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| **Santa Rita Underground Water Conservation District**  |
| Groundwater Management Plan |
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| 2020-2025 |
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Adopted March 17, 2020

**Santa Rita Underground Water Conservation District**

**Groundwater Management Plan**

The Santa Rita Underground Water Conservation District (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. 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.

**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. 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.

**District Creation and 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).

**District Mission**

The Mission of the District is to develop rules to provide protection to existing wells, prevent waste, promote conservation, provide a framework that will allow availability and accessibility of groundwater for future generations, protect the quality of the groundwater in the recharge zone of the aquifer, ensure that the residents of Reagan County maintain local control over their groundwater, and operate the District in a fair and equitable manner for all residents of the District.

The District is committed to manage and protect the groundwater resources within its jurisdiction and to work with others to ensure a sustainable, adequate, high quality and cost effective supply of water, now and in the future. The 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. The preservation of this most valuable resource can be managed in a prudent and cost effective manner through conservation, education, and management. Any action taken by the District shall only be after full considerations and respect has been afforded to the individual property rights of all citizens of the District. This management plan is intended as a tool to focus the thoughts and actions of those given the responsibilities for the execution of District activities. The District Board of Directors will review the status of all performance standards in this plan annually.

**Time Period for this Plan**

This plan will become effective upon adoption by the District’s Board of Directors and approved as administratively complete by the TWDB. The plan will remain in effect for five (5) years after the date of approval or until a revised plan is adopted and approved.

**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.

**Topography and Drainage**

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.

**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 Texas Administrative Code**

**Estimate of Modeled Available Groundwater in District Based on Desired Future Conditions**

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 modeled available groundwater report (GAM Run 16-026 MAG v. 2) is included in Appendix C.

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 revised DFCs for the Dockum Aquifer on September 22, 2016 and Edwards-Trinity (Plateau) Aquifer on March 22, 2018. The adopted DFCs were then forwarded to the Texas Water Development Board for development of the MAG calculations. The submittal package for the DFCs can be found here: <http://www.twdb.texas.gov/groundwater/management_areas/DFC.asp>

**Modeled Available Groundwater for the District**

Please refer to Appendix C

**Amount of Groundwater Being Used within the District on an Annual Basis**

Please refer to Appendix A

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

Please refer to Appendix B

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

Please refer to Appendix B

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

Please refer to Appendix B

**Projected Surface Water Supply within the District**

Please refer to Appendix A

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

Please refer to Appendix A

**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 2017 Texas State Water Plan, in Appendix A, predicts that there will be no groundwater needs between the years 2020 and 2070.

**Water Management Strategies**

The District continues to encourage water conservation, reuse and weather modification to meet the projected strategies in the TWDB 2017 Texas State Water Plan. Please refer to Appendix A.

**Methodology to Track District Progress in Achieving Management Goals**

The General Manager of the District will prepare and present an annual report to the Board of Directors evaluating the impact of the District’s activities on its goals, management objectives, and performance standards. The Annual Report will be presented within ninety (90) days following the completion of the District’s fiscal year.

**Action, Procedures, Performance and Avoidance for Plan Implementation**

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, agreements entered into by the District and planning efforts in which the District may participate will be consistent with the provisions of this plan.

The District adopted rules and policies relating to the permitting of wells and the production of groundwater. The rules and policies adopted by the District are pursuant to the Texas Water Code 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 Rules may be found at <http://www.santaritauwcd.org> .

The District shall treat all citizens with equality. 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 of 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 may amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code and to ensure the best management practices of the groundwater in the District. The implementation of the rules of the District will be based on the best available scientific and technical data, and on fair and reasonable evaluation.

The District is committed to work and plan with other GCDs in GMA 7. The District will use the management plan as part of its cooperation efforts with the neighboring GCDs. The District will seek cooperation in the implementation of this plan and the management of groundwater within the District.

**Management Goals**

**A. Providing the Most Efficient Use of Groundwater**

**Objective:** Register new wells drilled within the District each year in accordance with District Rules.

**Performance Standard:** The District will register all new wells drilled and maintain a well database. Wells registered will be reported monthly at regular board meetings. The number of new wells drilled in the District during the past year and the total number wells in the database will be included in the annual report.

**B. Controlling and Preventing Waste of Groundwater**

**Objective:** Provide information to the public on eliminating and reducing wasteful practices in the use of groundwater by publishing information on groundwater waste reduction at least once a year.

**Performance Standard:** Publish one article on the prevention of wasteful practices in one newspaper within the District annually. A copy of the article will be included in the annual report.

**C. Controlling and Preventing Subsidence**

The District has reviewed the TWDB subsidence risk report for its applicability: *Identification of the Vulnerability of the Major and Minor Aquifers of 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>.

The District has examined, on pages 1-7 and 1-8 of the LRE report, the major aquifer and minor aquifer subsidence risk maps, and determined that the subsidence risk for the District is low to medium. The District will be alert to any signs or reports of subsidence that could occur in the future. At this time, this goal is not applicable to the Santa Rita Underground Water Conservation District.

**D. Addressing Conjunctive Surface Water Management Issues**

There are no surface water management entities within the District. This goal is not applicable to the operations of the Santa Rita Underground Water Conservation District.

**E. Addressing Natural Resource Issues**

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

**Performance Standard:** Once each 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 well sample will be included in the annual report. District Rules require any 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.

**F. Addressing Drought Conditions**

**Objective:** Monitor drought conditions through the Palmer Drought Severity Index (PDSI) by Texas Climatic Divisions on a monthly basis.

**Performance Standard:**  The District will monitor the PDSI and report findings and actions to the District Board on a quarterly basis. If PDSI indicates that the District will experience severe drought conditions, the District will notify all public water suppliers within the District. An additional source of information on drought can be accessed at: <https://waterfortexas.org/drought/> .

**G. Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement and Brush Control**

**Objective (Conservation):** Provide information to area residents about water conservation at least one time a year.

**Performance Standard:** The District will publish an article concerning water conservation in one local newspaper at least one time a year. A copy of the article submitted will be included in the annual report given to the Board of Directors.

**Objective (Recharge Enhancement):** Provide information to area residents about recharge enhancement at least one time a year.

**Performance Standard:** The District will publish an article concerning recharge enhancement in a local newspaper at least one time a year. A copy of the article submitted will be included in the annual report given to the Board of Directors.

**Objective (Rainwater Harvesting):** Provide information to area residents about rainwater harvesting at least one time a year.

**Performance Standard:** The District will publish an article concerning rainwater harvesting in a local newspaper at least one time a year. A copy of the article submitted will be included in the annual report given to the Board of Directors. An additional source of information on rainwater harvesting can be accessed at: <https://www.twdb.texas.gov/innovativewater/rainwater/index.asp> .

**Objective (Precipitation Enhancement):** The District will continue to participate in the West Texas Weather Modification Association rainfall enhancement program by attending at least 60% of meetings annually.

**Performance Standard:** The District will provide a monthly report to the Board of Directors on the West Texas Weather Modification Association activities. Annually provide to the Board of Directors the West Texas Weather Modification Association Annual Report. Annually provide to the Board of Directors the number of meetings attended by at least one (1) District employee or board member.

**Objective (Brush Control):** Provide information to area residents about brush control at least one time a year.

**Performance Standard:** The District will publish an article concerning brush control in a local newspaper at least one time a year. A copy of the article submitted will be included in the annual report given to the Board of Directors.

**H. Addressing the Desired Future Conditions**

**Objective:** Measure water levels in at least 9 wells within the District by September of each year and evaluate whether the average change in water levels is in conformance with the DFCs adopted by the District.

**Performance Standard:** Each year the District will provide a summary within the annual report the monitoring activities including the number of wells monitored and the average annual change of water levels and compare them to the DFCs.

**List of Appendices**

 **Appendix A –** Estimated Historical Groundwater Use and 2017 State Water Plan Datasets

 **Appendix B –** Groundwater Availability Model Run 17-002

 **Appendix C –** Groundwater Availability Model Run 16-026 MAG Version 2

 **Appendix D –** District Rules

Appendix A

Estimated Historical Groundwater Use and

2017 Texas State Water Plan Datasets

Appendix B

Groundwater Availability Model Run 17-002

Appendix C

Groundwater Availability Model Run 16-026

MAG Version 2

Appendix D

District Rules