

**Annual Report
to the
Board of Directors
on
Attainment of Management Plan Goals
and
Selected Activities
of the

South Plains Underground
Water Conservation District**



Fiscal Year 2019

September 1, 2018 through August 31, 2019

**PO Box 986
Brownfield, TX 79316
806-637-7467**

South Plains Underground Water Conservation District

Board of Directors

<u>Name</u>	<u>Representing</u>	<u>Term Ends</u>
Matt Hogue, President	Precinct 2	May 2022
Larry Yowell, Secretary	Director-at-Large	May 2020
Tye Day, Member	Precinct 3	May 2020
David Swaringen, Member	Precinct 1	May 2020
Barrett Brown, Member	Precinct 4	May 2022

Report Prepared By

Lindy Harris

Manager

Table of Contents

District Mission Statement.....	1
Introduction and Overview	2
Report on Attainment of Goals	
Goal 1.0 Providing the Most Efficient Use of Groundwater	
Management Objectives	
1.01 Water Level Monitoring	3
1.02 Technical Field Services	3
1.03 Laboratory Services	3
1.04 Irrigation Monitoring	3
1.05 Irrigation System Inventory	4
Goal 2.0 Controlling and Preventing Waste of Groundwater	
Management Objectives	
2.01 Well Permitting and Well Completion	4
2.02 Open, Deteriorated or Uncovered Wells.....	5
2.03 Maximum Allowable Production.....	5
2.04 Water Quality Monitoring.....	5
Goal 3.0 Controlling and preventing subsidence.....	5
Goal 4.0 Conjunctive surface water management issues.....	5
Goal 5.0 Natural resource issues	5
Goal 6.0 Drought Conditions	
Management Objectives	
6.01 Rain gages.....	5
Goal 7.0 Conservation	
Management Objectives	
7.01 Classroom Education	6
7.02 Newsletter	6
7.03 News Releases	6
7.04 Public Speaking Engagements.....	7
7.05 Printed Material Resource Center and Technical File	6
7.06 Saturated Thickness Maps	7
7.07 Conservation Literature	7
Goal 8.0 Recharge Enhancement.....	7
Goal 9.0 Rainwater Harvesting	
Management Objectives	
9.01 Public Awareness Program.....	7
Goal 10.0 Precipitation Enhancement	8
Goal 11.0 Brush Control.....	8

Goal 12.0 Desired Future Condition of the Aquifers

Management Objectives

12.01 Calculate Annual Drawdown9

Other Activities10

Summary12

District Mission Statement

The South Plains Underground Water Conservation District will develop, promote, and implement management strategies to provide for the conservation, preservation, recharging, and prevention of waste of the groundwater resources, over which it has jurisdictional authority, for the benefit of the people that the District serves.

Introduction and Overview

SB 1, 75th Texas Legislature (1997), requires groundwater conservation districts governed by Chapter 36, Texas Water Code, to submit management plans for certification by the Texas Water Development Board. The management plans must specifically address the following management goals as applicable:

1. providing for the most efficient use of groundwater
2. control and prevention of the waste of groundwater
3. control and prevention of subsidence
4. conjunctive surface water management issues
5. natural resource issues
6. drought conditions
7. conservation
8. recharge enhancement
9. rainwater harvesting
10. precipitation enhancement
11. brush control
12. desired future condition of the aquifers

The management plans must also identify the performance standards and management objectives under which each district will operate to achieve their management goals.

The current District Management Plan is effective until November 2023. After notice and hearing, the Board of Directors officially adopted the plan on October 9, 2018. The plan was certified by the Texas Water Development Board on November 14, 2018

This annual report is a review of the District's activities for fiscal year 2019 and an evaluation of the District's performance in meeting its goals and objectives.

Report on Attainment of Goals

Goal 1.0 Providing the most efficient use of groundwater

Management Objective 1.01—Water Level Monitoring

During the winter of 2019, a total of 146 wells were measured (139 Ogallala and 7 Edwards-Trinity (High Plains)).

Performance Standards

1.01a—146 wells were measured in 2019

1.01b--0 wells added to the network

Management Objective 1.02—Technical Field Services

40 requests for Technical Field Services were fulfilled in 2019. This is 2 more than the 38 requests in 2018.

Some tests were made for prospective land buyers.

Performance Standards

1.02a—40 field service requests were fulfilled

Management Objective 1.03—Laboratory Services

The total number of lab tests performed for producers in 2019 was 38. This is more than the 19 tests run in 2018. These requests concern the suitability of irrigation water for certain crops.

Also, 2 bacteria tests were run in 2019, compared to 11 in 2018. Neither of the tests were positive for either coliform or e-coli bacteria.

Performance Standards

1.03a—40 lab service requests were fulfilled

1.03b—61 records entered in database. Some of the results were from previous years, or from an outside lab.

Management Objective 1.04—Irrigation Monitoring

2019 marks the seventeenth year for the District’s Flow Meter Program. With the help of approximately 35 cooperators, the District reads flow meters during the growing season to determine water usage on various crops. Water usage for 2019 will be calculated at the end of the growing season. The following table contains a summary of irrigation water applied during previous years. The data received from the flow meter readings also helps the District calculate water efficiency in crop production.

	<u>Cotton</u>	<u>Peanuts</u>	<u>Grain</u>	<u>Wheat</u>
2002	8.44 in	19.35 in	6.00 in	7.00 in
2003	10.79 in	19.85 in	5.30 in	5.87 in
2004	7.99 in	14.46 in	0.49 in	6.25 in
2005	9.86 in	16.59 in	0.50 in	3.42 in

2006	14.09 in	20.51 in	7.03 in	5.71 in
2007	6.52 in	13.36 in	9.16 in	3.34 in
2008	10.70 in	13.78 in	5.78 in	9.61 in
2009	13.46 in	20.81 in	8.35 in	8.07 in
2010	10.15 in	14.69 in	4.43 in	4.42 in
2011	17.92 in	24.58 in	N/A	7.54 in
2012	12.59 in	25.19 in	5.32 in	6.24 in
2013	14.71 in	23.02 in	15.98 in	8.95 in
2014	11.29 in	14.23 in	7.14 in.	5.94 in
2015	5.52 in.	8.90 in.	5.09 in.	5.94 in.
2016	8.34 in.	10.90 in.	2.00 in.	3.33 in.
2017	9.91 in.	13.64 in.	1.81 in.	1.45 in.
2018	11.74 in	17.08 in.	3.54 in.	3.82 in
Average	10.82 in.	17.11 in.	5.17 in.	5.50 in.

Table 1: Average Irrigation Application for Selected Crops (source: SPUWCD meters)

Performance Standards

1.04a—In 2019 there were 61 irrigation systems in the cooperative program

1.04b—Each year, the crops which are monitored vary according to what producers plant. In 2019, 7 different crops were monitored. These crops included cotton, peanuts, wheat, watermelons, pumpkins, peas, and grapes.

1.04c—The table above shows the irrigation application for the major crops monitored.

Management Objective 1.05—Irrigation System Inventory

The District conducted an Irrigation System Inventory in 2018

Performance Standards

1.05a—No Irrigation System Inventory was required in 2019

1.05b—1,403 pivots and, 129 sub-surface/above-ground drip type irrigation systems are active and entered in District’s database.

Goal 2.0

Controlling and Preventing Waste of Groundwater

Management Objective 2.01—Well Permitting and Completion

Since March 1993, the District has issued 3,428 permits. The number of permits issued during 2019 was 130. This is lower than the 202 issued in 2018. May had the highest number of permits issued (18). Of the permits issued, 12 were either not used or a well was not completed. Also, 171 wells, which include irrigation and domestic, were inspected during 2019 to insure proper completion and spacing. At the time of inspection, the GPS location of each well is obtained. This information is added to the data base. The coordinates are also added to the District’s ArcMap program so that all wells can be mapped. Currently 6,437 (79.8%) of the 8,058 wells within the District have GPS coordinates associated with them.

Performance Standards

2.01a—130 permits issued

2.01b—171 well sites inspected

Management Objective 2.02—Open, Deteriorated or Uncovered Wells

Open or uncovered wells are discovered in one of two ways:

1. a person reports it to the District office, or
2. District staff discovers the well during a field visit

No deteriorated or uncovered wells were reported to or discovered by District staff during 2019.

Performance Standards

2.02a—0 open, deteriorated or uncovered well reported to the District

2.02b—N/A initial inspection

Management Objective 2.03—Maximum Allowable Production

No instances of a maximum production violation were discovered this year

Performance Standards

2.03a—N/A

Management Objective 2.04—Water Quality Monitoring

Water quality samples were taken from 31 domestic wells during the summer of 2019. These samples were sent to the LCRA Environmental Laboratory Services in Austin for extensive analysis. The analysis included the following parameters: conductivity, nitrate/nitrite, chloride, fluoride, sulfate, arsenic and total organic carbon. Lab reports were mailed to participants. An interactive map with the 2019 results is posted on the District’s website.

Performance Standards

2.04a—31 samples collected and analyzed.

Goal 3.0 **Controlling and preventing subsidence**
(not applicable)

Goal 4.0 **Conjunctive surface water management issues**
(not applicable)

Goal 5.0 **Natural resource issues**

Performance Standards

The District received no complaints related to surface water, groundwater, or any natural resource within the District.

Goal 6.0 **Drought Conditions**

Management Objective 6.01—Rain Gauges

The District maintains a network of 36 electronic rain gauges. These gauges allow staff to gather rainfall information at any time, not necessarily at the end of each month. The exact time and amount of rain collected is downloaded from the gage to a computer. This information is published on the District’s web site. Rainfall for the years 2011-2019 are available on the District’s web site.

Performance Standards

6.01a—36 rain gauges in District network

Goal 7.0

Conservation

Management Objective 7.01—Classroom Education

During 2019, 8 presentations were made to the schools within the District. Also, at the beginning of the school year, 4th and 5th grade science teachers received a gift basket which included information about curriculum and the District's availability to give presentations to the students.

Performance Standards

7.01a—The District made 8 presentations at schools.

- September—Kids Farm Tour (4th grade)
- October—Kids, Kows & More (5th grade)
- February—Calendar presentations (4th and 5th grades)
- April—Education Trailer at Oak Grove (5th grade)
- April—Western Day at Colonial Heights (K-1st grade)
- May—Calendar winner presentations (4th and 5th grades)

Management Objective 7.02—Newsletter

Two editions of the District's newsletter, *South Plains Groundwater News*, were published during 2019. The March edition of the newsletter contained a history of water level measurements from the District's network of water level measurement wells. Also included was a map of the District showing locations of the measurement wells.

Performance Standards

7.02a—Two newsletter editions were published

7.02b—1,134 newsletters were distributed

Management Objective 7.03—News Releases

Ten news articles were published in the *Brownfield News* during 2019. The news articles included items concerning conservation, groundwater awareness, educational activities, and rainwater harvesting. Once again, the District was a sponsor of the Ag Section in the Sunday edition of the local newspaper.

Performance Standard

7.03a—Ten news releases were published in the local newspaper

Management Objective 7.04—Public Speaking Engagements

The District fulfilled 6 public speaking engagements during 2019. These included:

- November—Lions Club
- January—South Plains Ag Conference
- February—Young at Heart (Calvary Baptist Church senior group)—rainwater harvesting presentation
- April—Lions Club—rainwater harvesting
- February, March and April—Town Talk Radio

- May—Rainwater Harvesting Workshop

Performance Standard

7.04a—Six programs were presented

Management Objective 7.05—Printed Material Resource Center

Thirty-six (36) different publications are displayed in the reception area of the office. These publications are obtained from various sources, including the TWDB, the USGS and AgriLife Extension Service. District staff developed twelve of the brochures.

163 items were distributed from the resources center.

Performance Standards

7.05a—There were 59 items on conservation, 39 on rules/management plan, 14 on water quality, and 51 on general information procured by the public from the resource center. Also, rule books were given to permit applicants as a part of the permitting process.

Management Objective 7.06—Saturated Thickness Maps

A new saturated thickness map was created in 2016.

Performance Standards

7.06a—1 saturated thickness map is available in the District office. The map is also available on the District’s web site. Real estate agents and prospective land buyers frequently request this document. Eight maps were obtained from the resource center.

Management Objective 7.07—Conservation Literature

Nine publications displayed in the reception area of the office are devoted to water conservation for the home and the farm.

Performance Standards

7.07a—9 publications are dedicated to water conservation

7.07b—59 items were obtained by the public

Goal 8.0 **Recharge Enhancement**
(not applicable)

Goal 9.0 **Rainwater Harvesting**

Management Objective 9.01—Public Awareness Program

In 2019, the District continued emphasizing rainwater harvesting.

- In 2017, Terry County Judge Wagner proclaimed the first week of May to be Rainwater Harvesting Awareness week. The staff set up at various locations around town throughout that week with our rainwater harvesting display and education trailer. People who stopped by entered to win a rain barrel and rain chain which were given away each of the 3 days.
- In 2019, the District hosted its eighth annual Rainwater Harvesting Workshop. Participants signed up for the workshop which was advertised on the District’s web site, on Town Talk radio and in the *Brownfield News*. At the workshop, a

presentation was given on rainwater harvesting. The workshop participants learned about the District’s rainwater harvesting system and the xeriscape demonstration garden. Rain barrels and rain chains were given to the first 20 participants who signed up for the workshop. Approximately 30 people attended the workshop.

- The District awarded its first “Every Raindrop Counts” award at this year’s workshop. This award recognized a local couple who use rainwater harvesting at their home. This couple has received their rain barrels from attending several previous rainwater harvesting workshops.



Performance Standards

9.01a—Rainwater harvesting information presented to 30 attendees of the Rainwater Harvesting Workshop in May and numerous people who visited our site during Rainwater Harvesting Awareness week.

Goal 10.0 **Precipitation Enhancement**
(not applicable)

Goal 11.0 **Brush Control**
(not applicable)

Goal 12.0 **Desired Future Condition of the Aquifers**

The members of GMA 2 met on November 15, 2018 at the HPWD office in Lubbock. Each GMA 2 district was represented at the meeting. TWDB liaison, Robert Bradley, was also in attendance. The District representatives discussed similar rules in preparation for the upcoming legislative session.

Management Objective 12.01—Calculate Annual Drawdown

Performance Standards

12.01a—The average drawdown results were presented to the District Board at their March Board meeting

12.01b—The average drawdown results were published in the March edition of the *Board of Directors Groundwater News*.

OTHER ACTIVITIES

IRS COST-IN-WATER DEPLETION PROGRAM

2019 was the 20th year the Board of Directors Underground Water Conservation District participated in the IRS cost-in-water depletion program. This program benefits irrigated landowners who have experienced a cash loss due to declining water levels. 36 landowner requests were processed.

SPUWCD.ORG

In 2019, the District web site was given an upgrade to a more modern look. The site provides education and information for District constituents, as well as people state-wide. The web site can be accessed from the Texas Alliance of Groundwater District's web site and is linked from various water district web sites. General information, hydrologic maps, a 2018 Terry County vineyard map, rainfall information, newsletters, rules, management plan and water level data are available on the site. In 2015, a weather station was installed at the District office. The real-time information is accessible on the Home Page. Interactive maps were also added to enhance water levels and water quality information.

HIGH SCHOOL ESSAY SCHOLARSHIP PROGRAM

2019 was the fifth year that scholarships were made available to all 3 high schools in the District. This year's essays topic was the "**The Decline of the Ogallala**". Multiple entries from each school were submitted. The essays were judged by a panel of retired teachers. 1st and 2nd place scholarships were awarded in each high school for a total of \$6,855. For 2019, the District was able to increase the scholarship amounts because of donations to the Scott Hamm Memorial Scholarship Fund. To date, the District has awarded \$20,855 in scholarships.

SOUTHERN OGALLALA CONSERVATION AND OUTREACH PROGRAM

In 2007, the District joined Llano Estacado UWCD and Sandy Land UWCD to form The Southern Ogallala Conservation and Outreach Program (SOCOP) which serves the education needs of the three districts. Through the Education Coordinator hired by SOCOP, more emphasis has been placed on education to students in the three school districts in the SPUWCD.

This year, the 14th annual "Water Conservation Art Contest" for 4th and 5th graders was conducted. Students submitted water conservation art work after hearing a presentation concerning water usage and conservation. The winning art works will be featured in a 2020 calendar to be published and distributed by the District. Approximately one hundred 2019 Water Conservation calendars were distributed throughout the District.

The education website, www.savingH2O.org continues to be a part of the District's public education outreach. This outlet contains water conservation tips and information regarding the District's education program along with curriculum ideas for teachers.

SOCOP participated in and held numerous education programs for the three school districts. Other education outreaches are held within the District through SOCOP.

- Presentations at Kendrick Memorial Library
- Numerous invitations by Town Talk Radio to talk about education programs

- Calendar art contest presentations at all 3 elementary schools.
- Texas 4H Water Ambassadors—SOCOP has been involved in the program since its inception in 2016 through sponsorship donations. This year, a student from Terry County represented the District at the Tier I level. The Ambassador Program allows these students to learn about water in all areas of the State.
- Education Trailer at the “Health Fair on the Square” in July.
- SOCOP Education Trailer—the educational trailer is filled with many lessons about water and water conservation. It continues to travel throughout the District to both student and adult events.

AGRICULTURAL CAREER EXPO (ACE)

In 2012, a group of ag and education professionals held the first Ag Career Expo. The goal of the Ag Career Expo is to inform high school sophomores about the many different education and job opportunities which are available in the agricultural fields. Local colleges, equipment companies and other types of companies which deal in any form of agriculture are represented at the ACE event. The District has participated in each ACE day since its inception.

WATER LEVEL RECORDERS

The District continues to monitor 8 well sites which are equipped with continuous monitoring water level recorders. These devices obtain daily water level measurements. Readings are downloaded periodically, converted to chart form and posted on the District web site. The TWDB also has a continuous water level measurement well. The continuous readings from this well are also available on the Districts web site.

USGS HYDROLOGY STUDY

In 2014, the Board of Directors voted to contract with the USGS to conduct a comprehensive study of the Ogallala and Edwards Trinity aquifers in the District. The objective of the project is to develop an updated regional conceptual model of the hydrogeologic framework, geochemistry and groundwater-flow system of the Ogallala and Edwards-Trinity (High Plains) aquifers within the District. Updates are presented to the Board by USGS staff. In 2015, the Board voted to continue with Phase 2 of the USGS study. The USGS attended the Board meeting on February 12, 2019 and gave an update on their continuing work. The web app has been released for public availability and is already being upgraded to include more components of analyzed data. The project has been completed and USGS staff are working on the final report. The USGS increased their contributions to the project so that the web app can be better maintained.

RAINWATER HARVESTING PROJECT

In 2018, the District was approached by the BISD Ag teacher, Mr. Franks regarding information on rainwater harvesting. The BISD Ag Barns, which house the animals for stock show projects, began having problems with the recently drilled well located at that site. It is important to have grass grow in the animal area to keep grass burrs from overtaking the area and also to keep the dust level down. The well was not able to keep up with water for the animals and water for grass

In 2019, the District funded the purchase and installation of rain gutters on the two metal barns located on the site. Brownfield ISD was able to use tanks which were no longer being used as part of the Bright Beginnings rainwater harvesting system. After those tanks were installed, pipe was purchased and placed to join the tanks to the system.

WOMEN IN AG

2019 was the third year that the District was a sponsor for the annual “Women in Ag” conference. The Terry County Soil & Water Conservation District envisioned that women could come together with their stories about their efforts in agriculture. The day-long event features local and regional women. A wide range of topics including ag loans, estate planning, family ag enterprises, self-defense and even a fashion show have been the highlights of the event.

LEGISLATIVE SESSION

The 2019 86th Legislative session saw a number of bills filed which could have potentially affected the way groundwater districts make and enforce rules and administer their districts. The Texas Alliance of Groundwater Districts (TAGD) monitors bills which could affect districts. As a member of TAGD’s Legislative Committee, the District was able to be aware of important bills. The District and its Legislative counsel contacted legislators and were able to see changes in several bills.

SUMMARY

The original legislative intent of groundwater district performance evaluations through management plan certification and auditing was to answer two main questions:

1. Is the district operational, and
2. Is the district actively engaged in achieving stated goals, objectives, and performance standards?

Without a doubt, the South Plains Underground Water Conservation District is operational and is achieving its stated goals, objectives, and standards.