TECHNICAL MEMORANDUM

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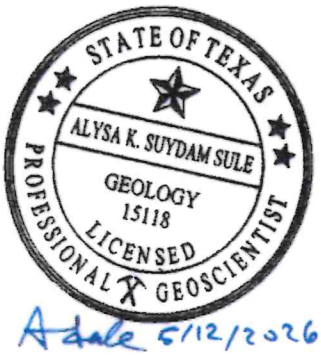
TO:	Kinney County Groundwater Conservation District, Board of Directors
FROM:	Alysa Sule, PG, Freese and Nichols, Inc.
SUBJECT:	Evaluation of Desired Future Conditions (DFC) for 2025: Las Moras Spring Flow and Well 70-38-902 (Tularosa Well)
PROJECT:	KGD25511 – Project Management and On-Call Services
DATE:	May 12, 2026
CC:	Vince Clause, PG Freese and Nichols, Inc.



1.00 INTRODUCTION

Freese and Nichols, Inc. (FNI) has prepared this technical memorandum on behalf of the Kinney County Groundwater Conservation District (KCGCD, or the District) to evaluate annual progress toward achieving the Desired Future Conditions (DFCs) applicable to the portions of Groundwater Management Areas (GMAs) 7 and 10 located within the District, as shown on Figure 1. This evaluation was conducted in accordance with the methods outlined in the KCGCD Management Plan, adopted on January 18, 2023.

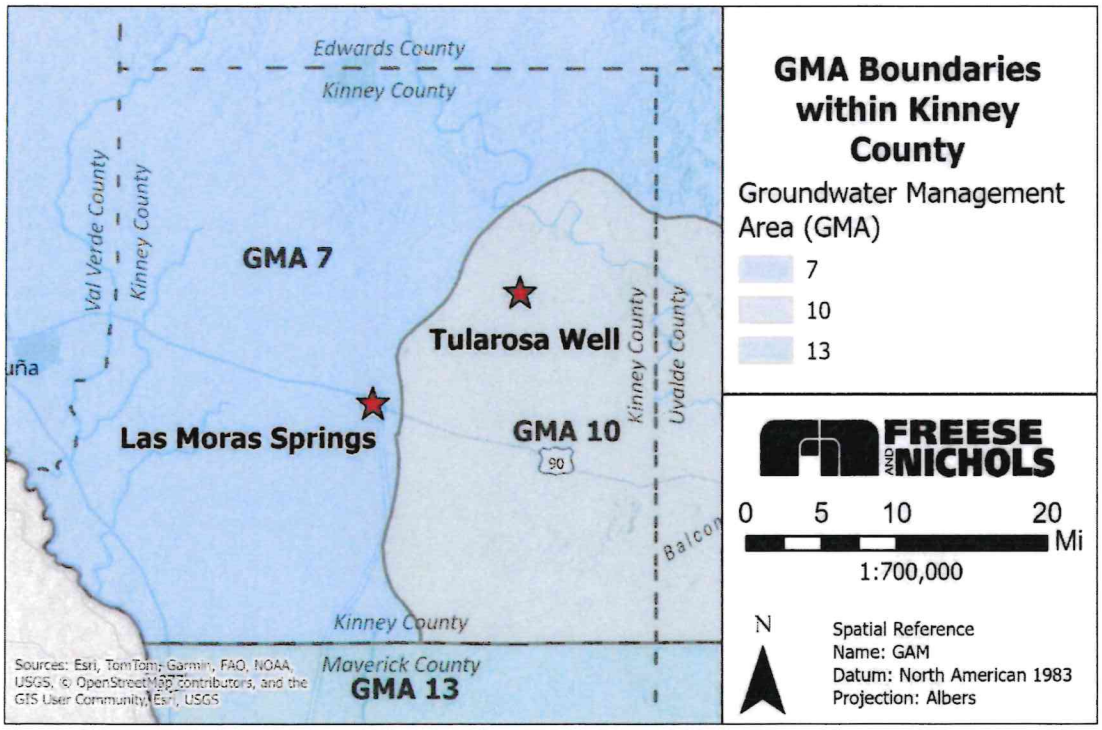


Figure 1. Groundwater Management Area Boundaries Within Kinney County

2.00 GMA 7 PORTION OF KINNEY COUNTY

Section 5.8.1 of the KCGCD Management Plan, adopted on January 18, 2023, states:

> *The District will assess annually the end-of-year Las Moras spring flow and annual precipitation to evaluate consistency with the desired future condition.*

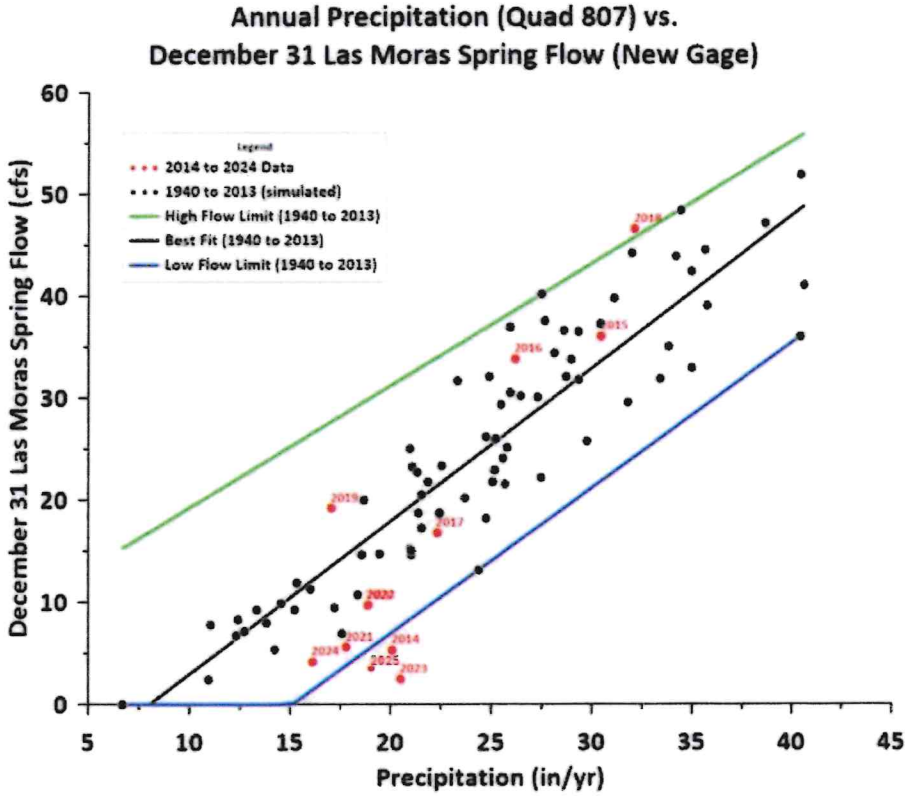
The associated performance standard states:

> *Each year, data on annual precipitation from Quad 807 (obtained from TWDB) and end-of-year Las Moras spring flow will be collected. The results will be reported as an agenda item at the first Board meeting after the annual precipitation data are available from TWDB, and final (not provisional) Las Moras Springs flow data are available from the USGS.*

Annual precipitation data for Quad 807 were obtained from the TWDB Lake Evaporation and Rainfall database, which provides monthly and annual precipitation data by one-degree quadrangle. The reported annual precipitation for Quad 807 in 2025 was 18.82 inches. https://waterdatafortexas.org/lake-evaporation-rainfall.

End-of-year springflow data for Las Moras Springs were obtained from USGS monitoring location 08456310, Las Moras Springs downstream of pool at Brackettville, Texas. The final measured springflow on December 31, 2025, was 3.43 cubic feet per second (cfs). https://waterdata.usgs.gov/monitoring-location/08456310/.

Figure 7 form the Management Plan was updated to include the 2025 annual precipitation and end-of-year Las Moras Springs flow data, as shown below.



After seven consecutive years of below average precipitation (Figure 2), reduced discharge at Las Moras Springs is consistent with observed climatic conditions. Based on the District's current DFC evaluation criteria, the 2025 data point falls outside the acceptable range established for the GMA 7 DFC, and would not meet the currently adopted DFC in 2070.[1]

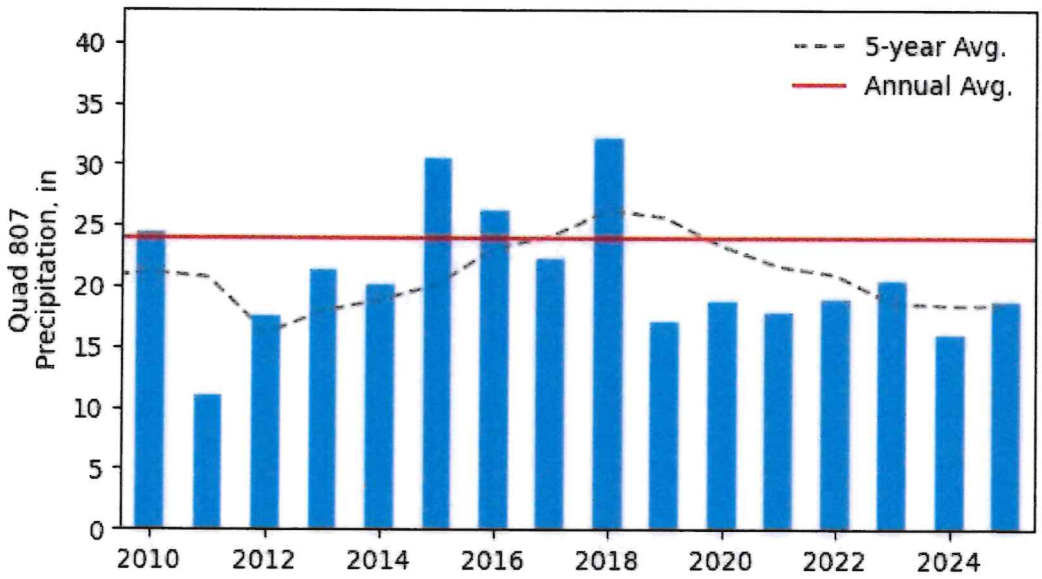


Figure 2. Annual Precipitation reported for Quad 807.

3.00 GMA 10 PORTION OF KINNEY COUNTY

Section 5.8.2 of the KCGCD Management Plan, adopted on January 18, 2023, states:

> *The District use the groundwater elevation measured in Well 70-38-902 by the Texas Water Development Board to check consistency with the desired future condition.*

The associated performance standard states:

> *The measured groundwater elevation in Well 70-38-902 taken at the end of the year and the desired future condition minimum elevation will be reported to the Board at the first meeting of the calendar year when the data are made available by TWDB.*

The DFC for the GMA 10 portion of Kinney County is expressed as a minimum groundwater elevation in the Tularosa Well, Well 70-38-902, of 1,184 feet above mean sea level. Due to a discrepancy in the reported elevation datum for the Tularosa Well, the equivalent DFC expressed as depth to water below ground surface is either 197.042 feet or 198 feet below ground surface.

The depth to water measured on December 31, 2025, was reported by TWDB as 190.07 feet below ground surface. This measured depth to water is approximately 6.97 to 7.93 feet above the DFC threshold. Therefore,

[1] https://www.twdb.texas.gov/groundwater/dfc/docs/summary/GMA7_DFC_2021.pdf

under the evaluation standard established in the District's 2023 Management Plan, observed 2025 conditions remained above the applicable DFC threshold for the GMA 10 portion of Kinney County.

4.00 DISCUSSION

The 2025 evaluation indicates that observed conditions in the GMA 7 portion of Kinney County fell outside the acceptable range established for evaluating the DFC. In contrast, observed conditions in the GMA 10 portion of Kinney County remained above the applicable DFC threshold.

Although reported net evaporation in 2025 was 63.84 inches, which was lower than the 2024 value of 70.16 inches and the historical high of 76.35 inches in 2022, net evaporation has remained above the long-term average of 43.95 inches per year for Quad 807 since 2019 (1954 to 2025; Figure 3).

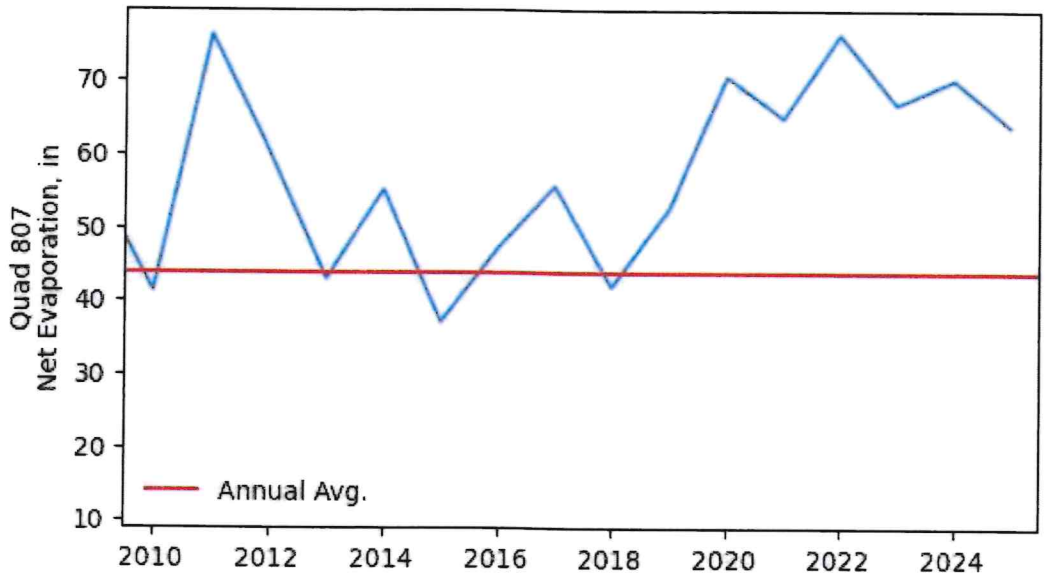


Figure 3. Annual Net Evaporation Reported for Quad 807.

Elevated evaporation can increase agricultural irrigation demand, and groundwater pumping in Kinney County primarily supports irrigation demand and secondarily serves domestic demands (Figure 4).

Dr. Bill Hutchison performed the 2024 DFC evaluation and provided his findings to EcoKai in a letter dated May 31, 2025. In that letter, Dr. Hutchison noted that the irrigated acreage in Kinney County increased slightly during the summer months and decreased slightly in the winter months during the 2014 to 2024 period, relative to 2004 to 2013 period. He concluded that this seasonal shift in irrigated acreage would tend to increase irrigation demand. Dr. Hutchison also noted that persistent drought and elevated evaporation are the primary factors contributing to observed low spring flow.

As shown in Figure 5, annual average discharge at Las Moras Springs varied from 2014 through 2019. However, since the current drought began in 2019, spring discharge has remained low. If the region experiences a sustained return to average to above-average precipitation, similar to conditions observed in 2015, the expectation is that Las Moras Springs discharge would recover to more typical levels.

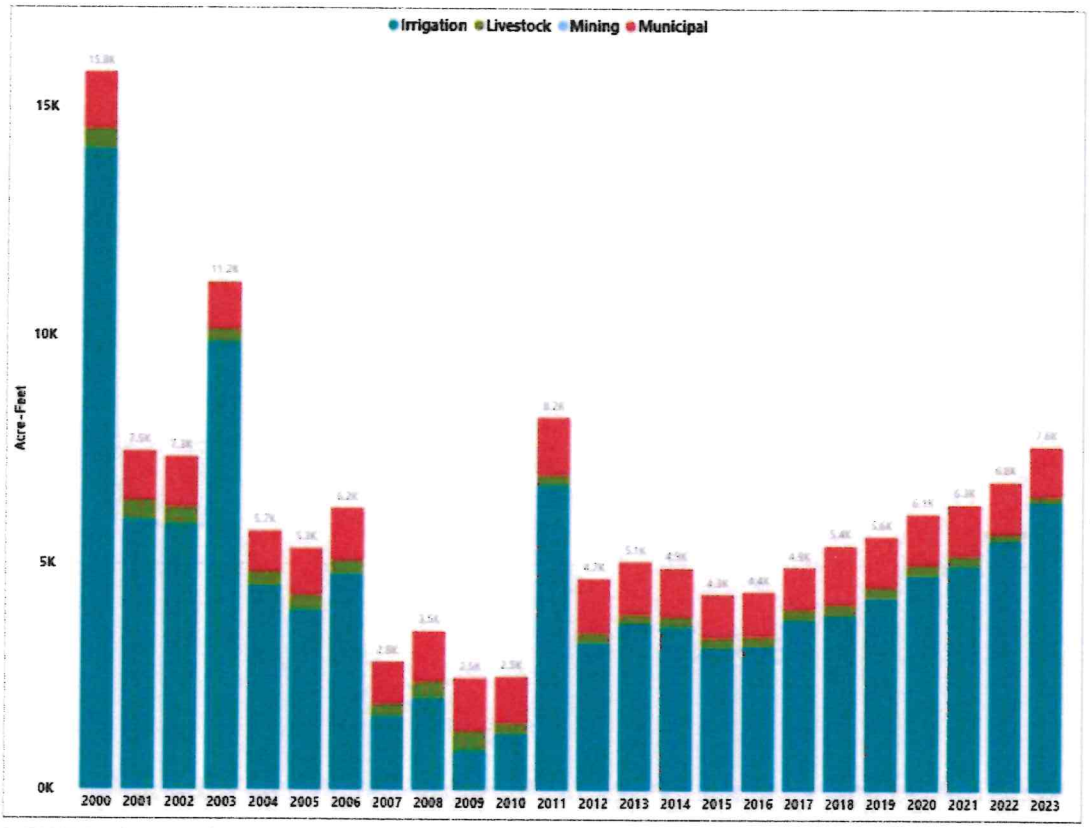


Figure 4. TWDB Historical Water Use Summary for Kinney County, 2000 to 2023. Water volumes reported in acre-feet per year.

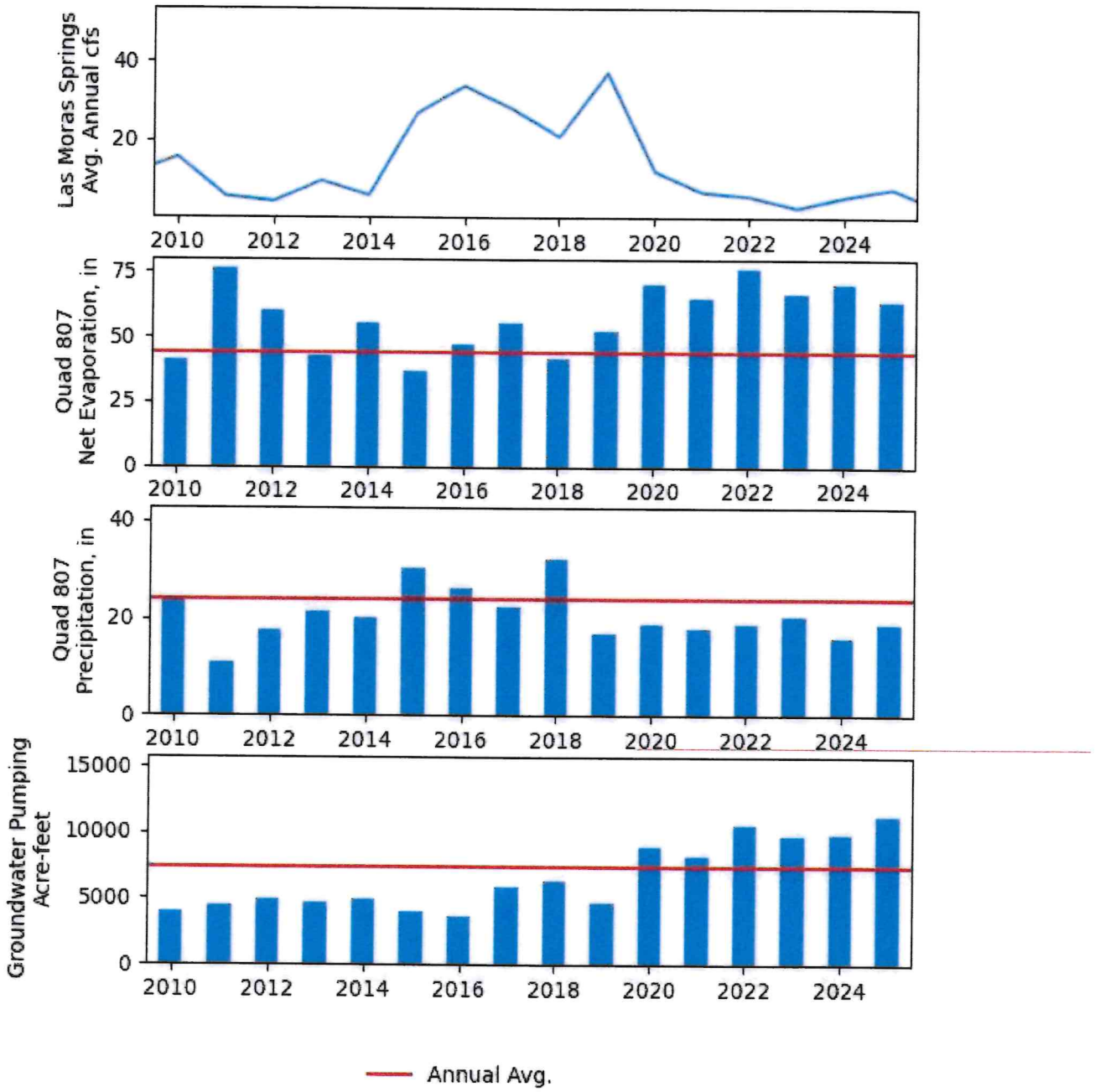


Figure 5. Average annual discharge at Las Moras Springs, net evaporation and precipitation reported for Quad 807, and groundwater pumping volumes