**Santa Rita Underground Water Conservation District**

**Groundwater Management Plan 2025-2030**

**Adopted:**

**108 Hwy 67 West**

**Big Lake, TX 76932**

**Phone: 325-884-2893 Fax: 325-884-2445**

**Email:** [**srwcdist@verizon.net**](mailto:srwcdist@verizon.net)

**Website:** [**www.santaritauwcd.org**](http://www.santaritauwcd.org)

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**Santa Rita Underground Water Conservation District**

**Groundwater Management Plan 2025-2030**

The Santa Rita Underground Water Conservation District (the “District”) was created by the 71st Legislature under the authority of Section 59, Article XVI, of the Texas Constitution and in accordance with Chapter 36 of the Texas Water Code (“Water Code”), by the District Act, Act of May 24, 1989, 71st Legislature, Regular Session, Chapter 653 (Senate Bill 1634).

The District is a governmental agency and a body politic and corporate. The District was created to serve a public use and benefit, and is essential to accomplish the objectives set forth in Section 59, Article XVI, of the Texas Constitution and Chapter 36, Water Code. The District’s boundaries are coextensive with the boundaries of Reagan County, Texas, and all lands and property within these boundaries will benefit from the works and projects that will be accomplished by the District.

**District Mission**

The mission of the District is to develop, promote and implement water conservation and management strategies to

1. Conserve, preserve, and protect the groundwater supplies of the District
2. Protect and enhance recharge
3. Prevent waste and pollution, and
4. To effect the efficient, beneficial and wise use of water for the benefit of the current and future citizens and economy of the District

The District is committed to protect the groundwater quality and quantity within the District pursuant to the powers and duties granted under Chapter 36, Subchapter D of the Texas Water Code. Any action taken by the District shall only be after full consideration and respect has been afforded to the individual property rights of all citizens of the District.

The District also seems to maintain groundwater ownership and rights of the landowners and their lessees as provided in the Texas Water Code §36.002.

**Purpose of Management Plan**

The 75th Texas Legislature in 1997 enacted Senate Bill 1 (“SB 1”) to establish a comprehensive statewide water planning process. In particular, SB 1 contained provisions that required groundwater conservation districts to prepare management plans to identify the water supply resources and water demands that will shape the decisions of each district. SB 1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries. In 2001, the Texas Legislature enacted Senate Bill 2 (“SB 2”) to build on the planning requirements of SB 1 and to further clarify the actions necessary for districts to manage and conserve the groundwater resources of the state of Texas.

The Texas Legislature 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 conservation 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 1, 2010 and every five years thereafter. In addition, HB 1763 required GCDs, to share management plans with other GCDs in the GMA for review by the other GCDs.

The Santa Rita Underground Water Conservation District’s management plan satisfies the requirements of SB 1, SB 2, HB 1763, the statutory requirements of Chapter 36 of the Texas Water Code, and the administrative requirements of the Texas Water Development Board’s (TWDB) rules.

**Time Period for this Plan**

**This plan becomes effective upon adoption by the Board of Directors. The plan remains in effect for five years or until amendment or adoption of a new plan.**

**Statement of Guiding Principles**

The District recognizes that groundwater resources are of the utmost importance for the economy for all groundwater users, first for the residents of the District, and then the region. Also recognized is the importance of understanding the aquifers and aquifer characteristics for proper management of these resources. Integrity and ownership of groundwater are also recognized as important for the management of this precious resource.

The primary goal of the District is to preserve the integrity of the groundwater in the district from all potential contamination sources, mainly oil and gas production and related activities. This is accomplished as the District sets objectives to provide for the conservation, preservation, protection, recharge, prevention of waste and pollution, and efficient use of water including:

a) acquiring additional hydrogeologic data for the aquifers within the District;

b) protecting the landowner’s right to the beneficial use of groundwater resources beneath his land;

c) promulgating rules for the protection of all users while maintaining adequate future supplies and;

d) cooperation with other local GCD’s to manage shared groundwater resources.

These objectives are best achieved through guidance from the locally elected board members who understand the local conditions and can manage the resource for the benefit of the residents of the district and region. The District shall seek to ensure that maximum groundwater withdrawals do not exceed amounts that would be significantly detrimental for future residents of the District.

**General Description**

**History**

The Santa Rita Underground Water Conservation District was created by the 71st Legislature under the authority of Section 59, Article XVI, of the Texas Constitution and in accordance with Chapter 36 of the Texas Water Code (“Water Code”), by the District Act, Act of May 24, 1989, 71st Legislature, Regular Session, Chapter 653 (Senate Bill 1634). The District is governed by a five member, locally elected board serving staggered four-year terms.

**Demographics**

The District boundaries are contiguous with that of Reagan County, Texas. It has an aerial extent of approximately 1,175 miles, or 751,866 acres of land, minus 65,350 acres of Reagan County, which was annexed into the Glasscock Groundwater Conservation District in 1988. Thus, the northern portion of Reagan County is now a patch work of two conservation districts.

The total population of Reagan County is approximately 2,936 persons. The City of Big Lake is the county seat of Reagan County. Other communities within the District, mostly in name only, are Stiles, Best, and Texon. The economy of the District is primarily oil and gas production and agricultural income, derived primarily from cotton and grain sorghum, as well as sheep, meat goats, and beef cattle production. Recreational hunting leases contribute to the economy also.

The District lands are within the Concho River Basin of the Colorado River with the southern and southwestern portions of the District draining into the Pecos River (Rio Grande) Basin. Topographically, the area within the District ranges in altitude from 2,380 feet above sea level in the northwestern part of the District, to 2,860 feet above sea level in the southwestern part of the District.

The District is included in the Region F Water Planning Group and Groundwater Management Area 7.

**Regional Cooperation and Coordination**

West Texas Regional Groundwater Alliance

Since 1989 the District has been involved in coordination of district activities with other GCDs managing the Edwards-Trinity (Plateau) Aquifer. In 1988 four groundwater conservation districts; Coke County UWCD, Glasscock County UWCD, Irion County WCD and Sterling County UWCD signed an original Cooperative Agreement. As new districts were created, they too signed the Cooperative Agreement. In fall of 1996, the original Cooperative Agreement was redrafted and the West Texas Regional Groundwater Alliance was created. Today, the regional alliance consists of eighteen locally created and locally funded groundwater conservation districts covering all or part of twenty-six counties, that encompass approximately 18.2 million acres or 28,368 square miles of West Central Texas. This West Texas region is as diverse as the State of Texas. Due to the diversity of the region, each member district provides its own unique programs to best serve its constituents. Current member districts are:

Coke Co. UWCD Crockett Co. GCD Glasscock GCD

Hickory UWCD # 1 Hill Country UWCD Irion Co. WCD

Kimble Co. GCD Lipan-Kickapoo WCD Lone Wolf GCD

Menard Co. UWD Middle Pecos GCD Permian Basin UWCD

Plateau UWC & SD Reeves Co. GCD Santa Rita UWCD

Sterling Co. UWCD Sutton Co. UWCD Wes-Tex GCD

This regional alliance was created because the local districts have a common objective: to facilitate the conservation, preservation and protection of groundwater supplies, protection and enhancement of recharge, prevention of waste and pollution, and beneficial use of water and related resources. Local districts monitor water-related activities which include but are not limited to the State’s largest industries of farming, ranching and oil and gas production. The regional alliance provides coordination essential to the activities of these member districts as they monitor these activities in order to accomplish their objectives.

Regional Water Planning

The District has been active in the Region F, Regional Water Planning Group meetings to provide input in developing and adopting the 2001, 2006, 2011, 2016 and 2021 regional plans. As the regional planning group moves toward adopting future Regional Plans the District will continue to participate in the planning process.

Groundwater Management Area

Groundwater Management Area 7 covers all or part of thirty-three counties and includes twenty groundwater conservation districts. These GCDs manage groundwater resources at the local level in all or part of twenty four counties within GMA 7 and surrounding areas. The District continues to actively participate in meetings and discussions to determine a feasible future desired condition of the aquifers within the management area and district.

**Groundwater Resources of the Santa Rita UWCD**

The Edwards-Trinity (Plateau) Aquifer is the main source of groundwater in Reagan County. This aquifer is located in the entire District, with approximate altitude of the base from 1,900 feet to 2,300 feet above sea level. Water from this aquifer is used primarily for irrigation, human consumption and livestock needs. This aquifer consists of saturated sediments of lower Cretaceous Period Trinity Group formations and overlying limestone of the Washita, Fredericksburg, and Trinity groups. The Antlers sand and Dockum sand are used extensively in the southern and southeastern portions of the District for rural domestic and livestock water. The lower sand unit of the Dockum Group, often referred to as the Santa Rosa Sandstone, is an artesian aquifer in which the water is confined by overlying shale. Wells completed in this zone produce fresh to saline water which has been used mostly for secondary recovery purposes by the oil industry. Reported well yields range from 20 gal/min, where saturated thickness is thin, to more than 100 gal/min within the District.

The Dockum Aquifer also occurs in the District. It does not crop out at the surface within the District; therefore, no recharge from precipitation to the aquifer occurs within the District. Additionally, no water discharges to springs, lakes, streams or rivers within the District.

Chemical quality of Edwards-Trinity (Plateau) water ranges from fresh to slightly saline. The water is typically hard and may vary widely in concentration of dissolved solids; made up of mostly calcium and bicarbonate. Salinity levels are highest in areas of older oil and gas production in the north and west parts of the District. Other areas have unacceptable levels of boron, fluoride, and sulfates. Water levels in the northwestern part of the District continue to decline due to irrigation, however none of this area has experienced declines greater than 60 feet since 1980. Recently, many water wells drilled to supply the drilling of oil wells and the fracking process in some areas of the District has caused older, shallower wells to run dry. The District, through programs and its Rules, strives to ensure the most efficient use of groundwater in order to sustain available resources for the future while maintaining the economic growth and respecting private property rights of the District.

**Surface Water Resources**

No surface water management entities exist within the District. There are no surface water impoundments within the District except for those using local groundwater supplies for livestock consumption. There are no surface water entities located within the District to coordinate the development of this plan.

**Technical District Information Required by the Texas Administrative Code**

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

The joint planning process set forth in Texas Water Code § 36.108 must be collectively conducted by all groundwater conservation districts within the same GMA. The District is a member of GMA 7. GMA 7 adopted DFCs for the Edwards/Trinity (Plateau) Aquifer on August 19, 2021. The adopted DFCs were forwarded to the TWDB for development of the MAG calculations. The submittal package for the DFCs can be found here: <https://www.twdb.texas.gov/groundwater/management_areas/gma7.asp>

A summary of the desired future conditions and the modeled available groundwater are summarized below.

Edwards-Trinity (Plateau) Aquifer: An average drawdown of 42 feet for the Edwards-Trinity (Plateau) Aquifer based on the GMA 7 Technical Memorandum 18-01.

Dockum Aquifer: An average drawdown of 14 feet for the Dockum Aquifer based on the Scenario 17, GMA 7 Technical Memorandum 16-01.

Estimated Modeled Available Groundwater in ac/ft for the Edwards-Trinity (Plateau) Aquifer by district from GAM Run 21-012 MAG.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Year | | | | | |
|  | 2020 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Santa Rita UWCD | 27,398 | 27,398 | 27,398 | 27,398 | 27,398 | 27,398 |

Estimated Modeled Available Groundwater in ac/ft for the Dockum Aquifer by district from GAM Run 21-012 MAG.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Year | | | | | |
|  | 2020 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Santa Rita UWCD | 302 | 302 | 302 | 302 | 302 | 302 |

**Modeled Available Groundwater in the District.**

Please refer to Appendix A-GAM Run 21-012 MAG

**Amount of Groundwater being used within the District on an Annual Basic**

Please refer to Appendix B-Estimated Historical Groundwater Use and 2022 State Water Plan Datasets: Santa Rita Underground Water Conservation District

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

Please refer to Appendix C

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

Please refer to Appendix C

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

Please refer to Appendix C

**Projected Surface Water Supplies within the District**

Please refer to Appendix B

**Projected Total Demand for Water within the District**

Please refer to Appendix B

**Water Supply Needs**

Based on supply and demand calculations and projections, it is obvious that there will be times that demand exceeds supply. In this area of the state, and with the type of aquifer that serves the area, this is a normal occurrence that is recognized by the local residents. Efforts are being made by the residents of the District to use the available groundwater resources with maximum efficiency, while monitoring the quality of the groundwater to protect this resource for years to come. The 2022 Texas State Water Plan, in Appendix A, predicts that there will be no groundwater needs between the years 2020 and 2070.

Please refer to Appendix B

**Water Management Strategies**

The District continues to encourage water conservation and reuse to meet the projected strategies in the 2021 Region F Water Plan.

Projected water management strategies for Reagan County listed in the TWDB 2022 State Water Plan Data packet (Appendix B) are:

* Demand reduction in municipal conservation for Big Lake
* Demand reduction in mining conservation in Reagan County
* Demand reduction in irrigation conservation in Reagan County
* Atmospheric weather modification for Reagan County

**Management of Groundwater Supplies, and Actions, Procedures, Performance, and Avoidance Necessary to Effectuate the Management Plan**

The District will implement and utilize the provisions of this plan as a guide for determining the direction and/or priority for District activities. Operations of the District and all agreements entered into by the District will be consistent with the provisions of this plan. The District has adopted rules for the management of groundwater resources and will amend those rules as necessary pursuant to TWC Chapter 36 and the provisions of this plan. The promulgation of the rules will be based on the best technical evidence available. Current rules are available at https://www.santaritauwcd.org/files/1a02fd570/Santa+Rita+UWCD+Rules+as+of+November+28%2C+2023.pdf. The District shall treat all residents with equality. Residents may apply to the District for discretion in enforcement of the rules on grounds of adverse economic effect or unique local character. In granting discretion to any rule, the Board shall consider the potential for adverse effect on adjacent landowners. The exercise of said discretion by the Board shall not be construed as limiting the power of the Board. The District will seek cooperation in the implementation of this plan and the management of groundwater supplies within the District.

**Methodology for Tracking Progress**

The methodology the District will use to track the progress in achieving the management goals will be as follows: the District holds a regular monthly Board Meeting for the purpose of conducting District Business. Each month the Managers Report will reflect meetings attended, water samples collected and analyzed, water levels monitored, reports on any school or civic group programs, resulting action regarding potential contamination or remediation of actual contamination, and other matters of District importance. Additionally, the District General Manager will prepare and present an annual report to the Board regarding achievement of management plan goals and objectives for the preceding fiscal year.

**Goals, Management Objectives and Performance Standards**

**Goal 1.0 - §36.1071(a)(1) Providing the Efficient Use of Groundwater**

The District strives to gather groundwater data both to improve the understanding of the aquifers and their hydrogeologic properties and to quantify this resource for prudent planning and efficient use.

1.1. Management Objective

The District will measure, record, and accumulate a historic record of static water levels in the monitoring network quarterly.

1.1a. Performance Standard

Monitor network water level measurements will be reported quarterly at regularly scheduled board meetings.

**Goal 2.0 - §36.1071(a)(2) Controlling and Preventing Waste of Groundwater**

The District strives to minimize potential waste and contamination of the groundwater by monitoring the drilling, spacing, and completion of wells.

2.1. Management Objective

The District will register new wells drilled within the district in accordance with District Rules.

2.1a. Performance Standard

The District will maintain files including information on the drilling, spacing, and completion of all new wells drilled within the District. Newly registered wells will be reported at regularly scheduled board meetings.

**Goal 3.0 - §36.1071(a)(5) Addressing Natural Resource Issues**

The District recognizes the reliance of other natural resources on groundwater supplies.

3.1 Management Objective

The District will monitor one or more selected wells within areas of the District where there is oil and gas production, for possible contamination problems which would jeopardize the integrity of the groundwater resource.

3.1a. Performance Standard

The District will once a year, at least one well sample will be collected and analyzed for petroleum related contamination in areas of the District where there is oil production. The number of wells monitored and the water quality results from each sample will be included in the annual report. District rules require any and all water wells drilled associated with oil and gas drilling or production be registered with the District and are required to comply with District construction standards and reporting

3.2 Management Objective

There is the opportunity to participate in discussions, planning, and education concerning the interrelationship of groundwater with other natural resource issues through GMA 7 and the water planning process.

3.2a. Performance Standard

A representative of the District will attend a minimum of 50% of the GMA 7 meetings annually.

**Goal 4.0 - §36.1071(a)(6) Addressing Drought Conditions**

The District’s lack of surface water supplies and semi-arid climate conditions results in drought monitoring being an important component of informed management. The District strives to remain aware of ever changing climatic conditions.

4.1.Management Objective

The District will monitor the NOAA Climate Prediction Center, <http://www.cpc.ncep.noaa.gov/> and the TWDB drought page, [https://waterdatafortexas.org/drought/](http://www.cpc.ncep.noaa.gov/).

4.1a. Performance Standard

The drought index will be reported quarterly at regularly scheduled board meetings.

**Goal 5.0 - §36.1071(a)(7) Addressing Conservation**

The District strives to promote water management strategies recommended in the 2021 Region F Regional Water Plan that have the potential to promote local groundwater supplies and maintain financial responsibility.

5.1 Management Objective - Conservation

The District will continue to be a source for available informational materials and programs to improve public awareness of efficient use, wasteful practices and conservation measures.

5.1a. Performance Standard

The District will provide information to the public annually by participating in a show, demonstration, educational talk, other community event or publishing articles on the District's website. [www.santaritauwcd.org](http://www.santaritauwcd.org)

**Goal 6.0 - §36.1071(a)(8) Addressing the Desired Future Conditions established under §36.108**

The District strives to gather groundwater data both to improve the understanding of the aquifers and their hydrogeologic properties and in the establishment and monitoring of achievement of desired future conditions.

6.1 Management Objective

The District will at least quarterly will measure wells within the water level monitoring network through steel tape and electronic sensors.

6.1a. Performance Standard

Report at least quarterly to the Board of Directors the measurement of water levels from at least 9 wells monitored in the District’s water level monitoring network. Each year the District will compare the average annual change of water levels and compare them to the DFCs.

**Management Goals Determined Not-Applicable**

**Goal 7.0 - §36.1071(a)(3) Controlling and Preventing Subsidence**

The rigid geologic framework of the region precludes significant subsidence from occurring, as identified in the *Identification of the Vulnerability of the Major and Minor Aquifers of Texas to Subsidence with Regard to Groundwater Pumping – TWDB Contract Number 1648302062* report. Table 1.4 on page 1-6 (pdf 28 of 434) summarizes the risk as low for the aquifer as a whole. The subsidence risk at well locations figure on page 4-32 (pdf 81 of 434) visually identifies the risk for Reagan County ranging from insufficient data to low subsidence risk, recognizing that risk is likely skewed due to drillers log descriptions of clay (page 4-31 or pdf 80 of 434). As a result, this management goal is not applicable to the operations of the District.

**Goal 8.0 - §36.1071(a)(4) Addressing Conjunctive Surface Water Management Issues**

There are no surface water management entities within the District. As recorded by the TCEQ Water Rights Viewer, there are zero water rights within the boundaries of the SRUWCD. This management goal is not applicable to the operations of the District.

**Goal 9.0- Addressing Precipitation Enhancement (36.1071(A)(7))**

The management goal is not applicable to the District as there is not a precipitation enhancement program unique to the District. The District recognizes the benefits of precipitation enhancement, and can find educational materials with the West Texas Weather Modification Association**.**

**Goal 10.0 §36.1071(a)(7) Addressing Rainwater Harvesting**

The semiarid nature of the area within the District makes the cost of large-scale rainwater harvesting projects economically unfeasible. Educational material and programs on rainwater harvesting are provided by the experts at the Texas AgriLife Extension Service. This management goal is not applicable to the operations of the District.

**Goal 11.0-§36.1071(a)(7) Addressing Brush Control**

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

**Goal 12.0-§36.1071(a)(7) Addressing Recharge Enhancement**

The District recognizes the benefits of Recharge Enhancement using various methods to increase the amount of water naturally replenishing groundwater supplies such as storm water or treated wastewater. However at this time, the District doesn’t have anything other than natural precipitation to increase these supplies. This management goal is not applicable to the operations of the District at this time.

**Appendix A**

GAM Run 21-012 MAG

**Appendix B**

Estimated Historical Groundwater Use and 2022 State Water Plan Datasets: Santa Rita Underground Water Conservation District

**Appendix C**

GAM Run 24-011: Santa Rita Underground Water Conservation District Management Plan

**Appendix D**

District Rules

**Appendix E**

Resolutions Adopting and Amending the Management Plan

**Appendix F**

Evidence of Notice and Hearing