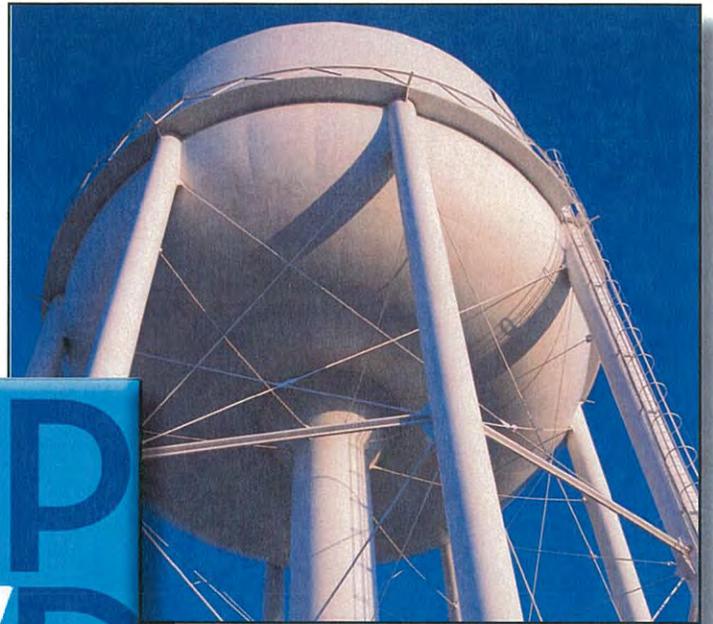


# 2013 Annual Report



**High Plains Underground Water  
Conservation District No. 1**

**2930 Avenue Q  
Lubbock TX 79411-2499**

**[www.hpwd.com](http://www.hpwd.com)**

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**A LOOK BACK AT 2013 (Photos)**

Created by local residents and the state legislature in September 1951, the High Plains Underground Water Conservation District No. 1 marked its 62nd year of operation in 2013.

The High Plains Water District strives to conserve, preserve, and protect the groundwater resources of the Ogallala and Dockum Aquifers within its 16-county service area.

The High Plains Underground Water Conservation District No. 1 consists of all of Bailey, Cochran, Hale, Lamb, Lubbock, Lynn, Parmer, and Swisher Counties, and parts of Armstrong, Castro, Crosby, Deaf Smith, Floyd, Hockley, Potter, and Randall Counties. The district's service area is approximately 11,850 square miles.

The purpose of the High Plains Water District, as required by Chapter 36 of the Texas Water Code, is to provide for conserving, preserving, protecting, recharging, and preventing the waste of underground water.

Since 1951, the Water District has developed a management philosophy and resulting management strategies.

During 2013, staff continued work on the programs outlined in the High Plains Water District's 10-year management plan, which was originally adopted by the Board of Directors on August 11, 1998. The management plan was amended and re-adopted on Jan. 29, 2004, Feb. 18, 2010, and July 19, 2011.

This document contains management goals, performance standards, and responses to the performance standards for fiscal year 2013.

The High Plains Water District expresses its appreciation to the respective group supervisors for their careful documentation of program data and their assistance in compiling this annual report.

***This annual report was reviewed and adopted by the High Plains Underground Water Conservation District No. 1 Board of Directors at their June 10, 2014 regular meeting.***



# High Plains Underground Water Conservation District No. 1

## Board of Directors

James Powell, Vice-President	Precinct One District Director, Lubbock TX
Jim Copeland ( <i>Resigned March 2013</i> )	Precinct Two District Director, Anton TX
Brad Heffington ( <i>Appointed April 2013</i> )	Precinct Two District Director, Littlefield TX
Mike Beauchamp, Secretary-Treasurer	Precinct Three District Director, Friona TX
Lynn Tate, President	Precinct Four District Director, Amarillo TX
Bruce Rigler ( <i>Resigned January 2013</i> )	Precinct Five District Director, Plainview TX
Ronnie Hopper ( <i>Appointed March 2013</i> )	Precinct Five District Director, Petersburg TX

## District Staff

Jim Conkwright ( <i>Retired June 2013</i> )	General Manager
Jason Coleman ( <i>Hired September 2013</i> )	
Patty Bryant ( <i>Resigned July 2013</i> )	Permit Supervisor
Juan Peña ( <i>Appointed July 2013</i> )	
Gerald Crenwelge ( <i>Retired August 2013</i> )	Field Data Collection Supervisor
Carmon McCain	Information/Education Group Supervisor
William F. Mullican III, P.G	Groundwater Consultant

Tammy Anderson ( <i>Hired October 2013</i> )	Accountant
Billy Barron	Field Technician
Terry Bridges	Field Technician
C. J. Campbell	Field Technician
Liz Casias	Receptionist/Administrative Assistant
Kathryn CdeBaca ( <i>Retired June 2013</i> )	Executive Secretary
Irma Clark	Administrative Assistant (Amarillo)
Lee Cranmer	Field Technician
Jim Crownover ( <i>Resigned September 2013</i> )	GPS Specialist
Ray Eads	Field Technician (Amarillo)
Lance Epperson	Field Technician
Adeline Fox ( <i>Hired September 2013</i> )	Outreach and Education
Mark Hamilton	Field Technician
Greg Holder	Field Technician
Pat Kunkel ( <i>Retired November 2013</i> )	Bookkeeper
Jed Leibbrandt	GIS Specialist
Mike McGregor ( <i>Resigned January 2013</i> )	Project Coordinator
Gray Sanders	Field Technician
Sherry Stephens ( <i>Resigned September 2013</i> )	Executive Assistant
Keith Whitworth	Draftsman/Field Technician Supervisor

## **County Secretaries**

Irma Clark .....	Armstrong County
Janet Morgan and Shani Nichols .....	Bailey County
Karleen Hoelting .....	Castro County
Wayne Butler .....	Cochran County
Patty Bryant / Juan Peña.....	Crosby County
Deann Martin .....	Deaf Smith County
Judy Thayer .....	Floyd County
*Sharon Perkins .....	Hale County
Linda Smith .....	Hockley County
Brenda Grace.....	Lamb County
Patty Bryant / Juan Peña .....	Lubbock County
Patty Bryant / Juan Peña .....	Lubbock County
John Mars .....	Parmer County
Bruce Blake .....	Potter County
Irma Clark .....	Randall County
Karleen Hoelting .....	Swisher County

\* Ms. Perkins retired in July 2013 with 19 years' service to the district.

## **County Advisory Committees**

COUNTY	MEMBERS
<b>Armstrong</b>	Jim Bob Burnett, James Stockett, and James Watson.
<b>Bailey</b>	Nick Bamert, John Bruce Barrett, Tim Black, Jim Pat Claunch, and Eric McElroy.
<b>Castro</b>	Darrell Buckley, Donny Carpenter, Kirk Farris, Coy Myrick, Vic Nelson, Max Swinburn, Paul Wayland, and Dale Wilhelm.
<b>Cochran</b>	Tommy Carter, Curtis Griffith, and Scott Simpson.
<b>Crosby</b>	David Appling, Dusty Cornelius, Wayne Laminack, John Schoepf, Brad Thornhill and Heath Verett.
<b>Deaf Smith</b>	Frankie Bezner, Michael Carlson, Andrew Gee, Chris Grotegut, Scott Hall, Andy Schaap, and Harold Sides.
<b>Floyd</b>	Ray Brady, J.O. Dawdy, Boyd Jackson, Warren Mitchell, Kerry Pratt, and John Woelful.
<b>Hale</b>	Rob Bass, Gaylord Groce, Jeff Harrell, Brad Martin, John Ross, and Jimmy Sageser.
<b>Hockley</b>	David Carter, George Childress Jr., R.E. Hensley, Raymond Marek, Donald Rhoades, and Preston Turner
<b>Lamb</b>	Kerry Faver, Dustin Jennings, Steve Johnson, David Lawrence, Kevin Riley, Tullie Struve, and William A. Thompson Jr.
<b>Lubbock</b>	Gary Evitt, Lynn Harrist, Tracy Kitten, Dr. Dan Krieg, and Rodney Terry.
<b>Lynn</b>	Ty Askew, Kevin Buxkemper, Craig Heinrich, Ralph Huffaker, Stacy Smith, and Mike White.

COUNTY	MEMBERS
Parmer	Tony Beauchamp, Jerry Don Glover, Chris Ingram, Terry Jesko, Steve Kaltwasser, Josh McDonald, Todd Ware, and Ryan Williams.
Potter	Bruce Blake
Randall	Charles Allison, Randy Darnell, Clinton Glenn, Dillon Pool, Pat Scarth, and David Winters.
Swisher	Brian Borchardt, Trent Finck, Cindy Hurt, Max Moore, and Jeremy Reed.

## September 18, 2013 County Advisory Committee Meeting at Lubbock



Nick Bamert, Jim Pat Claunch, & Ronnie Hopper



Dr. Dan Krieg and Craig Heinrich



Board President Lynn Tate



Kyle Ingham, Region A Administrator



General Manager Jason Coleman



Kevin Buxkemper, Randy Darnell, and Andrew Gee

## **GOAL ONE:**

**Maintain hydrologic data collection programs necessary to make informed decisions for the effective and efficient management and conservation of groundwater resources.**

### **MANAGEMENT OBJECTIVE 1.1 – Monitor Water Levels**

Estimate the volume of available groundwater by maintaining an observation well network of approximately one well per nine square miles, or approximately 1,300 wells within the district. This water level observation network was established several decades ago in order to allow the district to monitor trends and changes in water levels in wells in the Ogallala Aquifer within the district's service area.

Data from the observation well network is used:

- to analyze historic and current trends in water level declines—including the volume of water remaining in the Ogallala Aquifer within the district;
- to quantify annual depletion values for individual producers;
- by the U.S. Internal Revenue Service to establish annual depreciation amounts for individual properties resulting from use of groundwater resources;
- and by the district's Board of Directors as it contemplates policy decisions regarding desired future conditions and resulting revisions to management plans and rules.

### **Performance Standards**

- 1.1a** The depth-to-water below land surface was measured in 1,355 privately-owned water wells in the district's observation well network.
- 1.1b** Approximately 57 new observation wells were added to the district's network in 2013 for use in the 2014 Winter Water Level measurements.
- 1.1c** Current water level measurements were compared to previous measurements. Calculations were made to determine the rise/decline in each well for the past year, the past five years, and past 10 years.

The results of the annual Winter Water Level measurements were published in the May 2013 issue of *The Cross Section*. The average annual change for the one-year period (2012-2013) was -1.87 feet; the average annual change for the five-year period (2008-2013) was -1.40 feet; and the average annual change for the 10-year period (2003-2013) was -0.89 of a foot.

Depletion maps demonstrating the changes in water levels and hydrographs depicting water trends were not published in the district's newsletter in 2013.

- 1.1d** Depletion information was supplied to 3,400 landowners in 2013 for tax year 2012. Approximately 169 were first time requests. These data were also supplied to U.S. Internal Revenue Service engineers for approval for use in the district's cost-in-water income tax depletion allowance program.
- 1.1e** Continuous recording transducers were maintained in 23 observation wells to collect water level data for evaluation throughout the year. These data are also used to evaluate the level of recovery in Ogallala Aquifer water levels between growing seasons.

**MANAGEMENT OBJECTIVE 1.2 – Update, publish, & distribute hydrologic atlases.**

On a five-year basis beginning in 2014, the district will construct and publish a hydrologic atlas for each county or portion of a county within the district. These maps will be made available to the public.

Each atlas contains a descriptive booklet and four maps:

- The approximate altitude of the base of the Ogallala Formation;
- The approximate altitude of the water table in the Ogallala Formation;
- The approximate altitude of the land surface;
- The approximate saturated thickness of the Ogallala Formation within the county or portion of a county within the district.

**Performance Standard**

- 1.2a** At the end of 2013, the district discontinued print publication of its hydrologic atlas series. Instead, updated PDF files of the 2012 hydrologic atlas series were produced and made available to the public on the HPWD web site at <http://www.hpwd.com/maps-and-charts/groundwater-condition-maps>

## **GOAL TWO:**

### **Promote the most efficient use of groundwater.**

The district maintains a qualified staff to assist water users in protecting, preserving, and conserving groundwater resources. The Board of Directors has in the past and continues today to base its decisions on the best data available to treat all water users as equitably as possible. The Board of Directors determines the programs and activities that it will undertake to provide the best possible water conservation and management services to the area. District rules are enforced to protect the quantity and quality of the groundwater and to prevent the waste of the resource.

### **MANAGEMENT OBJECTIVE 2.1 – Issue well permits**

The district will issue water well permits for all non-exempt water wells in accordance with its rules. (See Texas Water Code 36.117 for definition of exempt wells.)

#### **Performance Standards**

- 2.1a** At each regularly-scheduled board meeting, staff will report the number of new permit applications received by county that are being recommended for approval—as well as any requests for exception to district rules.
- This is an agenda item at each regular monthly Board of Directors meeting.
  - A summary of permitting activity by county and by aquifer will be included in the annual report (See below).
  - A total of 1,219 water well permit applications were received at the district headquarters in 2013.
  - The total applications by county for the Dockum (“Santa Rosa”) Aquifer in 2013 were:

○ Deaf Smith	6
○ Randall	<u>4</u>
<b>TOTAL</b>	<b>10</b>

- The total applications by county for the Edwards-Trinity Aquifer in 2013 were:

○ Hockley	<u>2</u>
<b>TOTAL</b>	<b>2</b>

- The total applications by county for the Ogallala Aquifer in 2013 were:

○ Armstrong	0
○ Bailey	52
○ Castro	129
○ Cochran	114
○ Crosby	33
○ Deaf Smith	64
○ Floyd	100
○ Hale	151
○ Hockley	130
○ Lamb	170
○ Lubbock	96
○ Lynn	59
○ Parmer	71
○ Potter	0
○ Randall	16
○ Swisher	<u>22</u>
<b>TOTAL</b>	<b>1,207</b>

**MANAGEMENT OBJECTIVE 2.1 – Measure pre-plant soil moisture.**

Staff will take soil moisture readings at sites throughout the district each year. Neutron moisture meters, or equivalent technology, will be used to gather data at six-inch intervals to a depth of six feet or to the caliche layer (whichever is first). Using these data, contour maps illustrating soil moisture conditions will be produced and published before the next crop growing season. This information is also made available to the public through the district’s newsletter and web site. It is also distributed to district news media. Producers are encouraged to use the soil moisture maps as a guide prior to planting.

**Performance Standards**

- 2.2a** Results of the pre-plant soil moisture survey were published in the April 2013 issue of *The Cross Section*. This information was distributed to news media on April 15, 2013 and made available on the district’s web site (<http://www.hpwd.com/ag-and-urban-water-use/pre-plant-survey>).

**GOAL THREE: Control and prevent the waste of groundwater**

**MANAGEMENT OBJECTIVE 3.1 – Maintain an agricultural irrigation tailwater abatement program.**

Preventing the waste of groundwater is one of the basic activities that the district has engaged in since its inception. This effort to reduce water waste includes agricultural; industrial, commercial, and institutional (ICI); and municipal settings.

The district monitors agricultural practices to prevent and terminate the waste of groundwater resulting from the release or loss of irrigation water (“tailwater”) during the irrigation season. Loss of irrigation water from a field is a violation of both state law and HPWD rules.

District rules, taken from Texas Water Code Chapter 36.001(a)(8)(F), defines water waste as it relates to irrigation tailwater as “ *willfully or negligently causing, suffering, or permitting groundwater to escape into any river, creek, natural watercourse, depression, lake, reservoir, drain, sewer, street, highway, road, or road ditch or onto any land other than that of the owner of the well; or groundwater pumped for irrigation that escapes as irrigation tailwater onto land other than that of the owner of the well unless permission has been granted by the occupant of the land receiving the discharge.*” If such an agreement is made, the water must move directly onto the neighbor’s property without crossing property belonging to anyone else or public property.

**Performance Standards**

**3.1a** Approximately seven irrigation tailwater complaints were documented with written reports and photographs within three days of receipt of complaints in 2013.

• Lubbock	6
• Lynn	<u>1</u>
TOTAL	7

**3.1b** Within seven days of the complaint, owners and/or operators of water wells were notified by the district that irrigation tailwater has occurred and that they are responsible for the violation.

**3.1c** Approximately four “first notice” letters of water waste were mailed in 2013. No “second notice” letters were mailed, no letters from attorney were mailed, no lawsuits/injunctions were filed, and no written plans were submitted. All cases were resolved after initial visit and no other violations were found following field check by HPWD personnel.

**MANAGEMENT OBJECTIVE 3.2 – Promote efficient agricultural irrigation technologies.**

Most agricultural producers in the district are making diligent efforts to conserve water—especially during the continuing 2013 drought. They are working to maximize the benefits of little, if any, precipitation received as well as maximizing their irrigation application efficiencies. Most irrigation systems in the Southern High Plains are used only to supplement precipitation—and they cannot provide total crop water demand.

**Performance Standards**

**3.2a** The district did not conduct a center pivot inventory in 2013. Starting in 2012 and continuing every five years thereafter, the district is required to inventory and document the number of center pivot systems in operation and report it in the annual report.

**3.2b** In accordance with Objective 3.3a, six articles relating to irrigation application efficiencies were published in the district newsletter in 2013. *(The performance standard of six articles per year is based on the sum of articles addressing agricultural water conservation and municipal water conservation strategies)*

- “Dry soil conditions persist throughout HPWD service area.”
- “Texans encouraged to reduce water use.”
- “9 ways to waste water with a sprinkler system and what to do about them.”
- “HPWD offers easy tips to conserve water at home.”
- “Adjust automatic sprinkler controllers for cooler weather.”
- “High Plains Irrigation Conference: Irrigation Efficiency Essential.”

**MANAGEMENT OBJECTIVE 3.3 – Address urban water waste**

Drought conditions and increasing population have an impact upon the region’s limited surface and groundwater supplies. It is important for area residents to use water wisely—without waste—in order to preserve its quality and quantity.

The district offers a wide range of technical and educational materials to assist and support towns and cities in this effort.

### **Performance Standards**

**3.3a** In combination with Objective 3.2b, six articles discussing municipal water conservation were published in the district newsletter in 2013. *(The performance standard of six articles per year is based on the sum of articles addressing agricultural water conservation and municipal water conservation strategies.)*

### **Urban water conservation articles published in *The Cross Section***

- “Drought restrictive water schedules don’t equate to dead lawns.”
- “Don’t throw in the trowel and divorce your landscape.”
- “Texans encouraged to reduce water use.”
- “9 ways to waste water with a sprinkler system and what to do about them.”
- “HPWD offers easy tips to conserve water at home.”
- “Adjust automatic sprinkler controllers for cooler weather.”

**GOAL FOUR: Control and prevent subsidence.**

Due to the unconfined nature of the Ogallala Aquifer on the Southern High Plains of Texas, problems resulting from water level declines causing subsidence are not technically feasible.

Furthermore, subsidence resulting from the dissolution of evaporate deposits underlying the Ogallala Aquifer within the district have not been documented within the historic period—nor are they anticipated.

**MANAGEMENT OBJECTIVE 4.1 – Control and prevent subsidence.**

Based on these geologic and hydrogeologic characteristics of the Southern High Plains, the HPWD Board of Directors has determined that this goal is not applicable to the district.

**Performance Standard**

- 4.1** No performance standard was adopted as the HPWD Board of Directors has determined this goal is not applicable to the district.

**GOAL FIVE: Address conjunctive surface water management issues.**

Surface water resources play an important role in meeting municipal and industrial water demands within the district. The district coordinates with the surface water management agencies within the region by serving as a member of the Llano Estacado Regional Water Planning Group (“Region O”). The district also supports municipal water conservation programs throughout the region.

**MANAGEMENT OBJECTIVE 5.1 – Ensure cooperation with surface water management agencies.**

The general manager, or designee, will represent groundwater management interests of the district by attending at least 75 percent of the meetings and events of the Llano Estacado Regional Water Planning Group. This participation ensures coordination with surface water management authorities which are also participating in the regional water planning process.

**Performance Standard**

- 5.1** The general manager, or designee, updated the HPWD Board of Directors about significant actions of the Llano Estacado Regional Water Planning Group during 2013.

The Llano Estacado Regional Water Planning Group met at the HPWD office on March 21, 2013; May 16, 2013; June 27, 2013; August 1, 2013; and October 17, 2013.

The following actions took place:

- Appointment of a drought contingency planning and water conservation subcommittee.
- Discussion and approval of the Water Management Strategies committee’s recommendation regarding criteria for evaluating water management strategies.
- Discussion and approval of municipal water demand strategies provided by the TWDB.
- Discussion and approval of municipal water demand projections.
- Discussion and approval of the Task 4D Scope of Work.
- Discussion and approval of population projections.
- Discussion and approval of non-municipal demand projections.
- Discussion and approval of irrigation demand projections.
- Discussion and approval of the process to determine water source availability.

## **GOAL SIX: Address natural resource issues.**

Protection, conservation, and management of the quality and quantity of groundwater stored in the Ogallala Aquifer is important due to the implications that insufficient or inferior water resources have on health, economy, and environment.

The quantity of groundwater resources is addressed in Goal One. Goal Six is primarily focused on the protection of natural resources through the active protection of water quality in the Ogallala Aquifer. The district works to assist residents in protecting the quality of their groundwater resources.

### **Management Objective 6.1: Enforce district rules regarding illegal operation of water wells.**

Staff will inspect all well sites reported as being open and/or uncovered, abandoned, or deteriorating. They will follow through to ensure proper closure and/or repair in accordance with district rules.

#### **Performance Standard**

- 6.1a** Within two working days of locating an open and/or uncovered well, staff will close the well opening with a suitable cap and attempt to notify the owner and/or operator that an open and/or uncovered well exists on the property.
- 6.1b** Within two working days of locating a deteriorating or deteriorated well, staff will take action necessary to safely secure the well site and attempt to notify the owner and /or operator that a deteriorating or deteriorated well exists on the property. The time required to complete these actions will be dependent upon the nature of the deteriorating well.
- 6.1c** Within two working days of locating an abandoned well, staff will take action necessary to safely secure the well site and attempt to notify the owner and/or operator that an abandoned well exists on the property. The time required to complete these actions will be dependent upon the nature of the abandoned well.
- 6.1d** Document in the annual report, the number of open and/or uncovered, abandoned, and deteriorated wells reported and inspected; the number of notification letters mailed; the number of second notices mailed; the number of wells the district closed; and the number of well caps provided.

- **CAVE-INS:** (Hale and Swisher Counties) Approximately two “first notice” letters were mailed. One “second notice” letter was mailed.
- **OPEN WELLS:** (Hale, Lubbock, and Swisher Counties) Approximately five “first notice” letters were mailed. One “second notice” letter was mailed.
- No letters by attorney were mailed to landowners/operators concerning cave-ins and open wells in 2013.
- No wells were destroyed in 2013.
- Approximately two wells were repaired/closed after initial visit.
- No violations remained after field check by district staff.

## **GOAL SEVEN: Address drought conditions**

Drought conditions in recent years have reminded us of how dependent we are on precipitation. This underscores the importance of irrigation application efficiency as it relates to crop yields and water conservation for municipal and industrial users. Droughts occur and reoccur in the area-as do cycles of above-average precipitation. The unpredictable amount and timing of precipitation makes it very difficult to determine exactly how groundwater the irrigator will need to pump to meet crop water demands.

### **Management Objective 7.1: Provide on-going and relevant meteorological information.**

The district maintains a rain gauge network in order to monitor hydrologic conditions throughout its service area. The district will make pertinent information available to irrigators and municipalities with an emphasis on developing and current drought conditions. This will be accomplished through the district's newsletter and web site. Additional drought information is available at the TWDB web site ([www.twdb.state.tx.us/DATA/drought/index.asp](http://www.twdb.state.tx.us/DATA/drought/index.asp))

- Links for drought-related information found on the front page of the HPWD web site include:
  - Drought information statement from Lubbock NWS office.
  - U.S. Drought Monitor Map.
  - U.S. Seasonal Drought Outlook Map.
  - Texas Drought Monitor Maps
  - Current Drought/Wildfire Conditions.
  - TWDB Real-Time Texas Reservoir Data.
  - Time-lapse satellite imagery of Lake Meredith (1984-2012)

### **Performance Standard**

- 7.1a** The district will maintain a rain gauge network located in conjunction with its soil moisture monitoring sites. The rain gauges will be read by staff three times a year and the results will be published in the district's newsletter, and on the district's web site during times of drought.
- Rain gauges are read on a regular basis by HPWD personnel. Quarterly precipitation maps and an annual precipitation map were prepared.

**Management Objective 7.2: Establish by January 1, 2012, a water banking program by rule that may be utilized by producers in times of drought.**

As a result of recurring drought, the district understands that from time-to-time, producers will need more groundwater than allowed by rules governing allowable production rate. As a result, the district will establish and maintain a program that allows producers to bank groundwater during normal and above-normal precipitation years. The banked groundwater may be used as needed at any time up to three years after it is banked.

**Performance Standard**

**7.2a** By Jan. 1, 2013, the district will establish and maintain an online water banking system whereby groundwater saved during periods of normal and above-normal precipitation can be placed in reserve for use at any point during the next three years. Beginning in 2013, the number of producers participating in the water banking program will be documented in the annual report.

Approximately 306 producers participated in 2012 and 61 producers participated in 2013.

**GOAL EIGHT: Address conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, and brush control.**

Texas Water Code 36.1071(a)(7) requires management plans to include a goal that addresses conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, and brush control, where appropriate and cost-effective.

The district has a long, well-established and widely-recognized program promoting water conservation. A number of public information strategies are used to inform the public about the importance of water and water conservation.

This goal requires that the district also address enhancement of recharge to the Ogallala Aquifer. The district supports best management practices, such as rainwater harvesting, through its municipal water conservation programs, and as such, is included in management objectives and performance standards below detailing such activities.

The district has historically supported brush control, and will continue to do so, through the activities of the Texas Soil and Water Conservation Board and their various local districts. Because of this, the district's Board of Directors has determined that it would be duplicative and not cost-effective to establish a similar brush control program.

Based upon significant public input regarding a past precipitation enhancement program ("cloud seeding"), the district's Board of Directors has determined that this is an activity which is not appropriate or cost-effective.

**Management Objective 8.1: Prepare, produce, and distribute monthly newsletter.**

Each year, 12 issues of the newsletter will be produced for distribution to district constituents and other interested parties. A minimum of six (6) articles will appear each year discussing methods to conserve and preserve the quantity of usable quality groundwater within the district.

**Performance Standard**

**8.1a** Document in the annual report the number and scope of conservation articles published in the district newsletter.

Approximately 15 water conservation related articles were published in 2013.

MONTH	ARTICLE TITLE
February 2013	"Drought-restrictive watering schedules don't equate to dead lawns."
March 2013	"Don't throw in the trowel and divorce your landscape."
April 2013	"Dry soil conditions persist throughout HPWD service area." "Texans challenged to reduce water use."
May 2013	Results of annual HPWD water level measurements.
June 2013	"Area residents encouraged to use water as efficiently as possible this summer."
July 2013	Infographic: "Nine ways to waste water with an automatic sprinkler system and what to do about them."
August 2013	"Desalination of brackish water possible water management strategy." "HPWD offers easy tips to conserve water at home."
September 2013	"Conservation kits help students become 'WaterWise.'" "HPWD honored for water smart landscaping."
October 2013	"Adjust automatic sprinkler controllers for cooler weather."
November 2013	"Muleshoe State Bank honored for xeric landscaping." "AWWA Executive Director shares log of water use."
December 2013	"High Plains Ag Conference: Irrigation Efficiency Essential."

**Management Objective 8.2: Provide news releases to print/electronic media within the district.**

Each year, news releases discussing methods to conserve and preserve the quantity of usable quality groundwater will be prepared and distributed to print and electronic media within the district.

**Performance Standard**

**8.2a** Document in the annual report the number of news releases prepared and distributed to local and regional media detailing methods to conserve and preserve the quantity of usable quality groundwater.

- Approximately 23 news releases were prepared and distributed to local media in 2013. Of these, five discussed conservation and preservation of groundwater. The other 18 news releases discussed administrative matters, such as Board member resignations/appointments, notice of public hearing for rule amendments, and extension of HPWD moratoriums.

**Management Objective 8.3: Produce radio announcements and distribute them to stations located within the district.**

Each year, a series of 60-second pre-recorded announcements discussing methods to conserve and preserve the quantity of usable quality groundwater will be produced and distributed to radio stations.

**Performance Standard**

**8.3a** Document in the annual report a summary of the public service announcements produced, distributed, and aired on local radio stations.

- Radio announcements were aired a total of 8,929 times on 10 “contract” stations in 2013. (*Two stations were added in 2013.*)

The following radio announcements were produced and aired:

- Annual Pre-Plant Soil Moisture Survey in progress.
- Annual Winter Water Level Measurements in progress.
- Results of annual Pre-Plant Soil Moisture Survey.
- Results of 2012-2013 Winter Water Level Measurements.
- General water conservation message w/ Benjamin Franklin quote.
- Announcement of Nov. 12 public hearing regarding rule amendments.
- Extension of HPWD moratorium on rules penalties.

**Management Objective 8.4: Produce TV announcements.**

Each year, a series of 30-second pre-recorded announcements discussing methods to conserve and preserve the quantity of usable quality groundwater will be produced and distributed to regional television stations.

**Performance Standard**

**8.4a** Document in the annual report the number and summary of television announcements produced and distributed to regional stations.

Based upon HPWD Board decision, no television announcements were aired in 2013.

**Management Objective 8.5: Make public presentations on water conservation & the High Plains Underground Water Conservation District No. 1**

Each year, staff will present a minimum of 15 programs addressing conservation and preservation of usable quality groundwater within the district.

**Performance Standard**

**8.5a** Document in the annual report the number of public presentations given by staff.

The following presentations were given by district personnel in 2013.

DATE	VENUE	STAFF MEMBER
January 13	Lubbock Redbud Lions Club	Carmon McCain
January 24	Caprock Crops Conference	Jim Conkwright
January 24	Lamb County Ag Conference	Mike McGregor
January 30	Littlefield Lions Club	Carmon McCain
February 4	Texas Seed Trade Association	Jim Conkwright
February 5	Lubbock Master Gardeners	Carmon McCain
February 16	WT Association of Landscape Architects	Carmon McCain
March 6	Crop Consultants	Sherry Stephens
March 9	TX Well Owner Network Workshop	McCain/Stephens
July 1	Levelland Evening Lions Club	Carmon McCain
July 22	Naturalists' Educator Workshop	Carmon McCain
August 22	Caprock AMBUCS Club	Carmon McCain
September 8	Lubbock Co. Homeowners' meeting	Carmon McCain & Keith Whitworth
October 7	Teaching Water Conservation - Lazbuddie	Adeline Fox
October 10	Playa Lake Festival (2) – Lockney	Adeline Fox
October 15-17	Ag In The Bag (12)	Adeline Fox
October 15	TTU Society for Conservation Biology	Carmon McCain
October 21	Slaton Lions Club	Adeline Fox
October 30	TAGD Panel (Cleburne)	Adeline Fox
November 4	Classroom Conservation (6)	Adeline Fox
November 14	Ag Lead Presentation	Carmon McCain
November 22	Harwell Elementary Science Fair (2)	Adeline Fox
November 26	Dimmitt Lions Club	Adeline Fox
December 11	Floydada Rotary Club	Adeline Fox
December 17	Muleshoe Rotary Club	Jason Coleman
December 19	Kiwanis Club of Lubbock	Carmon McCain

**Management Objective 8.6: Maintain public information boards at each county office.**

Each year, staff will make *The Cross Section*, *Water Management Notes*, rainwater harvesting manuals, technical reports, brochures, and other printed materials available to the public in the reception area of each county office.

**Performance Standard**

**8.6a** Document in the annual report the locations and number of publications, including rainwater harvesting manuals, made available to the public at each county office.

Materials were made available to the public at the following locations:

- District headquarters (Lubbock TX).
- Armstrong & Randall County Office (Amarillo TX).
- Bailey County Office (Muleshoe TX).
- Castro & Swisher County Office (Nazareth TX).
- Cochran County Office (Morton TX).
- Deaf Smith County Office (Hereford TX).
- Floyd County Office (Floydada TX).
- Hale County Office (Plainview TX).
- Hockley County Office (Littlefield TX).
- Lamb County Office (Levelland TX).
- Parmer County Office (Friona TX).
- Potter County Office (Bushland TX).

Materials available at these locations included issues of *The Cross Section*—plus additional materials such as district brochures and rules. Additional publications are available upon request from district headquarters.

**Management Objective 8.7: Provide public information displays addressing water conservation and management of the Ogallala Aquifer at least 10 times a year.**

Informative exhibits about the hydrology of the Ogallala Aquifer and the conservation/preservation of usable quality groundwater will be displayed at suitable venues in the district no less than 10 times a year.

**Performance Standard**

**8.7a** Document in the annual report the number and a brief description of the displays placed within the district.

- Water conservation information was provided to the public at the Prairie Film Festival, April 22-23, in Amarillo.
- The district's Ogallala Aquifer display was not exhibited at the Amarillo Farm and Ranch Show in December 2013.

**Management Objective 8.8: Annually sponsor a water conservation education program and make classroom presentations to public and private schools within the district.**

The district will continue to sponsor the WaterWise conservation education program, or equivalent, in public/private schools in its service area. Also, upon request by teachers, staff will visit area classrooms to present information about groundwater quality, quantity, and water conservation.

The High Plains Water District's WaterWise educational materials (student kit, teachers' guide, and student workbook) were redesigned in 2012 with the theme, "High Plains Saves Water." The materials feature photos of center pivots, pivot irrigation, windmills, playa lakes, cotton, corn, and wheat to give the materials a local feel.

**Performance Standard**

**8.8a** Document in the annual report the number, names, locations, and feedback from schools receiving educational materials and the number of classroom presentations made.

**WATER WISE EDUCATION PROGRAM**

There were 2,026 participants in the WaterWise conservation education program sponsored by HPWD in 2013.

<u>SCHOOL</u>		<u>PARTICIPANTS</u>
Abernathy Elementary School	Abernathy	76
Amherst Elementary School	Amherst	11
Anton Elementary School	Anton	15
Bluebonnet Intermediate	Hereford	130
Crosbyton Elementary School	Crosbyton	17
Dimmitt Elementary School	Dimmitt	96
Farwell Elementary School	Farwell	97
Friona Elementary School	Friona	98
Happy Elementary School	Happy	14

<u>SCHOOL</u>		<u>PARTICIPANTS</u>
Lakeside 5 <sup>th</sup> Grade Learning Center	Plainview	111
Lazbuddie Elementary School	Lazbuddie	28
Lockney Elementary School	Lockney	38
Lubbock Cooper Intermediate	Lubbock	222
Mary DeShazo Elementary School	Muleshoe	206
Nazareth School	Nazareth	19
New Deal Middle School	New Deal	46
New Home School	New Home	50
Overton Elementary School	Lubbock	59
Petersburg Elementary School	Petersburg	22
Ralls Elementary School	Ralls	43
Roosevelt Elementary School	Roosevelt	81
Smyer Elementary School	Smyer	83
Springlake-Earth Elementary	Springlake	31
Sudan Elementary School	Sudan	31
Sundown Elementary School	Sundown	103
Tahoka Elementary School	Tahoka	41
Swinburn Elementary School	Tulia	91
Walcott Elementary School	Hereford	13
West Central Elementary School	Hereford	36
Whiteface Elementary School	Whiteface	61
Whitharral School	Whitharral	36
Wilson Elementary School	Wilson	21
<b>TOTAL</b>		<b>2,026</b>

Feedback from schools receiving the WaterWise materials is provided each year in an annual report from Resource Action Programs. Here are some excerpts from the 2012-2013 summary report:

**TEACHERS: 100% of participating teachers indicated they would conduct the program again given the opportunity. 100% of participating teachers indicated they would recommend the program to their colleagues.**

“They enjoyed the home conservation devices, and the real world application of many of the ideas presented.” -- Jeff Davis, Bluebonnet Intermediate School.

“The conservation cookie activity. They didn’t realize how important water was to eating.” -- Edward Trevino, Sudan Elementary School.

“The program is great. I’ve used it for many years. I liked the changes you made this year.” – Melinda Riley, Springlake-Earth Elementary School

**PARENTS: 100% of participating parents indicated the program was easy to use. 100% of participating parents indicated they would continue to use the kit items after completion of the program. 100% of the participating parents indicated they would like to see the program continued in local schools.**

“Thank you for the WaterWise kit. I’m glad that you want to water wasting to stop. Water is too important to waste.”

“The kit and all the things inside helped us conserve water in an easy way.”

“As a parent, the aspect of the program I like best is the shower part and also finding out how many gallons we use.”

**CLASSROOM PRESENTATIONS:**

HPWD personnel gave the following classroom presentations in 2013:

MONTH	LOCATION
October 10	Playa Lake Festival at Lockney
October 14-17	Ag In The Bag (12 presentations)
November 4	Classroom Conservation at Lazbuddie
November 22	Harwell Elementary Science Fair at Lubbock (2)

**NOTE: SOCIAL MEDIA**

While not included in the district’s management plan, it should be noted that HPWD became active in social media during 2013. (*Facebook, Twitter, and YouTube*) There were 109 views of the district’s blog, 105 followers on Twitter, and more than 50 views of HPWD videos during the period of October 1 to December 31, 2013.

**NOTE: OUTREACH EFFORTS**

While not included in the district’s management plan, it should be noted that the district’s Outreach Coordinator visited 16 cotton gins (Bailey, Castro, Deaf Smith, Hockley, Lamb, Lubbock, and Lynn Counties) and one grain elevator (Lamb County) during the period of October 1 to December 31, 2013.

**Management Objective 8.9: Participate/support the TWDB Ogallala Aquifer Recharge Study.**

Surface water collected in the thousands of playa lakes on the Southern High Plains is the primary source of recharge to the Ogallala Aquifer. During the 81<sup>st</sup>

Texas Legislature, funding was provided to the Texas Water Development Board (TWDB) to conduct long-term, scientific research on potential mechanisms to enhance recharge to the Ogallala Aquifer.

While the nature and scope of the Ogallala Aquifer Recharge Study is still very early in its development, the district clearly recognizes the importance of studies, such as this, with respect to enhancing the economic sustainability of this precious national resource. Therefore, it is the objective of the district to have an active role throughout the conduct of all aspects of the Ogallala Aquifer Recharge Study and to have district representatives participate in at least 75 percent of all TWDB scheduled meetings held in the district for this study.

It is noted, however, that at the time of adoption of this amended management plan, funding for this research project was severely reduced by the 82<sup>nd</sup> Texas Legislature and the level of effort that will proceed at this time is not yet determined. The district is committed to continuing its participation at whatever level current funding will allow.

#### **Performance Standard**

**8.9a** Document in the annual report the number of TWDB scheduled meetings held in the district and the number of meetings attended by HPWD representatives, along with any progress made over the preceding year on the Ogallala Aquifer Recharge Study. *(The following information was provided by Andrew Weinberg, P.G., with the TWDB in Austin.)*

No TWDB scheduled meetings were held within the district. Mr. Weinberg met with Manager Jason Coleman in late 2013 to update him on the study.

Some highlights for the project for 2013 include:

- Completed analysis of Landsat imagery for 72 playas over a 18 year period of record (Jan-1996 through Dec-2014) to estimate the total volume of water collected in Texas playas. We found an average annual volume of approximately 200,000 acre feet of water caught by the ~20,000 playas, or an average of a bit over ½ acre foot per acre of mapped playa area. A technical Note summarizing results of this task is in preparation.
- Started set up of a playa ‘Superstation’ with the Lubbock ARS team in a Floyd County playa. We’re installing more instrumentation and conducting tracer tests at this location to get more detailed data on playa recharge.

- To date, we have collected data on a total of 47 flood events have been recorded at 23 playas; no flood events have been observed at twelve of the 35 monitored playas.
- Flood events observed to date have totaled more than 1700 acre-feet in volume. Individual flood volumes ranged from less than one acre foot to over 400 acre-feet, averaging 38.5 acre-feet. Flood durations ranged from three days to over 260 days, averaging 42.7 days. Water availability, measured as the percent of the monitoring period that water was present in a playa, varied from zero to 61.6 percent and averaged 7.8 percent. Estimated infiltration rates varied from zero to over 40 millimeters per day (mm/d), averaging 7.5 mm/d, however the measured infiltration rates were typically highest for the smallest flood events where a larger fraction of the flood water was taken up to replenish soil moisture.
- A report summarizing Phase 1 monitoring is expected by the end of 2014.

**8.9b** At least once a year starting in 2012, publish an article in the district newsletter about the Ogallala Aquifer Recharge Study. *(This is contingent upon the TWDB continuing this study following the reduction in funding which occurred during the 82<sup>nd</sup> Texas Legislature.)*

- No article was provided by the district's geoscientist for publication in the district newsletter in 2013.

**GOAL NINE: Achieve the desired future conditions of the groundwater resources within its jurisdiction.**

In accordance with Texas Water Code 36.108(d), the Board of Directors and Staff of the High Plains Underground Water Conservation District continued implementation of desired future conditions (“DFCs”) for the aquifers within its service area.

The HPWD Board of Directors adopted rule amendments on July 19, 2011 that are designed to implement the “50/50” management goal.

**Groundwater Management Area # 1**

Groundwater Management Area # 1 adopted multiple DFCs for the Ogallala and Rita Blanca Aquifers in July 2010:

- **40/50:** 40 percent of the groundwater volume in storage remaining in 50 years for Dallam, Hartley, Moore, and Sherman Counties within the North Plains Groundwater Conservation District. This DFC also includes the portions of Dallam, Hartley, and Moore Counties not within a water district.
- **50/50:** 50 percent of the groundwater volume in storage remaining in 50 years for the portions of Armstrong, Potter, and Randall Counties within the High Plains Water District; the portions of Hansford, Hutchinson, Lipscomb, and Ochiltree Counties within the North Plains Groundwater Conservation District; and the portions of Armstrong, Carson, Donley, Gray, Hutchinson, Potter, Roberts, and Wheeler Counties within the Panhandle Groundwater Conservation District. This also includes the portions of Hutchinson, Oldham, and Randall Counties not within a water district.
- **80/50:** 80 percent of the groundwater volume in storage in 50 years in Hemphill County.
- Groundwater Management Area # 1 also adopted a DFC for the Blaine and Dockum (“Santa Rosa”) Aquifers in June 2010. This DFC was set so that water level declines would average no more than 30 feet during 2010-2060.

## Groundwater Management Area # 2

Desired future conditions for the Ogallala/Edwards Trinity High Plains and other relevant aquifers were adopted by Groundwater Management Area # 2 in August 2010.

- **50/50:** 50 percent of the groundwater volume in storage remaining in 50 years for the Ogallala Aquifer and Edwards Trinity High Plains Aquifer within the following counties of the High Plains Water District: Bailey, Castro, Cochran, Crosby, Deaf Smith, Floyd, Hale, Hockley, Lamb, Lubbock, Lynn, and Parmer.
- The same DFC was adopted for the Ogallala Aquifer in Swisher County and the portions of Castro, Crosby, Deaf Smith, Floyd, Hockley, and Lamb Counties not within the High Plains Water District. (*PLEASE NOTE--One portion of Hockley County, the remaining portion of Lamb County and all of Swisher County was annexed into the district in Nov. 2010.*)
- A DFC was set for the Dockum Aquifer so that water level declines would average no more than 40 feet during 2010-2060.

These DFCs will remain in effect for five years, unless modified or repealed by the GMAs, in accordance with applicable state law.

Staff conducted the following activities in 2012 to achieve the desired future conditions of the groundwater resources within the district's jurisdiction.

- Beginning in 2011 and continuing in 2012, the district published a series of articles, "Understanding the recent rule amendments," in *The Cross Section*.
- The HPWD Board adopted rules that allow for a transitional period for recording groundwater production using an approved alternate measuring method.

- The HPWD Board adopted an enforcement policy and civil penalty schedule as part of the district's rules. The approved policy included a two-year moratorium on the enforcement policy and civil penalties for exceeding the allowable production rate in 2012 and 2013.
- In addition, a two-year moratorium was approved on the enforcement policy and civil penalties for (1) failure to install meters on new wells and/or well systems by the Jan. 1, 2012 deadline and (2) reporting requirements for groundwater production.
- Well owners were encouraged to visit [www.hpwd.com](http://www.hpwd.com) for online reporting of flow meter readings or readings from alternative measuring methods. In addition, new water meter installations can also be reported at the site.

## A look back at 2013 ...



**Ray Eads and Adeline Fox  
at Amarillo Farm and Ranch Show**



**Joshua Koch of Fox 34 News films  
Keith Whitworth making a  
water level measurement.**



**Board President Lynn Tate and  
Precinct One Director  
James Powell at February 2013  
public meeting.**



**Jed Leibbradt, Jason Coleman, Precinct  
3 Director Mike Beauchamp, Precinct 4  
Director Lynn Tate, Gray Sanders, and  
Keith Whitworth visit the Cargill Meat  
Solutions plant at Friona. Cargill  
Environmental Superintendent  
Nicholas McFarland is at center with  
hard hat.**



**Former Manager  
Jim Conkwright and  
former Executive  
Secretary Kathryn  
CdeBaca receive  
well wishes during  
a July 2013  
retirement  
ceremony**



**Precinct Three Director Mike Beauchamp (right)  
visits with TAWC Project Director Rick Kellison  
(center) during the  
Texas Ag Water Forum in Austin.**