BEE GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN

Bee Groundwater Conservation District
PO Box 682
Beeville, TX 78104
beegcd@yahoo.com
361-449-7017
Lonnie Stewart, General Manager

Bee Groundwater Conservation District
Management Plan
Adopted 01/25/2024

DISTRICT MISSION

The Bee Groundwater Conservation District will strive to develop, promote, and implement water conservation, augmentation, and management strategies to protect water resources for the benefit of the citizens, economy, and environment of the district.

TIME PERIOD FOR THIS PLAN

This plan becomes effective upon approval by the Texas Water Development Board and remains in effect until a revised plan is approved or 01/25/2024, whichever is earlier.
The planning period for the management plan is ten (10) years, but the plan must be updated and approved every five (5) years.

STATEMENT OF GUIDING PRINCIPLES

The district recognizes that the groundwater resources of the region are of vital importance. The preservation of this most valuable resource can be managed in a prudent and cost effective manner through regulation and permitting. This management document is intended as a tool to focus the thoughts and actions of those given the responsibility for the execution of district activities.

General Description

The District was created by the citizens of Bee County through an election, January 2001. The current Board of Directors are Tryne Mengers - Chairman, Ellis McKiney-Vice-Chairman, Mark Sugarek - Secretary, David Baker - Treasurer, Robbie Peters, Doug Arnold, and Bill Fox, Bee Groundwater Conservation District (BGCD) has the same areal extent as that of Bee County except that the Pettus Water Supply Corporation, the Tynan Water Supply Corporation, and the city of Beeville as the boundaries existed on January 1, 1997 for each of these entities is excluded. The county has a vibrant economy dominated by agriculture and petroleum. The agriculture income is derived primarily from beef cattle production, wheat, corn, sorghum, and cotton, with some sheep and goat ranching.

Location and Extent

Bee County, consisting of 880 square miles, is located in South Texas. The county is bounded on the east by Karnes, and Goliad Counties, on the north by Karnes County, on the west by Live Oak County, and on the south by San Patricio County. Beeville,

which is centrally located in the county, is the county seat. There are not any municipalities in the county except Beeville which is not within the district's boundaries.

Topography, Drainage, Recharge, and Groundwater Resources of Bee County

Bee County is on the Gulf Coastal Plain in southern Texas. Most the 880 square miles of the county are devoted to farming and ranching, which provide the principal income for the 19,230 inhabitants. The production of oil is also an important industry.

The principal water-bearing formations underlying the county are the Carrizo Sand, Oakville Sandstone, Lagarto Clay, and Goliad Sand formations, and range in age from Eocene to Pliocene. The formation dip toward the coast at rates ranging from less than 20 to about 140 feet to the mile.

Some livestock supplies were obtained from surface-water sources. In Bee County the water-bearing sands above a depth of 2,000 feet contain approximately 20 million acre-feet of fresh and slightly saline water. Even though it may be impractical to recover much of the stored water, the rate of withdrawal could be increased several times more than the 1957 rate without appreciably depleting the water available from storage for many decades. A large but unestimated amount of fresh to slightly saline water occurs in the Carrizo sand in the northern and northwestern parts of the county at depths as much as 6,000 feet. Most of the water in the Carrizo sand in Bee County is more than 4,000 feet below land surface and therefore is too deeply buried to be economically developed for most uses.

Most of the ground water in Bee County is substandard in quality for municipal, industrial, and irrigation uses. However, because better water is not available in most areas in the county, users of all three categories have used substandard water successfully. Generally the Goliad Sand contains water of better quality than that in any formation except the Carrizo Sand. In favorable areas properly constructed wells in the Carrizo, Oakville, Lagarto, and Goliad may yield 1,000 gallons per minute or more. Yields from wells tapping the other water-bearing formations generally are small and the water commonly is suitable only for livestock.
The GAM run for the Carrizo-Wilcox indicates that does not have any direct infiltration recharge in Bee County due to no surficial exposure of the aquifer units. All of the recharge in the District occurs in the Gulf Coast Aquifer System and is reported to be 57,398 acre feet per year in GAM run 23-016 report. According to TWDB Report 17, **Ground-Water Resources of Bee County, Texas,** by B.N. Meyers and O.C. Dale, U.S. Geological Survey, February 1966, the approximate recharge to the Gulf Coast Aquifer System in Bee County is 9,000 acre-feet per year. Enhanced precipitation would improve recharge. However, most of the precipitation that falls in the county runs off in steams, evaporates, or is transpired by plants. The remaining water, probably less than five percent, may reach the zone of saturation where it moves slowly toward an area of discharge such as a well, natural outlet, or, under artesian pressure, it may seep or

percolate slowly upward into overlying beds. Recharge could be enhanced by several methods: brush control, additional precipitation, and additional tanks to catch runoff from excessive precipitation.

Data Procurement

All of the data relating to water usage was derived from the Texas Water Development Board. The data includes the entire county whereas the District excludes the Tynan Water Supply Corp. , Pettus Water Supply Corporation, and the City of Beeville. **These fiqures do not represent the District amount, but rather the total for Bee County. Given the District encompasses all of Bee County except the City of Beeville, the data included in the following section are the best available estimates.**

Bee G.C.D. Areal Extent Estimation

County	County TOTAL Area (acres)	Bee G.C.D. Area (acres)	Percent of Total County Area (%)	Percent of Total County Area
Bee	562337.001	557743.2	**99.18**	**0.9918**

The Bee Groundwater Conservation District Management Plan Estimated Historical Water Use and 2017 State Water Plan Datasets is provided in Appendix A provided by the Texas Water Development Board.

The MAG values from GAM run 21-020 MAG and GAM run 21-021 MAG can be found in Appendix A.

Actions, Procedures, Performance and Avoidance for Plan Implementation

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 adopted rules relating to the permitting of wells and the production of groundwater. The rules adopted by the District shall be 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 rules are available on our website www.beegcd.com.

Methodology for Tracking the District's Progress in Achieving Management Goals

The District manager will prepare and present an annual report to the Board of Directors on District performance in regards to achieving management goals and objectives. The presentation of the report will occur during the last monthly Board meeting each fiscal year, beginning December 31, 2003. The report will include the number of instances in which each of the activities specified in the District's management objectives was engaged in during the fiscal year. The District Board will maintain the report on file, for public inspection at the District's offices upon adoption. This methodology will apply to all management goals contained within this plan.

Management of Groundwater Supplies

The District will manage the supply of groundwater within the District in order to conserve the resource while seeking to maintain the economic viability of all resource user groups, public and private. In consideration of the economic and cultural activities occurring within the District, the District will identify and engage in such activities and practices that, if implemented, would result in a reduction of groundwater use. A monitor well observation network shall be established and maintained in order to evaluate changing conditions of groundwater supplies (water in storage) within the District. The District will undertake, as necessary and cooperate with investigations of the groundwater resources within the District and will make the results of investigations available to the public upon adoption by the District Board.

The District adopted rules to regulate groundwater withdrawals by means of well spacing and production limits. The District may deny a well construction permit or limit groundwater withdrawals in accordance with the guidelines stated in the rules of the District. In making a determination to deny a permit or limit groundwater withdrawals, the District will consider the public benefit against individual hardship after considering all appropriate testimony.

In pursuit of the Districts mission of protecting the resource, the District may require reduction of groundwater withdrawals to amounts, which will not cause harm to the aquifer. To achieve this purpose, the District may, at the District Boards discretion, amend or revoke any permits after notice and hearing. The determination to seek the amendment or revocation of a permit by the District will be based on aquifer conditions observed by the District. 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 (TWC) 36.102.

The estimate of annual amount of recharge from precipitation, annual volume of discharge and other data can be found in Appendix A under Groundwater Availability Model Run 23-016. The District considered the water supply needs and water management strategies included in the state water plan. The District considered the water management strategies for several proposed projects and determined the projects were within the District rules and MAG.

The rules for Bee GCD can be found at our website: www.beegcd.com.

Water Management Strategies to Meet Water User Group Needs

The District considered the water management strategies included in the state water plan. The District considered the management strategies identified in the State Water Plan including development of supplies from the Gulf Coast Aquifer System, the Gulf of Mexico, direct reuse, demand reduction, and treatment plant improvement for irrigation, mining, and manufacturing.

The estimated projected water management strategies are available in Appendix A.

Projected Water Supply Needs

The projected water supply needs identified for Bee County are in the following categories: irrigation, mining, and manufacturing. The need are estimated to be 2,477 acre-feet/year in 2020 and 2,361 acre-feet/year in 2070. The District has considered the projected water supply needs identified.

The estimated projected water supply needs are available in Appendix A.

BEE GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

MISSION STATEMENT

The mission of the Bee Groundwater Water Conservation District is to protect and assure a sufficient quantity and quality of groundwater for our constituents use.
We value:

*Collection and maintenance of data on water quantity and quality
*Efficient use of groundwater
*Conjunctive water management issues
*Development and enforcement of water district rules concerning conservation of ground water.

Management Goals, Objectives, and Performance Standards

Resource Goals

Goal 1.0: Addressing the most efficient use of groundwater

Management Objective:

Each year the District will provide education materials concerning the efficient use of groundwater.

Performance standard:

Provide educational materials to at least one school annually.

Goal 2.0: Addressing Controlling and preventing waste of groundwater

Management Objective:

Measure water levels from the land surface on strategic wells on an annual basis and report waste to the District Board.
The District will investigate instances of suspect waste of groundwater within 72 hours of receiving complaints.

Performance standard:

(a) Report to the District Board annually the number of water level measurements.
(b) District Staff will report to the Board of Directors as needed regarding potential waste of groundwater and include the number of investigations in the annual report.

Goal 3.0: Addressing Controlling and preventing subsidence

The District has reviewed the report: Identification of the Vulnerability of the Major and Minor Aquifers in Texas to Subsidence with regard to Groundwater Pumping – TWDB Contract Number 1648302062 by LRE Water: http://www.twdb.texas.gov/groundwater/models/research/subsidence/subsidence.asp. Figure 4.23 of the subsidence report illustrates that the major aquifer subsidence risk within the District boundaries ranges from medium to the high range. Due to the amount of current pumping, subsidence is not expected to occur, but the District will monitor any potential pumping that may affect subsidence. This goal is currently not applicable.

Goal 4.0: Addressing Conjunctive surface water management issues

Management Objective:

The District will participate in the regional planning process by attending the Region N regional water planning group meetings to encourage the development of surface water supplies to meet the needs of water user groups within the District.

Performance Standard:

The District or District representative will attend, at least, one meeting of the Region N regional water planning group and report to the board in the Annual Report.

Goal 5.0: Addressing Natural Resource Issues

Management Objective:

The District will investigate issues related to environmental and other concerns that may be affected by a district's groundwater management plan and rules, such as impacts on endangered species, soils, oil and gas production, mining, air and water quality degradation, agriculture, and plant and animal life.

Performance Standard:

The District will investigate reports of any issues related to environmental and other concerns that may be affected by a district's groundwater management plan and rules, such as impacts on endangered species, soils, oil and gas production, mining, air and water quality degradation, agriculture, and plant and animal life within 120 days of receiving the report. Any reports will be presented to the board at the next scheduled meeting. The annual report will include the number of wells plugged.

Goal 6.0: Addressing Drought Conditions

Management Objective:

The District will monitor the Palmer Drought Severity Index (PDSI). The link to the Drought index is www.waterdatafortexas.org/drought

Performance Standard:

A report of the U S Drought Monitor will be presented to the District board on an annual basis: https://droughtmonitor.unl.edu . This link and additional links to important information on drought can be accessed at the TWDB's Water Data for Texas website: www.waterdatafortexas.org/drought
The District will cooperate with other interested parties and appropriate agencies to develop additional information on aquifer recharge.

Goal 7.0: Addressing Conservation

Management Objective:

Each year the District will make educational material to the public promoting conservation methods and concepts.

Performance Objective:

The District will make at least one educational brochure available per year through service organizations, and on a continuing basis at the District office.

Goal 8.0: Addressing Precipitation Enhancement

Management Objective:

The District will participate in the South Texas Weather Modification Program.

Performance Standard:

A district representative will attend a meeting of the South Texas Weather Modification Association annually. The representative to STWMA will report to the board on the annual evaluation that performed by a consultant yearly.

Goal 9.0: Addressing Recharge Enhancement

This goal is not applicable to the District because, at the current time, it is cost prohibitive.

Goal 10.0: Addressing Rainwater Harvesting

This goal is not applicable to the District because, at the current time, it is cost prohibitive.

Goal 11.0: Addressing Brush Control

This goal is not applicable to the District because, at the current time, it is cost prohibitive.

Goal 12.0: Addressing Desired future condition of the groundwater resource

Management Objective:

The District will review and calculate its permit and well registration totals in light of the Desired Future Conditions of the groundwater resources within the boundaries of the District to assess whether the District is on target to meet the Desired Future Conditions estimates submitted to the TWDB.

Performance Standard:

The District's Annual Report will include a discussion of the District's permit and well registration totals and will evaluate the District's progress in achieving the Desired Future Conditions of the groundwater resources within the boundaries of the District and whether the District is on track to maintain the Desired Future Conditions estimates over the 50-year planning period.

Management Objective:

The District will annually measure the water levels in at least three monitoring wells within the District and will determine the five-year water level averages based on the measures taken.
The District will compare the five-year water level averages to the corresponding five-year increment of its Desired Future Conditions in order to track its progress in achieving the Desired Future Conditions.

Performance Standard:

The District's Annual Report will include the water level measure taken each year for the purpose of measuring water levels to assess the District's progress towards achieving its Desired Future Conditions. The District will include a discussion of its comparison of water level averages to the corresponding five-year increment of its Desired Future Conditions in order to track its progress in achieving its Desired Future Conditions. Any water measurements taken by the TWDB or USGS will, also, be considered.

RESOLUTION 01/25/2024

Whereas, the Bee Groundwater Conservation District has held the appropriate public hearings, and;

Whereas, the District has presented the management plan to the county officials, the Nueces River Authority, the San Antonio River Authority, and Region N Water Planning Group.

Whereas, the District has followed the rules set forth by the statutes in Chapter 36 of the Texas Water Code and the TWDB.

Now, Therefore be it Resolved, that the Bee Groundwater Conservation District voted to approve the District management plan.

Ayes_____ Nays _____ Not Present _____

Passed and Approved this the 25th day of January 2024.

_____ Attest by:_____

Tryne Mengers, President Mark Sugarek, Secretary

Appendix A