



**NORTH PLAINS
GROUNDWATER**
Conservation District

ANNUAL REPORT



2024
EDITION

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Mission Statement

Maintaining our way of life through the conservation, protection and preservation of our groundwater resources.

What the District Does

The District issues water well permits, collects groundwater information, performs water quality analyses and provides a number of well system tests and other services. Extensive databases are used to store, retrieve, and analyze groundwater information for the District.

The purpose of the North Plains Groundwater Conservation District is achieved through rules, educational programs, District-provided services, and through the cooperation of local, state, and federal agencies.

Throughout the history of the North Plains Groundwater Conservation District, the board of directors and staff have been committed to identifying future concerns and finding solutions before they become problems. The District continues to be aware of regulations of other local, state, and federal agencies which affect groundwater use or groundwater management. The District acts as a liaison between these agencies and the residents of the District. It is the goal of the District to provide the best management of groundwater resources and educational resources available to every water user group to insure that a supply of potable water will be available for future generations.

Board of Directors

Mark Howard - President
Represents Hartley County

Danny Krienke- Vice President
Represents Ochiltree County

Bob Zimmer - Secretary
Represents Hutchinson &
Hansford Counties

Justin Crownover- Director
Represents Sherman County

Harold Grall- Director
Represents Moore County

Gene Born- Director
Represents Lipscomb County

Allan Frerich- Director
Represents Dallam County

District Staff

Steve Walthour
Previous General Manager

Janet Guthrie
Current General Manager

Kristen Blackwell
Administration Manager

Lou Orthman
Compliance Coordinator

Dusty Holt
Permitting Specialist/
Finance Assistant

Paige Glazner
Conservation Outreach Assistant

Kirk Welch
Assistant General Manager

Krystal Donley
Administrative Assistant

Casey Tice
Production Coordinator

Sherry Robinett
Administrative Assistant

Baylee Barnes
Conservation Outreach
Specialist

Odell Ward
Aquifer Science Manager

Braden Cadenhead
Natural Resource Specialist

Mitch Funk
Natural Resource Specialist

Curtis Schwertner
Natural Resource Specialist

Angel Quiroz
Natural Resource Specialist

Management Plan Objectives and Annual Activity Report

Providing for the Most Efficient use of Groundwater

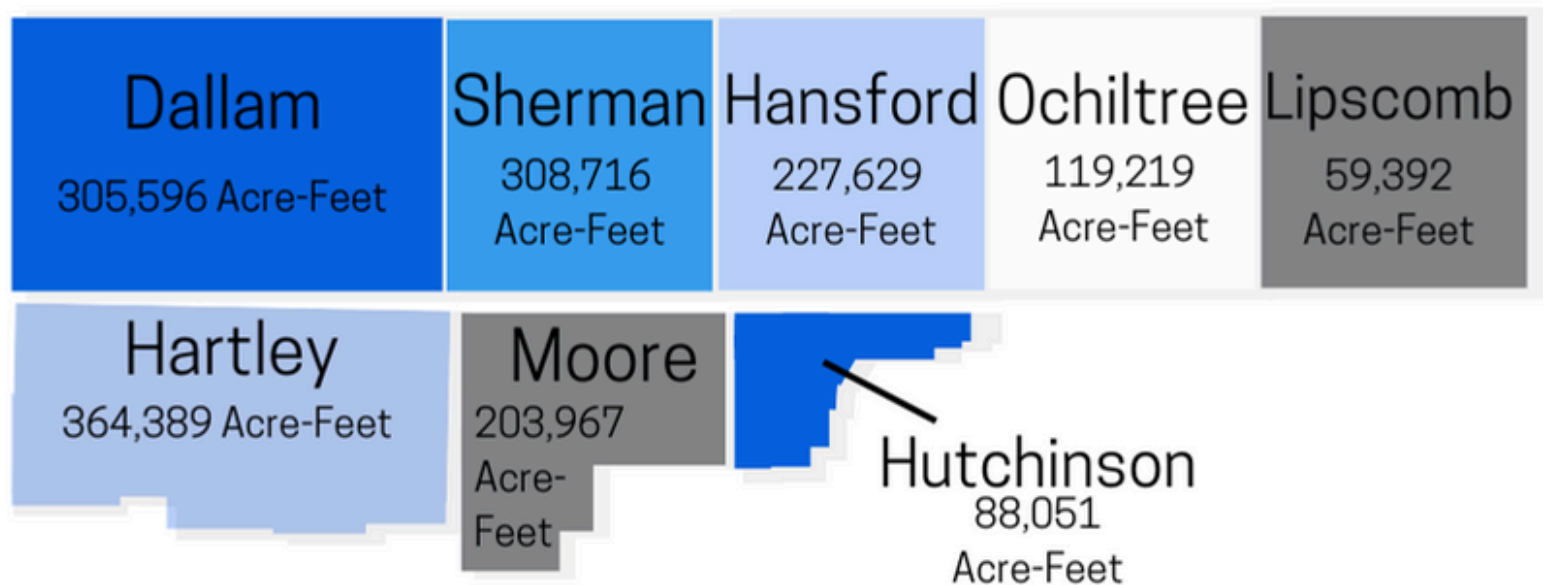
A1. Groundwater Reporting

Management Objective: Monitor total annual groundwater withdrawals through water use reporting by all producing groundwater right owners that have a well capable of producing more than 25,000 gallons of groundwater a day.

Performance Standards: Annually, the District will collect production reports on at least 75 percent of the properties containing non-exempt wells and from established GPU's, calculate annual groundwater withdrawals for the District and report this data to the Board of Directors.

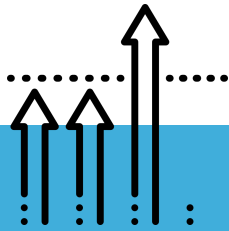
Action Taken: The District received production reports for 2024 from 2965 Groundwater Production Units. Annual groundwater withdrawals were calculated and published in the Hydrologic Report and presented to the Board at the June 17, 2025 board meeting.

ANNUAL GROUNDWATER PRODUCTION IN ACRE-FEET FOR 2024



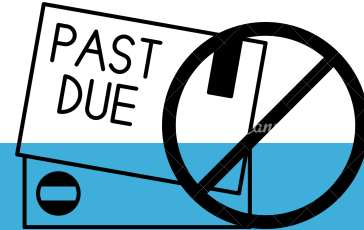
2954

TOTAL PRODUCTION REPORTS



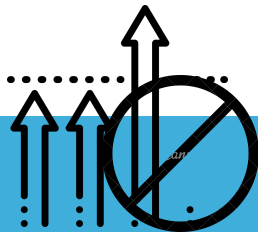
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**EXCEEDED THE
ALLOWABLE**



85

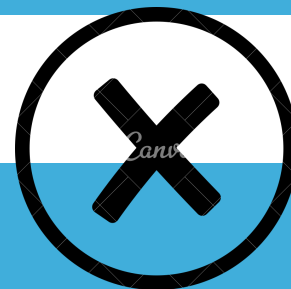
FILED LATE



ALL BUT

2

**EXCEEDED ALLOWABLE
ARE ADMINISTRATIVELY
RESOLVED**



ALL BUT

5

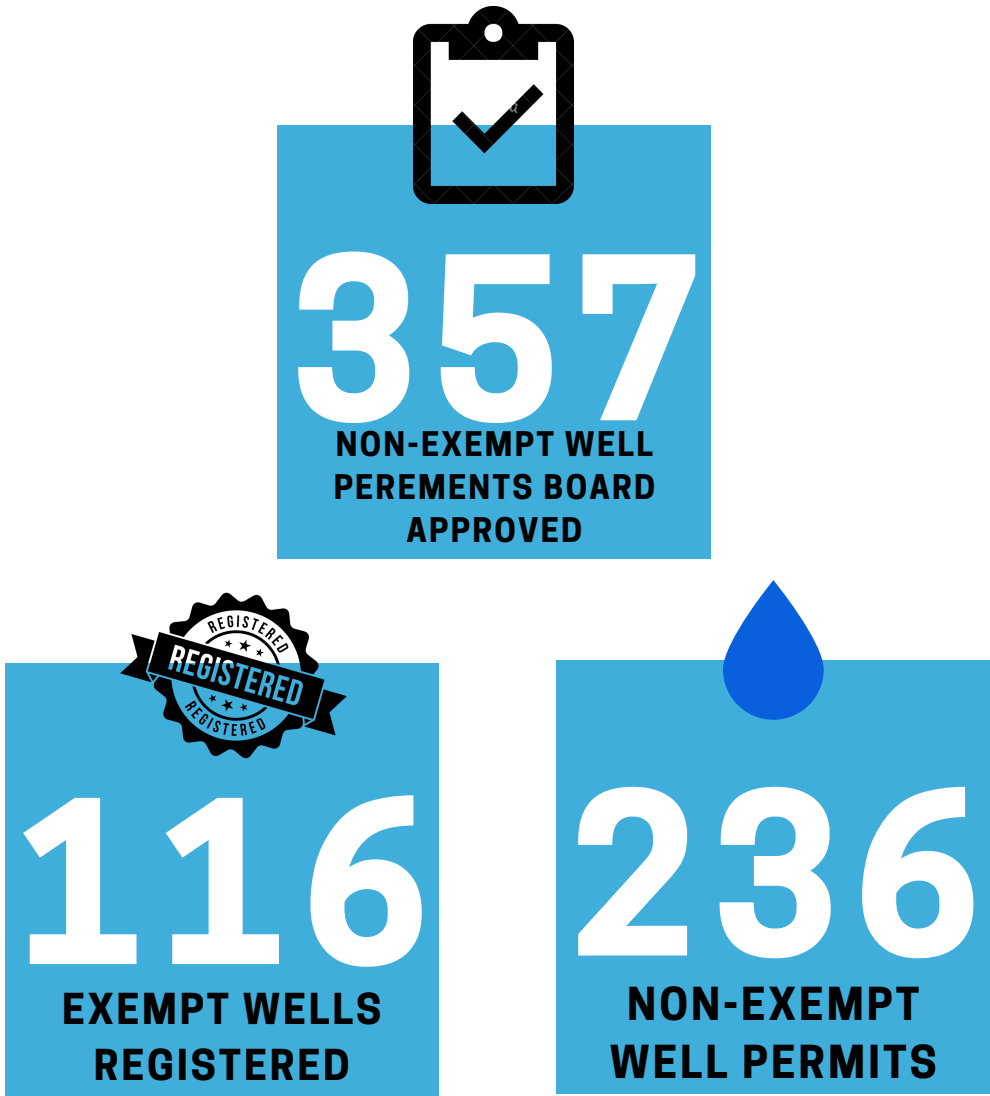
**FILED LATE ARE
ADMINISTRATIVELY
RESOLVED**

A2. Well Registrations and Permitting

Management Objective: All exempt and non-exempt wells constructed within the jurisdiction of the District are required to be registered or permitted in accordance to the District’s Rules.

Performance Standards: The District will provide a yearly report of the total number of permits and registrations to the board of directors on an annual basis.

Action Taken: In 2024, the District inspected all Groundwater Production Units (GPUs) on which applications were made for new non-exempt wells, new exempt wells were registered, and previously unregistered wells were discovered during inspections. The following table gives the results from permitting and inspecting wells in 2024.



A3. Conservation Demonstration and Education

Management Objective: Provide support through the District's North Plains Water Conservation Center, demonstrations, and other District education programs to promote groundwater conservation

Performance Standards: At least annually, conduct field days and/or other events to educate stakeholders regarding water use efficiency technologies and practices. The District will publish reports on the activities at the North Plains Water Conservation Center and other demonstrations and education programs.

Action Taken:



The District held an annual field day at the Water Conservation Center on September 3, 2024, District Consultant Dr. David Sloane presented stakeholders with early results on the demonstrations on the farm; including the marketability of water sharing between corn and sorghum silage as well as cotton and sorghum silage.

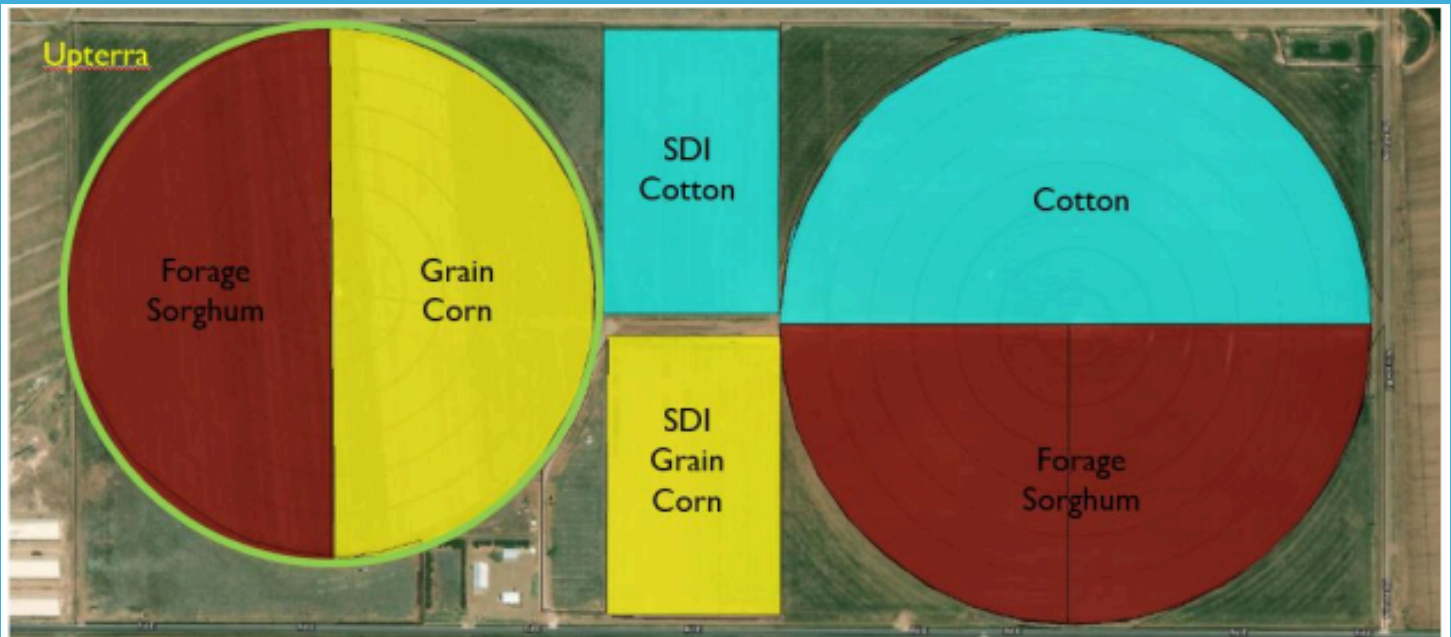


Figure 2 Map of the Water Conservation Center demonstration layout for 2024. The east pivot was split-planted to cotton and forage sorghum, and the west pivot was split-planted to corn and forage sorghum. The SDI fields were planted to cotton and corn respectively. The UpTerra system was installed on the west pivot (circled in green).

SUMMARY OF 2024 DEMONSTRATION

Local farmers are under increasing pressure to produce feed for an ever-increasing number of livestock, while similarly facing a decline in irrigation well output. This has put an incredible amount of pressure on the water resources in the region to produce more from less. The 2024 demonstration program at the WCC looked to address this issue by incorporating forage sorghum into the crop rotation, with the aim of producing a greater return per acre-inch whilst still producing much needed animal feed.

The results from the demonstrations at the WCC showed the following:

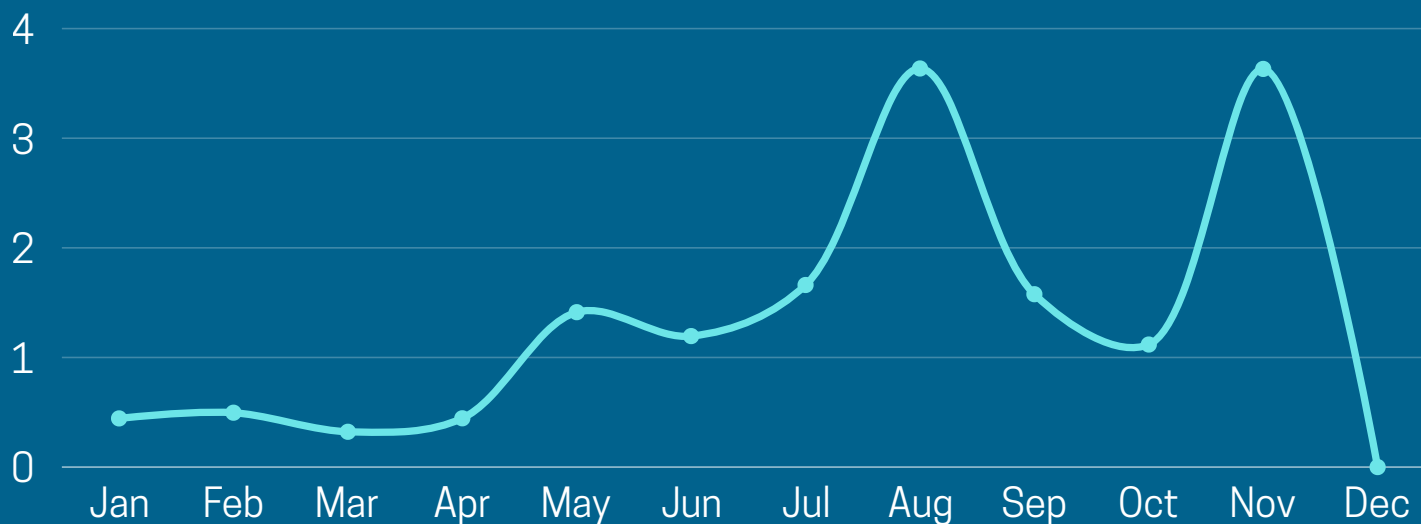
1. Silage from forage sorghum can produce similar net (variable cost) returns to grain corn but with significantly lower water usage.
 - a. Forage sorghum returned \$409 on ~13" of irrigation / 24" total water use
 - b. Grain corn returned \$418 on ~28" of irrigation / 40" total water use
 - c. Cotton returned \$552 on ~12" of irrigation / 30" total water use (note: yields were significantly higher than in an average season)

1. If forage sorghum was targeted as the main crop grown, it is projected that net returns on variable costs could be superior to grain corn with similar or slightly reduced water use.
 - a. Irrigation efficiency of sorghum silage was ~\$36 /inch of irrigation
 - b. Irrigation efficiency of grain corn was ~\$16 /inch of irrigation
 - c. Corn silage is projected to give the greatest net return on variable costs (\$771/ac) with a projected return ~\$30 /inch of irrigation
2. Sorghum silage has a relatively short growing season and provides a range in possible planting dates. This would potentially allow double cropping with a rotation into winter wheat production.
3. Early planting of sorghum silage could allow significant regrowth prior to a winter freeze, negating the need for a cover crop.
4. Drip irrigation provides significant water savings and a massive increase in water use efficiency.
5. No conclusive results proof could be obtained as to the effectiveness of the UpTerra system, however anecdotal evidence suggests that it is changing the way water moves into and is held within the rootzone. The observed effects were related to the changes in the soil rather than changes in the irrigation water, which is intriguing and encourages further observation.

These results have shown that forage sorghum does have a major role to play in maintaining profitability in the face of declining water availability. While it will never generate the return per acre of corn silage, it can generate significant amounts of animal feed with a greatly reduced irrigation footprint.



IN-SEASON RAINFALL FOR 2024



The results from the demonstrations at the Water Conservation Center in 2024 can be found in the WCC Final Report on the district website

<https://northplainsgcd.org/conservationprograms/water-conservation-center/>.

A4. Financial Assistance

Management Objective: The District will encourage the adoption of technologies that promote efficient use of groundwater and conserve water by providing the means to purchase the technology.

Performance Standards: At least annually, the District will report to the Board of Directors a report of any applications for financial assistance made by the District and updates on available funding available to qualifying producers.

Action Taken: The District continued to provide the following financial assistance programs through 2024.

- TWDB/NPGCD Irrigation Meter Reimbursement – the district distributed \$127,790.01 on 124 meters to eligible irrigators up to half the cost of flow meters.
- TWDB/NPGCD Master Irrigator Reimbursement – the district distributed \$182,934.54 on 12 projects to eligible irrigators.
 - Projects included: Renozzling Sprinklers, Dragonline, Pivot Replacement, Pivot Conversions, and VFDS.



A5. Education Assistance

Management Objective: The District will educate stakeholders about practices and technologies that promote efficient use of groundwater.

Performance Standards: The District will provide educational assistance to stakeholders at least annually through information programs on the website and/or in the newsletter.

Action Taken:

The Master Irrigator Program



The Master Irrigator is a 4-day interactive training program combining lecture and producer panel interaction to provide a fast track to adoption of irrigation conservation practices, tools and technologies. Ultimately the program helps growers be more efficient stewards of the area's groundwater resources.

The Master Irrigator Program was held in the spring 2024. The 2024 class graduated 21 participants, increasing the number of acres influenced by the Master Irrigator Program to approximately 550,000 acres since instalment in 2016.

Controlling and Preventing the Waste of Groundwater

Management Objective: Control and prevent the waste of groundwater as defined by state law.

Performance Standards: The District will pursue any reported violations of the District's rules concerning groundwater waste.

Action Taken: The District received two water waste reports in 2024:

April 12th

The District received a report on April 12th of a violation of waste water in Moore County, District Compliance Coordinator Lou Orthman contacted the tenant and informed him of the waste of groundwater violation. On April 16, 2024, the tenant corrected the issue and reported to Mr. Orthman the following items:

1. Installed a berm on the pivot road
2. leveled and deep plowed the pivot
3. drilled hay grazer on the pivot road in hopes of controlling the washout
4. Installed three more berms on the pivot road to slow the water
5. Programmed the sprinkler to speed up over the pivot road

Natural Resource Specialist Mitchell Funk drove by the area a few more times over the next few weeks and found no issues.

July 5th

The District received a report in Ochiltree County for a violation of groundwater waste on July 5th. District Aquifer Science Manager, Odell Ward inspected the scene the same day. District Compliance Coordinator, Lou Orthman contacted the owner and advised him of the violation. The owner informed Mr. Orthman that they had just bought the property and had planted corn. The owner addressed the issue and provided a management plan to Mr. Orthman that stated:

1. Producer plans to windshield wipe the circle
2. Normal cultivation (corn, cotton) in 2024
3. Fall planting of wheat in SE area and grass in the spring

District Natural Resource Specialist, Angel Quiroz drove by the location once a week for the next several weeks and found no further waste of groundwater.

Controlling and Preventing Subsidence

The District has reviewed TWDB's subsidence risk report, "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, as the report applies to the District. This report presents the results of a qualitative study the TWDB requested to identify areas of vulnerability to subsidence due to groundwater pumping in the major and minor aquifers of Texas outside of the Houston-Galveston and Fort Bend Subsidence Districts. The report defines subsidence as the lowering of the ground surface and typically occurs in unconsolidated aquifers where compressible layers exist. Subsidence also occurs in areas where soluble aquifer layers experience accelerated dissolution, erosion, and void growth. The report evaluated the vulnerability of the Ogallala aquifer, Dockum aquifer, and Rita Blanca aquifer within the District as follows:

Ogallala aquifer

Results of the assessment suggest that the northern part of the Ogallala aquifer has the greatest risk for future subsidence due to pumping. Table 4.12 on report page 4-54, summarizes the data sources and values for each subsidence risk factor. Figure 4.33 on report page 4-55 illustrates data from wells in the northern Ogallala aquifer tend to show a medium to high subsidence risk within the District.

Dockum aquifer

Results of the assessment suggest that the northern part of the Dockum aquifer has the greatest risk for future subsidence due to pumping. Table 4.30 on report page 4-125 summarizes the data sources and values for each subsidence risk factor. Figure 4.80 on report page 4-126, illustrates data from wells in the northern Dockum aquifer tend to show a medium to high subsidence risk in the western counties within the District.

Rita Blanca aquifer

The report suggests that the Rita Blanca aquifer has a low to medium risk for future subsidence due to pumping with the risk increasing from east to west. Table 4.53 on report page 4-198 summarizes the data sources and values for each Rita Blanca aquifer subsidence risk factor. Figure 4.127 on report page 4-199, illustrates the subsidence risk vulnerability at well locations throughout the aquifer. Figure 4-127 also shows substantial areas lacking data for the report.

Due to the depth of the water and the nature of the geology within the District, subsidence is unlikely, and this goal is not applicable to the District.

Addressing Conjunctive Surface Water Management Issues

Management Objective: Address conjunctive water use issues with organizations that have relevant authority or jurisdiction.

Performance Standards: Annually, the District's representatives will attend at least 75% of Region A: Panhandle Regional Water Planning Group's meetings. To further address conjunctive water use issues, the District will submit a copy of its management plan to The Canadian River Municipal Water Authority, Palo Duro Water District, and Red River Authority for their consideration and review.

Action Taken: The District submitted a copy of its 2024 management plan to the Canadian River Municipal Water Authority, Palo Duro Water District, and Red River Authority for their consideration and re-adoption March 14, 2024. The District staff and representatives attended 100% of Region A: Panhandle Regional Water Planning Group's meetings in 2024.



REGION A: PANHANDLE REGIONAL WATER PLANNING GROUPS'S MEETINGS 2024

February 6

Full Water Planning Group

Attendance:

- Janet Guthrie - GM
- Danny Krienke - GMA 1 Representative

April 25

Ag Committee

Attendance:

- Janet Guthrie - GM
- Danny Krienke - GMA 1 Representative

June 25

Full Water Planning Group

Attendance:

- Steve Walthour - GM
- Danny Krienke - GMA 1 Representative

October 1

Full Water Planning Group

Attendance:

- Steve Walthour - GM
- Danny Krienke - GMA 1 Representative

October 1

Full Water Planning Group

Attendance:

- Janet Guthrie - GM
- Danny Krienke - GMA 1 Representative

December 17

Full Water Planning Group

Attendance:

- Janet Guthrie - GM
- Danny Krienke - GMA 1 Representative



Addressing Natural Resource Issues that Impact the Use and Availability of Groundwater and which are Impacted by the Use of Groundwater

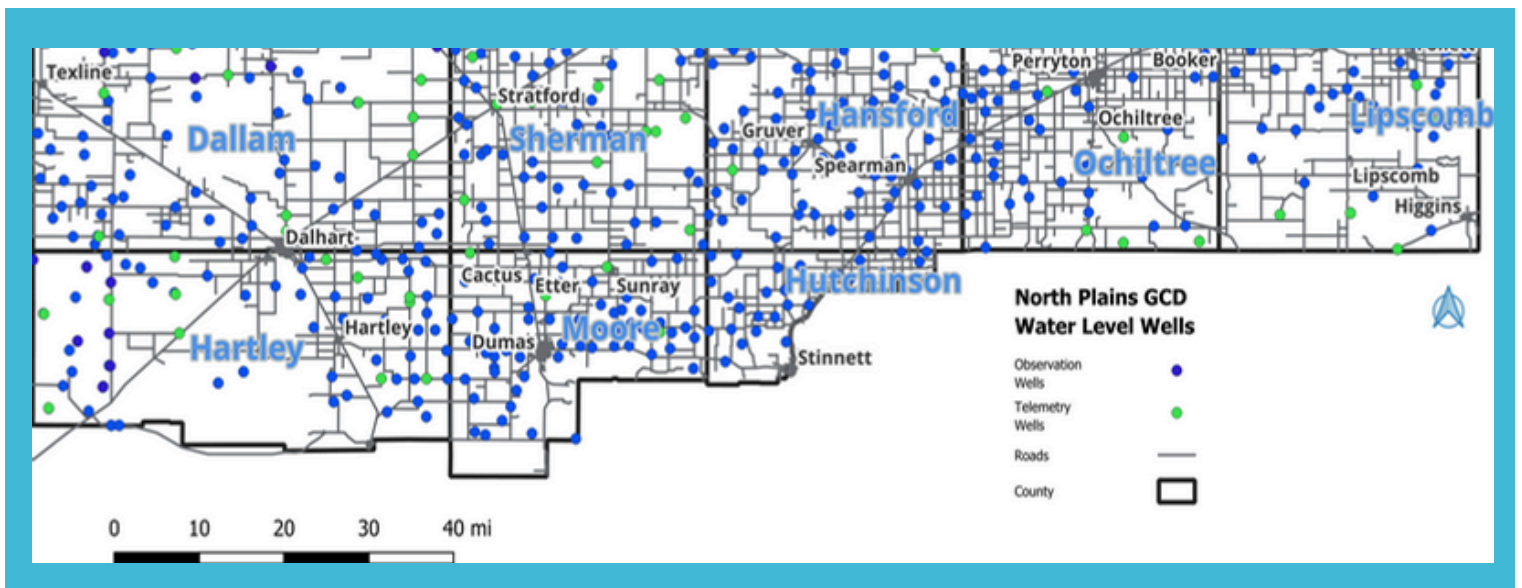
E1. Aquifer Monitoring

Management Objective: Monitor aquifer characteristics that affect utilization and availability of groundwater and which are affected by the use of groundwater through District programs by maintaining a network of monitor wells.

Performance Standards:

a. Annually, District staff will collect and analyze water samples from a minimum of 10 wells

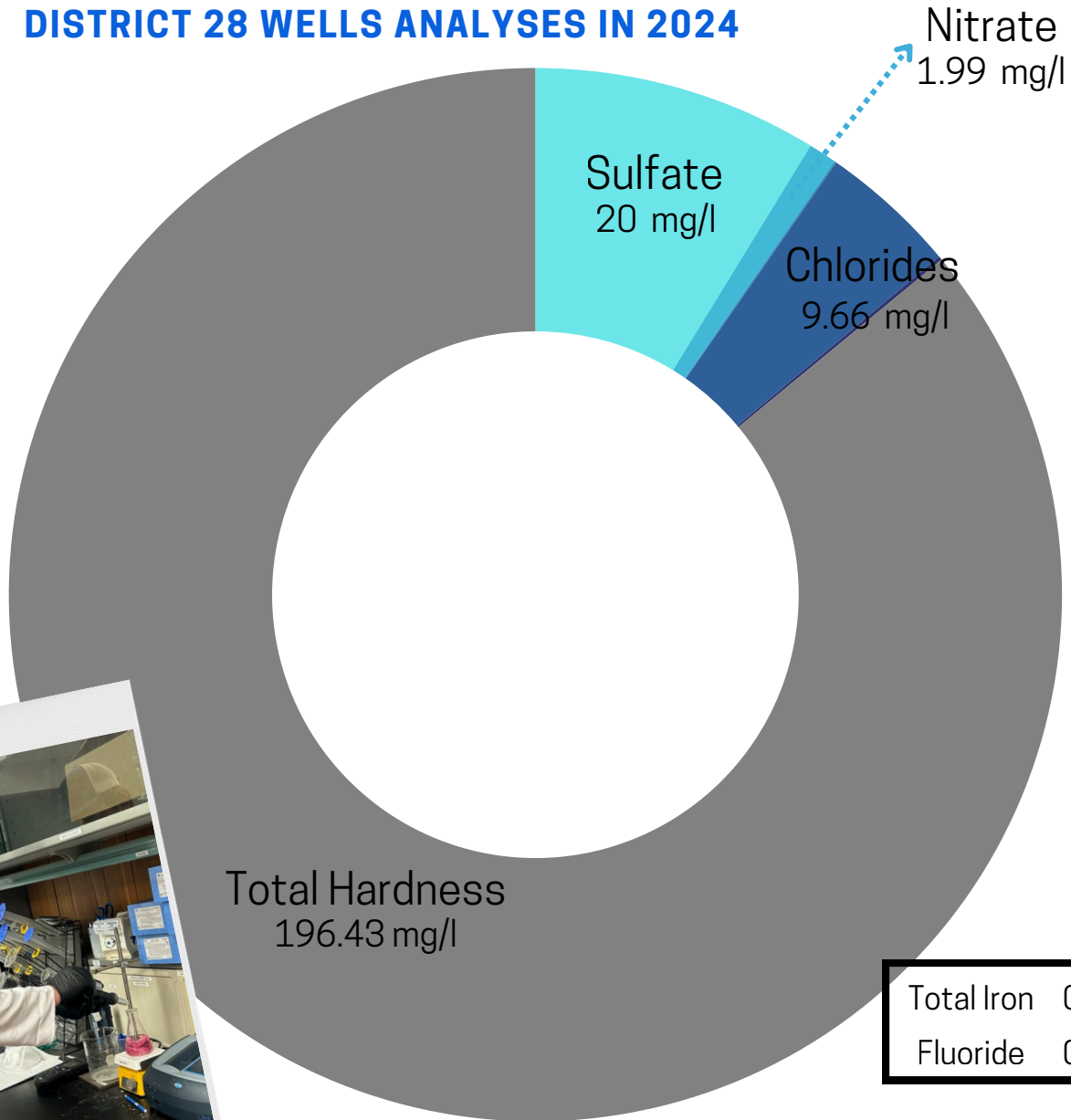
Action Taken: District staff collected water samples from 28 monitor wells across the District in 2024.



b. Annually, District staff will summarize their water quality activities and make the information available to the Board and the public.

Action Taken: In 2024, water samples were analyzed from 28 monitor wells. Water quality results were reported in aggregate in the 2024 Hydrologic Report presented to the Board of Directors on September 17, 2025.

AVERAGE MINERAL ANALYSES FROM WELLS WITHIN THE DISTRICT 28 WELLS ANALYSES IN 2024



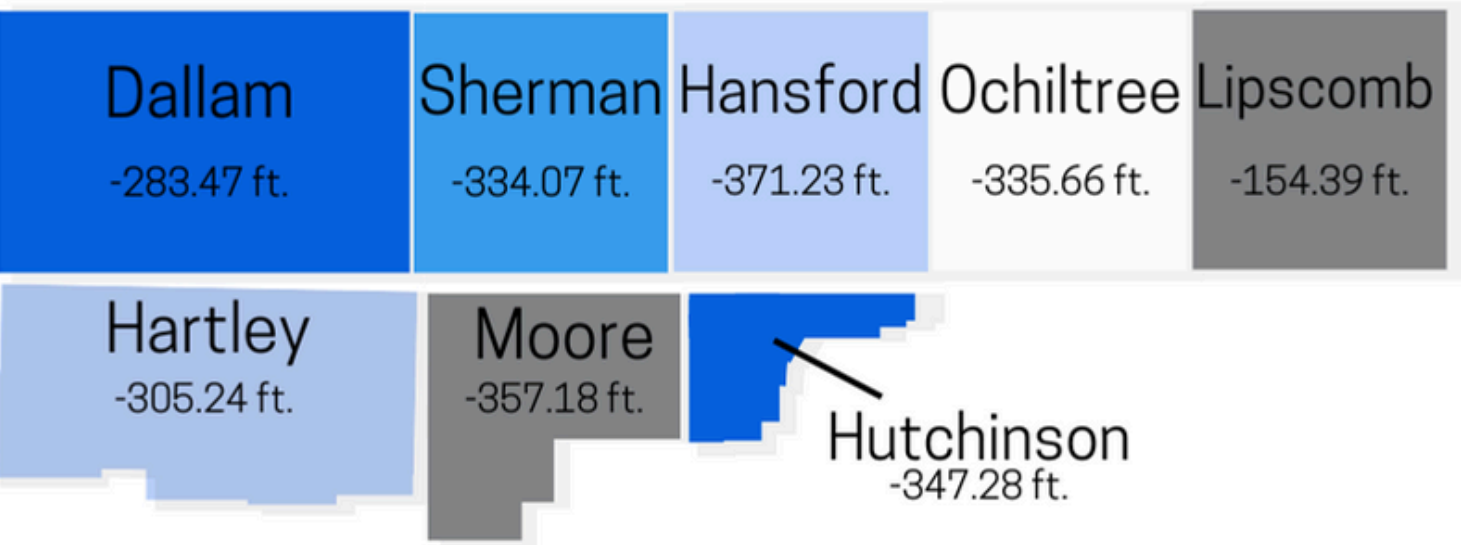
c. Annually, District staff will visit 90% of the District's monitor well network of over 300 wells and collect aquifer water level measurements from 70% percent of the designated monitor sites

Action Taken: The District staff visited 100% of the 456 monitor wells in 2024, staff were able to get water level measurements from 84.87% of the wells in the network.

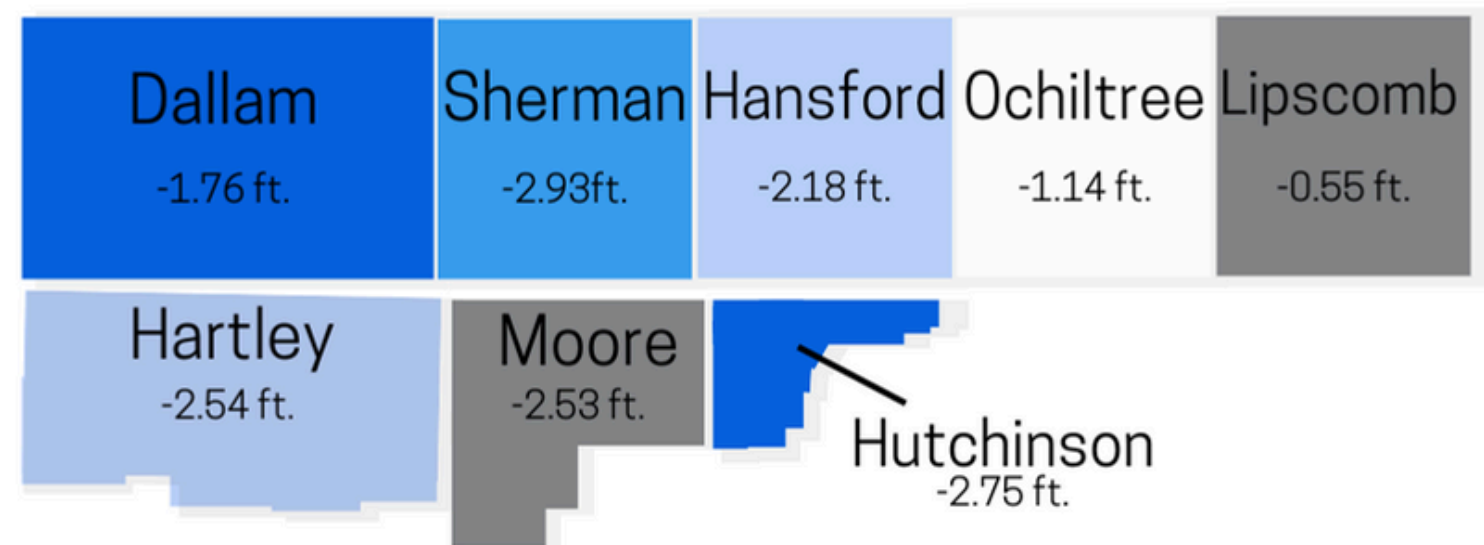
d. Annually, District staff will summarize groundwater level declines and average depth to water and make the information available to the Board and the public

Action Taken: Water levels for select District wells were measured in January and February of each year and reported in the annual Hydrologic Report.

AVERAGE DEPTH TO WATER BY COUNTY



AVERAGE DECLINE BY COUNTY





E2. Deteriorated Wells

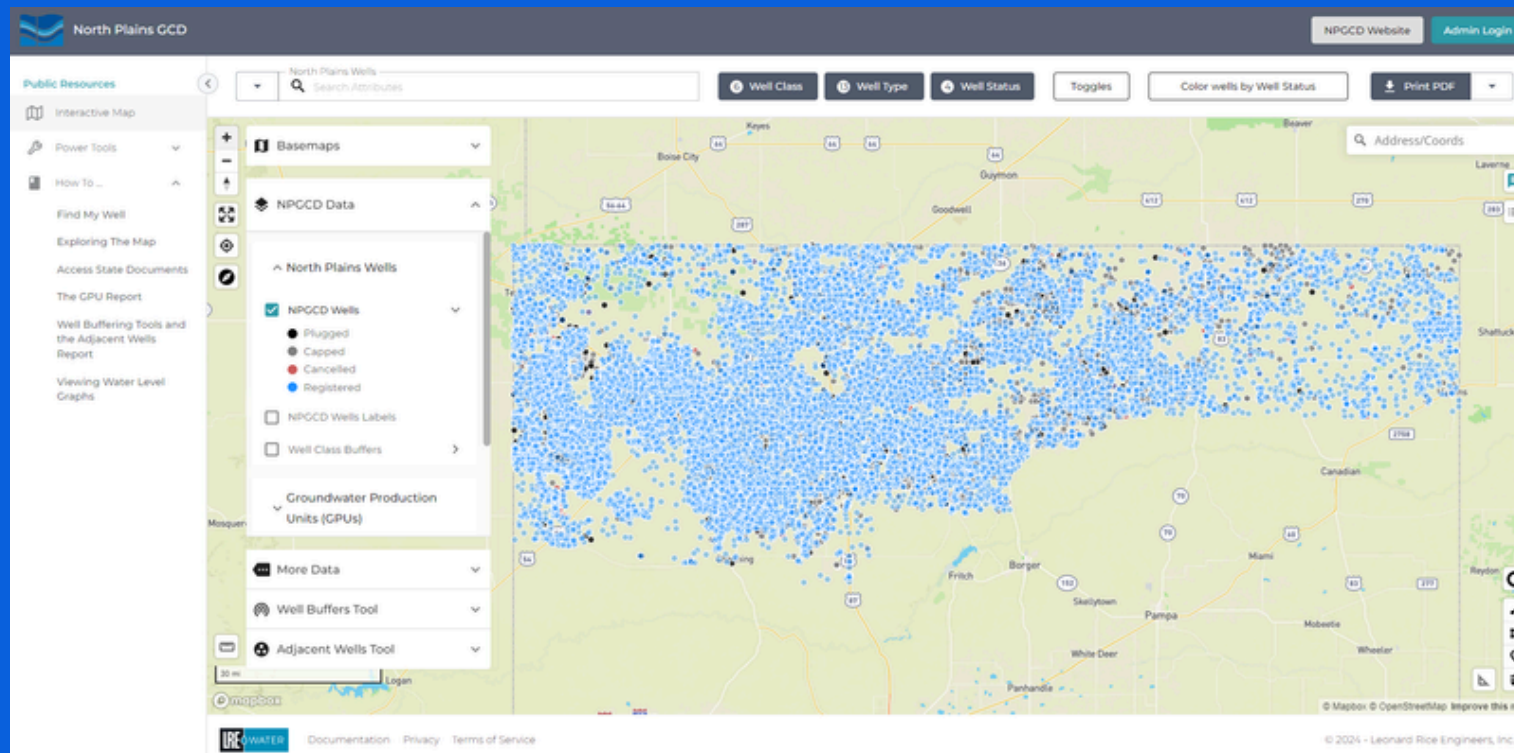
Management Objective: Review District rules 4.1 and 4.9 to consider if any changes are necessary to protect the groundwater resources of the District due to deteriorated wells.

Performance Standard: Annually, the District will review its rules regarding deteriorated wells and a summary of the review will be included in the annual report.

Action Taken: In 2024, District staff observed one (1) deteriorated well as defined by the Chapter 4 of the District Rules. The well was followed up and plugged as of 2024, per the District Rules and TDLR requirements.



NPGCD INTERACTIVE WELL MAP



E3. Aquifer Information

Management Objective: The District will provide access to public information available about the aquifers and wells within the District’s jurisdiction.

Performance Standards: Annually, the District will produce a hydrologic report and present it to the Board of Directors.

Action Taken: The public can view a variety of maps and publications related to District groundwater resources on the District’s website at www.northplainsgcd.org.

North Plains Groundwater Conservation District lies in an area of the State of Texas that has a year-round, semi-arid climate. Semi-drought conditions are experienced year-round, and the District works to educate the public about methods to conserve water all year, but particularly during dry periods.

F1. Current Drought Conditions

Management Objective: Provide information about the current drought conditions in the area at the following link: <https://northplainsgcd.org/aquifer-data-maps/drought-monitor-map/> . Additional information is available at www.waterdatafortexas.org and <https://northplainsgcd.org/conservationprograms/communityedu/>.

Performance Standards: Report the drought monitor information at least quarterly to the Board and to the public through the District's website, social media, and/or newsletter.

Action Taken: The District links the weekly drought monitor published by the National Drought Mitigation Center at University of Nebraska – Lincoln on the website at www.northplainsgcd.org.

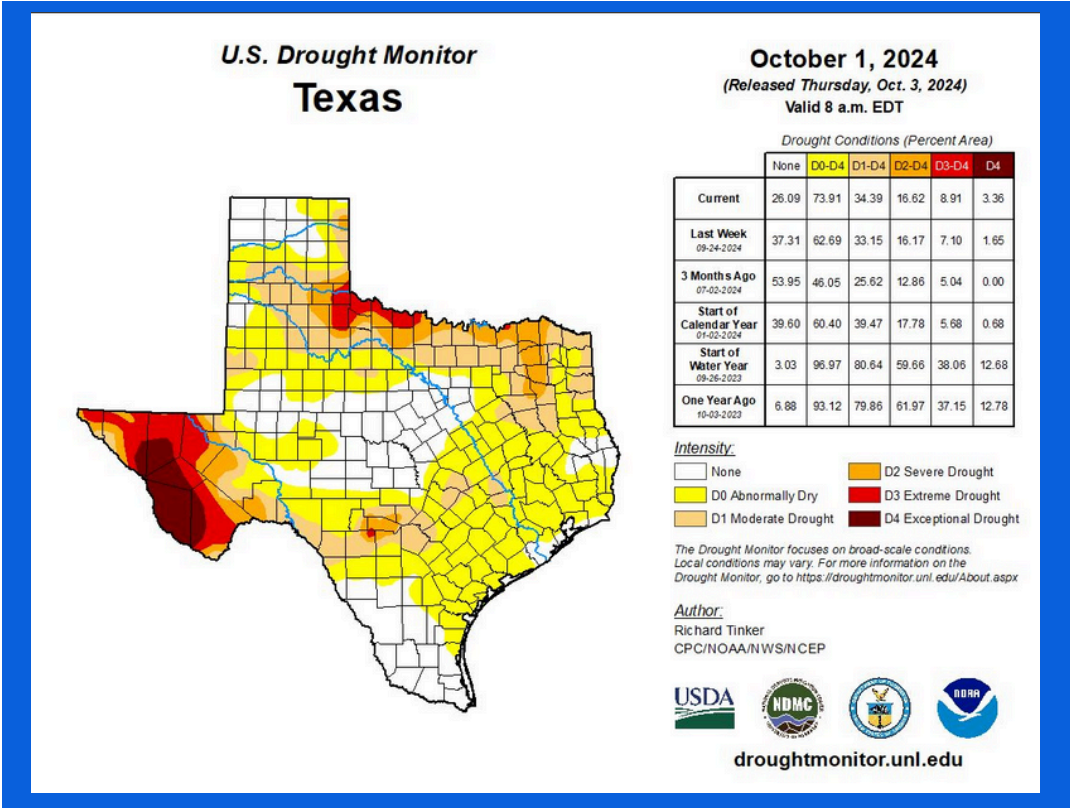
F2. Conservation Education

Management Objective: Provide stakeholders with information and tools to conserve during dry and peak use periods.

Performance Standards: Annually, the District will conduct a minimum of three (3) water conservation communications and education activities.

Action Taken: Drought conditions and water conservation tips were communicated through the District's social media accounts, newsletters and website during 2024. The District held a Xeriscaping Class on April 30th for the community as well as reconized Xeric Zone homes through out the District.

EXAMPLE POSTS FROM NPGCD SOCIAL MEDIA PAGES FROM 2023



Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, and Brush Control, Where Appropriate and Cost-Effective

G1. Conservation

a) Groundwater Conservation Reserve Program

Management Objective: Provide program allowing permitted well owners that timely report their groundwater production to retain any unused allowable annual production for future years, promoting the conservation of groundwater.

Performance Standards: Annually, District staff will report to permitted well owners the well owner's available conservation reserve on the annual production reporting form.

Action Taken: The District reported cumulative and available groundwater conservation reserve to each non-exempt well owner, or the well owner's agent, as part of 2024 Annual Allowable Production reporting forms emailed or mailed by November 30, 2024 for production year 2024.

In 2024, the total reserve banked by all GPU's was 6,131,152.72 acre-feet. Conservation reserve is the amount of water conserved by producers who use less than their annual allowable. The banked conservation reserve is available to them for up to five years to increase their annual allowable by up to ½ acre-foot per acre.

b) Conservation Education

Management Objective: Conduct conservation education activities to encourage water conservation.

Performance Standards: Annually, the District will disseminate groundwater conservation and waste prevention information through a variety of media, activities, and events.

Action Taken: The District used traditional and social media to communicate conservation messages in 2024.

-The district newsletter was distributed to approximately 1800 people via email. A link to sign up to the District’s Newsletter is available on the District’s website.

-Live grower demonstrations continued in 2024 with the Grower Education presentations at the Annual Pioneer Crop Production Meetings in January. The event, featuring Assistant General Manager – Conservation Outreach, Kirk Welch, covered the demonstrations conducted at the North Plains Water Conservation Center. In addition, Dr. Steve Amosson presented information about the annual Master Irrigator program.



DISTRICT CONSERVATION OUTREACH ACTIVITIES 2024

January 13, 14, & 16

Pioneer Crop Meeting - District Projects and Master Irrigator
Dalhart, Dumas, & Stratford (most cancelled due to weather)

February- March (1 per week for 4 weeks)

Master Irrigator - intensive irrigation conservation class for agricultural producers, taught by experts

April 30th

Xeroscape Class held in Dumas with approximately 20 participants.

May 13, 14, 15 & 16

4th Grade Water Festival - 600 students
Perryton, Dumas, & Dalhart

July 14

Approximately 20 4-H2O Water Ambassadors Visit to WCC

August 1-3

XIT Rodeo and Reunion -
Staff volunteered to run drink stands



Xeroscape Class



Dumas Water Festival



Dalhart Water Festival



Sponsored Table

August 20, 21, & 22

Texas Alliance of Groundwater Districts (TAGD) Annual Groundwater Summit- NPGCD sponsored the event's mobile app with 400 attendees.

November 12

Farm Bureau Ag Days

Dumas, staff presented edible aquifer presentation to 300 4th grade students

November 13

Texas A&M AgriLife Extension

Dumas, staff taught 400 8th grade students playing Wateria game

December 1, 2, & 3

Amarillo Farm and Ranch Show

December 30

Rainwater Harvesting Class

G2. Recharge Enhancement

The District has limited surface water resources to achieve enhanced recharge through diversion or infiltration of surface water. The District explored recharge enhancement through its precipitation enhancement program, and the District discontinued funding for the program in 2006. The District could not quantify if, or to what extent, the program positively affected recharge or groundwater use in the District. The Board of Directors determined recharge enhancement through surface water diversion, infiltration, or precipitation enhancement is not currently viable or practical. For this management plan, this goal is not applicable to the District.

G3. Rainwater Harvesting

Management Objective: The District promotes rainwater harvesting by maintaining rainwater harvesting information at the District Office and provides literature about its benefits at a public meeting held at least once annually.

Performance Standards: Annually District staff will report to the Board of Directors the number of people who attended the annual rainwater harvesting meeting and provide a summary of the discussion.

Action Taken: In 2024 a Rainwater Harvesting Event was held at in Dumas at the District Offices with 3 people from the community in attendance, a report was given at the January 7, 2025 meeting.

G4. Precipitation Enhancement

The District discontinued its funding for the precipitation enhancement program in 2006. The District could not quantify if, or to what extent, the program positively affected recharge or groundwater use. The Board of Directors determined that precipitation enhancement is not currently viable or practical. For this management plan, this goal is not applicable to the District.

G5. Brush Control

The District has a semi-arid climate, has very little surface water, experiences low annual rainfall and has a depth to groundwater exceeding 300 feet. Considering the District's low rainfall, depth to groundwater and lack of surface water resources; brush control as a form of recharge enhancement or groundwater conservation is not practicable or effective. The District has determined that brush control is not a viable groundwater conservation goal for this area and is therefore not applicable.



H1. Compare DFCs to Aquifers' Conditions

Management Objective: Monitor the condition of the aquifers and status of groundwater production compared to the adopted DFCs.

Performance Standards: Annually review groundwater production information, GAMs, and water level measurements to characterize aquifer conditions compared to the DFCs.

Action Taken: The Board reviewed groundwater production information, GAMs, and water level measurements to characterize aquifer conditions compared to the DFCs on July 16, 2024 at the North Plains Water Conservation Center.



H2. Joint Planning

Management Objective: The District will participate in the joint planning process of the Groundwater Management Area 1 with other groundwater conservation districts.

Performance Standards: A District representative will participate in each GMA-1 joint planning meeting.

Action Taken:

January 10

GMA 1 Joint Planning.

Attendance:

- Steve Walthour - GM NPGCD
- Bob Zimmer - Director NPGCD
- Danny Krienke - Director NPGCD

May 9

GMA 1 Joint Planning.

Attendance:

- Steve Walthour - GM NPGCD
- Bob Zimmer - Director NPGCD
- Danny Krienke - Director NPGCD

July 18

GMA 1 Joint Planning.

Attendance:

- Steve Walthour - GM NPGCD
- Bob Zimmer - Director NPGCD
- Danny Krienke - Director NPGCD

November 14

GMA 1 Joint Planning.

Attendance:

- Steve Walthour - GM NPGCD
- Bob Zimmer - Director NPGCD
- Danny Krienke - Director NPGCD



H3. Allowable Production Limitation

Management Objective: Manage groundwater withdrawal amounts based on allowable production limits to achieve DFCs.

Performance Standards: The Board of Directors will review groundwater withdrawal amounts annually, and may modify annual allowable groundwater production limits consistent with its Rules to achieve the DFCs and preservation of the groundwater resources in the region.

Action Taken: The Board of Directors reviewed annual groundwater withdrawal on Tuesday, June 20, 2023. The Board meeting was conducted via video conference and teleconference. The Board determined it was not necessary to modify production limits.

Other Management Goals Included in The Plan by the District

No other management goals are listed at this time.