COKE COUNTY
UNDERGROUND WATER
CONSERVATION DISTRICT

MANAGEMENT PLAN

2023-2028

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Coke County Underground Water Conservation District

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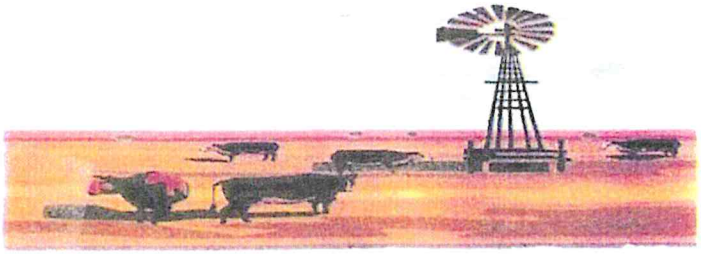

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COKE COUNTY UNDERGROUND
WATER CONSERVATION DISTRICT

DISTRICT MISSION

The overall objective of the Coke County Underground Water Conservation District (District) is to preserve the integrity of the groundwater in the aquifer over which the land in the District is located. This objective may be accomplished as the District provides for the conservation, preservation, protection, recharge. and prevention of waste of the groundwater reservoirs. This groundwater management plan will help provide guidance to accomplish the overall objective of the District. The plan is an open-ended document and can be revised or updated as needed to help meet the District goals and objectives.

PURPOSE OF MANAGEMENT PLAN

The 75th Texas Legislative in 1997 enacted Senate Bill 1 ("SB I") to establish a comprehensive statewide water planning process. SB I contained provisions that required groundwater conservation districts to prepare management plan to identify the water supply resources and water demands that will shape the decisions of each district. SB I designed the plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries. In 200 I, the Texas Legislature enacted Senate Bill 2 ("SB2") to build on the planning requirements of SB I and to future clarify the actions necessary for districts to manage and conserve the groundwater resources of the state of Texas.

The Texas Legislative enacted significant changes to the management of groundwater resources in Texas with the passage of House Bill 1763 (HB 1763) in 2005. HB 1763 created a long-term planning process in which groundwater conservative districts (GCDs) in each Groundwater Management Area (GMA) are required to meet and determine the Desired Future Conditions (DFCs) for the groundwater resources within their boundaries by September J, 2010. In addition, HB 1763 required GCDs. to share management plans with the other GCDs in the GMA for review by the other GCDs.

The Coke County Underground Water Conservation District's groundwater management plan satisfies the statutory requirements of Chapter 36 of the Texas Water Code, and the administrative requirements of the Texas Water Development Board's (TWDB) rules.

REGIONAL COOPERATION AND COORDINATION

The District is a member of the West Texas Regional Groundwater Alliance (WTRGA). This WTRGA consists of seventeen (17) locally created and locally funded districts that encompass approximately eighteen (18.2) million acres or twenty-eight thousand three hundred sixty-eight (28.368) square miles of West Texas.

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

Coke County UWCD	(1988)	Crockett County GCD	(1992)	Glasscock County GCD	(1988)
Hickory UWCD No. 1	(1997)	Hill Country UWCD	(2005)	Irion County WCD	(1988)
Kimble County GCD	(2004)	Lipan-Kickapoo GCD	(1989)	Lone Wolf GCD	(2002)
Menard County UWD	(2000)	Middle Pecos GCD	(2005)	Permian Basin UWCD	(2006)
Plateau UWCSD	(1991)	Santa Rita UWCD	(1990)	Sterling County UWCD	(1988)
Sutton County UWCD	(1991)	Wes-Tex GCD	(2005)		

This Alliance was created because the local districts have a common objective to facilitate the conservation, preservation, and beneficial use of water and related resources. Local districts monitor the water-related activities of the State's largest industries such as farming and ranching, oil an gas and municipalities. The alliance provides coordination essential to the activities of these member districts as they monitor these activities to accomplish their objectives.

TIME PERIOD FOR THIS PLAN

This amended plan becomes effective upon adoption by the Board of Directors and reapproved by the Texas Water Development Board executive administrator due to change in statue several years ago. The plan remains in effect for ten years with the required review and re-adoption, with or without revisions, every five years.

STATEMENT OF GUIDING PRINCIPLE

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. The greatest threat to prevent the District from achieving the stated mission *is* inappropriate management. based in part on a lack of understanding of local conditions. A basic understanding of the aquifers and their hydrogeologic properties, as well as a quantification of resources is the foundation from which to build prudent planning measures. 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 Coke County Underground Water District was created by Acts of 69th Legislature (1985). p. 6960. Ch. 950. H.B. 2418 under authority y of Articles XVI, Section 59 of the Constitution of Texas.

The residents confirmed the District and voted to fund the District operations through local property taxes. It became an active district on April 5. 1986.

On April 5. 1986. the District adopted rules and by-laws which became effective immediately and on this date the District adopted a management plan. With the adoption of these rules, the District implemented a well permitting and registration program. The current members of the Board of Directors are: President Wes Washam, Vice-President Mike Arrott, Secretary Jimmie Byrne and members Mike Pinard, Tim Smith. The District General Manager is Jnae Walls. The Coke County UWCD covers all of Coke County. Recreational areas include golf, hunting and fishing.

LOCATION AND EXTENT

The District has an area extent of 911 square miles located approximately 32 miles north of San Angelo and 65 miles southwest of Abilene. The population of the District was about 3,285 in 2020. Two incorporated cities lie within the boundaries of the District: Robert Lee, the county seat and Bronte.

The economy of Coke County is based on ranching. Farming, oil and gas production. The annual income from agriculture is derived from: cattle. sheep and goats' sales. The water used in Coke County comes from both groundwater and surface water sources. The District has one small lake: Mountain Creek and two major reservoirs in the county impounding surface water runoff. The largest reservoir is E.V. Spence Reservoir which is formed on the Colorado River near Robert Lee. Oak Creek Reservoir is in the northeast corner of the county and furnishes water to the towns of Sweetwater, Bronte, Robert Lee and Blackwell. Bronte's water well field supplements Oak Creek water. Water for livestock needs is furnished by either small surface water catchment tanks or by wells.

TOPOGRAPHY AND DRAINAGE

The southwestern part of Coke County is in the Edwards Plateau section of the Great Plains physiographical province; the northwestern part of the county is in the Central Texas section which includes the Callahan Divide. The county is bisected diagonally by the southeastward flowing Colorado River. Altitudes range from about 1,700 feet above mean sea level in the river valley to more than 2.600 feet on the Edwards Plateau.

Except for the rugged and dissected escarpment, the Edwards Plateau is relatively flat. The soils are mostly thin, dark-colored, calcareous loams. The Central Texas section is characterized by a rolling topography and deep red-brown loam soils. Much of the area, however. is capped with caliche.

Surface drainage on the plateau is mostly internal but during periods of heavy rainfall some intermittent low-gradient streams flow southward to the North Concho River. Intermittent streams in canyons along the escarpment flow to the Colorado River. The Central Texas section is drained by the Colorado River and its intermittent tributaries, many of which enter Robert Lee Reservoir.

GROUNDWATER RESOURCES OF THE COKE COUNTY UWCD

The oldest geologic units cropping out in the county are the westward-dipping Permian "red beds". These rocks are composed mainly of shale and fine-grained sandstone and scattered beds, lenses and stringers of gypsum, anhydrite and dolomite. In the western and southern plateau areas, the Permian rocks are overlain by eastward-dipping sand, clay and limestone of Cretaceous age. Alluvial deposits of Quaternary age occur in the Valleys of the Colorado River and its tributaries.

Water in the alluvium and in the Cretaceous rocks (Fredericksburg and Trinity Groups) occurs under water table conditions. Water in the Permian rocks (Clear Fork, Pease River and Artesian Groups and Ochoa Series) occurs under both water tables and artesian conditions. The water producing zones in the geological units are (1) sand and gravel in the alluvium. (2) fine sands or fractures and solution openings in limestone beds of the Fredericksburg and Trinity Groups and (3) sand, gypsum and dolomite strings or lenses in the Permian rocks.

The Edwards-Trinity (Plateau) Aquifer enters Coke County on the West and progresses to the southeast. Wells in the southeast corner of the county produce large volumes of water. The northeast part of the county lies over the Trinity Aquifer.

Chemical quality of the Edwards-Trinity (Plateau) groundwater ranges from fresh to slightly saline. The water is typically hard and may vary widely in concentrations of dissolved solids made up mostly of calcium and bicarbonate. The principal sources of recharge to the aquifers of Coke County are (1) direct precipitation on the outcrops: (2) infiltration of water from surface reservoirs, rivers, and numerous intermittent streams: and (3) subsurface inflow from adjoining counties.

DESIRED FUTURE CONDITIONS

On March 22, 2018 upon completion of the second cycle of joint planning among districts in Groundwater Management Area 7 mandated by section 36.108 of the Texas Water Code. GMA 7 adopted the following Desired Future Conditions for aquifers of the Coke County Underground Water District as an average drawdown of O feet for the Edwards-Trinity (Plateau) Aquifer from 20lO to 2070.

REQUIRED DISRICT SPECIFIC INFORMATION

Modeled Available Groundwater in the District

The modeled available groundwater is provided in Appendix C.

Amount of Groundwater Being Used Within the District

The estimated historical groundwater use from the TWDB Historical Water Use Survey is provided in Appendix A.

Projected Surface Water Supply within the District

There are 3 surface water lakes in Coke County UWCD. Lake Spence, Mountain Creek Lake located at Robert Lee and Oak Creek Lake located near Blackwell. The projected surface water supply within the District can be found in Appendix A.

Projected Total Demand for Water within the District

The projected total demand for water within the district is provided in Appendix A.

Water Supply Needs within the District

Within Coke County UWCD there are projected water supply needs identified in the 2017 State Water Plan. Needs are identified for the cities of Bronte and Robert Lee, irrigation, livestock. mining and steam electric power. Details on these projected water supply needs are listed in Appendix A.

Water Management Strategies within the District

Water management strategies identified in the 2017 State Water Plan that impact Coke County UWCD are development of groundwater supplies from the Edwards-Trinity (Plateau) Aquifer for mining and the City of Bronte. Details on the water management strategies are listed in Appendix A

Estimates of aquifer recharge, discharge, and flows

The required estimates from GAM Run 23-021 of annual amount of recharge from precipitation, discharge from the aquifer to springs and any surface water bodies. and annual flow into the district. out of the district, and between aquifers are included in Appendix B

MANAGEMENT OF GROUNDWATER SUPPLIES AND ACTIONS, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION

The District will manage the supply of groundwater within the District to preserve and protect the resource, while seeking to maintain the economic viability of all the groundwater user groups. 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 preservation and protection of the groundwater. The District will implement provisions of this plan and will utilize the provisions of this plan as guideposts for determining the direction or priority for Districts. Rules adopted by the District shall be pursuant to TWC Chapter 36 and the provisions of this plan. All rules will be enforced and will be based on the best technical evidence available. The District adopted rules in 1989 and amended rules in 1994 and 2003 and will amend the rules as necessary. A copy of the rules is included as Appendix D.

METHODOLOGY FOR TRACKING PROGRESS

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

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

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

GOALS, MANAGEMENT OBJECTIVES AND PERFORMANCE STANDARDS

Goal 1.0 ***Providing the most efficient use of groundwater***

Management Objective

I. I Each year the District will locate at least one or more water wells for map location, check water levels and chemical analysis.

Performance Standards

1.1a Annual report to the Board of Directors will include: the number of wells located, number of wells measured for water levels and the number of wells sampled for chemical analysis.

Goal 2.0 ***Controlling and preventing waste of groundwater***

Management Objective

2.1 Annually investigate every wasteful practice reported by the public or identified by District personnel within the District.

Performance Standards

2.la Annual report to Board of Directors will include the number of wasteful practices identified and a summary of action taken to resolve the waste of groundwater in each identified case.

Goal 3.0 ***Addressing conjunctive surface water management issues***

Management Objective

3.1 Monitor rainfall events on the watersheds within the District that will impact surface water runoff and groundwater recharge.

Performance Standards

3.1a District will maintain files on rainfall events to monitor surface water runoff and underground recharge within the District through a voluntary rainfall network. These rainfall totals will be reported annually to the Board.

Goal 4.0 *Addressing natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater*

Management Objective

4.1 To measure, record and accumulate a historic record of static water levels in monitor network wells on a periodic basis.

Performance Standards

4.1a The District will establish a water level monitoring network and annually measure at least five wells in the network. The number of wells in the monitor network will be reported to the board annually.

Goal 5.0 *Addressing drought conditions*

Management Objective

5.1 District will monitor the Palmer Drought Severity Index (PDSI) by Texas Climate Divisions. If PDSI indicates that the District will experience severe drought conditions, the District will provide information concerning the drought index upon request.

Performance Standard

5.1a The District staff will monitor the PDSI and report to the District Board of Directors annually the number of times information about the PDSI was requested.

Goal 6.0 *Conservation, Recharge E11ha11ceme11t, Rainwater-Harvesting, Precipitation Enhancement and Brush Control where appropriate and cost effective*

Management Objective

6.1 Each year the District will provide and distribute literature on water conservation to promote conservation and efficient use of water.

Performance Standard

6.1a Annual report to Board of Directors on the number of times literature on water conservation was provided to the public.

Management Objective: Recharge Enhancement

6.2 District staff will provide information, upon request, to area residents about recharge enhancement.

Performance Standard

6.1 a Annual report to the Board of Directors on the number of times information on the recharge enhancement was provided to the area residents.

Management Objective: Rainwater Harvesting

6.2 Provide information to area residents about rainwater harvesting.

Performance Standard

6.2 a Annual report to the Board of Directors on the number of times information on rainwater harvesting was provided to area residents.

Management Objective: Precipitation Enhancement

6.3 Provide information to area residents about precipitation enhancement.

Performance Standard

6.3 a Annual report to the Board of Directors on the number of times information on precipitation enhancement was provided to area residents.

Management Objective Brush Control

6.4 Provide information to area residents about brush control.

Performance Standard

6.5a Annual report to the Board of Directors on the number of times information on brush control was provided to the area residents.

Goal 7.0 Addressing the Desired Future Conditions Adopted by the District

Management Objective

Each year the District will collect water-levels in at least 90% of their static level monitoring wells.

Performance Standard

Each year the District staff will collect water levels measurements from the monitoring wells and present them to the Board of Directors in the Annual Report.

Management Goal Determined Not-Applicable

Goal - Controlling and preventing subsidence

There is no history of subsidence of aquifer formations within the District upon water level depletion and available scientific information is that the formations are of sufficient rigidity that subsidence will not occur.

SUMMARY DEFINITIONS.

"Abandoned Well" - shall mean:

I) a well or borehole the condition of which is causing or is likely Lo cause pollution of groundwater in the District. A well is considered to be in use in the following cases:

(A) a well which contains the casing. pump and pump column in good condition: or

(B) a well in good condition which has been capped.

2) a well or borehole which is not in compliance with applicable law, including the Rules and Regulations of the District. the Texas Water well Drillers' Act, Texas Natural Resource Conservation Commission, or any other state or federal agency or political subdivision having jurisdiction, if presumed to be an abandoned or deteriorated well.

"Board" - the Board of Directors of the Coke County Underground Water Conservation District

"District" - the Coke County Underground Water Conservation District

"TCEQ" - Texas Commission on Environmental Quality.

"TWDB" - Texas Water Development Board

"Waste" as defined by Chapter 36 of the Texas Water Code means any one or more of the following:
withdrawal of groundwater from a groundwater reservoir at a rate and in an amount that caused or threatens to cause intrusion into the reservoir of water unsuitable for agricultural. gardening. domestic or stock raising purposes;

(2) the flowing or producing of wells from a groundwater reservoir if the water produced

is not used for a beneficial purpose;

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

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

(5) willfully or negligently causing. suffering, or allowing groundwater to escape into any river. natural watercourse, depression, lake. reservoir. drain, sewer, street, highway, road or creek, ditch. or onto any land other than that of the owner of the well unless such discharge is authorized by permit, rule or order issued by the commission under Chapter 26:

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

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

"Well"- means an artificial excavation that is dug or drilled for the purpose of producing groundwater.