM EXPLORATION AND MINING

9.1 Uranium Exploration Activities

A. GCD Jurisdiction:

(1) Except as provided in Texas Natural Resources Code Section 131.354, 16 Texas Administrative Code Section 11.140, and these Rules, the Texas Railroad Commission has exclusive jurisdiction and is solely responsible for regulation of all Uranium Exploration Activities.

(2) Cased Uranium Exploration Wells subject to a Uranium Exploration Permit used for exploration or for Rig Supply Purposes are exempt from District regulation except as described in Rule 9.1.A(3).

(3) If the cumulative amount of water produced from the Cased Uranium Exploration Wells located inside the area subject to the Uranium Exploration Permit and completed under the Uranium Exploration Permit exceeds 40 acre-feet in one year:

(a) All Wells described in Rule 9.1.A(3) used for Monitoring Purposes are subject to District Rules regarding Registration of Wells.

(b) All Wells described in Rule 9.1.A(3) used for Rig Supply Purposes are subject to District Rules regarding Production and reporting.

(4) Production Limits

With regard to a Rig Supply Well subject to the District's Production Rules pursuant to Natural Resources Code 131.354(c), 16 TAC 11.140(d), and Rule 9.1.A(3)(b), the District shall use the number of acres described in the Uranium Exploration Permit in calculating Production Limits under District Rule 11.

B. Cased Well Production Report

A Uranium Exploration Permittee shall submit a monthly Cased Well Production Report to the District as described in this Rule 9.1.B. The Report shall include the total amount of water produced by each Cased Uranium Exploration Well used for Monitoring or for Rig Supply and that is located inside the area subject to the Uranium Exploration Permit. The report shall be submitted within 30 days from the end of each month showing Production during the previous month. The monthly reports are required until the end of the Uranium Exploration Permit Year, even if Production temporarily ceases. The Cased Well

Production Report form is available at the District Office and on the District website. The following information must be provided:

(1) Well identification to correspond with information provided to the Railroad Commission on Form SMRD-8U (Cased Exploration Completion Report);

(2) amount of water produced reported in gallons and acre-feet; and

(3) monthly Production data and cumulative data for the Uranium Exploration Permit Year.

C. Groundwater Quality and Well Information

(1) At least 15 days prior to commencement of drilling, a Uranium Exploration Permittee shall obtain Groundwater samples for analysis in accordance with this subsection. Within 90 days of receiving the laboratory analysis data, the Permittee shall provide to the District Exploration Groundwater Quality Information as follows:

(a) from each Water Well located in the District that is tested by the Permittee before exploration; and

(b) from the following Water Wells, as applicable:

(i) if there are fewer than 10 Water Wells located inside the approved exploration area, from each Water Well located inside the approved exploration area; or

(ii) if there are at least 10 Water Wells located inside the approved exploration area, from 10 Water Wells that are distributed as evenly as possible throughout that area.

(2) Within 90 days of receiving the laboratory analysis data, a Permittee shall provide to the District Exploration Groundwater Quality Information obtained during exploration within the District as follows:

(a) from each Water Well that the Permittee tests during exploration; and

(b) from each Cased Uranium Exploration Well completed under the Uranium Exploration Permit.

(3) Each Permittee shall conform the Exploration Groundwater Quality Information required under subsections (1) and (2) of this Rule 9.1.C to the requirements of 16 Texas Administrative Code section 11.142.

(4) Each Uranium Exploration Permittee that installs Cased Uranium Exploration Wells shall provide to the District, within 60 days of the installation, the following information:

(a) the Permittee's name, address, and telephone number; and

(b) the following information for each Cased Uranium Exploration Well in the District:

(i) Well Completion information;

(ii) the State of Texas Well Report, and all Geophysical and Lithological Well Logs, except any Confidential Information as defined in these Rules;

(iii) the location of the Well in WGS 84 Coordinates, including a legal description and the acreage of the property where the Well is located;

(iv) verification that the Well will be used for an Industrial Purpose; and

(v) the type and capacity of the pump used in the Well.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

9.2 Development of an Area Permit Application

A. Reporting Data to the District

If in an Area Permit Application, the proposed Area Permit Boundary is wholly or partially within the District, the Area Permit Applicant shall provide to the District the information required by this Rule 9.2.A. This information must be provided to the District no later than 90 days after the Area Permit Applicant receives the final information.

(1) The Area Permit Applicant shall provide Information regarding Water Wells that are not recorded in the public record when such Water Wells are encountered during the development of the Area Permit Application, including:

(a) the location of each Water Well in WGS 84 Coordinates;

(b) the name, address, telephone number, and email address of the Water Well Owner; and

(c) all other available information for the Water Well, including Well Depth, Well Completion method, completion interval, water quality information, and Lift Method.

(2) A map showing the locations, including the WGS 84 Coordinates, of all Water Wells that are recorded in the public record and that are inside the proposed Permit Area Boundary and within one-quarter mile outside of the proposed Area Permit Boundary;

(3) Pre-Mining Water Quality Information collected from Area Permit Registered Wells; and

(4) a record of strata as described in 30 Texas Administrative Code 331.224 for each Area Permit Registered Well, except for Confidential Information, as defined in these Rules.

B. Area Permit Registered Well Production Report

An Area Permit Applicant shall submit a monthly Area Permit Registered Well Production Report to the District as follows. The Report shall include the total amount of water produced by each Area Permit Registered Well. The Report shall be submitted within 30 days of the end of each month showing Production during the previous month. The Area Permit Registered Well Production Report form is available at the District Office and on the District website.

C. Reporting an Excursion in a Designated Monitoring Well

A copy of the written notification of an excursion in a designated Monitoring Well, required under 30 Texas Administrative Code 331.106(1), shall be submitted to the District at the same time it is sent to the Texas Commission on Environmental Quality.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

9.3 Activities Affecting Groundwater Allocation

The holder of an Aquifer Exemption shall submit to the District a map or legal description of any portion of the aquifer that becomes off limits for use as a drinking water source under the Safe Drinking Water Act and Texas Water Code chapter 27 Aquifer Exemption process of 40 Code of Federal Regulations Section 144.7(b) and 30 Texas Administrative Code Section 331.13. A submittal is due within 30 days of approval, amendment, and removal of the Aquifer Exemption by the U.S. Environmental Protection Agency. The holder of the Aquifer Exemption is responsible for submitting this documentation. Additionally, because under Rule 11.2.C(1) it affects the landowner's Groundwater allocation, the landowner is also responsible.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

Rule 10: WATER WELL SPACING

10.1 Purpose

The purpose of these Water Well spacing requirements is to promote Groundwater Conservation, provide for long-term availability of Groundwater resources, reduce localized depletion of Groundwater, prevent interference between Water Wells, and prevent the degradation of Groundwater quality.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

10.2 Applicability

The requirements of this Rule 10 apply to all New Wells drilled within the District, except Water Wells subject to Rule 9 and 13.3.B or unless specifically noted in this Rule 10. As authorized by Texas Water Code Section 36.116, some of the required distances are more stringent than those required by 16 Texas Administrative Code Section 76.1000, as amended.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

10.3 Spacing from Potential Sources of Pollution

A. All Water Wells must comply with the location standards of 16 Texas Administrative Code Section 76.1000 and with the minimum required separation distance for on-site sewage facilities of 30 Texas Administrative Code Section 285.91(10), which dictate horizontal distance from potential sources of Pollution. Section 76.1000 excludes Monitoring Wells, Environmental Soil Borings, Dewatering Wells, Piezometer Wells, and Recovery Wells from these requirements. Such Wells may be located where necessity dictates.

B. Public Water System Wells must comply with the 150-foot sanitary control easements as required by Title 30 Texas Administrative Code Chapter 290.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

10.4 Spacing From Property Lines

A. All New Wells shall be located a minimum horizontal distance from property lines as required by 16 Texas Administrative Code Section 76.1000, unless covered by the more stringent spacing requirements of this Rule 10.4. This requirement cannot be waived by the District.

B. All New Wells shall be located a minimum horizontal distance from property lines as specified in the following Table. Based on information obtained during Registration or

permitting of a New Well regarding its location in reference to other Water Wells, the District may increase the required spacing.

Water Wells – Pumping Capacity (gallons per minute)	Distance of New Well from Property Lines (in feet)
Less than or equal to 20 gpm	100
20 to 250 gpm	5 feet per every gallon per minute
Greater than 250 gpm	10 feet per every gallon per minute

C. Any subdivision of existing tracts of land shall be done in such a fashion that new property lines shall be located no closer than the spacing requirements of this Rule from any Existing or proposed Water Well.

D. Any increase in pumping capacity must be approved by the District under Rule 3.8. A request to increase pumping capacity will only be granted if the Water Well location will comply with the spacing requirements of this Rule 10.4 or if a spacing Variance is granted under Rule 10.5.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

10.5 Well Spacing Variance Procedure

A. The Owner of a proposed New Water Well or someone desiring to subdivide existing tracts of land may apply for a Variance to the spacing requirements of Rule 10.4.

B. A Variance Application shall be submitted to the District on a form obtained from the District. The Application shall explain the circumstances justifying the Variance. It shall be accompanied by a plat or sketch, drawn to scale on one inch equaling two hundred yards, which shows the property lines in the immediate area and all Water Wells within one-half mile of the proposed Well site. The Application shall also include the names and mailing addresses of all property owners adjoining the tract on which the Water Well is to be located.

C. Notice and an opportunity for a hearing before the Board for such a Variance shall be as follows:

(1) The District shall mail notice to the Applicant for the Variance and to all property owners adjoining the tract on which the Water Well is to be located at least 14 days prior to the Board meeting at which the Variance will be considered by the Board.

(2) The notice shall provide the proposed location of the Water Well(s), the Applicant's name and address, and the date, time, and location of the Board meeting.

(3) The Board shall consider the Variance at a Board meeting, which shall serve as the hearing on the Variance. The requirements of Rule 8 do not apply to a hearing under this Rule 10.5.C.

(4) In making its decision on the Variance, the Board shall consider comments, if any, from adjoining, affected property owners; the peculiarities of the property shape; the local geology or hydrology; and any other information presented by the Applicant.

D. If the Water Well Owner obtains a waiver or easement of the property line distances from adjoining, affected property owners, no notice and opportunity for a hearing is required. The Water Well Owner shall prepare a plat and legal description of the affected property, and such plat shall be signed and sealed by a Registered Professional Land Surveyor. The legal description, plat, and waiver shall be notarized, filed with the County Clerk of the county in which the two properties are located, and copies shall be submitted with the Application for a Variance to the District office prior to drilling the proposed Water Well or subdividing the land. Such a waiver or easement will affect the property of the owner granting it by causing the distance requirements from property lines to be adjusted inward on the property for which the waiver is granted. The District shall not accept reciprocal waivers or easements from adjoining property owners if the waivers or easements would involve the same portion of the adjoining properties.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

Rule 11: PRODUCTION LIMITS

11.1 Existing Non-Exempt Wells

A. An annual Production Limit will be included in the Operating Permit for an Existing Non-Exempt Well.

B. The annual Production Limit in the Operating Permit for an Existing Non-Exempt Well will be the highest annual Production from the Water Well during the five years prior to October 8, 2008, plus 25 %, or a reasonable amount for purpose of Beneficial Use of Groundwater without Waste based on information submitted with the Application plus 25 %.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

11.2 New Non-Exempt Wells

A. An annual Production Limit will be included in the Operating Permit for a New Non-Exempt Well.

B. The Production Limit in the Operating Permit for a New Non-Exempt Well will be based on the number of contiguous acres either owned by the Water Well Owner or for which the Water Well Owner has Groundwater Production rights within the District. This is referred to as the Production-Limit-Acreage.

C. In determining the Production- Limit-Acreage the District shall consider the extent to which the property is subject to In Situ Uranium Mining and shall calculate as follows:

(1) If any portion of the aquifer becomes off limits for use as a drinking water source under the Safe Drinking Water Act and Texas Water Code chapter 27 Aquifer Exemption process of 40 Code of Federal Regulations Section 144.7(b) and 30 Texas Administrative Code Section 331.13, the Production-Limit-Acreage shall be reduced by the surface acreage deemed off limits.

(2) The total Production Limit in an Operating Permit shall be reduced by 80 acre-feet of Groundwater Production per uranium production area per year during any period of In Situ Uranium Mining on the Production-Limit-Acreage.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended March 21, 2018, by Board Order; effective March 21, 2018. Amended DATE by Board Order; effective DATE.

11.3 Calculation of Production Limit Based on Acreage

A. The Production Limits in effect when an Operating Permit Application is deemed Administratively Complete under Rule 3.6.B or Technically Complete under Rule 14.6.E, whichever is applicable, are the Production Limits for the Operating Permit.

B. Except for a Class D Production Well, the Production Limit for a New Non-Exempt Well Operating Permit, the Application for which is deemed Administratively Complete on or after March 21, 2018, shall be 0.75 acre-inch/acre/year.

C. An Operating Permit issued with a Production Limit of 0.6 acre-inches/acre/year shall be amended to increase the Production Limit to 0.75 acre-inches/acre/year upon receipt by the District of an Administratively Complete Operating Permit Amendment Application for the change.

D. The Production Limit for a Class D Zone Production Well screened to produce from the GCUL1 Zone shall be 14.87 acre-inches/acre/year.

[PL (AFY/Ac) = Pumping (AFY) * (Acres within KCGCD) = 35700 (AFY)/96500 (Acres) *3.35 = 1.24 AFY/Ac. or 14.87 Acre-inches/Acre/Year]

E. The Production Limit for a Class D Zone Production Well screened to produce from the GCML1 Zone shall be 0.75 acre-inches/acre/year.

[PL (AFY/Ac) = Pumping (AFY) * (Acres within KCGCD) = 2079(AFY)/111449.6 (Acres) *3.35 = 0.0682 AFY/Ac. or 0.75 Acre-inches/Acre/Year]

F. The Production Limit for a Class D Non-Zone Production Permit shall be 0.75 acre-inches/acre/year.

G. Within six months of receiving a MAG from the TWDB for the Burkeville Confining Unit and the Jasper Aquifer, the District shall re-evaluate, based on that MAG, the Production Limit set in Rule 11.3.F for Class D Non-Zone Production Permits.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012. Amended March 21, 2018, by Board Order; effective March 21, 2018. Amended June 16, 2021, by Board Order; effective June 16, 2021

Rule 12: PROHIBITION AGAINST WASTE AND POLLUTION

12.1 General Prohibition

No Person shall intentionally or negligently commit Waste or Pollution of the Groundwater resources with the District. Water Pollution Events must be reported to the District as required by Rule 5.7.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

12.2 Wasteful Use

Groundwater produced from within the District shall not be used in such a manner or under such conditions as to constitute Waste as defined by District Rules.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

12.3 Wasteful Production

Any Person producing or using Groundwater shall exercise due care in accordance with acceptable and approved methods, to stop and prevent Waste of Groundwater.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

12.4 Groundwater Pollution

No Person shall pollute or harmfully alter the character of the Groundwater within the District by causing or allowing the introduction of undesirable water, pollutants, or other deleterious matter from another stratum, from the surface of the ground, or from the operation of a Water Well. Injection activities that are in compliance with the Texas Commission on Environmental Quality regulatory requirements authorized by Texas Water Code chapter 27, for which the U.S. Environmental Protection Agency and the Texas Commission on Environmental Quality have approved the Aquifer Exemption specified in the federal Safe Drinking Water Act and codified in 40 Code of Federal Regulations, section 114.7(b) and 30 Texas Administrative Code, section 331.13, shall not constitute Groundwater Pollution under this Rule 12.4.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

12.5 Orders to Prevent Waste or Pollution

A. An order to prevent Waste or Pollution is generally processed as an Enforcement matter under Rule 7.

B. If the District determines that an imminent peril to public health, safety, or welfare requires the immediate entry of an order to prohibit Waste or Pollution, the Board may issue an Emergency Temporary Order.

C. An Emergency Temporary Order may not be effective for longer than 90 days without further action of the Board.

D. If the District has identified a Person responsible for the Waste or Pollution of Groundwater and an emergency exists, initiation of an Enforcement Action shall take place within 14 days of the effective date of the Emergency Temporary Order.

Adopted October 8, 2008, by Board Order; effective October 8, 2008.

RULE 13: WATER WELLS ASSOCIATED WITH OIL, GAS, AND MINING ACTIVITIES OTHER THAN IN SITU URANIUM MINING

13.1 District Jurisdiction over Water Wells Associated with Oil, Gas, and Mining Activities

A. The District has authority over Water Wells used to supply water for activities related to the exploration or Production of hydrocarbons or minerals.

B. The District has authority over Abandoned Oil or Gas Wells conditioned for usable quality water Production.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

13.2 Water Wells Associated with Mining Activities Authorized Under Texas Natural Resources Code, Chapter 134

A. Water Wells authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, Natural Resources Code (Texas Surface Coal Mining and Restoration Act) are Exempt Wells as provided in Rule 3.1.A(4). Such Wells must Register with the District as provided in Rule 3.2.A.

B. If the withdrawals from a Water Well exempted under this Rule 13.2 are no longer necessary for mining activities or are greater than the amount necessary for mining activities specified in the Railroad Commission permit, the Water Well becomes a Non-Exempt Well subject to the requirements of Rule 3.4 but is not subject to the spacing requirements of Rule 10.

C. An entity holding a permit issued by the Railroad Commission under Texas Natural Resources Code Chapter 134 that authorizes the drilling of a Water Well shall comply with the recordkeeping and reporting requirements of Rule 5.6.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

13.3 Water Wells Associated with Oil and Gas Activities

A. Exempt Oil and Gas Water Supply Wells (Temporary Rig Supply Wells and Secondary Recovery Supply Wells)

(1) No permit is required for the drilling of a Water Well used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas Well permitted by the Railroad Commission if the Water Well is located on the same lease or field associated with the drilling rig or is in

close proximity to the drilling rig. Under District Rules, these Water Wells are referred to as Temporary Rig Supply Wells or Exempt Oil and Gas Water Supply Wells.

(2) In Rule 3.1.A(2) and this Rule 13.3, a rig that is actively engaged in drilling or exploration operations for an oil or gas Well permitted by the Railroad Commission includes a drilling or workover rig. Exploration operations include Well Completion and workover, including hydraulic fracturing operations.

(3) No permit is required for the drilling of a Water Well used solely to supply water for secondary recovery of oil or gas. Under District Rules, these Water Wells are referred to as Secondary Recovery Supply Wells or Exempt Oil and Gas Water Supply Wells.

(4) Under District Rule 3.1.A(2) and (3) and this Rule 13.3, a Water Well is considered to be an Exempt Oil and Gas Water Supply Well during any period that water from the Well is used solely or partially for Temporary Rig Supply or Secondary Recovery supply purposes.

(5) For purposes of this Rule 13.3, the well operator is the Person holding the Railroad Commission oil or gas permit as described in Texas Water Code Section 36.117(b)(2).

(6) The well operator must Register an Exempt Oil and Gas Water Supply Well with the District as provided in Rule 3.2. When Registering a Water Well that will be used solely as an Exempt Oil and Gas Water Supply Well, the use shall be indicated on the Registration Application and the Well Registration Certificate shall reflect that use.

(7) The well operator as defined in this Rule 13.3, must notify the District of changes in use to or from an Exempt Oil and Gas Water Supply Well, as provided in Rule 3.8.A(1)(d). If water from an Existing Well that was previously Registered for a different purpose will be used as an Exempt Oil and Gas Water Supply source, prior to that change in use, the well operator shall submit written notification to the District as required by District Rule 3.8.A(1)(d). The well operator shall provide the anticipated beginning and ending dates of such water use.

(8) An Exempt Oil and Gas Water Supply Well must comply with the Water Well construction standards as provided in Rule 4 and the Well spacing requirements of Rule 10.

(9) The driller of an Exempt Oil and Gas Water Supply Well must submit to the District the Well Log as provided in Rule 5.1.A and the Geophysical, Electric, and Lithological Logs as provided in Rule 5.1.B.

(10) The Production from an Exempt Oil and Gas Water Supply Well shall be recorded and reported as required in Rule 5.4.

(11) An Exempt Oil and Gas Water Supply Well shall be Plugged in accordance with Rule 6.1.

B. Injection Water Source Well Permitted by Railroad Commission

No District Operating Permit is required for an injection water source Well associated with oil and gas activities that penetrates the base of usable quality water because such a Water Well is required to obtain a permit from the Railroad Commission.

C. Other Water Wells Associated with Oil and Gas Activities, Including Injection Water Source Wells

(1) An Exempt Oil and Gas Water Supply Well that does not fall or no longer falls under the definition of a Temporary Rig Supply Well or Secondary Recovery supply Water Well in Rule 13.3.A, must comply with all District Rules, which may include obtaining an Operating Permit under Rule 3.4.

(2) Except as provided in Rule 13.3.B, all other Water Wells associated with oil and gas activities, including an injection water source Water Well drilled for hydrocarbon activities associated with an oil or gas Well drilled after September 1, 1985 that does not penetrate the base of usable quality water, must comply with all District Rules, which may include obtaining an Operating Permit under Rule 3.4.

D. Abandoned Oil or Gas Wells Conditioned for Usable Quality Water Production

(1) When an Abandoned Oil or Gas Well will be conditioned for usable quality water Production, the well owner or operator must Register the Well with the District prior to submitting to the Railroad Commission, Form P-13, "Application of Landowner to Condition an Abandoned Well for Fresh Water Production," as required by District Rule 3.2.D.

(2) If the Water Well is not equipped to produce water, it will be Registered as an Inactive Well and must be Capped as required by District Rule 6.2. When the Inactive Well is equipped to produce water, the Well Owner must notify the District of the change in status as required by District Rule 3.8.A(1)(d) and 3.8.A(2).

(3) As required by 5.1.D, a Railroad Commission Form P-13, "Application of Landowner to Condition an Abandoned Well for Fresh Water Production," shall be submitted to the District within 30 days of receipt of Railroad Commission approval of the Application. This must be submitted by either the well owner or operator, whichever has received notice of approval from the Railroad Commission.

Adopted October 8, 2008, by Board Order; effective October 8, 2008. Amended July 25, 2012, by Board Order; effective July 25, 2012.

RULE 14 CLASS D PRODUCTION PERMITS

14.1 Applicability and General Requirements

A. Rule 14 applies to the permitting and regulation of Class D Production Wells as defined in Rule 3.5.G. Class D Production Permits are further classified as follows:

(1) Class D Municipal/Electric Zone Production Wells screened to produce water from the GCML1 or GCUL1 Zones;

(2) Class D Zone Production Wells screened to produce water from the GCML1 or GCUL1 Zones; and

(3) Class D Non-Zone Production Wells.

B. The requirements in District Rules for obtaining an Operating Permit for and regulating Class D Production Wells screened to produce water in a Designated Brackish Groundwater Production Zone (Zone) implement the requirements of Texas Water Code 36.1015.

(1) Overall Production from a Zone is limited to the amount specified in the Zone Designation Memo for the Zone. (A copy of the Zone Designation Memo is found in Appendix A of these Rules and can also be obtained from the District office.)

(2) The Production Limit for a Water Well screened to produce water in a Zone is controlled by Rule 11.3.D and E.

C. The requirements for obtaining a Class D Non-Zone Production Permit and regulating Class D Non-Zone Production Wells are not controlled by Texas Water Code 36.1015.

(1) Overall Production from the Burkeville Confining Unit and the Jasper Aquifer located outside of a Zone is not limited. Within six months after the TWDB calculates a MAG for either of those formations, the District shall consider whether to set an overall Production Limit for Production outside a Zone for these formations based on the MAG.

(2) The Production Limit for a Class D Non-Zone Production Well is controlled by Rule 11.3.F.

D. The primary steps in the Permitting process for Class D Production Wells are generally as follows:

(1) Pre-Application Meeting pursuant to Rule 14.2.

(2) Pre-Application activities pursuant to Rule 14.3.

(3) Applicant submittal of an Application pursuant to Rule 14.4, payment of a Class D Production Permit Application Fee pursuant to Rule 1.8.B, and issuance of Notice of Application pursuant to Rule 14.5.

(4) Administrative and technical review.

(a) For a Class D Municipal/Electric Zone Production Well, the review is as follows:

(i) administrative review of the Application by the District to ensure that the Application contains all the information required in Rule 14.4 and the Applicant has no outstanding enforcement matters before the District;

(ii) technical review by the District and the Texas Water Development Board pursuant to Rule 14.6;

(iii) receipt by the District of the TWDB Technical Report based on the TWDB review; and

(iv) continued administrative and technical review by the District to ensure the Applicant has complied with all recommendations made in the TWDB Technical Report.

(b) For a Class D Zone Production Well or a Class D Non-Zone Production Well, the District review is to ensure that the Application contains all the information required in Rule 14.4 and the Applicant has no outstanding enforcement matters and includes a technical review of the data provided in the Application.

(c) The District written notice to the Applicant that the Application is Administratively and Technically Complete pursuant to Rule 3.6.A.

(5) District issuance of a draft Permit based on its administrative and technical reviews and, for Class D Municipal/Electric Zone Production Permits, the TWDB Technical Report. No draft Permit is issued if the General Manager is recommending denial of the Application.

(6) Notice and hearing on the Application.

(7) Board decision on the Application.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.2 Pre-Application Meeting

A. A Person desiring to obtain a Class D Production Permit must make an appointment with the District General Manager prior to submitting an Application. This meeting will be considered the Pre-Application Meeting. In order to be able to comply with Rule 14.2.B, the potential Applicant must ensure that the appropriate members of its team attend.

B. The primary purpose of the Pre-Application Meeting is for the potential Applicant to provide sufficient information to the District to allow the General Manager to provide an overview of, and answer questions about, the regulatory requirements under District Rules. To that end, the potential Applicant should be prepared to provide information about the general scope of the Application including the expected general location of the Water Well or Well Field, the specific aquifer or geologic unit in which the Water Well(s) would be screened, the desired construction-to-Production timeline, the proposed use of the produced water, and other general information.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.3 Pre-Application Activities

A. An Applicant shall perform the following pre-Application activities to gather information required for a Class D Production Permit Application. The Applicant should discuss with the District General Manager if any of the information is not available.

B. Obtain publicly available Existing Well Control Data for the area where the proposed Water Well or Well Field and Monitoring Well(s) will be located and within a 3-mile Buffer Area.

(1) A Buffer Area is determined by counting both Production and Monitoring Wells as follows:

(a) For projects involving more than two Wells, draw a straight line between each outermost proposed Production or Monitoring Well so that all Wells are on the line or inside the boundary circumscribed by the line. Measure distance outward from the line.

(b) For projects involving one or two Wells, draw a circle at the radius of the required distance from each Well.

(2) The publicly available Existing Well Control Data shall include:

(a) State of Texas Well Reports;

(b) Geophysical Logs;

(c) Groundwater quality data in all formations;

(d) Groundwater levels in all formations;

(e) descriptions of and data from aquifer tests;

(f) lithology;

(g) Well locations;

(h) stratigraphic surfaces; and

(i) GIS information – use the Texas Water Development Board GAM map projection when possible.

C. Complete the AoR requirements of Rule 4.2.E in conjunction with obtaining the Existing Well Control Data required by Rule 14.3.B.

D. Prior to developing the Groundwater model and Permit Application install Pre-Application Test Well(s) and Monitoring Well(s) to fully evaluate aquifer parameters; groundwater resources in the Zone or the Burkeville Confining Unit and Jasper Aquifer, as applicable; and response to pumping.

(1) Using Pre-Application Test and Monitoring Wells, fully evaluate the targeted Well Field and the Zone Underground Strata or the Non-Zone Underground Strata, whichever is applicable. This shall include one or more Test Wells drilled to below the target Production zone to provide data on underlying water quality and quantity.

(2) In order to develop the report and modeling required by Rule 14.4.G, develop sufficient data to understand the overlying and underlying geologic units to determine if there is hydrogeologic separation from water-bearing units; assess the water quality of the water-bearing units; and obtain the information listed in Rule 14.3.B.1-9 for Pre-Application Test Wells and Monitoring Wells.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.4 Content of an Application for a Class D Production Well Permit

A Class D Production Well Permit Application shall include the following:

A. All information required for a Class A Production Well Permit Application pursuant to Rule 3.5.D.

B. Existing Well Control Data and Pre-Application Well Control Data reflecting the required Pre-Application Activities pursuant to Rule 14.3. including AoR data required by Rule 4.2.E, and if required under Rule 4.2.E, an Area of Review Mitigation Plan.

C. Proposed Well Field design showing at least the following:

(1) Identification of the Zone Underground Strata or Non-Zone Underground Strata, as applicable, which must include the underlying and overlying aquifers;

(a) For the GCUL1 Zone, the underlying aquifer is the Middle Lagarto and the overlying aquifer is the Lower Goliad.

(b) For the GCML1 Zone, the underlying aquifer is the Lower Lagarto and the overlying aquifer is the Upper Lagarto.

(c) For each Class D Non-Zone Production Well, identify the proposed screened intervals and the geologic unit from which Production is planned; the uppermost and lowermost Production aquifers; and the overlying aquifer.

(2) Location of all Wells on a map and their individual latitude and longitude and all relevant Buffer Areas;

(3) Proposed Well Depth and Depth to the Bottom of the Screen for each proposed Production Well;

(4) Expected period of operation of the Water Well or Well Field and cumulative proposed Production volume of the Production Well(s) over the period;

(5) Maximum proposed Production rate of each Water Well in gallons per minute;

(6) Distance between the nearest Registered Water Well and any proposed Production Well; and

(7) Identification of any Water Wells within 2,640 feet of any proposed Class D Production Well and having a screened interval in an aquifer or geologic unit that is within or directly above the proposed screened interval.

D. Design of proposed Production Well(s), including construction details showing compliance with Water Well construction standards of Rule 4.

E. For Water Wells producing from a Zone, consistency with the Zone Designation Memorandum and the most recent Modeled Available Groundwater for the District.

(1) Provide maximum Groundwater withdrawal amount and maximum withdrawal rate, to include cumulative and individual Water Wells and any proposed blending scheme.

(2) Show that withdrawals and rates of withdrawal from a Zone will not exceed and will be consistent with the withdrawal amounts in the Zone Designation Memo.

(3) Show that the requested Production from a Zone is in addition to the amount of the most recent Modeled Available Groundwater for the District established in the GMA-16 Joint Planning process, including addressing any double counting as between the most recent Modeled Available Groundwater and the Zone Designation Memo.

F. GIS file of all Well locations, including Pre-Application Test and Monitoring Wells, and proposed Production Wells and Production Monitoring Wells**.**

(1) Provide all GIS files with complete metadata.

(2) Use Texas Water Development Board GAM map projection, if possible.

G. Report on aquifer characterization of the Well Field and surrounding area of impact including modeling. The report is to include:

(1) a modeling report showing the expected effect of withdrawal on water level and quality in the Zone Underground Strata or in the Non-Zone Underground Strata, whichever is applicable. The modeling report shall include:

(a) all model computer files;

(b) model documentation including a list of assumptions and information on the conceptualization, code used, calibration/verification carried out, if any, scenarios modeled, and a discussion of the results, following the recommended ASTM D5718-13 Standard Guide for Documenting a Groundwater Flow Model Application; and

(c) 30- and 50-year drawdown projections, proposed rates of withdrawal, potential effects of Production on water levels and water quality in the same and adjacent aquifers as described in Rule 14.4.H, Groundwater salinity and potential salinity changes, and potential subsidence.

(2) For Class D Zone Production Wells, findings regarding the compatibility of the proposed Well Field design with the Zone. For Class D Non-Zone

Production Wells, findings regarding proposed Well Field design with applicable Production Limits and spacing requirements.

(3) Calculation of aquifer hydraulic properties;

(4) Predictions of maximum water levels and maximum TDS concentrations in each Production Well and each Production Monitoring Well over the period of operation of the Wells;

(5) Methodology and assumptions used to calculate aquifer hydraulic properties;

(6) Contour plots of the predicted drawdown of 5 feet, 10 feet, 20 feet, 50 feet, and 100 feet in the formations that exist between the ground surface and the formation where the proposed Production Wells will be screened;

(7) Contour plots of the predicted drawdown of 5 feet, 10 feet, 20 feet, 50 feet, and 100 feet for the formations that exist between the top of the Water Well and the ground surface over the period of operation of the Water Wells; and

(8) Documentation of the methodology for estimating drawdown in the Production formation based on the measured pumping rates and the measured drawdown of the Production Wells and the Production Monitoring Wells.

H. Proposed Production Monitoring Well Plan including the number and location of Monitoring Wells needed to determine the effects of the proposed Water Wells on water levels and water quality in the Zone Underground Strata or in the Non-Zone Underground Strata, whichever is applicable.

(1) Groundwater Monitoring should focus on the lateral and updip portions of the Zone or the Burkeville Confining Unit and Jasper Aquifer, as applicable, and on the overlying aquifer.

(2) Monitoring in permeable sands associated with confining units is recommended to determine the potential source of adjacent aquifer impact due to development in either the:

(a) the Zone Underground Strata or

(b) the Non-Zone Underground Strata, whichever is applicable.

(3) **T**he proposed Production Monitoring Well Plan shall include the following:

(a) At a minimum, construction of a Monitoring Well dedicated to and used solely for Monitoring aquifer conditions. The Monitoring Well is to be located within 100 feet of the boundary of the Well Field closest to the greatest level of predicted drawdown. The Monitoring Well shall have a continuous 100-foot screen intersecting the major sand units of the closest Production Well**;**

(b) A description of the Well site with a map identifying Production Wells and Monitoring Wells;

(c) Tasks to establish and report initial and quarterly water level conditions, measured as depths below the surface, of the Monitoring Wells;

(d) Tasks to establish and report initial and semi-annual water quality conditions of the Production Wells and the Monitoring Wells by the following laboratory analyte and method:

(i) Total Dissolved Solids - Method M2540C;

(ii) elements / metals - ICPMS (0.45u filtered and acid preserved): SW6020A;

(iii) specific conductivity - M2510 B;

(iv) alkalinity – M2320 B;

(v) pH – M45000-H+ B;

(vi) anions – IC method – Water (E300); and

(vii) silica (USEPA method 370.1).

(e) A list of equipment and specifications to be used to collect aquifer Monitoring data including field protocols for sample collection and preservation.

(f) Methodologies and protocols for the following:

(i) calibrating and installing aquifer Monitoring equipment;

(ii) collecting and storing aquifer Monitoring data;

(iii) controlling and assuring data quality;

(iv) post-process aquifer Monitoring data;

(v) statistical processing of aquifer Monitoring data; and

(vi) modeling impacts of the Production Wells on the Zone Underground Strata or the Non-Zone Underground Strata, whichever is applicable.

I. Proposed Subsidence Monitoring Plan describing measures to monitor subsidence during the duration of the Permit using methods described in Uddameri Ph.D., P.E., Venkatesh, "Technical Memo 1: Recommendations for Monitoring Subsidence at Deep Brackish Groundwater Wells within Kenedy County Groundwater Conservation District" (09/10/2020), as may be amended from time to time. (The most up to date version is found in Appendix B of these Rules and can also be obtained from the District office.) The proposed Subsidence Monitoring Plan shall include the following:

(1) A description of the Well site with a map identifying the location of a permanent benchmark monument and GPS measurement unit or units.

(2) An initial level survey plan to obtain land surface elevations prior to the initiation of pumping.

(3) A permanent benchmark monument at a location that is not likely to be affected by groundwater Production (e.g., outside the estimated cone of depression) but as close to the Production Well Field as possible.

(4) If the Plan contemplates the use of an extensometer or differential GPS, continuous GPS measurement unit(s) at the site within 100 feet of the Production Water Well. A single station can be used if a location that is within 100 feet of all Production Water Wells can be found. If not, an adequate number of stations must be constructed to ensure measurements are being monitored within 100 feet of every Production Water Well.

(5) If the Plan contemplates the use of an extensometer or differential GPS, tasks to establish and report initial and semi-annual elevation levels by collecting continuous GPS data at 15 second intervals and using standard data processing methods to provide daily information.

(6) Tasks to monitor the elevation at the station(s) for at least 30 days prior to beginning Production to obtain baseline elevations. The GPS elevations must correlate with level survey information at the site.

(7) Reporting requirements including

(a) written report to the District prior to beginning Production certifying completion of tasks under Rule 14.9.B and relaying the information to the District.

(b) written report to the District semi-annually containing the elevation information required under Rule 14.10.B(5); and

(c) inclusion of pre-Production and semi-annual elevation data in the annual report required by Rule 14.10.

J. A Well integrity testing program to implement the requirements of Rule 4.7.

K. Any other information developed during pre-application activities required by Rule 14.3.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.5 Notice of Application for a Class D Production Permit

A. Within 10 business days of submitting the Application, an Applicant for a Class D Production Permit shall give Notice of Application in a form provided by the District. Notice shall be provided as follows:

(1) Publish notice in a newspaper regularly distributed throughout the District and the county where the proposed Water Well or Well Field will be located. It must be published once a week for two consecutive weeks.

(2) Mail notice by certified mail to all Water Well Owners on property adjacent to the Production-Limit-Acreage and to Water Well Owners within a 3-mile Buffer Area of all proposed Water Wells.

B. Within 30 days of submitting the Application, provide to the District proof of notice under this Rule 14.5

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.6 TWDB Technical Review of Class D Municipal/Electric Production Well Permit Applications

A. This Rule 14.6 applies only to Class D Municipal/Electric Production Well Permit Applications.

B. Texas Water Development Board staff will do a technical review of each Class D Municipal/Electric Production Well Permit Application.

C. The resulting TWDB Technical Report will include:

(1) whether the Well Field design is compatible with the Zone; and

(2) recommendations for the Production Monitoring Well system.

D. When the District receives the report, the General Manager shall ensure that the Applicant receives a copy.

E. Once the District determines that the Application is Administratively Complete pursuant to Rule 3.6.A and that the Applicant has performed all actions required by the TWDB Technical Report, the District shall deem the Application Administratively and Technically Complete as set out in Rule 3.6.B and send notice to the Applicant pursuant to Rule 3.6.B(1).

F. The District may not schedule a hearing on a Class D Municipal/Electric Zone Production Permit Application until it receives the TWDB Technical Report.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.7 Contents of a Class D Production Permit

A. A Class D Production Permit shall contain the information required by Rule 3.6.C, as applicable, and this Rule 14.7.

B. A requirement that the Permit Holder notify the District in writing at least 10 days prior to beginning Production.

C. A requirement that the Permit Holder notify the District in writing at least ten days before beginning the required 72-hour aquifer pumping test set out in Rule 14.9.A.

D. A requirement that the Area of Review Mitigation Plan pursuant to Rule 4.2.E and 14.3.B, if any, be implemented prior to construction of any Well.

E. Additional Special Permit Conditions as follows:

(1) Before beginning Production, submit the results of a 72-hour aquifer pumping test as set out in Rule 14.9.A and receive District approval to begin Production.

(2) Implement the approved Subsidence Monitoring Plan submitted as part of the Application, which requires Instituting measures to monitor subsidence during the duration of the Permit. The approved Subsidence Monitoring Plan will be incorporated as an attachment to the Permit and will become an enforceable part of the Permit. The Plan shall include the requirements of Rules 14.4.I and 14.12.

(3) During the life of the permit, if subsidence at the Well site exceeds 0.5 foot the District will impose more frequent measuring and reporting on a case-by-case basis in conjunction with the requirements of 14.12. The permit will be revoked if subsidence exceeds 1.0 foot.

F. Drawdown and water quality restrictions based on the data and modeling provided in the Application. These restrictions will be set by the District on a case-by-case basis.

G. A provision that the Permit Holder comply with Rule 14.10 for submittal of annual reports to the District.

H. Monitoring Well Performance Response requirements will be set on a case-by-case basis by the District based on the data in the annual reports required under Rule 14.10.

I. A statement that the Monitoring Well Program shall be implemented as set out in the approved Monitoring Well Plan which is incorporated as an enforceable part of this Permit. A copy of the Plan shall be a referenced Attachment to the Permit.

J. A statement that the Well Integrity Testing Plan shall be implemented as set out in the approved Well Integrity Testing Plan, which is incorporated as an enforceable part of the Permit. A copy of the Plan shall be a referenced Attachment to the Permit.

K. All Wells shall be constructed in compliance with Rule 4.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.8 Considerations for Issuing a Class D Production Permit

A. The Board shall consider the issues listed in Rule 3.7, as applicable.

B. In addition, the Board shall consider the following when deciding whether to issue a Class D Production Permit:

(1) For all Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, whether the Well Field design is compatible with the Zone. For all Class D Non-Zone Production Permits, whether the Well Field design is compatible with applicable Production Limits and spacing requirements.

(2) Whether the Production Monitoring Well Plan meets the requirements of these Rules, and when implemented, whether it provides sufficient drawdown and water quality data to allow the District, and the TWDB, as applicable, to assess the effect of the Permitted project on the Production aquifer or aquifers, as well as, the Zone Underground Strata or the Non-Zone Underground Strata, whichever is applicable.

(3) Whether the Permit requires land elevation monitoring sufficient to allow the District, and the TWDB, as applicable, to assess the effect of the Permitted project on subsidence.

(4) For Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, whether the withdrawals and rates of withdrawal from the Zone do not exceed and are consistent with the withdrawal amounts in the Zone Designation Memo. For Class D Non-Zone Production Permits, whether the withdrawals and rates of withdrawal are consistent with applicable Production Limits and spacing requirements.

(5). For Class D Municipal/Electric Zone Production Permits and Class D Zone Production Permits, whether the requested Production from the Zone is in addition to the amount of the most recent Modeled Available Groundwater established in the GMA-16 Joint Planning process, including any double counting as between the most recent Modeled Available Groundwater and designation of the Zone.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.9 Class D Production Permit Pre-Production Activities

A. Before beginning Production, submit the results of a 72-hour aquifer pumping test pursuant to this Rule 14.9.A.

(1) Conduct the pumping test according to an aquifer pumping test work plan approved by the District, which includes the following:

(a) develop contour plots representing the measured pumping rates and measured water levels of each Production Well; and

(b) establish the initial water level for each Monitoring Well.

(2) Obtain approval of the aquifer pumping test plan prior to beginning the test.

(3) Provide notice to the District pursuant to Rule 14.7.C.

(4) Perform the aquifer pumping test while pumping the Production Well(s) at a constant rate, measuring water levels in the Production Wells and all Monitoring Well(s) and calculating hydraulic properties for the aquifer.

(5) Submit the results of the aquifer pumping test to the District for approval to begin Production from the Well(s).

(6) If the results of the aquifer pumping test are, by a factor of two or more, different from those presented in the modeling report submitted as part of the Application, the District will initiate the Involuntary Amendment process of Rule 3.8.F.

B. Institute the following measures as set out in the approved Subsidence Monitoring Plan, which is part of the issued Permit:

(1) Conduct an initial level survey to obtain land surface elevations;

(2) Construct a permanent benchmark monument;

(3) Install a continuous GPS measurement unit at the site;

(4) Monitor the elevation at the station(s) for at least 30 days prior to beginning Production to obtain baseline elevations; and

(5) Submit a written report to the District prior to beginning Production certifying completion of tasks under Rule 14.9.B and relaying the information to the District.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.10 Class D Production Permit Recordkeeping and Reporting

A. A Class D Production Permit Holder shall submit to the District the following:

(1) Semi-annual water quality and elevation reports according to the approved Monitoring Well Plan and Subsidence Monitoring Plan incorporated into the Permit.

(2) Quarterly water level reports according to the approved Monitoring Well Plan incorporated into the Permit.

(3) Annual reports within 60 days of the end of each year following the beginning of Production under the Permit.

B. The annual reports required by Rule 14.10.A(3) shall include the following:

(1) amount of Groundwater

(a) withdrawn during the reporting year, reporting the annual total and monthly subtotals; and

(b) the cumulative amount of groundwater withdrawn since the beginning of Production to the end of the reporting year.

(2) monthly water level in each Production Water Well during the reporting year.

(3) semi-annual average water quality for the reporting year and since the beginning of Production to the end of the reporting year of:

(a) the produced Groundwater;

(b) in the Monitoring Wells in the Production strata; and

(c) in any underground formation required to be monitored under the Permit.

(4) quarterly aquifer levels as of the end of the reporting year and shown as a comparison to the same aquifer levels before the beginning of Production and for each subsequent reporting year in:

(a) the Zone, or for Non-Zone Wells, the unit or units from which water is being produced, whichever is applicable; and

(b) in any underground formation required to be monitored under the Permit.

(5) semi-annual land elevation Monitoring results to gauge subsidence since the beginning of Production and as a comparison to the land elevation Monitoring for each subsequent reporting year.

E. For Class D Municipal/Electric Zone Production Wells, the Permit Holder shall submit each annual report pursuant to this Rule 14.10 to the TWDB after the District deems it to be complete. The District shall notify the Permit Holder in writing when the report is deemed to be complete.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.11 Request for TWDB Investigation

A. This Rule 14.11 applies only to Class D Municipal/Electric Zone Production Permits.

B. If the District requests the TWDB to investigate based on the Applicant's annual report pursuant to Rule 14.10, the TWDB will issue a report within 120 days. The District shall ask the TWDB to make findings on whether the Production is projected to cause the following:

(1) significant aquifer level declines in the Zone Underground Strata;

(2) negative effects on water quality in the Zone Underground Strata; or

(3) subsidence.

C. Based on a TWDB Investigation Report,

(1) The District may amend the Permit to establish a Production Limit and/or approve a mitigation plan necessary to mitigate any negative effects identified by the report.

(2) Such an amendment would be an Involuntary Amendment as authorized under Rule 3.8.F.

(3) The Permit Holder is entitled to notice and hearing as provided in Rule 3.8.F.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.12 Subsidence Performance Standards

A. The subsidence at any subsidence monitoring station located within 100 feet of a Production Water Well shall not exceed 1 foot as compared to the elevation prior to the start of any Production from the Water Well.

B. When the subsidence at any elevation monitoring location exceeds 0.5 feet, the Permit Holder shall submit to the District a Subsidence Minimization Plan proposing remedial measures aimed at curtailment of additional subsidence at the site.

(1) The plan shall be submitted within 60 days of the measuring event showing the exceedance.

(2) The District shall review and approve the plan within 60 days of receipt. Because subsidence generally tends to be irreversible, it is important that it be slowed down once discovered. The District may require one or more of the following mitigation actions, or others, to slow down the rate of subsidence. Mitigation measures may include curtailment of pumping; reallocation of pumping among Water Wells; installation of new Production Wells away from subsidence location; and deepening of Wells.

(3) Upon approval of the plan by the District, the Permit Holder shall institute the plan.

C. The Subsidence Minimization Plan shall include, at a minimum, the following:

(1) Mitigation actions that the Permit Holder will undertake to maintain the reported elevation level or to reduce further subsidence.

(2) A requirement to report to the District in writing elevation measurements on a quarterly basis during any period in which subsidence continues to be over 0.5 feet but less than or equal to 0.75 feet.

(3) Additional mitigation actions that will be taken if subsidence at any monitoring location exceeds 0.75 feet but is less than 1.0 feet.

(4) A requirement to report to the District in writing elevation measurements monthly during any period in which subsidence continues to be over 0.75 feet but is less than 1.0 feet.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

14.13 Variance to Rule 14 Requirements

A. An Applicant for a single Class D Production Well, or a Back-Up or Replacement Well for a single Class D Production Well, may request and receive a Variance regarding one or more of the requirements of Rule 14.

B. The Variance shall be made in writing and must be supported by technical information showing why the Variance is warranted.

C. The District shall make decisions regarding a request under this Rule 14.13 on a case-by-case basis and at the sole discretion of the District.

D. The District's written decision shall be provided to the Applicant.

E. If the requested Variance involves a Class D Municipal/Electric Zone Production Well, no Variance shall be granted to any Rule 14 requirement that implements Texas Water Code section 36.1015 applicable to such Permit.

Adopted June 16, 2021, by Board Order; effective June 16, 2021.

Texas Water Development Board

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

TO: Board Members

THROUGH: Jeff Walker, Executive Administrator
Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, Water Science and Conservation
Les Trobman, General Counsel

FROM: Erika Mancha, Manager, Innovative Water Technologies

DATE: October 6, 2016

SUBJECT: Designation of brackish groundwater production zones.

ACTION REQUESTED

Consider designating brackish groundwater production zones in the Carrizo-Wilcox Aquifer between the Colorado River and the Rio Grande, the Gulf Coast Aquifer, the Blaine Aquifer, and the Rustler Aquifer.

BACKGROUND

In 2015, the 84th Texas Legislature passed House Bill 30, directing the Texas Water Development Board (TWDB) to conduct studies to identify and designate brackish groundwater production zones in four aquifers and to report the designations to the legislature by December 1, 2016. The four aquifers include the Carrizo-Wilcox Aquifer located between the Colorado River and the Rio Grande, the Gulf Coast Aquifer and sediments bordering that aquifer, the Blaine Aquifer, and the Rustler Aquifer. Identification and designation of brackish groundwater production zones in the remaining aquifers in the state are required to be completed before December 1, 2022.

To help undertake studies of the aquifers required to be designated by December 1, 2016, the legislature appropriated $2,000,000 to TWDB for contracts and administrative costs (House Bill 1, General Appropriations Act, 2015 Legislature, Regular Session, page IX-88, Sec. 18.30). On October 13, 2015, the Board authorized the Executive Administrator to publish a Request for Qualifications to fund contract studies for three of the four aquifers specifically named in House Bill 30 and for three additional brackish aquifers selected by the TWDB (the Trinity, Blossom, and Nacatoch aquifers). The fourth aquifer named in House Bill 30 (the Carrizo-Wilcox Aquifer) was conducted as part of an ongoing TWDB funded study. Final reports for the four House Bill 30 projects were completed and delivered by the contractors at the end of August or early September 2016. Final reports from contractors for the other three aquifer studies are due to TWDB on August 31, 2017.

For the four aquifers named in House Bill 30, contractors evaluated brackish areas in each of the aquifers for TWDB to designate as brackish groundwater production zones. As required by House Bill 30, the contractors evaluated aquifer areas with moderate to high availability and productivity that are separated by hydrogeologic barriers sufficient to prevent significant impacts to water availability or water quality in geologic strata that have an average total dissolved solids concentrations of 1,000 milligrams per liter or less.

Pursuant to House Bill 30 requirements, expressly excluded from the studies were:

- The Edwards Aquifer located within the jurisdictional boundaries of the Edwards Aquifer Authority, the Barton Springs-Edwards Aquifer Conservation District, the Harris-Galveston Subsidence District, and the Fort Bend Subsidence District
- Aquifers, subdivisions of aquifers, or geologic strata that have an average total dissolved solids concentration of more than 1,000 milligrams per liter which serve as a significant source of water supply for municipal, domestic, or agricultural purposes
- Geologic formations that are designated or used for wastewater injection through the use of injection or disposal wells permitted under Texas Water Code Chapter 27

In designating a brackish groundwater production zone, TWDB is required to determine the amount of brackish groundwater that a zone is capable of producing over 30- and 50-year periods without causing a significant impact to water availability or water quality in surrounding aquifers. TWDB is also required to make recommendations on reasonable monitoring to observe the effects of brackish groundwater production within the zone.

KEY ISSUES

On October 13, 2015, the Board authorized the Executive Administrator to publish a Request for Qualifications to fund contract studies for three aquifers specifically named in House Bill 30 and for three additional brackish aquifers selected by the TWDB (the Trinity, Blossom, and Nacatoch aquifers). The fourth aquifer named in House Bill 30 (the Carrizo-Wilcox Aquifer) was added to an ongoing TWDB funded study. The request for qualifications was posted on November 10, 2015, with an application due date of November 24, 2015. In response to the request, TWDB received 14 statements of qualifications and on January 6, 2016, the Board approved the Executive Administrator's recommendation to negotiate contracts for the projects. The contracts were executed between February and April 2016. Contractors began work on the projects while the contracts were still being executed.

Following Board authorization on October 13, 2015, to publish a request for qualifications, staff held a stakeholder meeting in Austin, TX, on October 26, 2015, to explain the TWDB's approach to implementing House Bill 30, solicit feedback on key terms in the bill (for example, significant impact), and receive comments on implementation of the legislation. Between April and August 2016, staff held aquifer-specific stakeholder meetings to share results, solicit feedback, and request data. Details of the meetings are provided below.

- Carrizo-Wilcox Aquifer: Pleasanton, TX, November 19, 2015, and April 15, 2016
- Rustler Aquifer: Fort Stockton, TX, June 17, 2016
- Gulf Coast Aquifer: Austin, TX, June 22, 2016
- Blaine Aquifer: Quanah, TX, June 29, 2016, and Wellington, TX, August 18, 2016

We received the draft reports for the four projects on August 1, 2016. Staff reviewed the data and information and provided written comments to the contractors on or around August 15, 2016. Staff also met with the contractors several times during this period to discuss the comments, request changes, and correct errors. Contractors delivered the final reports and datasets to the TWDB within the first week of September 2016. Following receipt of the final reports, staff held a stakeholder meeting in Austin on September 9, 2016, to present the results of the studies and solicit comments.

After receiving the final reports and data, staff conducted a thorough quality control and quality check of the results and datasets to ensure that the requirements of and exclusion criteria in House Bill 30 had been properly implemented. As a result of the quality checks, several changes were made to the potential production areas that were presented in the final reports for all four aquifers. These revised areas are now recommended for designation as brackish groundwater production zones. Following Executive Administrator's approval of this board memo, the memo will be posted on the TWDB website (www.twdb.texas.gov/innovativewater/bracs/HB30.asp) and stakeholders notified via email about its availability for review and comment.

Throughout the project, stakeholders were notified of the meetings in advance via email. Emails were also sent to stakeholders informing them of the availability of draft and final contractor reports. Information pertaining to all stakeholder meetings including announcements, presentations, questions and answers, comments, and copies of contractor draft and final reports were posted on the TWDB website (www.twdb.texas.gov/innovativewater/bracs/HB30.asp) in a timely manner and stakeholders notified by email about the availability of the information.

In the process of conducting the studies, TWDB staff and project contractors encountered several challenges evaluating potential groundwater production areas and implementing House Bill 30 criteria. Several of the more important challenges and limitations are described below.

House Bill 30 excludes designation of brackish groundwater production zones in areas located in an aquifer or a geologic formation that serves as a significant source of water supply for municipal, domestic, or agricultural purposes. It also excludes areas designated or used for injection or disposal of wastewater. Therefore, identifying water wells (domestic, municipal, and agricultural) and injection wells (Class I, II, III, IV, and V) within proposed production areas is critically important in evaluating areas for designation. However, there is no single database in Texas that has a complete record of all installed water wells. Also, a vast majority of water wells are not available in the public domain, and existing datasets often are incomplete and do not contain information on current well owner, well type, or use.

House Bill 30 requires TWDB to estimate the volume of brackish groundwater that a zone is capable of producing over 30- and 50-year periods. While a calibrated groundwater model for each zone containing multiple, simultaneous well fields and regional groundwater pumping would have been desirable, because of severe time constraints, contractors were able to only conduct simple, desktop analysis of groundwater production within a zone to estimate the impact to fresh water resources. Similarly, staff used a simple analysis to determine groundwater volume based on aquifer parameters and simulated drawdown.

While analyzing Class II injection wells installed in potential production areas, staff discovered that a number of Class II injection zones are installed above, below, lateral to, or overlap with geologic stratum containing brackish groundwater. However, information needed to determine the distance that injected fluids may have traveled both laterally and vertically from these wells is lacking, necessitating staff to adopt a conservative approach (a 15-mile buffer) when recommending brackish groundwater production zones. For this reason, several areas in the Carrizo-Wilcox and Gulf Coast aquifers were not recommended for designation as brackish groundwater production zones. Additional work and interaction with staff of the Railroad Commission of Texas will be needed to further understand the implications and impact of injection activities in Texas.

The brackish groundwater production zones being recommended to the Board are representative of the aquifers and do not include every possible area that might qualify for designation. For example, for practical reasons, small well fields (one or two wells) that would have a minor impact in an area were not recommended for designation. Lack of designation of such areas at this time does not preclude (1) designation of zones in these areas in the future or (2) development of the brackish resource in an area.

As required by House Bill 30, stakeholders form an integral part of the brackish groundwater production zone designation process. While it would have been desirable to include every potential stakeholder in the process, the size of the study areas (for example, the Gulf Coast Aquifer study area has 56 counties) and time constraints (less than one year to complete and report on the studies), precluded contacting each and every stakeholder in the study areas. Nevertheless, staff made reasonable efforts to engage stakeholders in the process.

AREAS RECOMMENDED FOR DESIGNATION AS BRACKISH GROUNDWATER PRODUCTION ZONES

Applying the criteria listed in House Bill 30, the areas recommended for designation as brackish groundwater production zones in the four aquifers, the volumes of water that a brackish groundwater production zone can produce over 30- and 50-year periods, and reasonable monitoring to observe the effects of brackish groundwater production within the zone are described below.

Carrizo-Wilcox Aquifer between the Colorado River and the Rio Grande

Recommended brackish groundwater production zones

In the Carrizo-Wilcox Aquifer, we recommend one area for designation as a brackish groundwater production zone (Attachment A, Figure 1, CzWx1). CzWx1 is in the lower Wilcox Aquifer and contains groundwater that is slightly saline (1,000 to 3,000 milligrams per liter of total dissolved solids) to moderately saline (3,000 to 10,000 milligrams per liter of total dissolved solids).

Depth to the top of the recommended brackish groundwater production zone ranges from 1,400 feet to more than 3,000 feet below ground surface. The bottom depth of the zone ranges from 1,800 feet to more than 3,800 feet below ground surface. Approximately 140 feet of shale within

the overlying middle Wilcox geological formation constitutes a hydrogeologic barrier between the zone and the overlying Carrizo Aquifer.

Four potential areas were considered for designation as brackish groundwater production zones (Attachment A, Figure 2), but three (PPA1, PPA2, and PPA3) were removed from further consideration after TWDB staff identified water wells and Class II injection wells in these areas (Attachment A, Figure 3). Within and adjacent to PPA1, PPA2, and PPA3, Class II injection wells inject into the lower Wilcox and adjacent formations (middle Wilcox and upper Midway) while in PPA4, Class II injection wells inject into the Carrizo–upper Wilcox Formation. Staff placed a 15-mile buffer around each injection well and a 3-mile buffer around each water well. We modified the boundary of the remaining area (PPA3) after TWDB staff evaluated additional well data and geology (Attachment A, Figure 1).

Volumes of brackish groundwater in the recommended production zones
The volumes of brackish groundwater that could potentially be produced from CzWx1 over 30- and 50-year periods is presented in the table below.

Aquifer	Zone name	Annual pumpage (acre-feet/year)	30-year cumulative (million acre-feet)	50-year cumulative (million acre-feet)
Carrizo-Wilcox	CzWx1	43,000	1.29	2.15

Groundwater monitoring in the recommended production zones
Groundwater monitoring should focus on the overlying Carrizo Aquifer that contains fresh water, and on both the lower Wilcox and Carrizo aquifers in the updip areas. Monitoring in the middle Wilcox sands is recommended to determine the potential source of Carrizo Aquifer impact due to development in (1) the Carrizo Aquifer or (2) the brackish lower Wilcox Aquifer. Monitoring is not required below the lower Wilcox because there are no known fresh or brackish aquifers in that geological formation in the region.

Gulf Coast Aquifers and sediments bordering that aquifer

Recommended brackish groundwater production zones
In the Gulf Coast Aquifer, we recommend four areas for designation as brackish groundwater production zones (Attachment A, Figure 4, GCUL1, GCML1, GCLL1, and GCLL2). The areas are in the Upper Lagarto (GCUL1), Middle Lagarto (GCML1), and Lower Lagarto (GCLL1 and GCLL2) geological formations and contain groundwater that is slightly saline (1,000 to 3,000 milligrams per liter of total dissolved solids) to moderately saline (3,000 to 10,000 milligrams per liter of total dissolved solids). The overlying geological formations contain shale that can act as a hydrogeologic barrier between the areas recommended for designation and the overlying aquifers.

Twenty potential areas were considered for designation as brackish groundwater production zones (Attachment A, Figures 5-11), but 16 were removed from further consideration and four others significantly reduced in geographic area after TWDB staff identified wells in the areas and evaluated geologic parameters listed in House Bill 30 as exclusion criteria. In addition, House

Bill 30 contains a requirement that prohibits designation of zones within the Harris–Galveston Subsidence District and the Fort Bend Subsidence District.

Areas in the Lower Rio Grande Valley (Cameron, Hidalgo, Starr, and Willacy counties) were not recommended because the results from a recent TWDB study (TWDB Report 383, 2014) indicated that the region contains areas of mixed fresh and slightly saline groundwater. The region also has a substantial number of brackish groundwater and Class II injection wells.

TWDB staff evaluated Class II injection well data using 15-mile buffers over the potential production areas. The remaining portions of these areas were then evaluated for the presence of water wells (domestic, municipal, and agricultural using a 3 mile buffer), injection wells (Class I, Class III, Class IV, and Class V), and hydrogeologic barriers, in this order. The results of this analysis are presented in Figures 12 through 18 (Attachment A).

Volumes of brackish groundwater in the recommended production zones
The volumes of brackish groundwater that could potentially be produced from the zones over 30- and 50-year periods are presented in the table below.

Aquifer	Zone name	Annual pumpage (acre-feet/year)	30-year cumulative (million acre-feet)	50-year cumulative (million acre-feet)
Upper Lagarto	GCUL1	35,700	1.07	1.785
Middle Lagarto	GCML1	2,079	0.062	0.104
Lower Lagarto	GCLL1	4,992	0.15	0.25
Lower Lagarto	GCLL2	2,929	0.088	0.146

Groundwater monitoring in the recommended production zones
Groundwater monitoring should focus on the lateral and updip portions of the brackish aquifer, on the underlying aquifer, and on the overlying aquifer containing fresh and brackish water. Monitoring in permeable sands associated with shale confining units is recommended to determine the potential source of adjacent aquifer impact due to development in (1) the adjacent aquifers or (2) the brackish zone aquifer. Monitoring information is presented in the table below.

Zone name	Brackish Lagarto Aquifer	Underlying aquifer	Overlying aquifer
GCUL1	Upper Lagarto	Middle Lagarto	Lower Goliad
GCML1	Middle Lagarto	Lower Lagarto	Upper Lagarto
GCLL1	Lower Lagarto	Oakville	Middle Lagarto
GCLL2	Lower Lagarto	Oakville	Middle Lagarto

Blaine Aquifer

Recommended brackish groundwater production zones
We are not recommending an area in the Blaine Aquifer for designation as a brackish groundwater production zone (Attachment A, Figure 19).

Eight potential areas were considered (Attachment A, Figure 20), but five were excluded from further consideration after water well data received from stakeholders indicated that the Blaine Aquifer in these areas is being used to provide water for domestic or agricultural purposes. The

remaining three areas (PPA4, PPA6, and PPA8) were excluded for similar reasons after TWDB staff conducted additional evaluations (Attachment A, Figure 21).

Rustler Aquifer

Recommended brackish groundwater production zones

In the Rustler Aquifer, we recommend three areas for designation as brackish groundwater production zones (Attachment A, Figure 22, Rus1, Rus2, and Rus3). Rus1 and Rus3 will produce water from the Magenta Dolomite, Culebra Dolomite, and the limestones of the Los Medaños members of the Rustler Aquifer and Rus2 will produce water from the collapsed Rustler Aquifer. The zones contain groundwater that is slightly saline (1,000 to 3,000 milligrams per liter of total dissolved solids) to moderately saline (3,000 to 10,000 milligrams per liter of total dissolved solids).

Hydrogeologic barriers in each zone include structural geological boundaries such as faults, the Dewey Lake Formation which is present above the Rustler Aquifer, and the Salado Formation which is present below the aquifer. Additionally, hydraulic distance barriers apply to zones Rus1 and Rus3 and distance from existing use.

Five areas were considered (Attachment A, Figure 23, PPA1, PPA2, PPA3, PPA4, and PPA5), but two were removed (PPA2 and PPA5) from further consideration after TWDB staff identified additional water wells or Class II injection wells in the areas (Attachment A, Figure 24). The boundaries of the remaining three areas were modified following evaluation of additional well data and geology by TWDB staff (Attachment A, Figure 22).

Volumes of brackish groundwater in the recommended production zones

The volumes of brackish groundwater that could be potentially produced from the three zones over 30- and 50-year periods is presented in the table below.

Aquifer	Zone name	Annual pumpage (acre-feet/year)	30-year cumulative (million acre-feet)	50-year cumulative (million acre-feet)
Rustler	Rus1	2,513	0.075	0.126
	Rus2	522	0.016	0.026
	Rus3	12,645	0.379	0.632

Groundwater monitoring in the recommended production zones

Parts of brackish groundwater production zone Rus1 in the Rustler Aquifer are overlain by one, none, or both the Pecos Valley and Edwards-Trinity (Plateau) aquifers. Minor aquifers in the area that may be adjacent to the Rustler Aquifer include the Capitan Reef Complex Aquifer to the southwest, the Igneous Aquifer to the south, and the Dockum Aquifer to the east. Groundwater monitoring should focus on those aquifers, where present, and on areas near existing use. Monitoring in permeable strata within adjacent confining units is recommended to determine the potential source of adjacent aquifer impact due to development in (1) the adjacent aquifer or (2) the brackish Rustler Aquifer. Monitoring is not required below the Rustler Aquifer because there are no known fresh or brackish aquifers in the region.

All of brackish groundwater production zone Rus2 in the Rustler Aquifer is overlain by the Edwards-Trinity (Plateau) Aquifer. The only minor aquifer in the area that may be adjacent to the Rustler Aquifer is the Igneous Aquifer to the west. The Tessey Limestone is not a TWDB-designated major or minor aquifer in Texas but is used for water supply in the area and could be located hydrogeologically adjacent to the Rustler Aquifer east of brackish groundwater production zone Rus2. Groundwater monitoring should focus on those aquifers and the Tessey Limestone, where present, and on areas near existing use. Monitoring in permeable strata within adjacent confining units is recommended to determine the potential source of adjacent aquifer impact due to development in (1) the adjacent aquifer or (2) the brackish Rustler Aquifer. Monitoring is not required below the Rustler Aquifer because there are no known fresh or brackish aquifers in the region.

Parts of brackish groundwater production zone Rus3 for the Rustler Aquifer are overlain by either or both the Pecos Valley and the Edwards-Trinity (Plateau) aquifers. Minor aquifers in the area that may be adjacent to the Rustler Aquifer are the Dockum Aquifer which overlies most of the zone and the Igneous Aquifer which is present in the southwest corner. Groundwater monitoring should focus on those aquifers, where present, and on areas near existing use. Monitoring in permeable strata within adjacent confining units is recommended to determine the potential source of adjacent aquifer impact due to development in (1) the adjacent aquifer or (2) the brackish Rustler Aquifer. Monitoring is not required below the Rustler Aquifer because there are no known fresh or brackish aquifers in the region.

RECOMMENDATION

The Executive Administrator recommends approval of the following areas as brackish groundwater production zones:

- Carrizo-Wilcox Aquifer between the Colorado River and the Rio Grande – Area CzWx1 (Attachment A, Figure 1)
- Gulf Coast Aquifer and sediments bordering that aquifer – Areas GCUL1, GCML1, GCLL1, and GCLL2 (Attachment A, Figure 4).
- Blaine Aquifer – No areas recommended (Attachment A, Figure 19)
- Rustler Aquifer – Areas Rus1, Rus2, and Rus3 (Attachment A, Figure 22)

This recommendation has been reviewed by legal counsel and is in compliance with applicable statutes and Board rules.

Attachment A: Maps of potential production areas and areas recommended for designation as brackish groundwater production zones in the Carrizo-Wilcox, Gulf Coast, Blaine, and Rustler aquifers

Attachment A

Maps of potential production areas and areas recommended for designation as brackish groundwater production zones in the Carrizo-Wilcox, Gulf Coast, Blaine, and Rustler aquifers.

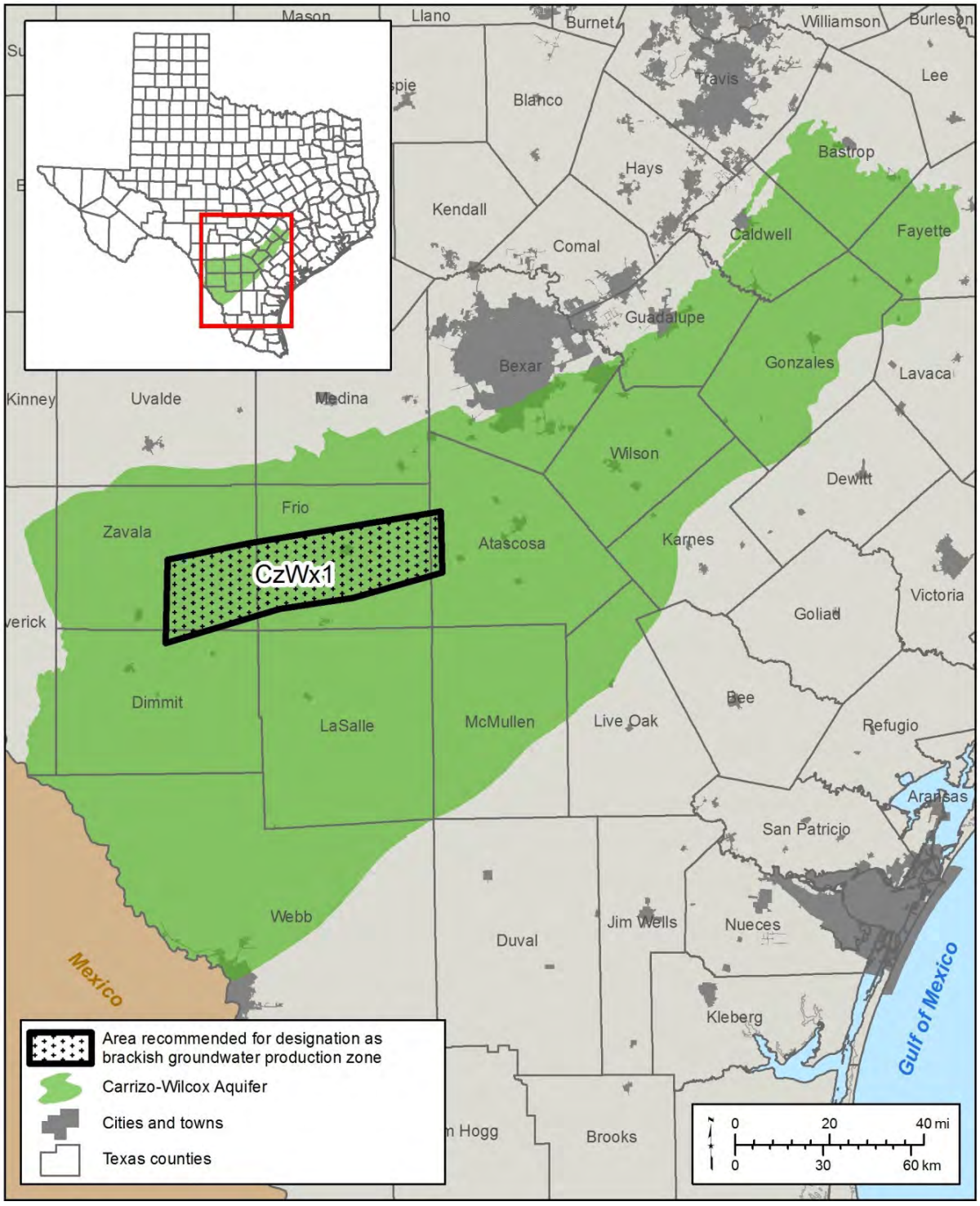


Figure 1. Carrizo-Wilcox Aquifer located between the Colorado River and the Rio Grande showing one potential production area (CzWx1) within the lower Wilcox Formation recommended for designation as a brackish groundwater production zone. The area contains groundwater that is slightly saline (1,000 to 3,000 milligrams per liter of total dissolved solids) to moderately saline (3,000 to 10,000 milligrams per liter of total dissolved solids).

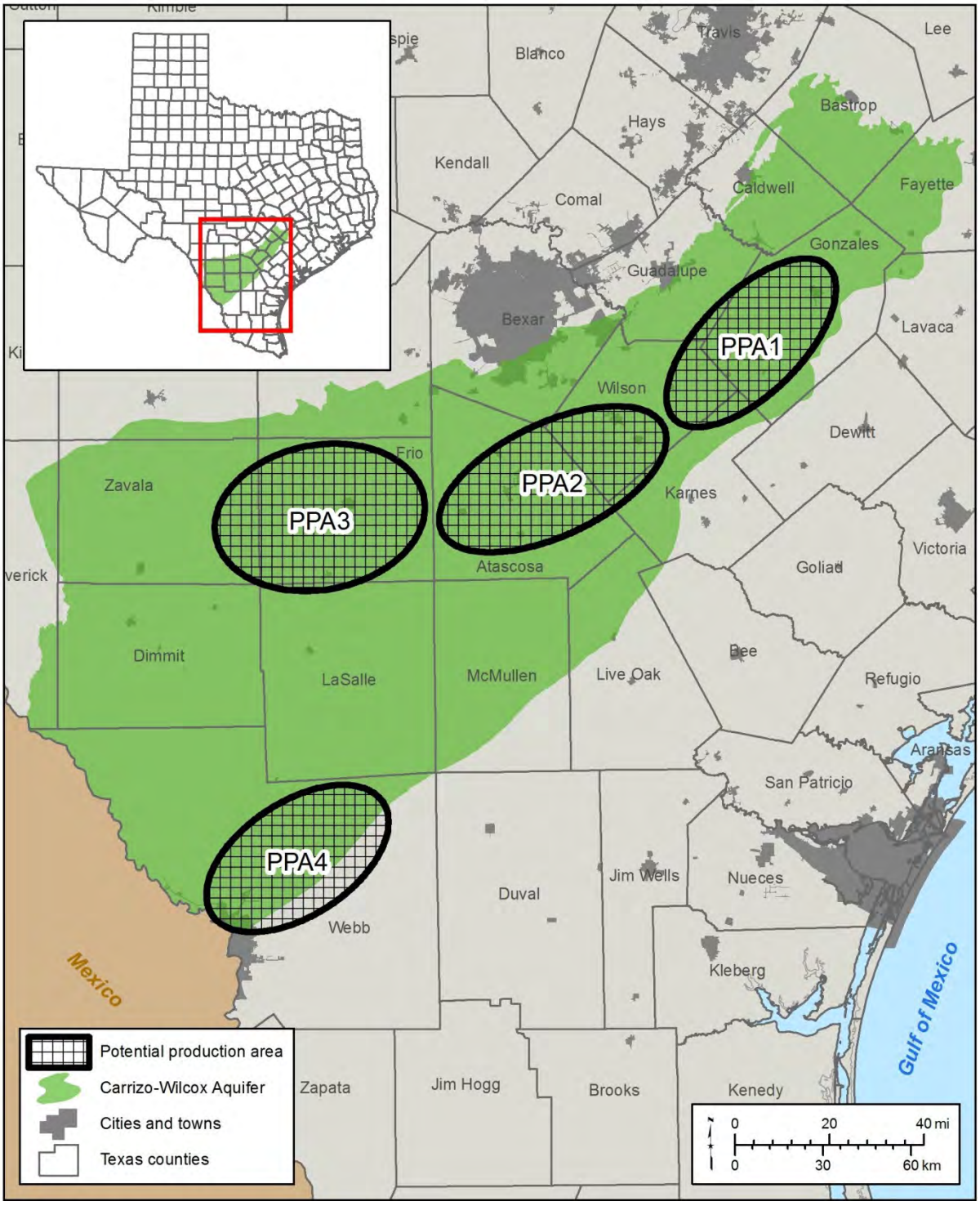


Figure 2. Carrizo-Wilcox Aquifer located between the Colorado River and the Rio Grande showing four potential production areas (PPA1, PPA2, and PPA3 in the lower Wilcox Formation, and PPA4 in the Carrizo-upper Wilcox Formation).

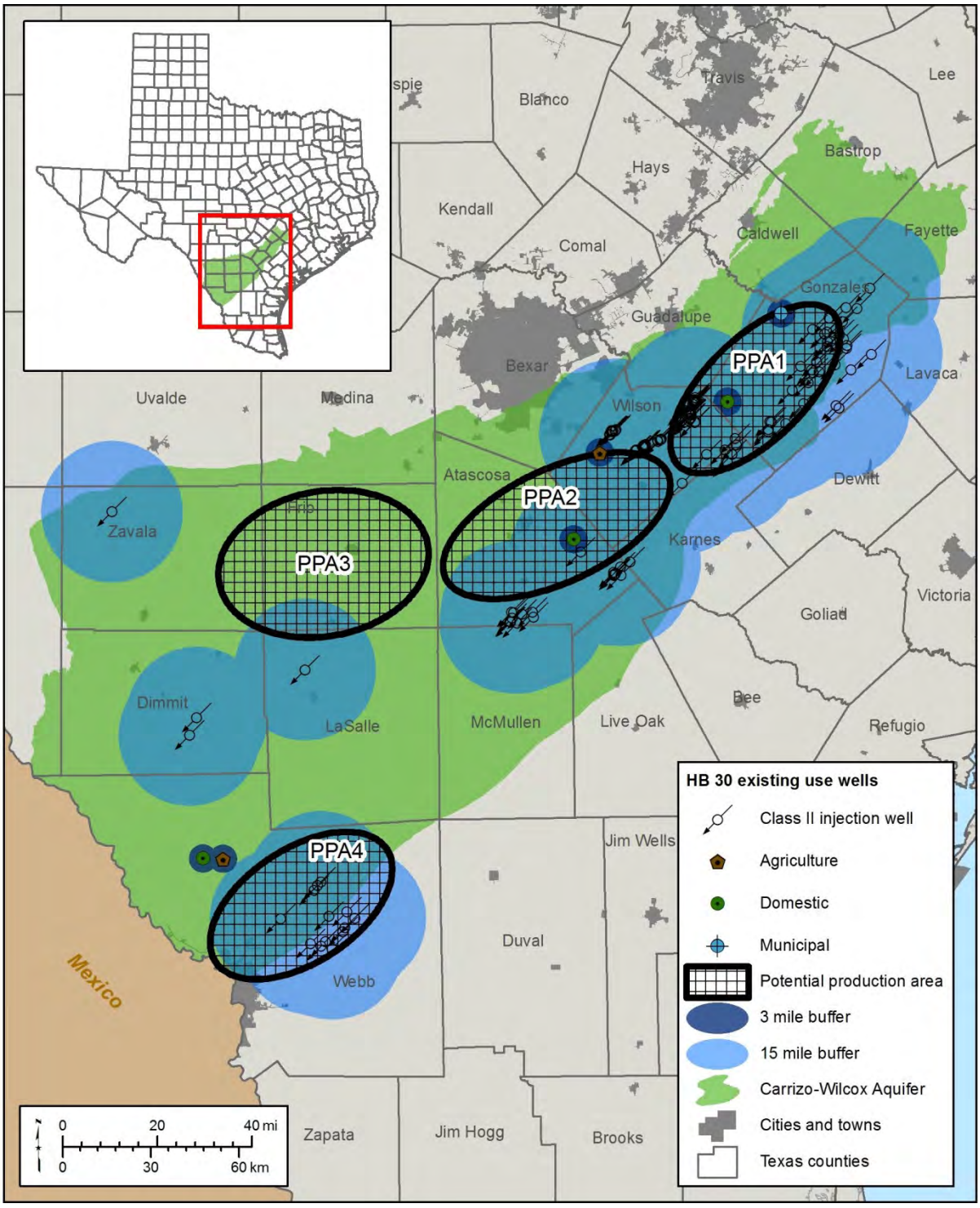


Figure 3. Carrizo-Wilcox Aquifer located between the Colorado River and the Rio Grande showing wells used to exclude areas from being recommended as brackish groundwater production zones. The wells include water wells (municipal, domestic, and agricultural) and injection wells (Class II). A three mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. Water wells that do not meet House Bill 30 exclusion criteria are not shown.

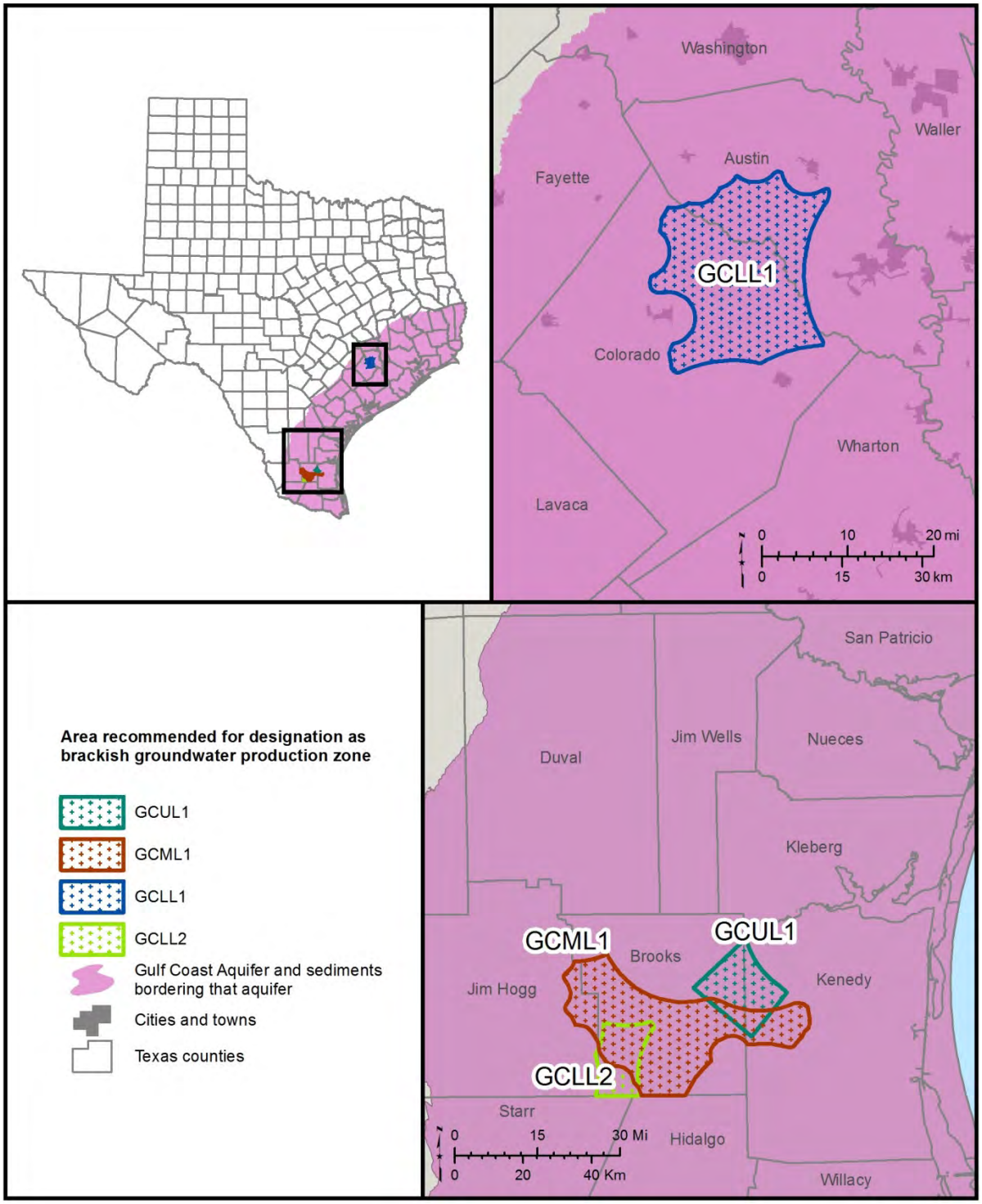


Figure 4. Gulf Coast Aquifer, sediments bordering that aquifer, and four potential production areas (GCUL1, GCML1, GCLL1, and GCLL2) recommended for designation as brackish groundwater production zones. The areas contain groundwater that is slightly saline (1,000 to 3,000 milligrams per liter of total dissolved solids) to moderately saline (3,000 to 10,000 milligrams per liter of total dissolved solids).

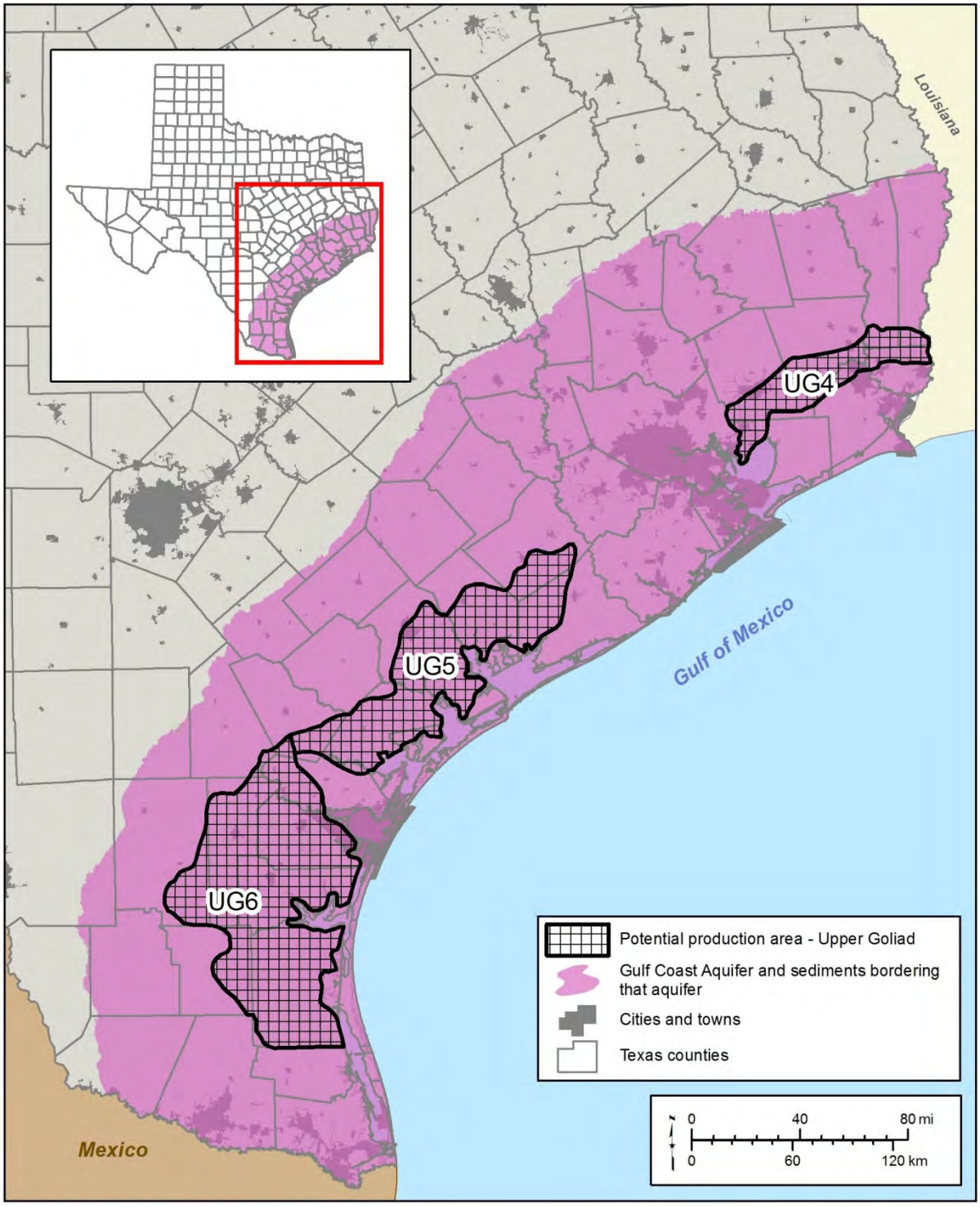


Figure 5. Gulf Coast Aquifer, sediments bordering that aquifer, and three potential production areas (UG4, UG5, and UG6) located in the Upper Goliad Formation.

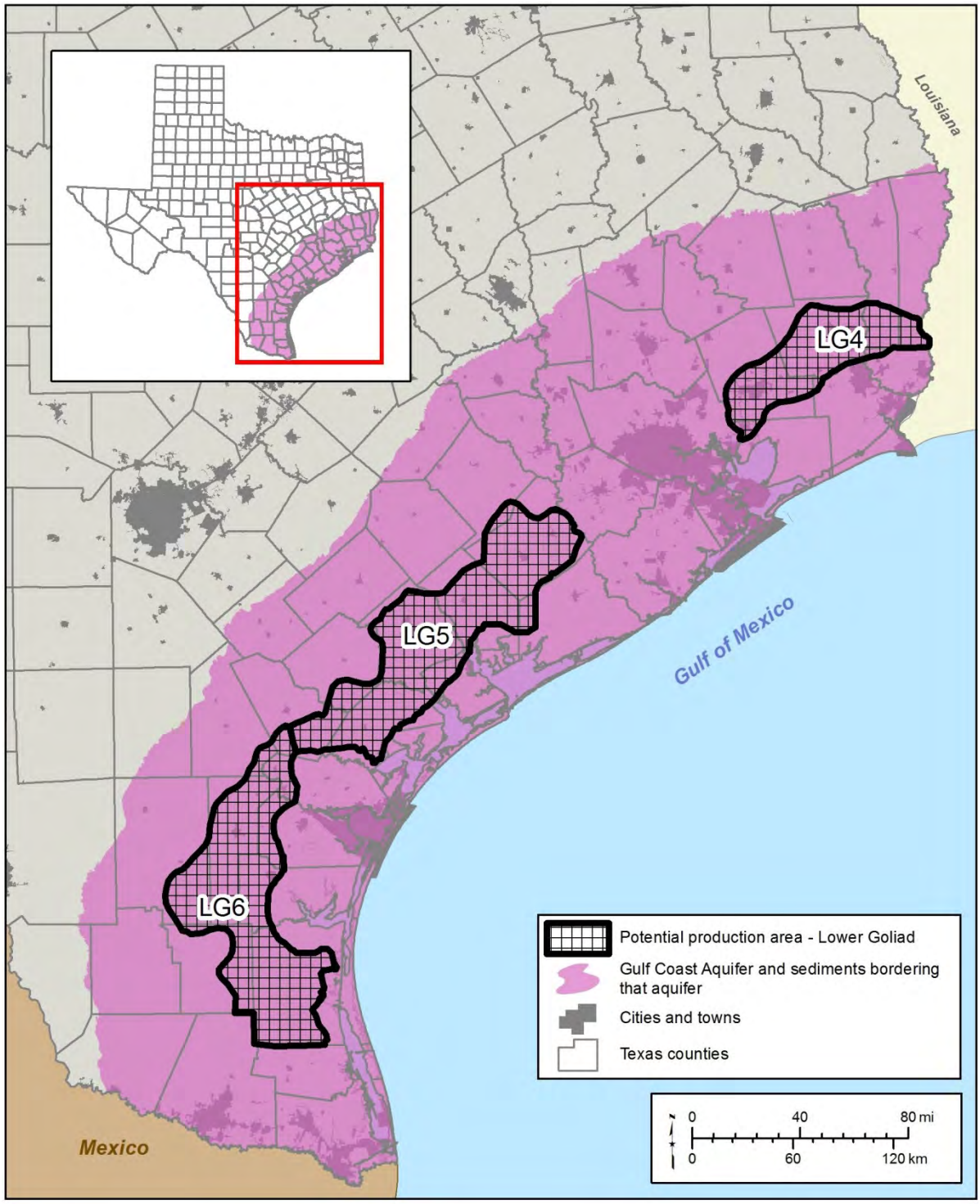


Figure 6. Gulf Coast Aquifer, sediments bordering that aquifer, and three potential production areas (LG4, LG5, and LG6) located in the Lower Goliad Formation.

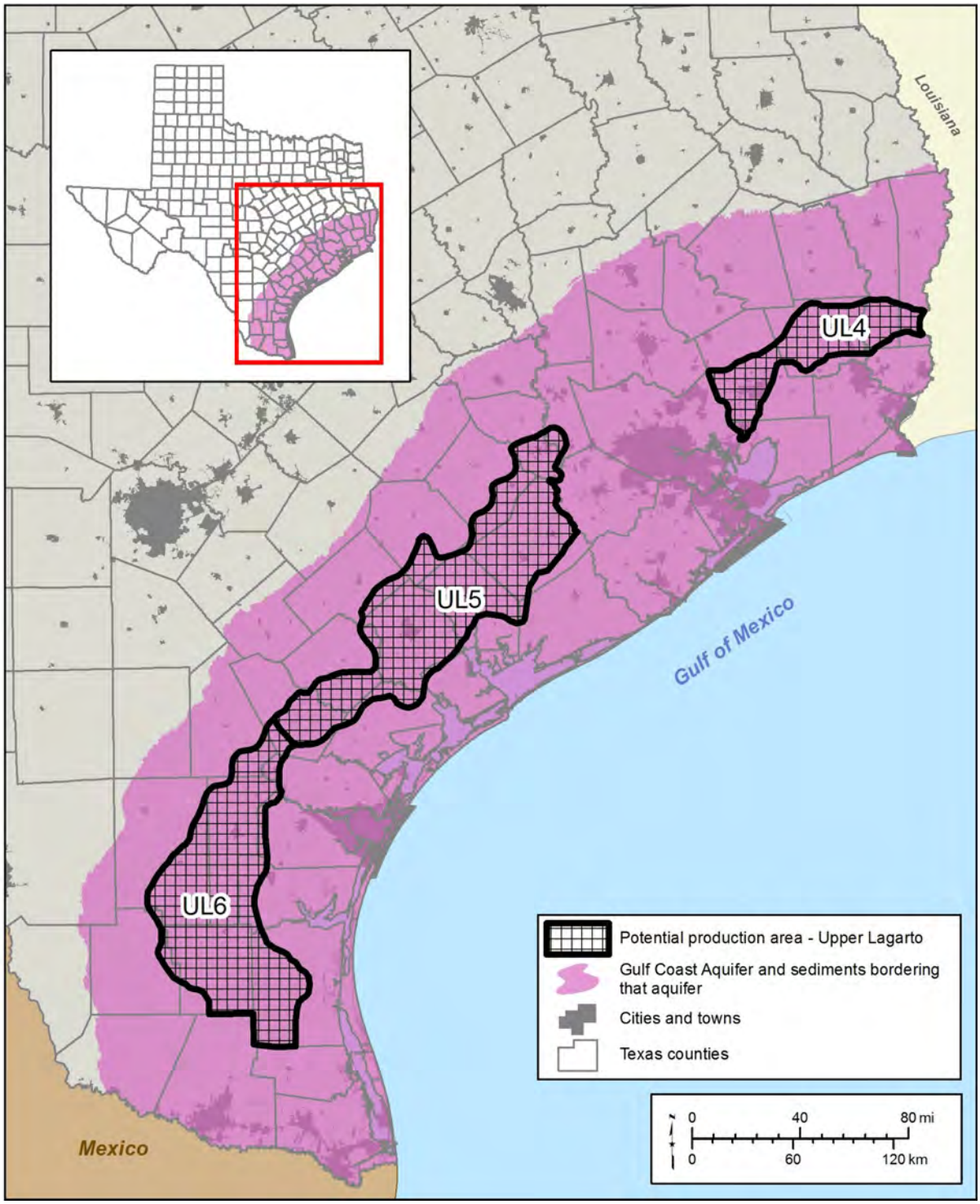


Figure 7. Gulf Coast Aquifer, sediments bordering that aquifer, and three potential production areas (UL4, UL5, and UL6) located in the Upper Lagarto Formation.

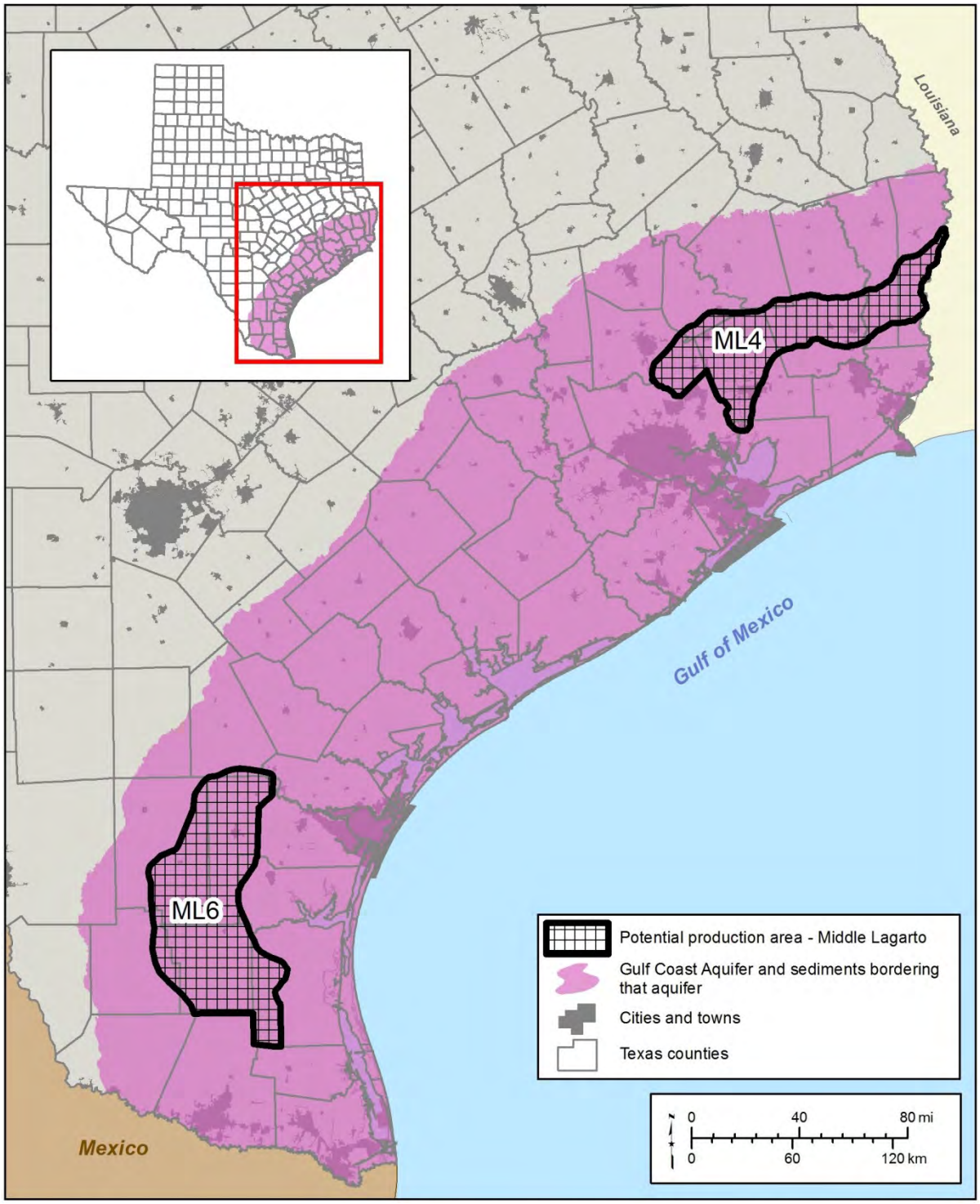


Figure 8. Gulf Coast Aquifer, sediments bordering that aquifer, and two potential production areas (ML4 and ML6) located in the Middle Lagarto Formation.

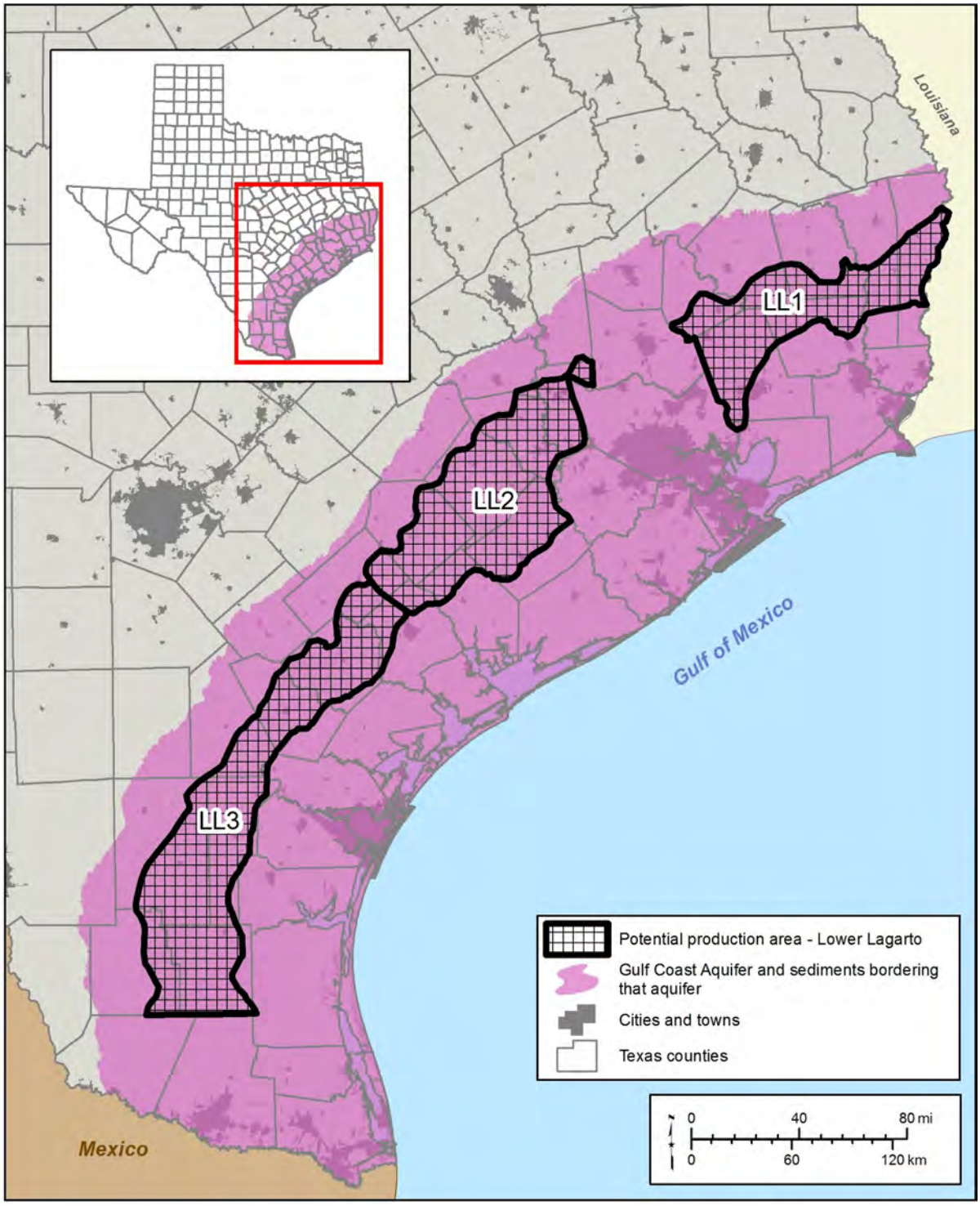


Figure 9. Gulf Coast Aquifer, sediments bordering that aquifer, and three potential production areas (LL1, LL2, and LL3) located in the Lower Lagarto Formation.

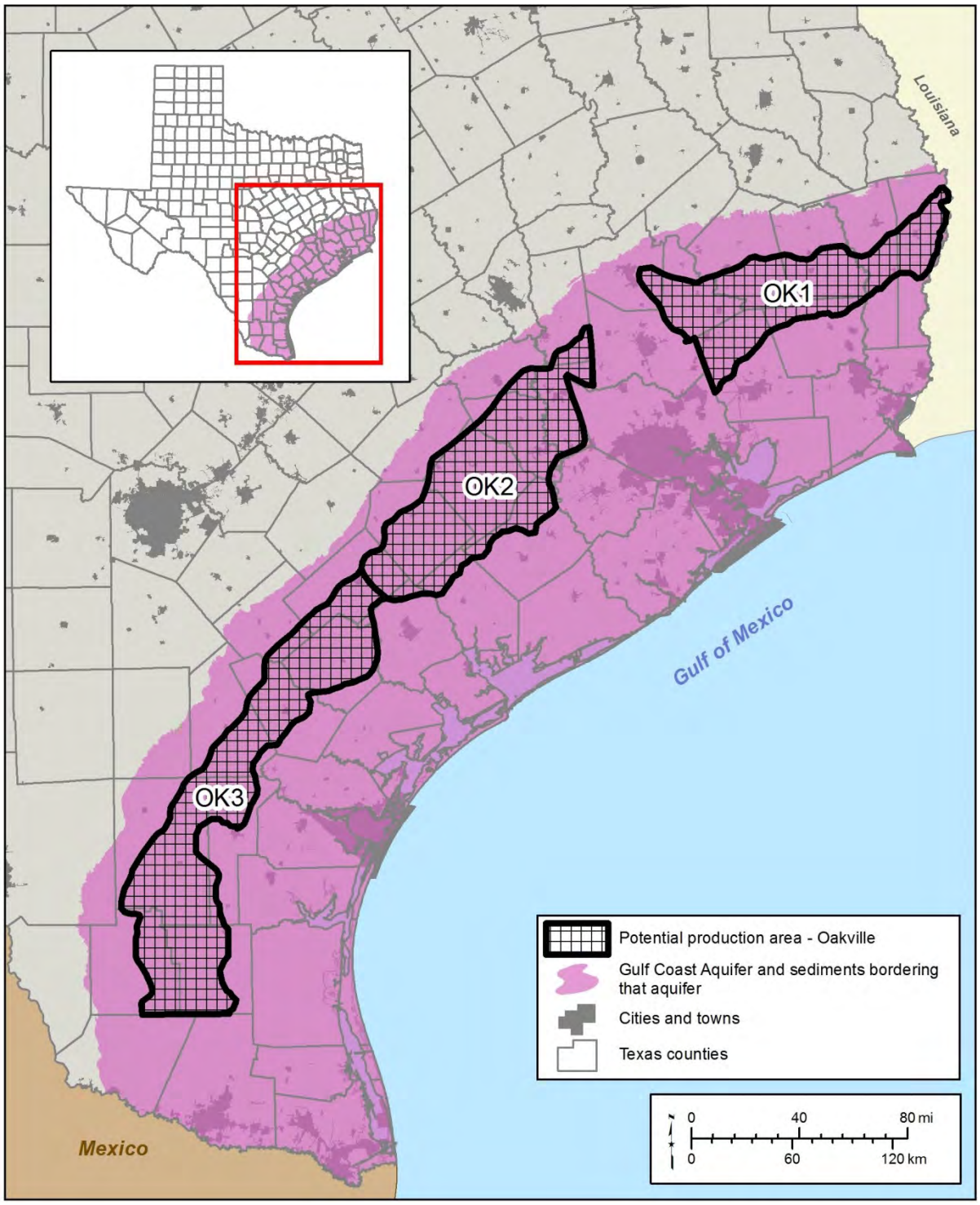


Figure 10. Gulf Coast Aquifer, sediments bordering that aquifer, and three potential production areas (OK1, OK2, and OK3) located in the Oakville Formation.

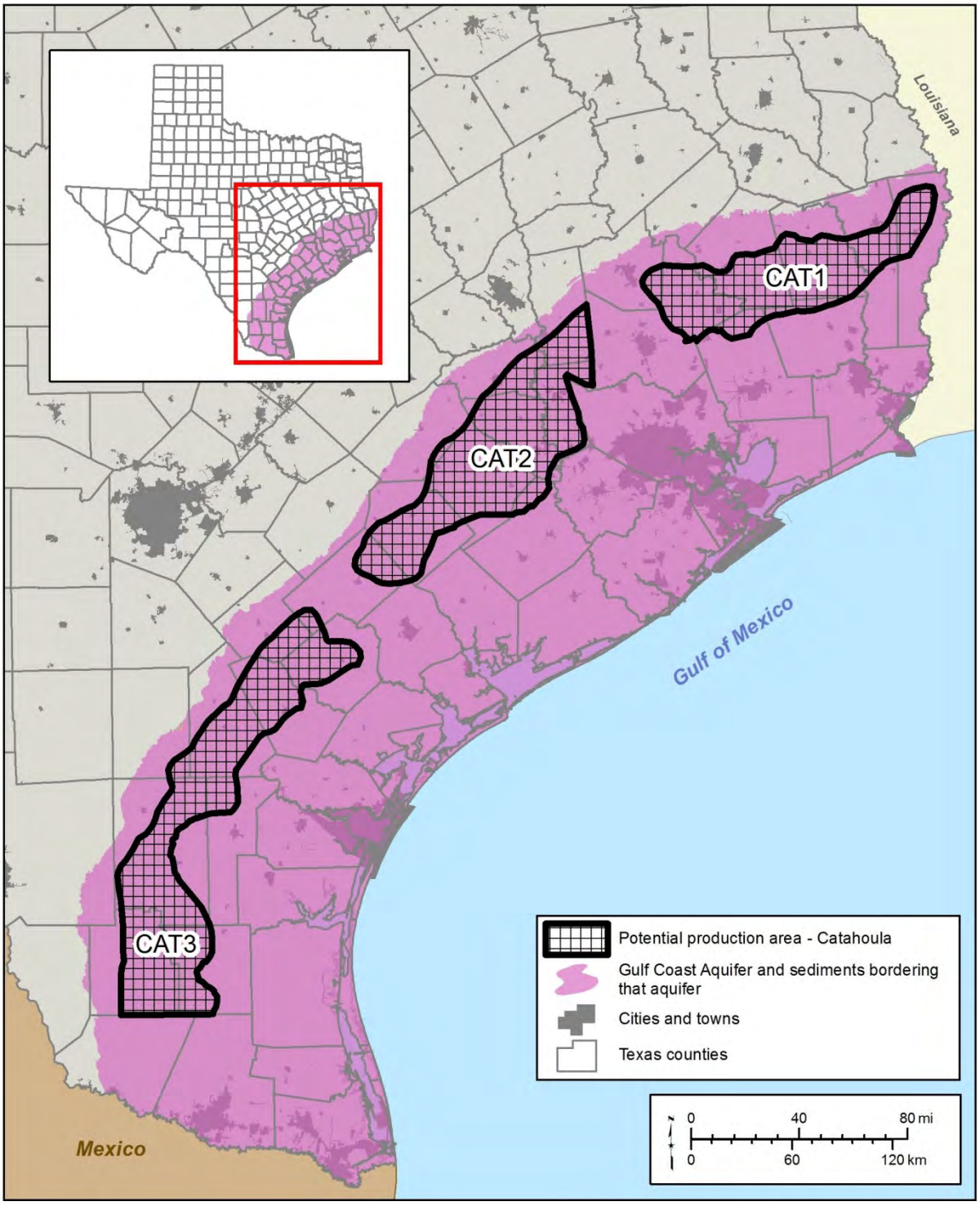


Figure 11. Gulf Coast Aquifer, sediments bordering that aquifer, and three potential production areas (CAT1, CAT2, and CAT3) located in the Catahoula Formation.

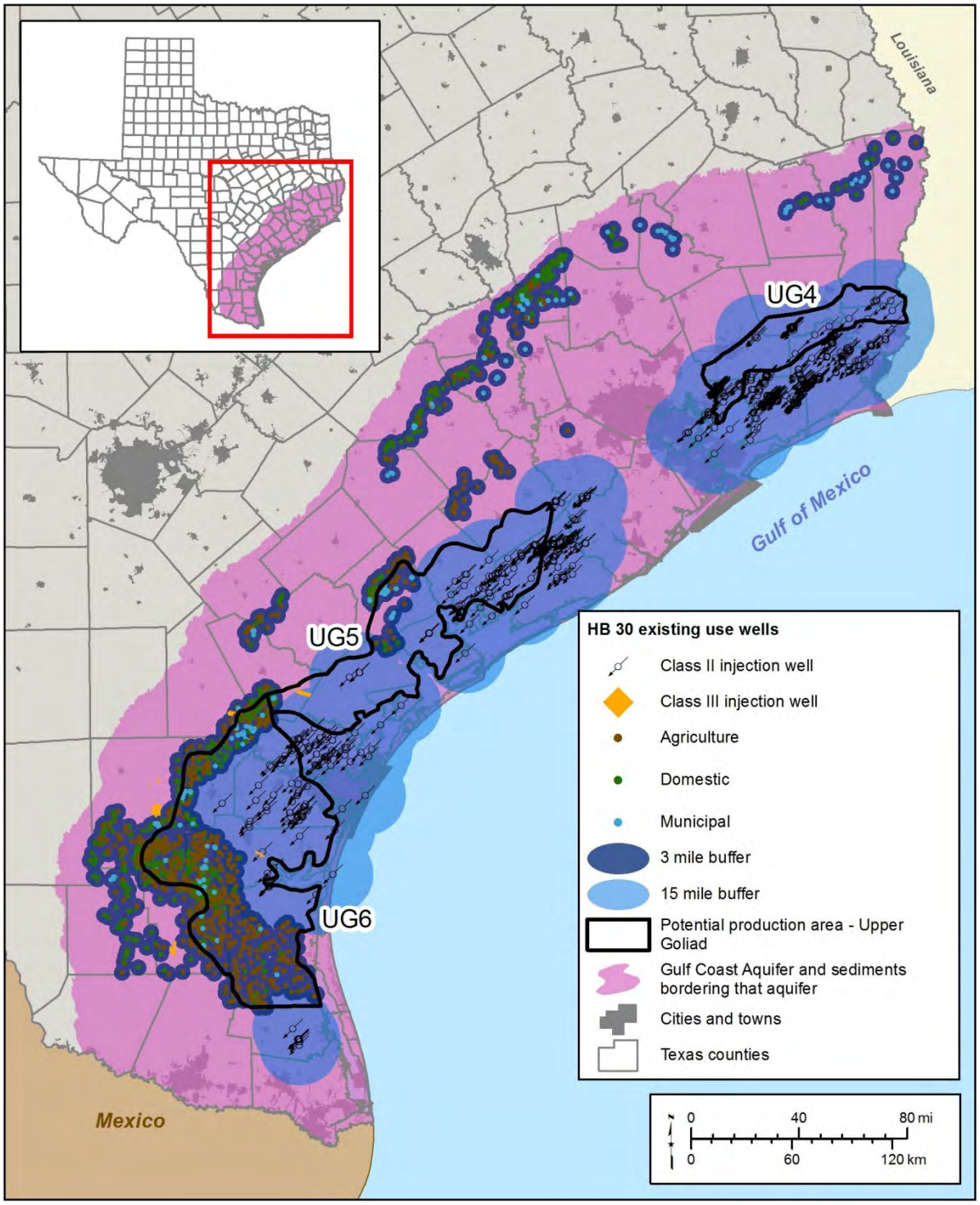


Figure 12. Upper Goliad Formation showing potential production areas. Wells used to exclude areas from designation as brackish groundwater production zones include water wells (municipal, domestic, and agricultural) and injection wells (Class II). A three-mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. Water well and hydrogeologic barrier evaluations were only performed in areas not covered by a Class II injection well buffer. Water wells that do not meet House Bill 30 exclusion criteria are not shown. Class III injection well aquifer exemption areas in the Goliad Formation are excluded from zone designation.

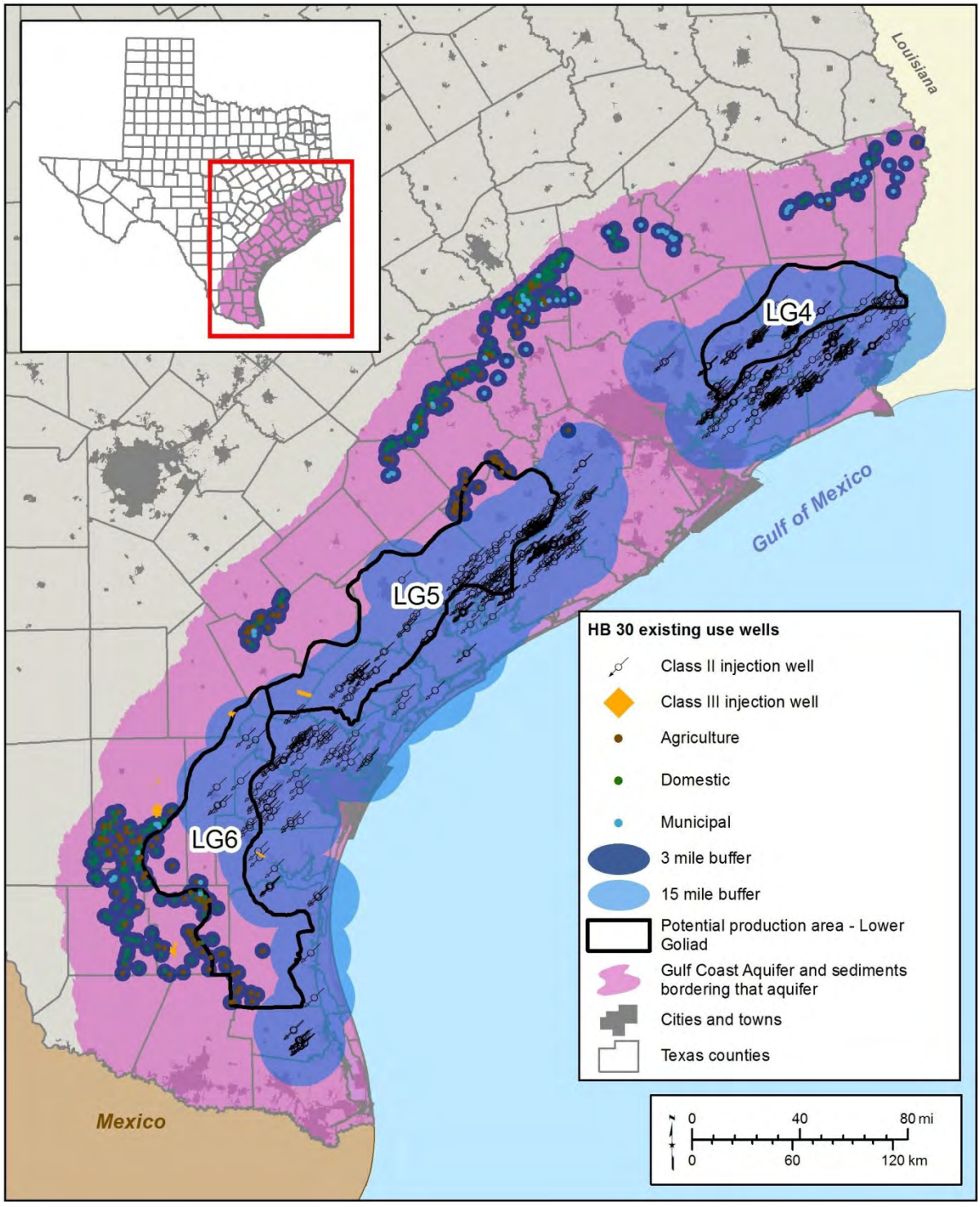


Figure 13. Lower Goliad Formation showing potential production areas. Wells used to exclude areas from designation as brackish groundwater production zones include water wells (municipal, domestic, and agricultural) and injection wells (Class II). A three-mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. Water well and hydrogeologic barrier evaluations were only performed in regions not covered by a Class II injection well buffer. Water wells that do not meet House Bill 30 exclusion criteria are not shown. Class III injection well aquifer exemption areas in the Goliad Formation are excluded from zone designation.

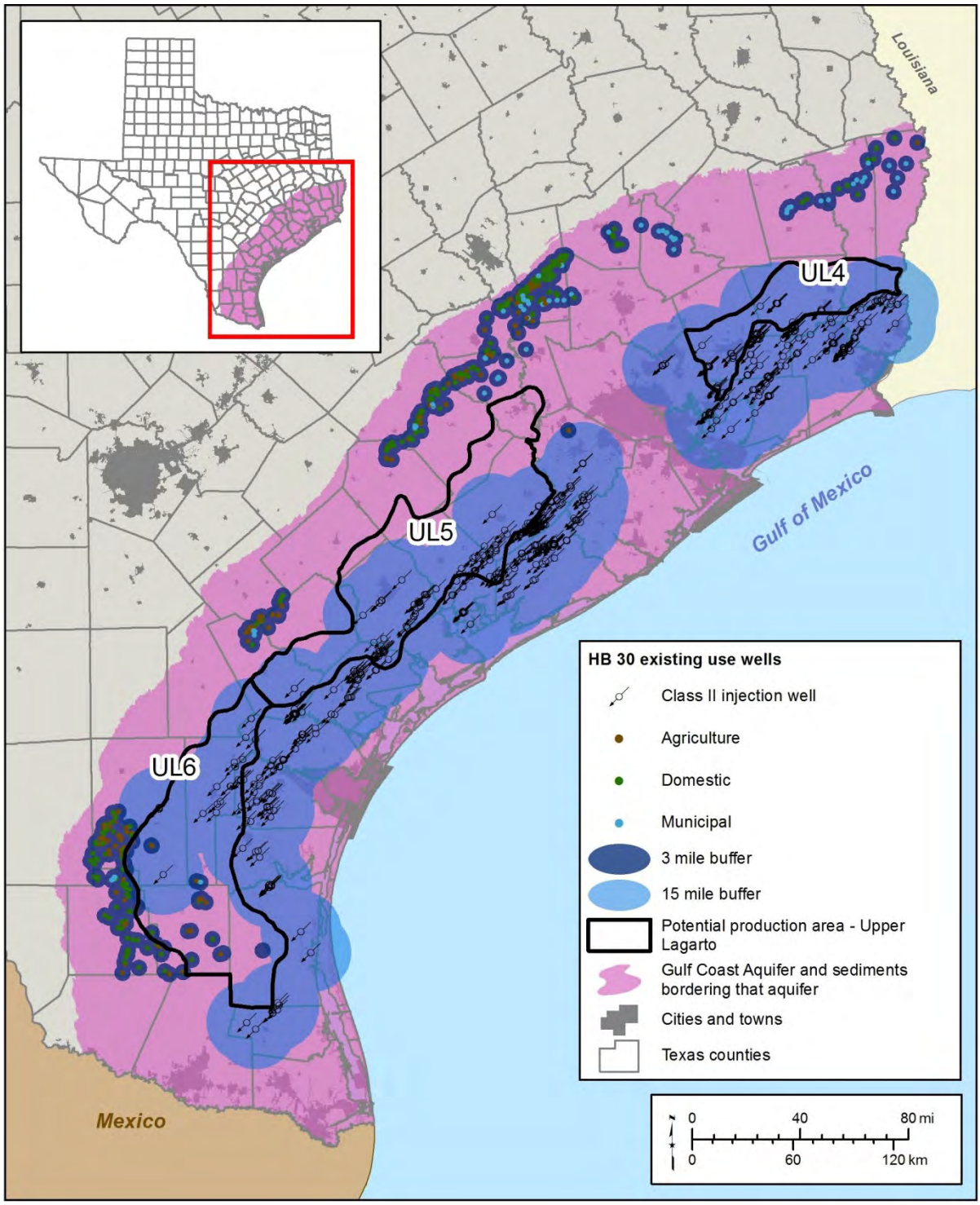


Figure 14. Upper Lagarto Formation showing potential production areas. Wells used to exclude areas from recommendation for designation as brackish groundwater production zones include water wells (municipal, domestic, and agricultural) and injection wells (Class II). A three-mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. Water well and hydrogeologic barrier evaluations were only performed in areas not covered by a Class II injection well buffer. Water wells that do not meet House Bill 30 exclusion criteria are not shown.

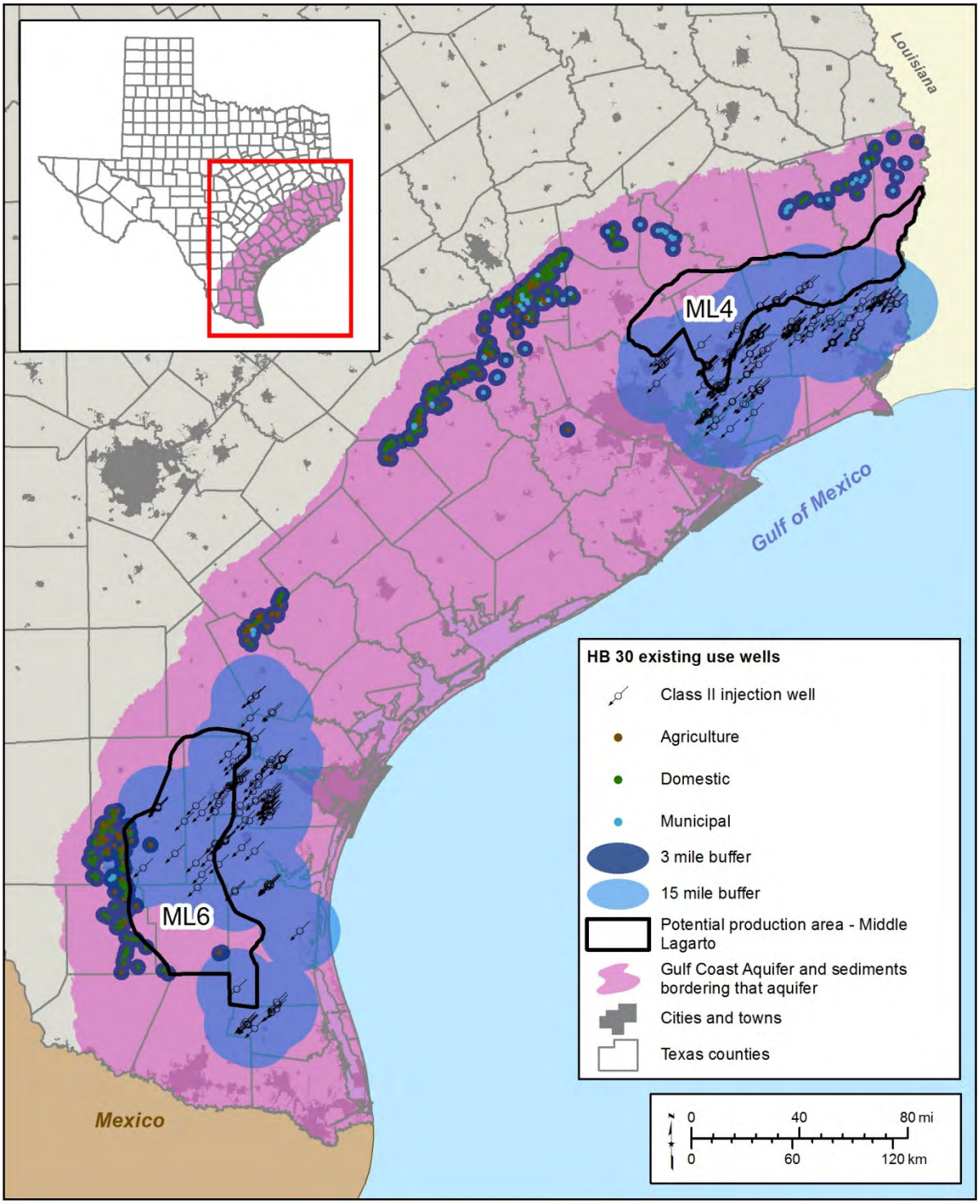


Figure 15. Middle Lagarto Formation showing potential production areas. Wells used to exclude areas from designation as brackish groundwater production zones include water wells (municipal, domestic, and agricultural) and injection wells (Class II). A three-mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. Water well and hydrogeologic barrier evaluations were only performed in areas not covered by a Class II injection well buffer. Water wells that do not meet House Bill 30 exclusion criteria are not shown.

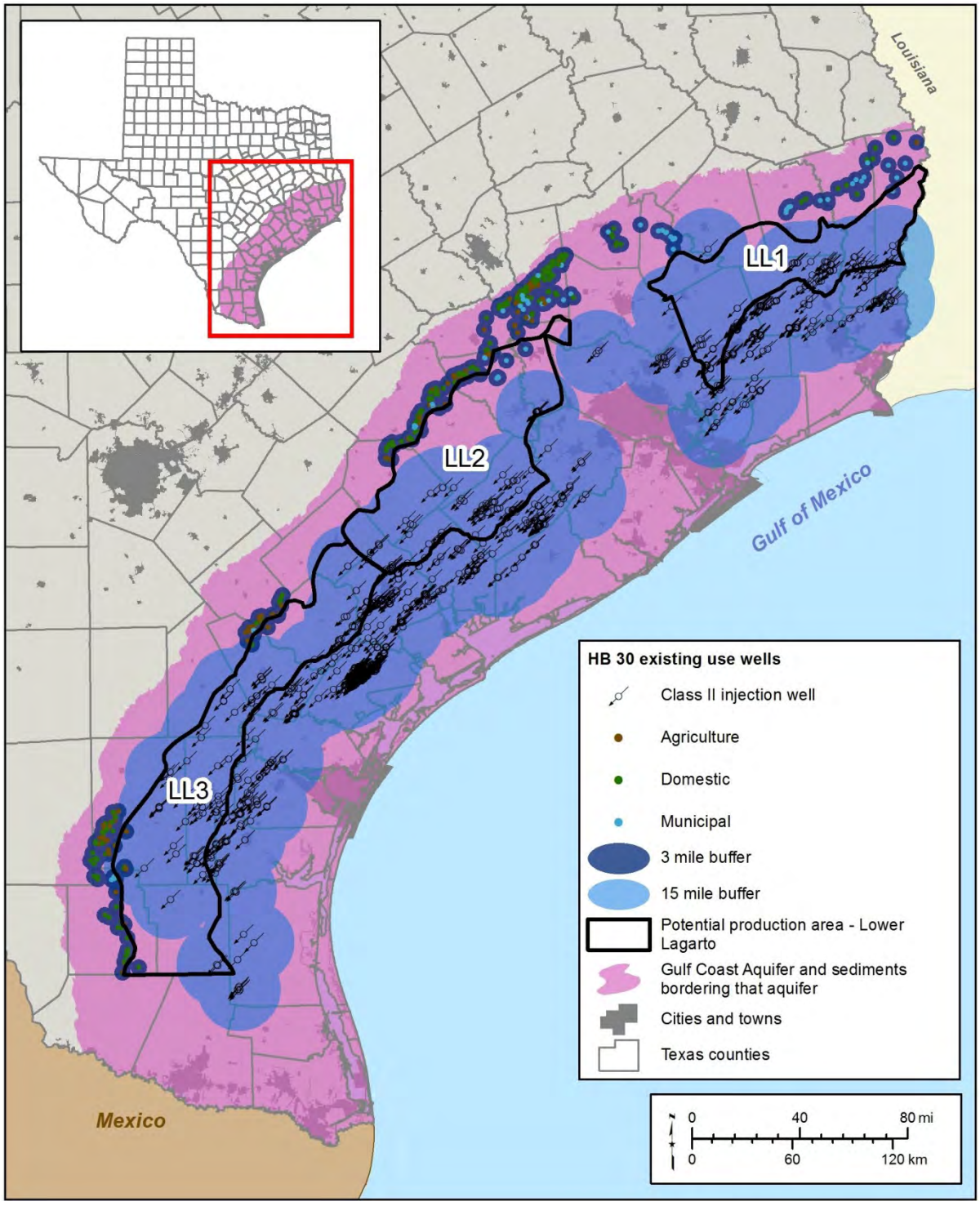


Figure 16. Lower Lagarto Formation showing potential production areas. Wells used to exclude areas from designation as brackish groundwater production zones include water wells (municipal, domestic, and agricultural) and injection wells (Class II). A three-mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. Water well and hydrogeologic barrier evaluations were only performed in areas not covered by a Class II injection well buffer. Water wells that do not meet House Bill 30 exclusion criteria are not shown.

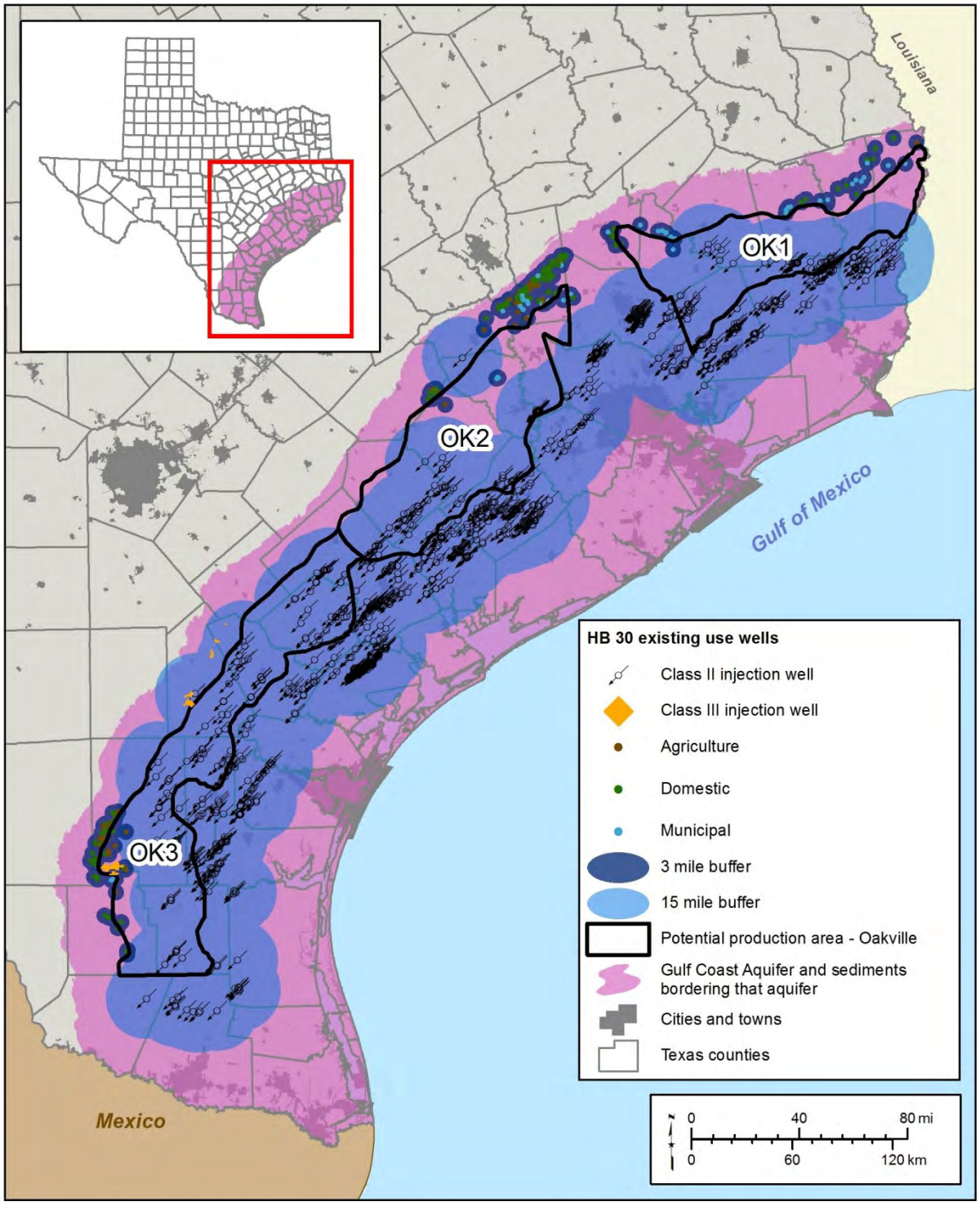


Figure 17. Oakville Formation showing potential production areas. Wells used to exclude areas from designation as brackish groundwater production zones include water wells (municipal, domestic, and agricultural) and injection wells (Class II). A three-mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. Water well and hydrogeologic barrier evaluations were only performed in areas not covered by a Class II injection well buffer. Water wells that do not meet House Bill 30 exclusion criteria are not shown. Class III injection well aquifer exemption areas in the Oakville Formation are excluded from zone designation.

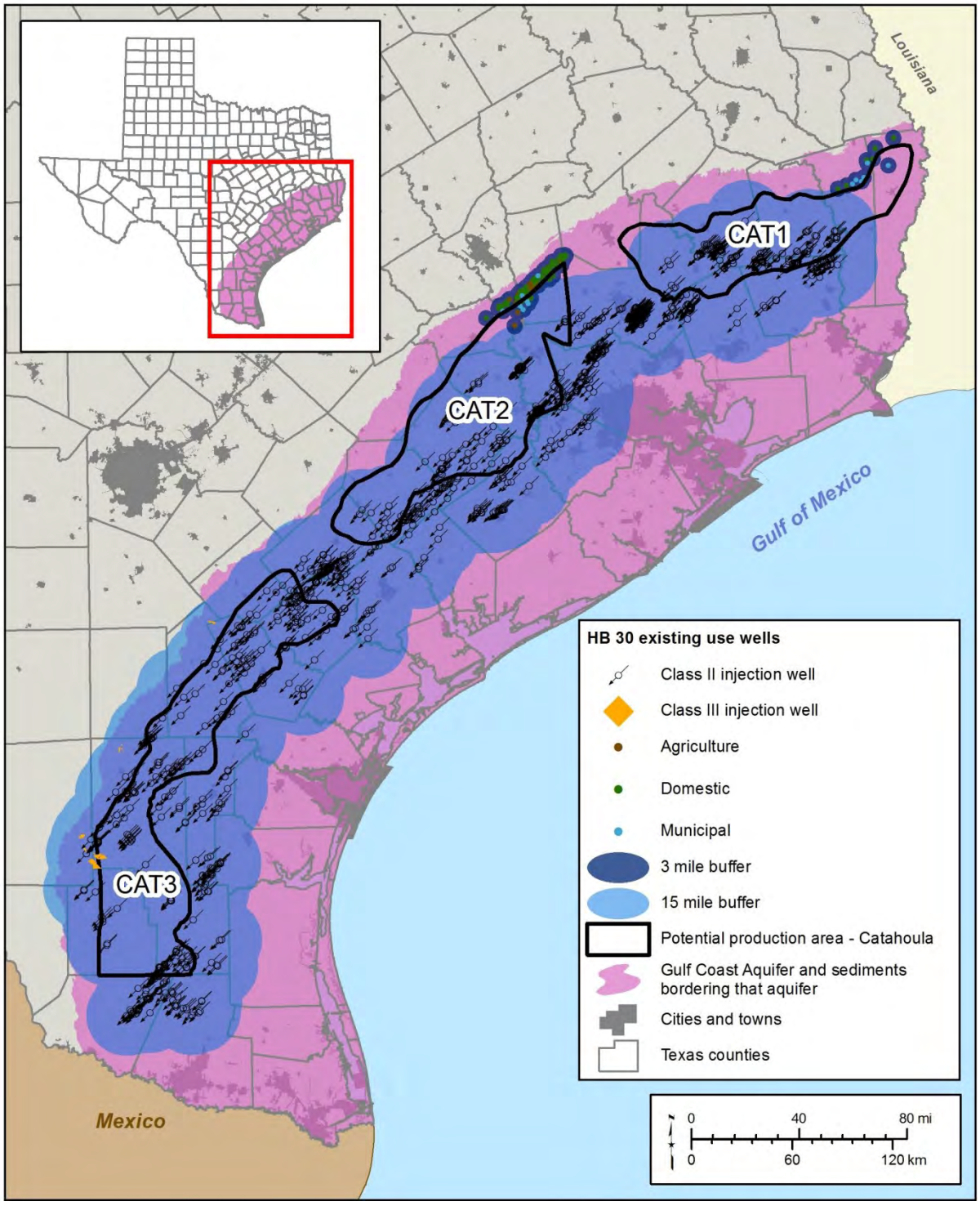


Figure 18. Catahoula Formation showing potential production areas. Wells used to exclude areas from designation as brackish groundwater production zones include water wells (municipal, domestic, and agricultural) and injection wells (Class II). A three-mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. Water well and hydrogeologic barrier evaluations were only performed in areas not covered by a Class II injection well buffer. Water wells that do not meet House Bill 30 exclusion criteria are not shown. Class III injection well aquifer exemption areas in the Catahoula Formation are excluded from zone designation.

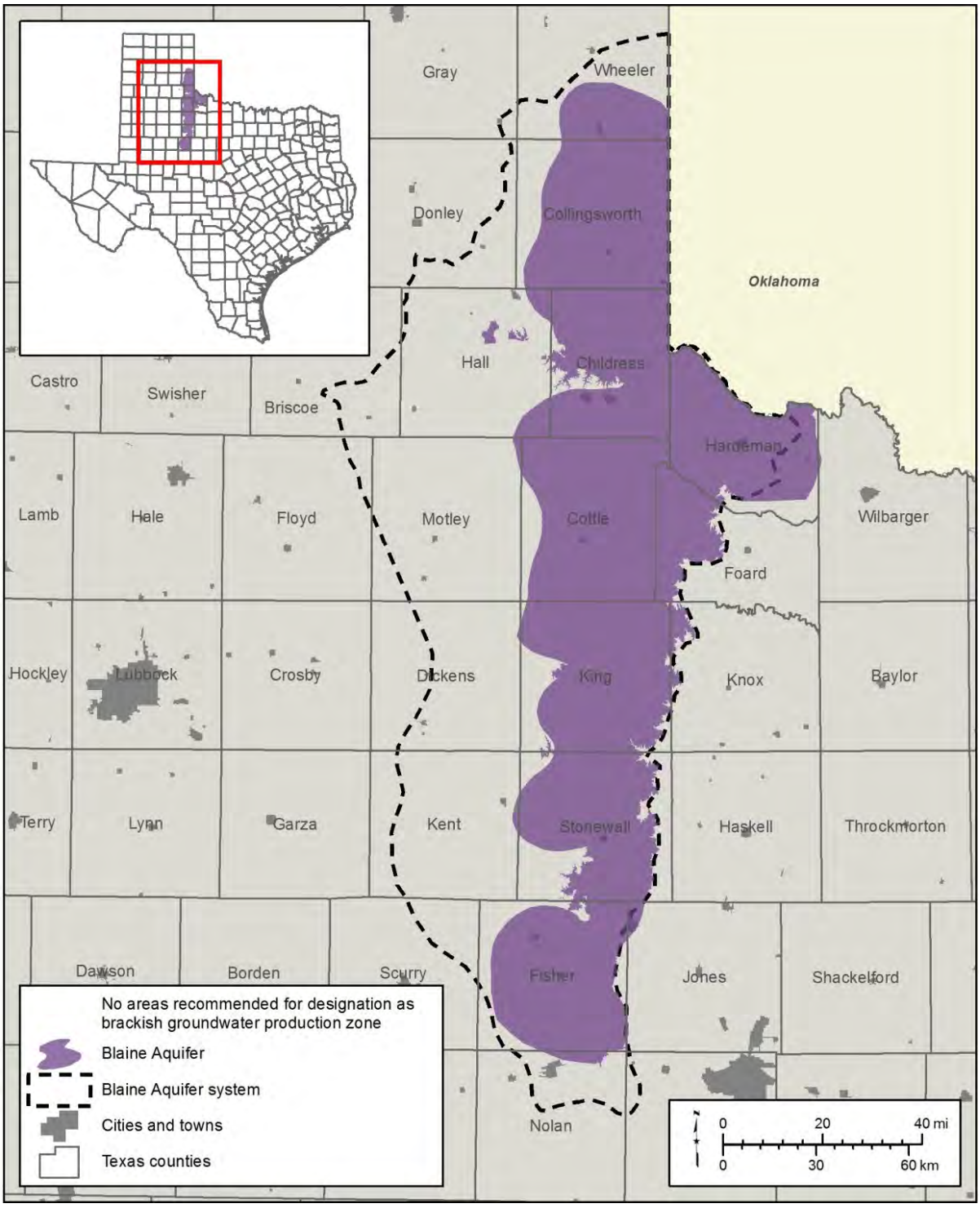


Figure 19. Blaine Aquifer. No areas are recommended for designation as brackish groundwater production zones.

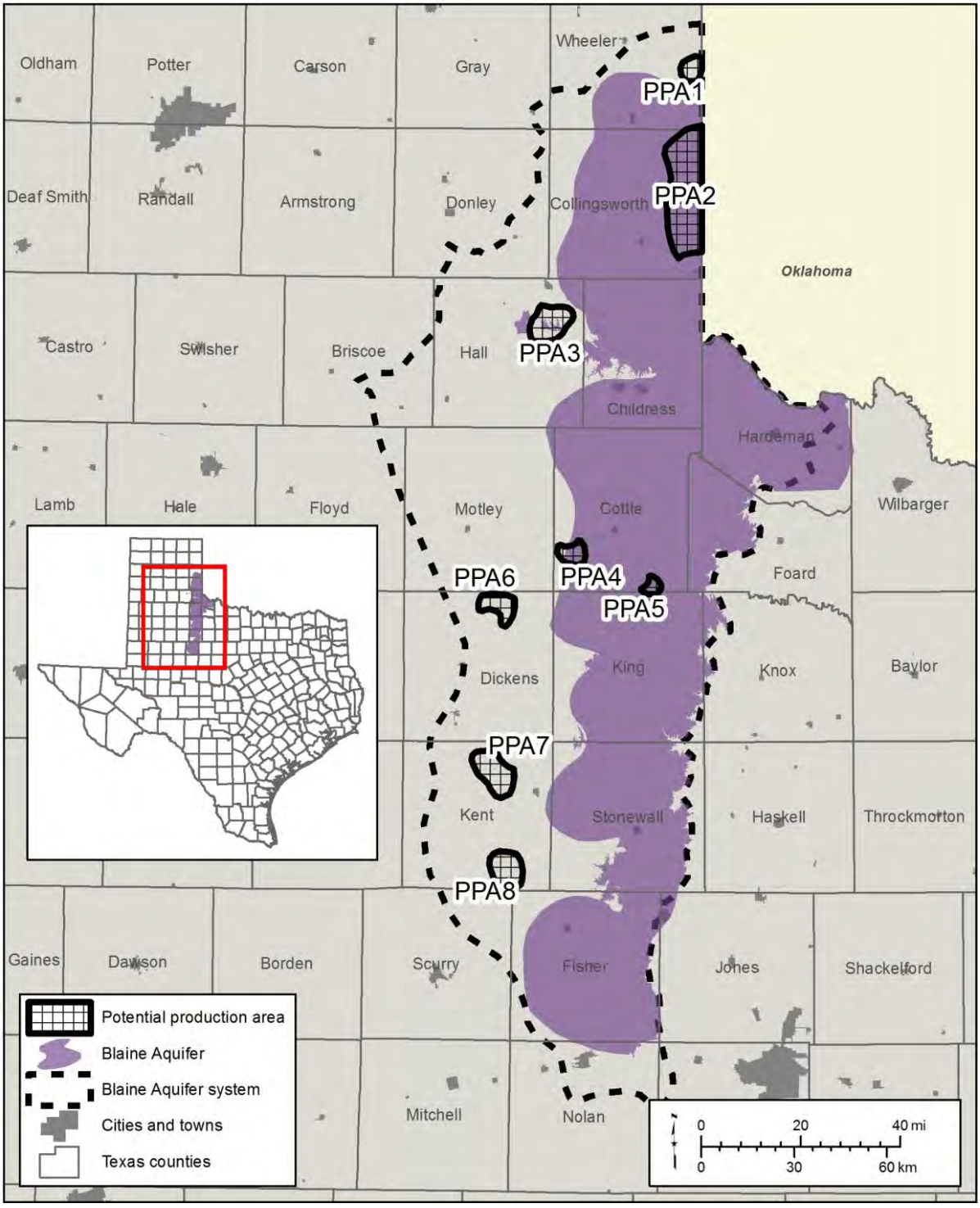


Figure 20. Blaine Aquifer showing eight potential production areas (PPA1, PPA2, PPA3, PPA4, PPA5, PPA6, PPA7, and PPA8). The areas were selected based on the potential for moderate to high productivity within the Blaine Aquifer and the lack of exclusion wells. Areas PPA1, PPA2, PPA3, PPA5, and PPA7 were removed from further consideration after additional well data were obtained and assessed.

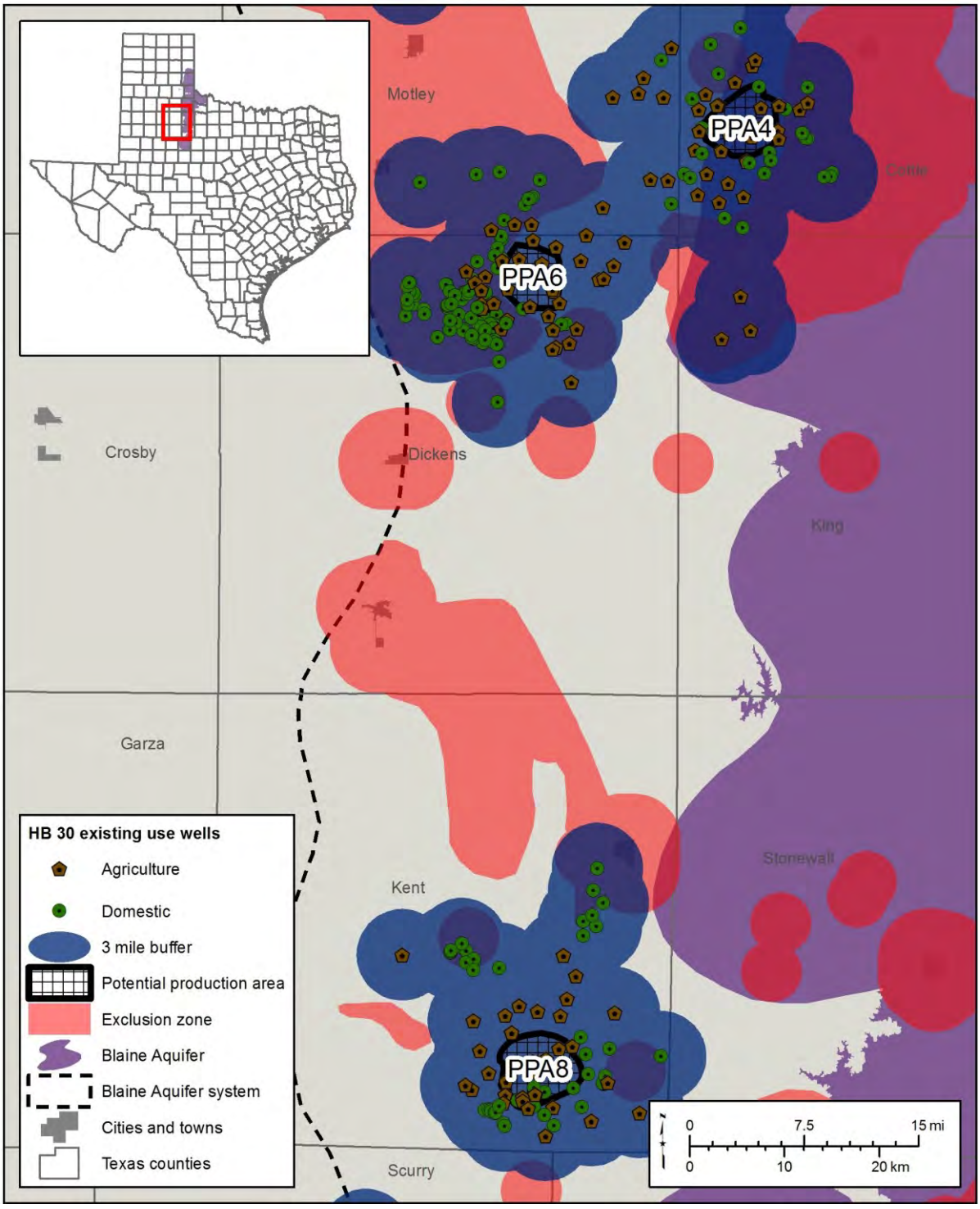


Figure 21. Blaine Aquifer showing water wells used to exclude areas from the remaining potential production areas (PPA4, PPA6, and PPA8). The wells included water wells (domestic, and agricultural). A three-mile buffer was placed around each water well. The area labeled “Exclusion zone” was based on initial data evaluation.

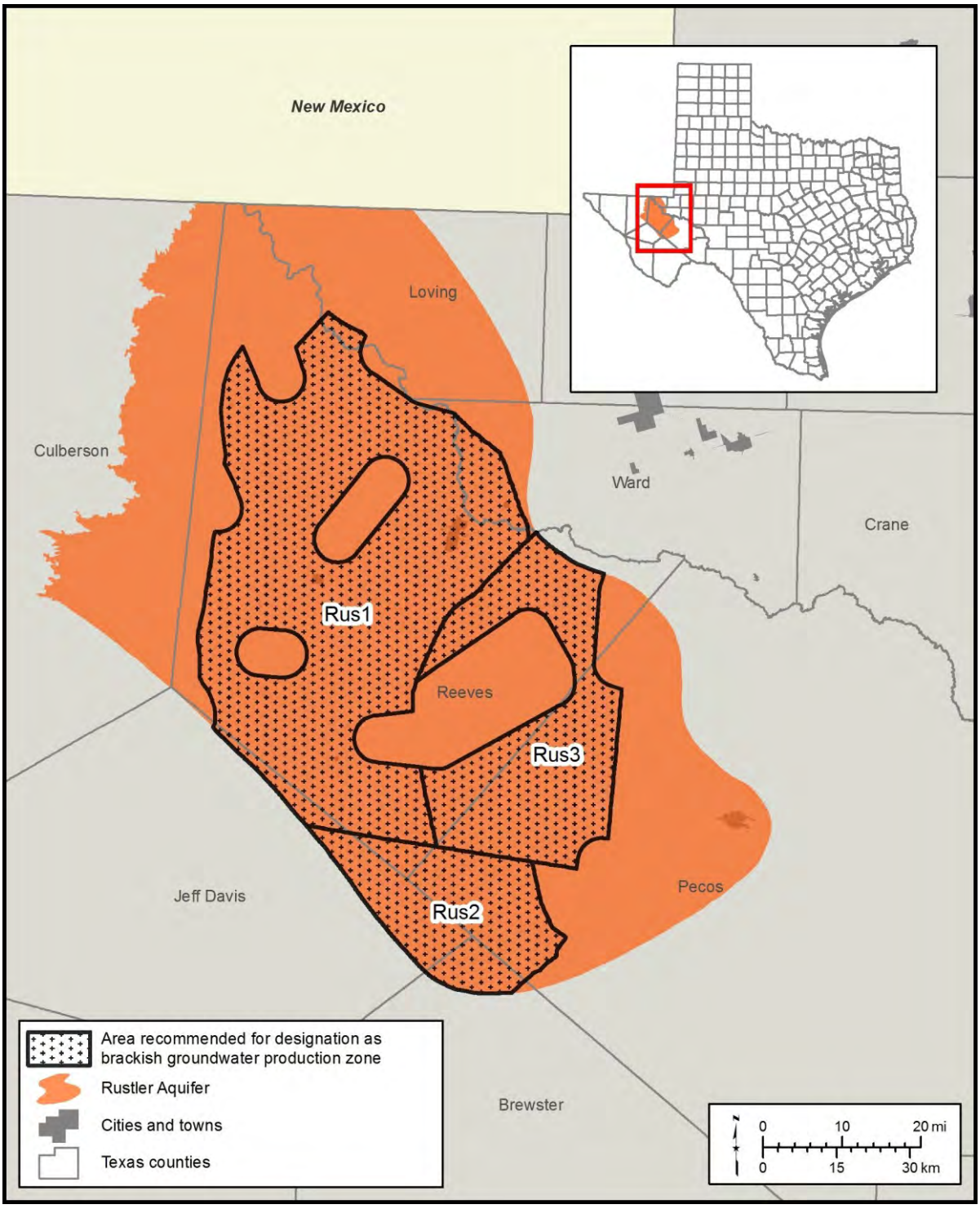


Figure 22. Rustler Aquifer showing three potential production areas (Rus 1, Rus 2, and Rus 3) recommended for designation as brackish groundwater production zones. The areas contain groundwater that is slightly saline (1,000 to 3,000 milligrams per liter of total dissolved solids) to moderately saline (3,000 to 10,000 milligrams per liter of total dissolved solids).

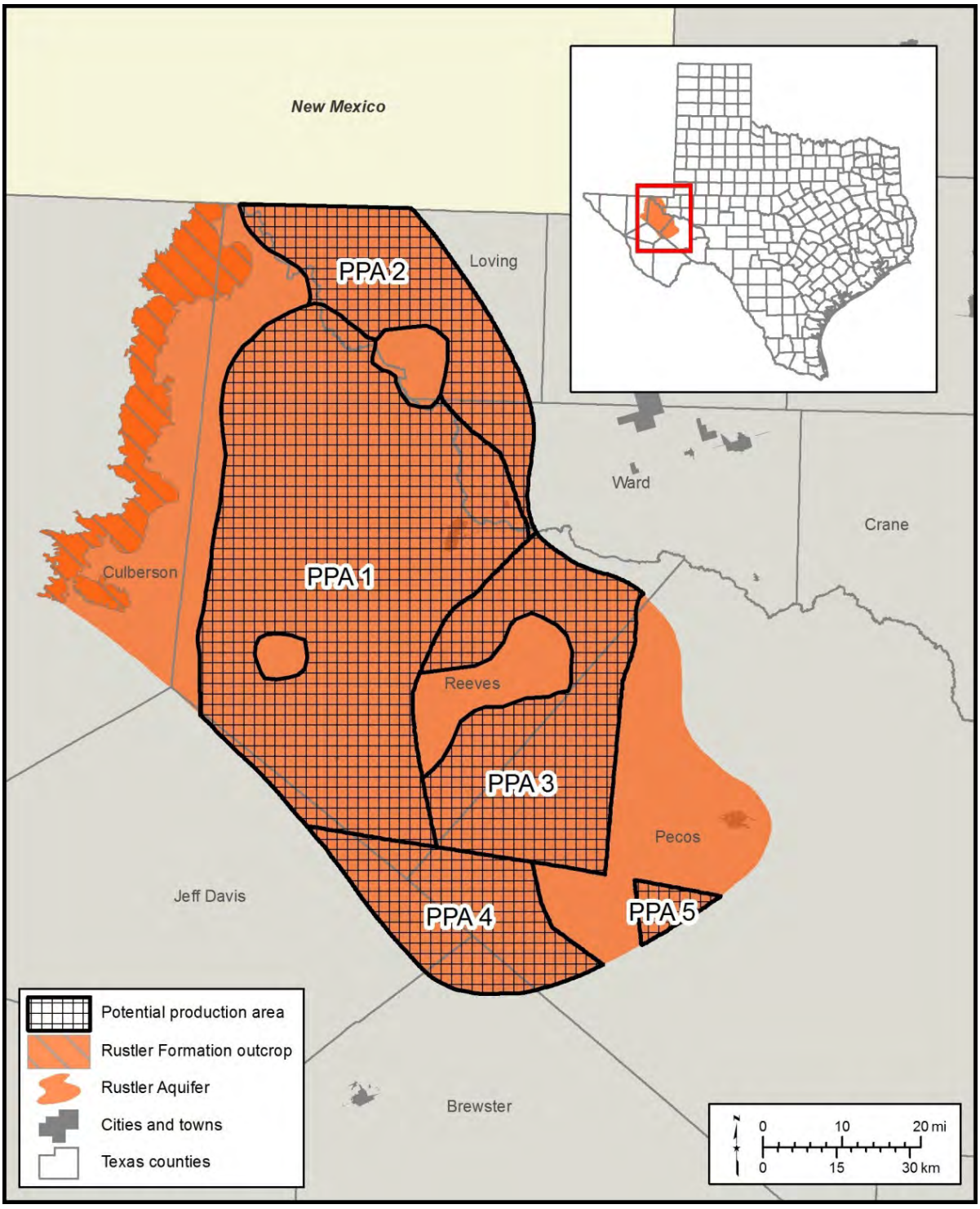


Figure 23. Rustler Aquifer showing five potential production areas (PPA1, PPA2, PPA3, PPA4, and PPA5). Areas not covered by a potential production area were excluded based on the presence of the Rustler outcrop, existing water wells, Class II injection wells, or anticipated low aquifer productivity.

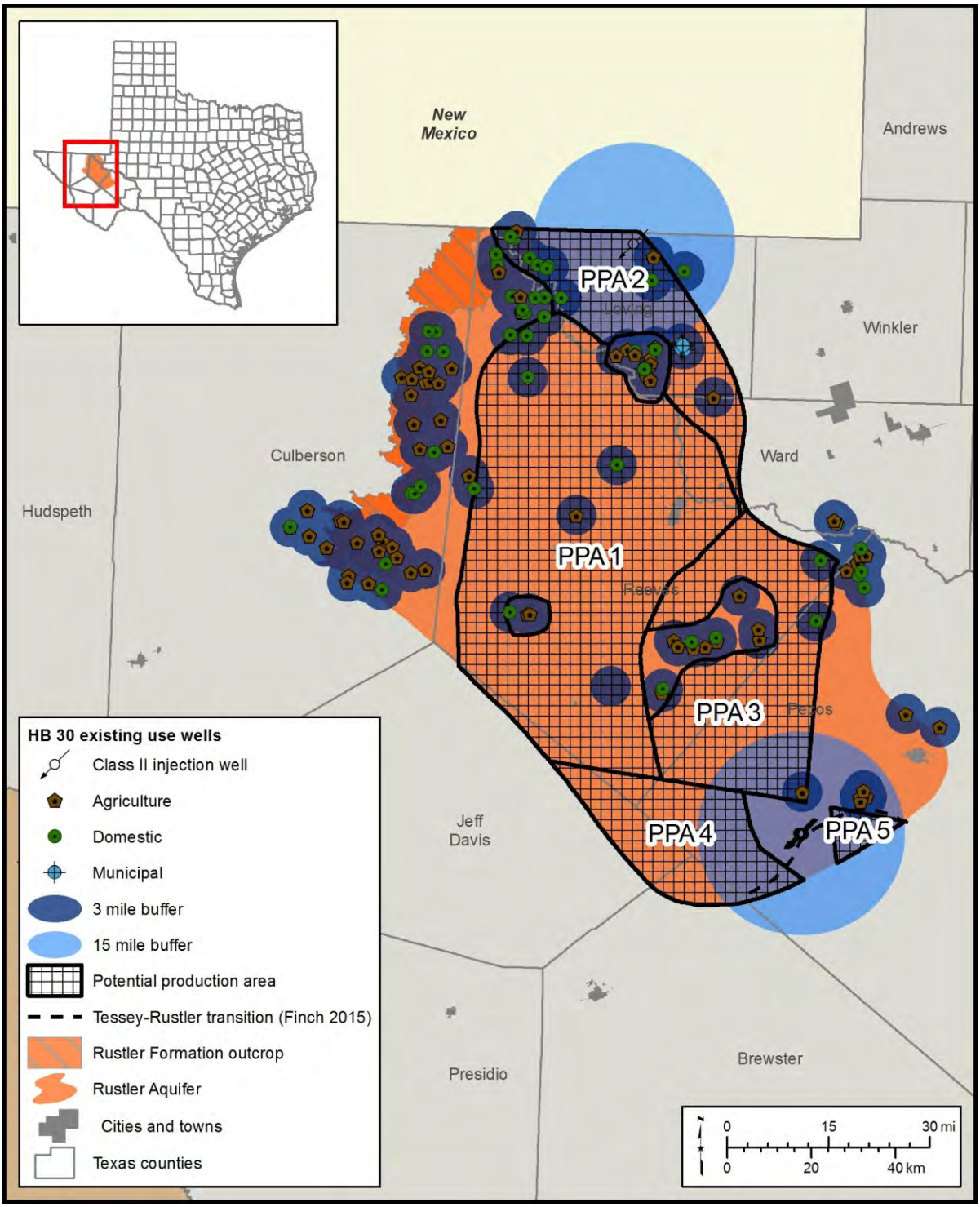


Figure 24. Rustler Aquifer showing wells used to exclude areas from designation as brackish groundwater production zones. The wells include water wells (municipal, domestic, and agricultural) and injection wells (Class II and III). A three-mile buffer was placed around each water well and a 15-mile buffer around each Class II injection well. The southern part of area PPA4 was trimmed to reflect the lack of a hydrogeologic barrier between the Rustler Formation and the transition into the Tessey Limestone. Water wells that do not meet House Bill 30 exclusion criteria are not shown.

Technical Memo 2

Title: Recommendations for Well Construction and Well Integrity Testing of Deep Brackish Groundwater Wells within Kenedy County Groundwater Conservation District

From: Venkatesh Uddameri, Ph.D. P.E.

To: Kenedy County Groundwater Conservation District

Date: 09/10/2020

Ensuring the physical integrity of deep wells is important especially if the wells tap into brackish groundwater aquifers. Damage to these wells can cause spread of saline water into upper zones and affect freshwater availability within a region. Therefore, deep wells must not only be constructed using best well construction practices but also be tested periodically to ensure that they do not pose undue risks to upper freshwater resources within the district.

Recommendations:

The following well construction and integrity testing guidelines are proposed here for deep wells to be constructed within KCGCD. These standards are required for all wells tapping into the BGPZs and the Burkeville Confining Unit and Jasper Aquifer within KCGCD. These practices are also recommended for those wells tapping into deeper portions of the Evangeline Aquifer (> 750 feet) within the district.

1. Well construction of deep wells should be consistent with the Texas Department of Licensing and Regulation (TDLR) construction regulations required for all wells. The wells should also meet the regulatory requirements for completion of wells seeking production of injurious water, and annular sealing requirements that prevent comingling of fresh and brackish groundwater, as detailed in the Chapter 76.101 of Texas Administrative Code) (see Figures 1 and 2)

APPENDIX B

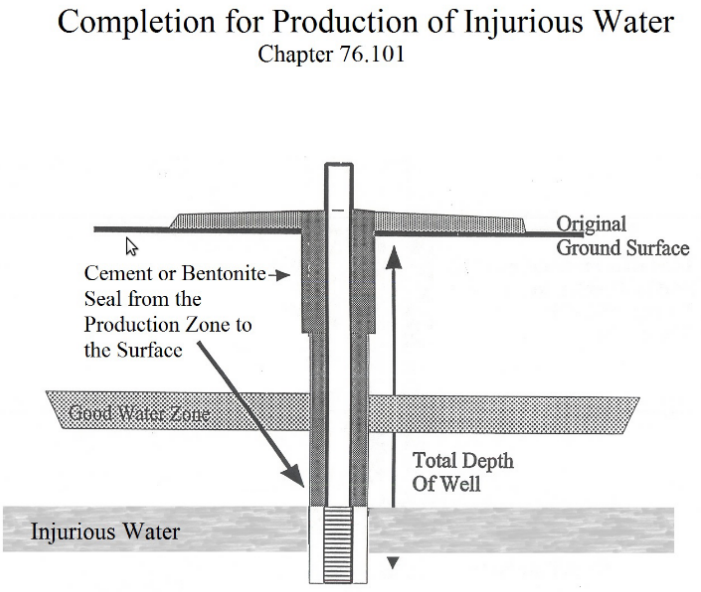


Figure 1: TDLR Well Completion Requirements for Brackish Groundwater Production Wells (Source TDLR)

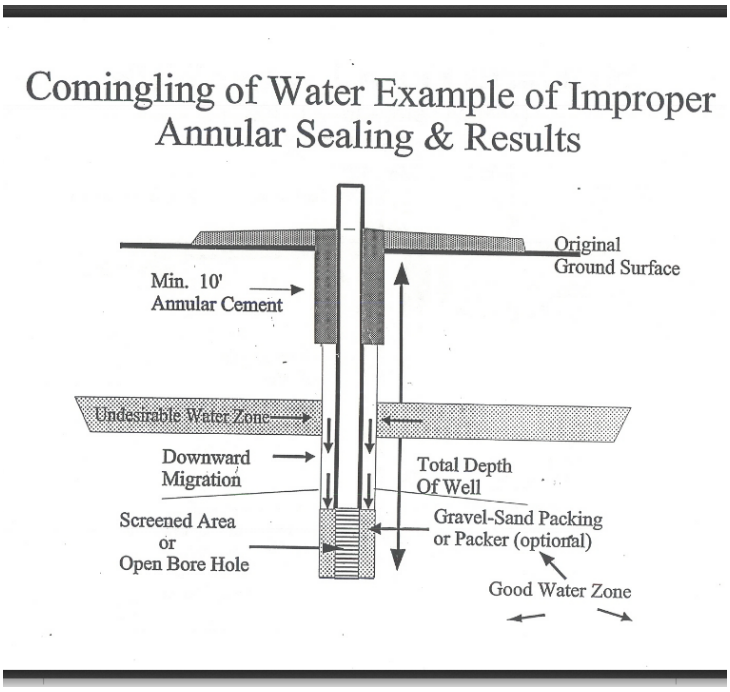


Figure 2: Annular Sealing Requirements to Prevent Comingling of Fresh and Saline Groundwater (Source TDLR)

2. An Area of Review (AoR) should be determined based on the projected cone of depression or extending within at least ¼ mile diameter of the well (whichever is greater). The AoR should be evaluated to identify any natural conduits or artificial penetrations that could cause upward movement of brackish water into freshwater zones. A plan for proper plugging of such conduits or penetrations must be prepared and completed prior to construction of the well.

3. A mechanical integrity test (MIT) such as the Standard Annular Pressure Test (SAPT) or the ADA Pressure Test (ADAPT) outlined in the 40 CFR §146.8(b)(1) Monitoring of Annulus Pressure MIT should be conducted at least once every 2 years to ensure the integrity of the tubing and casing materials used to pump water from deeper brackish zones.

4. A water injection slug test should be carried out at least once a year with high resolution monitoring of water level rise and fall of injected water in the well and should be evaluated to ensure any changes in connection between the casing and the screen with the surrounding aquifer. These tests also provide estimates of local hydraulic conductivity. Large variations in hydraulic conductivity obtained using Slug Tests indicate changes in connection between the well and the adjoining aquifer and warrant additional investigations pertaining to well integrity. It is recommended that these slug tests be carried out using ASTM D4044 / D4044M – 15 Standard Test Method for (Field Procedure) for Instantaneous Change in Head (Slug) Tests for Determining Hydraulic Properties of Aquifers. A 25% change in the measured hydraulic conductivity in either direction from the previous year's data should be followed up with a MIT and borehole video inspection.

5. Video inspection of deep brackish wells should be carried out at least once a year to document well annulus and screening performance. These videos will provide information related to long-term performance of the wells.

6. Any change in operating conditions (e.g., loss of artesian pressure, reduction in well yields) should trigger an investigation related to well integrity and be followed up with a monitoring and testing plan involving one or more methods outlined above. The changes in operating conditions, if any, must be brought to the attention of the district within 10 business days of the discovery of the incident.

APPENDIX G

References

References

Allen, S. 2022. Estimated Historical Groundwater Use and 2022 State Water Plan Datasets: Kenedy County Groundwater Conservation District. Texas Water Development Board Unpublished Report Jan. 10, 2022 p 41

Baker, E.T., 1979. Stratigraphic and hydrogeologic framework of part of the coastal plain of Texas (Vol. 77, No. 712). Texas department of water resources.

Cha, K., 2022. GAM RUN 21-021 MAG: Modeled Available Groundwater for the Gulf Coast Aquifer System in Groundwater Management Area 16; Texas Water Development Board, unpublished report, p 15.

Chowdhury, A.H., Wade, S., Mace, R.E. and Ridgeway, C., 2004. Groundwater availability model of the central gulf coast aquifer system: numerical simulations through 1999. Texas Water Development Board, unpublished report, p.14.

Chowdhury A. H. and Mace, R. E., 2007 Groundwater Resource Evaluation and Availability Model of the Gulf Coast Aquifer in the Lower Rio Grande Valley of Texas. Texas Water Development Board, Report 368 , Austin Texas. P 119

Dowlearn G., S. C. Wade. 2022 GAM Run 22-003: Kenedy County Groundwater Conservation District Management Plan. Texas Water Development Board Unpublished Report March 22, 2022 p 11

Hutchison, W. R., M. Hill, R. Anaya, M. M. Hassan, W. Oliver, M. Jigmond, S. Wade, E. Aschenbach., 2011 Groundwater Management Area 16 Groundwater Flow Model. 2011. Texas Water Development Board, unpublished report, p. 296.

Knox, P.R., Young, S.C., Hamlin, H.S., Baker Jr, E.T., Kalbouss, R.A. and Budge, T., 2010. Heterogeneity of the Gulf Coast Aquifer, Brazos River to Rio Grande, Texas.

Shafer, G.H. and Baker, E.T. Jr.,1973, Ground-Water Resources of Kleberg, Kenedy, and Southern Jim Wells Counties, Texas, United States Geological Survey, Texas Water Development Board Report 173, p 162.