Llano Estacado Underground Water Conservation District

Management Plan
2000-2010

Effective April 14, 2000

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District Mission Statement

The Llano Estacado Underground Water Conservation District (the District) will develop, promote, and implement management strategies to provide for the conservation, preservation, protection, recharging, and prevention of waste of the groundwater resources, over which it has jurisdiction, for the benefit of the people that the District serves.

Time Period for this Plan

This plan becomes effective April 14, 2000, upon adoption by the Board of Directors (the Board) of the District and remains in effect until a revised plan is approved or until April 14, 2010, whichever is earlier.

Guiding Principles

The District was formed, and has been operated from its inception, with the guiding belief that the ownership and pumpage of groundwater is a private property right. The Board has adopted the principle of "education first" and regulation as a last resort in their effort to encourage conservation of the resource. As a result, the rules of the District were designed to give all landowners a fair and equal opportunity to use the groundwater resource underlying their property for beneficial purposes. If, at the request of the constituents of the District, more stringent management strategies are needed to better manage the resource, these strategies will be put in place after an extensive educational process and with the perceived majority approval of the constituents. The District will continue to monitor groundwater quality and quantity in order to better understand the dynamics of the aquifer systems over which it has jurisdiction.

This document is intended for use as a tool to provide continuity in the management of the District. District staff will use the plan as a guide to insure that all aspects of the goals of the District are accomplished. The Board will refer to it for future planning and as a document to measure performance of the District staff on an annual basis.

Conditions can change over time that may cause the Board to modify this document. The dynamic nature of this plan shall be maintained such that the District will continue to best serve the needs of the constituents. At the very least, the Board will review and readopt this plan every five years.

One's goals, management objectives, and performance standards must be set at an attainable level in order to be realistic and effective. Lofty ideals penned in an effort to be "all things to all people" can be the first step toward disaster. Unreasonably elevated objectives foster potentially damaging results when the objective cannot be met due to a lack of resources; fiscal or technical. One's goals can also be set too low. Simplistic ideals can foster mediocrity. In both cases, the mission of the goal setting entity is thwarted and the benefactors of the same slighted. Although well meaning, when the failure to attain a goal is

realized by those measuring performance, the initial response is to assume that those setting the goals were negligent in performing their duties when, in truth, the goals were unattainable from the start.

In the opinion of the Board, the goals, management objectives, and performance standards put forth in this planning document have been set at a reasonable level considering existing and projected fiscal and technical resources. Conditions may change which could cause change in the management objectives defined to reach the stated goals. The following guidelines will be used to insure that the management objectives are set at a sufficient level to be realistic and effective:

- The District's constituency will determine if the District's goals are set at a level that is both meaningful and attainable; through their voting right, the public will appraise the District's overall performance in the process of electing or re-electing Board members.
- The duly elected Board will guide and direct District staff and will gauge the achievement of the goals set forth in this document.
- The interests and needs of the District's constituency shall control the direction of the management of the District.
- The Board will endeavor to maintain local control of the privately owned resource over which the District has authority.
- The Board will evaluate District activities on a fiscal year basis. That is, the District budgets operations on a October 1 - September 30 fiscal year. When considering stated goals, management objectives, and performance standards, any reference to the terms annual, annually, or yearly will refer to the fiscal year of the District.

General Description, Location and Extent

The District was created on May 24, 1991, when Governor Ann Richards signed HB 530, 72nd Legislature, into law. The District was confirmed, the Initial Board elected, and an ad valorem tax rate cap of $0.02/$100 valuation was set in an election held in November 1998. Table 1 lists the current Board of Directors, office held, occupation, and term.

Table I: Board of Directors of the South Plains Underground Water Conservation District.

Office	Name	Occupation	Term Ends
President	Delmon Ellison, Jr.	Active Farmer	May 2000
Vice-President	Ronnie Wallace	Active Farmer	May 2000
Secretary	Shelby Elam	Active Farmer	May 2000
Member	Walter Billings	Active Farmer	May 2000
Member	Alton Billings	Active Farmer	May 2000

The jurisdictional extent of the District is the same as Gaines County and covers approximately 1525 square miles of the Southern High Plains of Texas (Figure 1). Seminole (pop. 6765), the county seat, is the largest municipality in the District. Seagraves (pop. 2421) is the other incorporated community in the District.

The District is bordered on the north by the Sandy Land UWCD(Yoakum County) and South Plains UWCD(Terry and Hockley Counties), on the east by Mesa UWCD(Dawson County), on the south by Andrews County, and on the west by the State of New Mexico.

The economy of the District is supported predominately by row crop agriculture and oil and gas production. The 250,000 plus acres of irrigated cropland (out of total row crop acreage of 640,000) affords economic stability to the area. The major crops cultivated within the District include cotton, peanuts, grain sorghum, wheat and corn; and, to a lessor extent, watermelons, sunflowers, alfalfa, and cucumbers.

Gaines County has long been known as the number one producer of oil and gas in the state. In 1999, companies produced over 34,000,000 barrels of crude oil in the county.

Topography and Drainage

The land surface in the District is a nearly level to very gently undulating plain. Deep, moderately permeable, sandy soils predominate the region.

Land surface elevation drops from 3700 feet above sea level in the northwest corner of the District to 2935 feet above sea level in the southeast corner of the District.

Several relic drainage ways cross the District from northwest to southeast. These "draws" (Sulfur, McKenzie, Wordswell, Seminole, and Monument) are shallow and usually dry, seldom carrying runoff surface water.

Cedar Lake and McKenzie Lake are the largest salt lakes in the District. In periods of normal rainfall, McKenzie Lake occupies approximately 1,500 acres, and Cedar Lake, approximately 3,500 acres. The lakes are bordered by calcareous soils that support various salt – tolerant sedges and grasses. The soils around the lakes and in the lake bottoms are strongly affected by alkali and are not conducive to agricultural activities.

Playas, or shallow wet-weather lakes, are common in areas where fine sandy loam and sandy clay loam soil types prevail. Playas range in size from 2 to 10 acres and are important vectors for local aquifer recharge.

Groundwater Resources

The District has jurisdiction over all groundwater that lies within the District's boundaries. Three aquifers, the Ogallala, the Cretaceous, and the Dockum occur within the District. The following is a description of geological formations that may be beneficial to District constituents by providing useable quantities of groundwater.

Ogallala Aquifer

The Ogallala Aquifer is the primary source of groundwater in the District (Fig. 2). Saturated sections range from less than 10 feet to more than 130 feet in the area covered by the District.

Figure 1: Location of the Llano Estacado Underground Water Conservation District

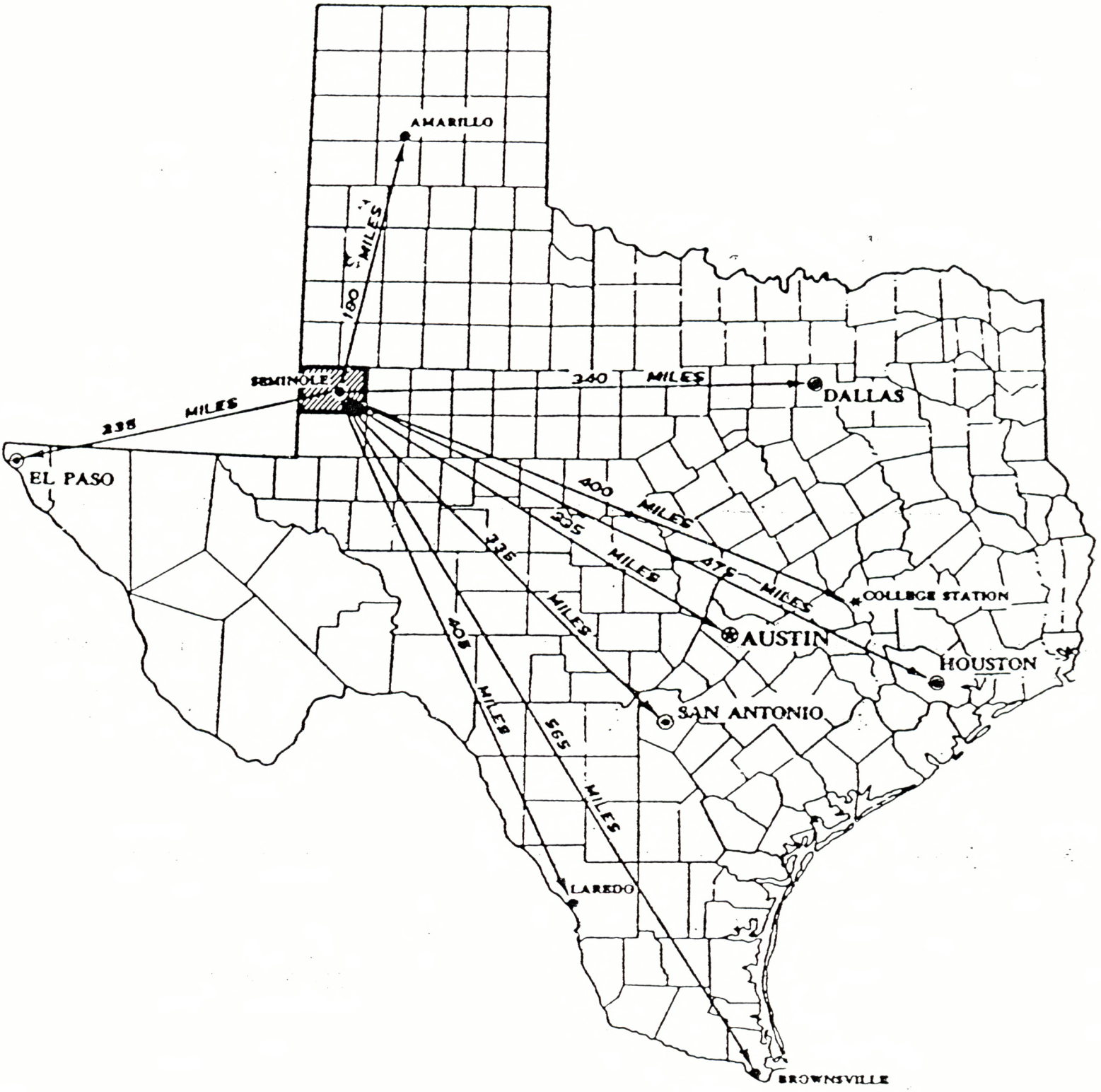
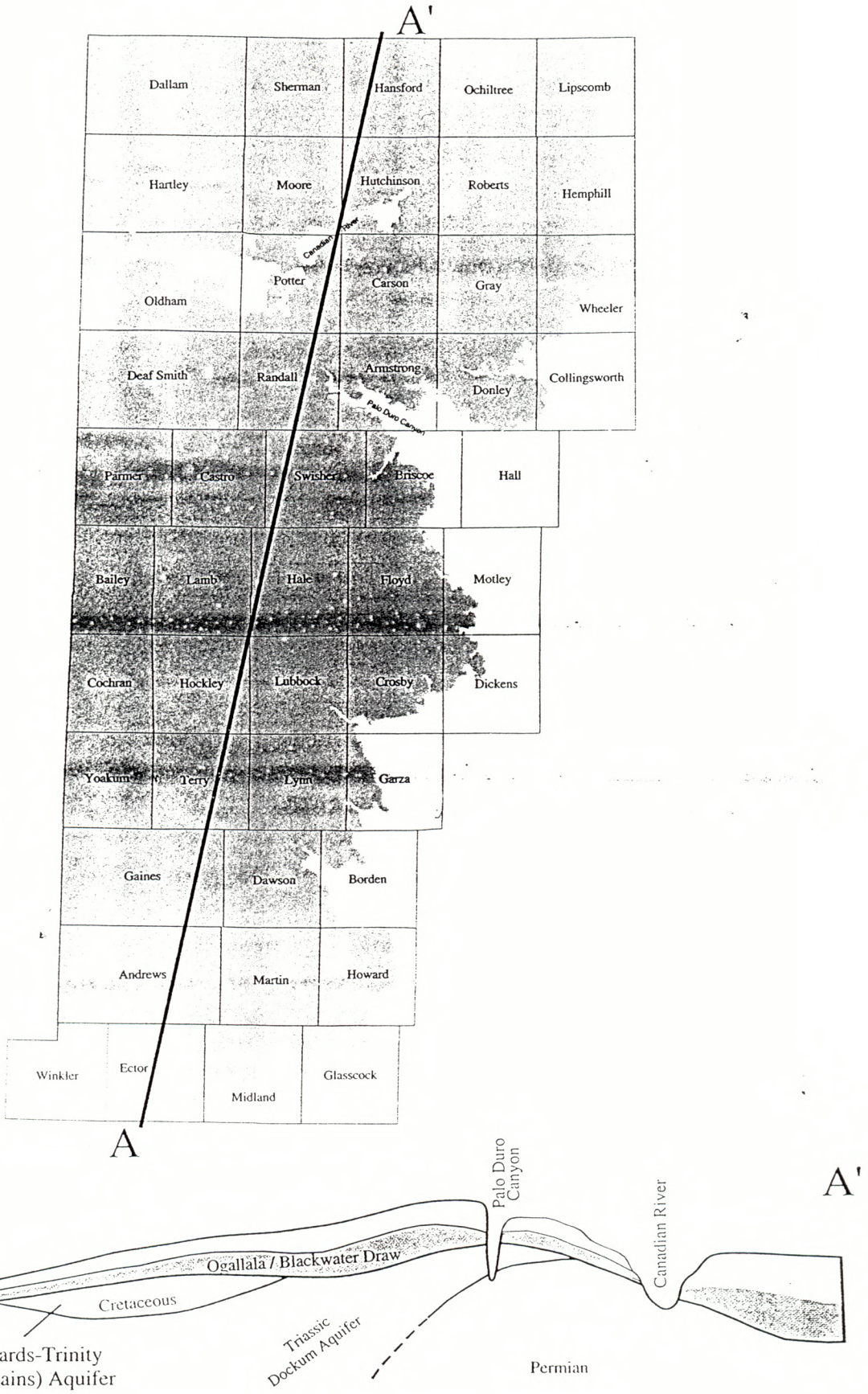


Figure 2: Aerial extent of the Ogallala Aquifer in Texas
(Adapted from Ashworth and Hopkins, 1995)



The formation consists of heterogeneous sequences of clay, silt, sand and gravel. These sediments are thought to have been deposited by eastward flowing aggrading streams that filled and buried valleys eroded into pre-Ogallala rocks. A resistent layer of calcium carbonate-cemented caliche known locally as the "caprock" occurs near the surface of much of the area (Ashworth and Hopkins, 1995).

Water levels in the Ogallala Aquifer are primarily influenced by the rate of recharge to and discharge from the aquifer. Recharge to the aquifer occurs primarily by infiltration of precipitation falling on the surface. To a lesser extent, recharge may also occur by upward leakage from underlying Cretaceous units that, in places, have a higher potentiometric surface than the Ogallala. Generally, only a small percentage of water from precipitation actually reaches the water table due to a combination of limited annual precipitation (15.8 inches per year), high evaporation rate (60 – 70 inches per year), and slow infiltration rate.

Groundwater in the aquifer generally flows from northwest to southeast, normally at right angles to water level contours. Velocities of less than one foot per day are typical, but higher velocities may occur along filled erosional valleys where coarser grained deposits have greater permeabilities.

Discharge from the Ogallala aquifer within the District occurs through the pumping of wells; primarily irrigation wells. Groundwater pumpage typically exceeds recharge and results in water-level declines (Ashworth and Hopkins, 1995).

The chemical quality of Ogallala groundwater varies greatly across the District. Electrical conductance (EC) varies from less than 1.0 dS/m to over 4.0 dS/m. Generally, groundwater in the eastern and southeastern parts of the District exhibit the highest EC. Isolated occurrence of high EC values elsewhere in the District may be due to pollution through oil field salt water disposal pits or upward leakage and mixing from the underlying Cretaceous aquifer.

The suitability of groundwater for irrigation purposes is largely dependent on the chemical composition of the water and is determined primarily by the total concentration of soluble salts. Some farm acreage in the District is already limited to certain varieties of salt tolerant crops due to limiting or damaging total salt levels.

Cretaceous Aquifer

The Edwards-Trinity (High Plains) aquifer, commonly referred to as the Cretaceous Aquifer, underlies the Ogallala Aquifer in the northern half of the District (Fig. 3). In some areas of the District, the Cretaceous and Ogallala Aquifers may be hydrologically connected. Groundwater in the Cretaceous is generally fresh to slightly saline. Water quality deteriorates where Cretaceous formations are overlain by saline lakes.

Recharge of the Cretaceous occurs directly from the bounding Ogallala formation. Some upward movement of groundwater from the underlying Triassic Dockum formation may occur (Ashworth and Hopkins, 1995). As mentioned earlier, in many places the potentiometric surface of groundwater in the Cretaceous Aquifer is higher than the Ogallala Aquifer, resulting

in the upward leakage from the Cretaceous Aquifer. Movement of water in the Cretaceous is generally east to southeast.

Dockum Aquifer

The Dockum Aquifer underlies the Cretaceous and Ogallala formations throughout the District (Fig. 4). The primary water-bearing zone in the Dockum group, commonly called the "Santa Rosa", consists of up to 700 feet of sand and conglomerate interbedded with layers of silt and shale (Ashworth and Hopkins, 1995). Aquifer permeability is typically low and well yields normally do not exceed 300 gal/min.

Water quality in the Dockum is the main limiting factor when considering its use within the District (Ashworth and Hopkins, 1995). EC values for Dockum groundwater range from 15.0 dS/m to over 50.0 dS/m. Even the most salt tolerant row crops grown cannot withstand such levels of salinity.

Thus, the only practical use of Dockum groundwater may be for make-up water in secondary recovery operations of crude oil. By using water from this aquifer, oil companies could reduce their use of Ogallala and/or Cretaceous groundwater, thereby relieving some pumpage pressure from the freshwater sources.

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Surface Water Resources

The only fresh surface water occurring within the District are playa lakes. The playas play an important role in aquifer recharge and support some wildlife when rainfall events are significant enough to cause runoff to accumulate in these naturally occurring depressions. Playas are rarely, if ever, used to support irrigation activities.

As previously mentioned, Cedar Lake and McKensie Lake are naturally occurring salt lakes within the District. Each of these naturally occurring impoundments support limited wildlife populations, primarily migratory waterfowl and associated opportunistic predators.

Figure 3: Aerial extent of the Cretaceous Aquifer in Texas
(Adapted from Ashworth and Hopkins, 1995)

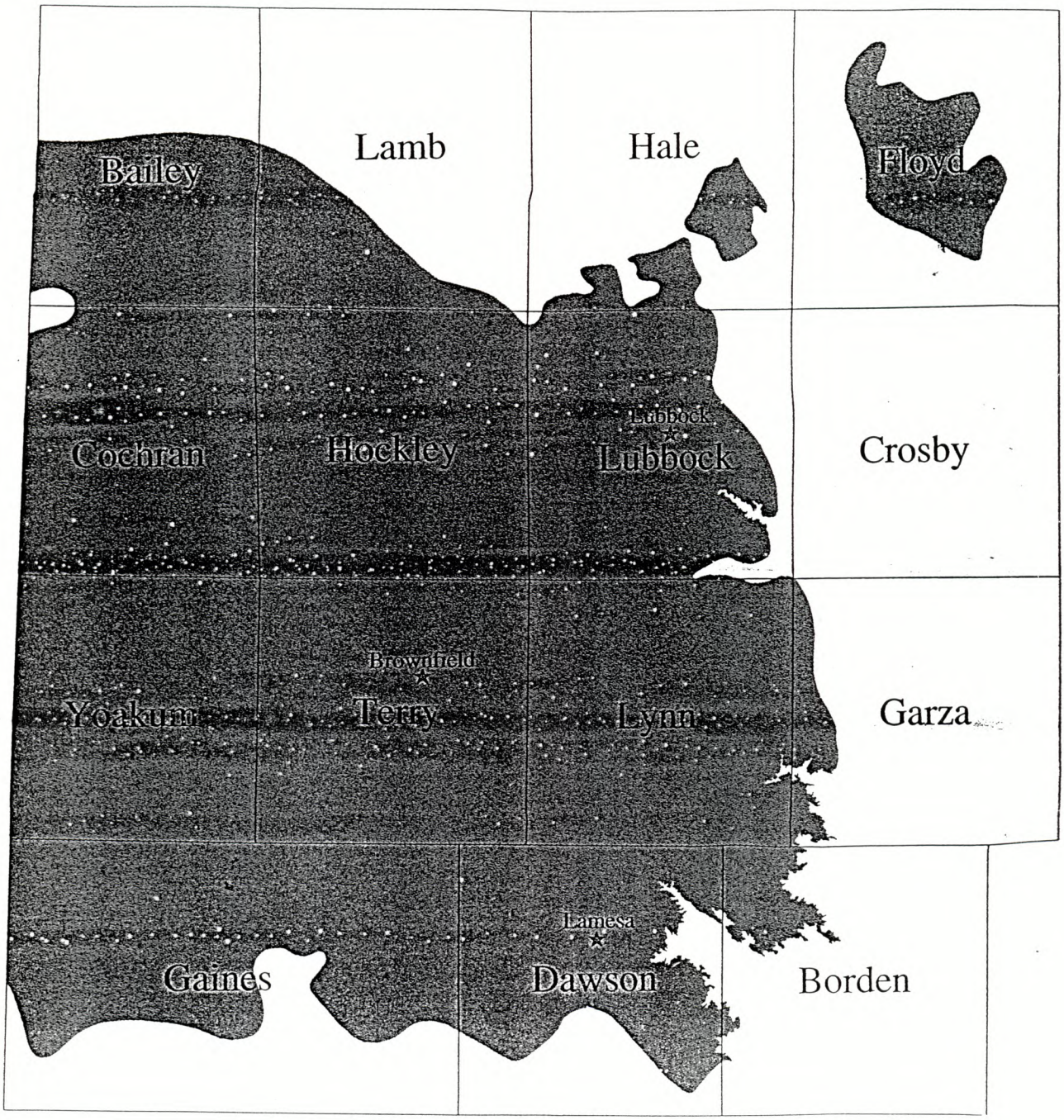
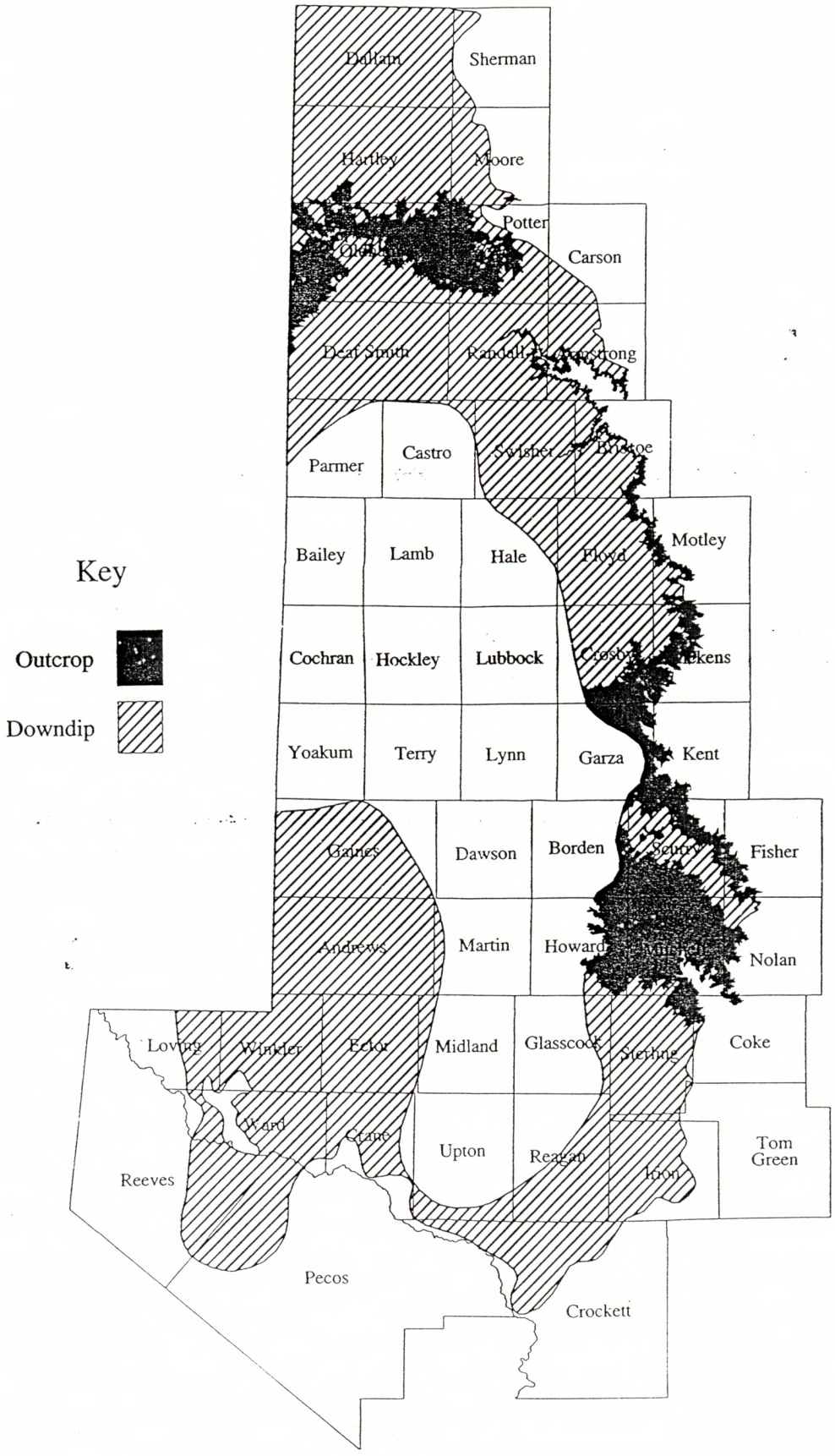


Figure 4: Aerial extent of the Dockum Aquifer in Texas
(Adapted from Ashworth and Hopkins, 1995)



Total Useable Amount of Groundwater

The Texas Water Development Board (TWDB) estimated in 1990 that the total recoverable amount of groundwater underlying Gaines County, Texas, was approximately 13.63 million acre-feet (Peckham and Ashworth, 1993). The total useable amount of groundwater underlying the county in 1990 was, of course, dependent on the category of use because of quality limitations. That is, several areas within the county were thought to have had groundwater quality problems severe enough to preclude its use for any purpose. However, for the purposes of this plan, to meet the requirements of 36.1072(e)(3)(A), Texas Water Code, and until more accurate data becomes available, we will assume that all of the groundwater underlying the county was useable in 1990 even though we suspect that not to be the case. Table 2 shows an estimation of the volume of groundwater in storage projected to the year 2050 for Gaines County, Texas. Please note that the information shown should be used only as a guide, and becomes less and less representative of actual conditions the farther one looks into the future.

Table 2: Volume of Groundwater in Storage within the Llano Estacado Underground Water Conservation District by decade period. (Adapted from Coleman and Arrington, 2000)

County	1995	2000	2010	2020	2030	2040	2050
Gaines	13.583*	12.440	10.242	8.238	6.417	4.440	3.287

*Volume expressed in millions of acre-feet

Historical Groundwater Use

For the purposes of this plan, the following estimations (Table 3) of the historical quantity of groundwater used in Gaines County will be used as a guide to estimate future demands on the resource in the District. It should be emphasized that the quantities shown are estimates.

Table 3: 1993-1997 Groundwater Use, by Category of Use, in Gaines County, Texas.
(From TWDB Annual Survey of Ground and Surface Water)

Year	Municipal	Manufacturing	Power	Irrigation	Mining	Livestock	Total
1993	*2794	370	0	495362	2957	918	**502401**
1994	3133	376	0	608678	2744	1007	**615938**
1995	3039	369	0	474582	7765	1074	**486829**
1996	2929	412	0	415206	7769	1637	**427953**
1997	2948	359	0	425280	7769	1506	**437862**

*Volume expressed in acre-feet

Recharge of the Aquifer System

Recharge of the aquifer system in the District mainly occurs in two ways: 1) infiltration of precipitation runoff in and around playa lakes and 2) direct infiltration of precipitation into the coarse eolian surfical deposits. 3

Annual recharge quantity for Gaines County, Texas, is approximately 139,860 acre-feet per year (Coleman and Arrington, 2000). Recent studies indicate that recharge rates may be considerably higher on the southern portion of the High Plains (Rainwater, 1998).

Some recycling of groundwater may occur as a result of over watering of irrigated cropland; either for soil salinity management or through overestimation of plant water needs.

In an attempt to decrease the demand on the aquifer system and potentially increase total annual recharge, the District joined a regional weather modification program. The 2000 program began April 1 and will continue through September 15. The target area of the program covers all or part of 18 Texas High Plains counties and all or part of three Eastern New Mexico counties. Although accurate measurement of the program's effectiveness is impossible, the High Plains Underground Water Conservation District No. 1 estimates that an 8 percent increase in annual precipitation occurred as a result of their 1997 program activities. If such an increase were to occur in this District, the resulting additional precipitation could positively affect aquifer conditions. The District will continue to participate in the weather modification program as fiscal resources allow. 4

Projected Groundwater Supply and Demand

Projecting groundwater supply and demand is an arduous process. In order to make such projections, one must predict trends of groundwater use. Assumptions must be made regarding population changes, changing agricultural cropping strategies, economic development patterns, and future weather patterns. Naturally, the farther into the future one projects, the less accurate the projections become.

Several years ago, a computer model was designed that attempted to predict changes in the High Plains Aquifer System (Knowles, etal, 1984). Since that time, the model has been modified several times (Peckham and Ashworth, 1993) (Rainwater, 1998). In attempting to refine the model and increase its accuracy, quite possibly more questions have been raised than have been answered concerning the accuracy of the various input assumptions used in the process. Therefore, supply and demand projections derived from such efforts should be used only as a guide in the planning effort, and should not be used as fact.

Table 4 shows the projected groundwater supply and demand for Gaines County, Texas. The amounts shown were derived from modeling results used to formulate the 1997 Texas Water Plan (Pederson, et al, 1997) and Llano Estacado Regional Water Plan supply and demand figures. The numbers will be used for District planning purposes until more accurate estimations are available.

Table 4: Projected Groundwater Supply and Demand for Gaines County, Texas, by decade period. (HDR Engineering, Inc., 2000)

	2000	2010	2020	2030	2040	2050
Supply	*369047	349175	330378	312642	295824	279917
Demand	368353	347858	328938	311464	294924	279414
Demand Met	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

*Quantities show in acre-feet per year

Beginning November 1, 1999, logs of all wells drilled within the District's boundaries are required to be submitted to the District. As the District continues to accumulate water well drilling log data, a more accurate estimation of groundwater volume in storage may be possible as a more precise definition of the base of the aquifer becomes known.

Management of Groundwater Resources

The District will endeavor to manage groundwater resources over which it has jurisdiction in order to conserve the resource while seeking to maintain the economic viability of the District's constituents. A water level monitoring network will be established in order to track changes in the total volume of groundwater in storage each year. Likewise, a water quality monitoring network will be established in order to track water quality changes each year. The District will employ all technical resources at its disposal to monitor and evaluate the groundwater resource. Programs to encourage conservation of groundwater will be designed and implemented as need dictates.

In October 1999, the Board, after notice and hearing, adopted the rules of the District. The rules address conservation of the groundwater resources of the District through: well permitting, well spacing, well registration, well completion, pumping limitations, open well capping, and standards for plugging wells. As conditions dictate, and with the approval of the constituents of the District, the Board will consider the modification of the rules to further the mission of the District. When considering modification or enforcement of the rules, the Board will base its decisions on the best technical evidence available. All constituents will be treated equally and fairly when applying the rules of the District.

Drought Contingency Plan

From time-to-time, drought conditions exist on the Texas High Plains. In fact, many people have commented that this region is in a state of perpetual drought; the only difference being the severity of the condition from year-to-year due to very low average annual rainfall amounts. Drought response conservation measures typically used in other regions of Texas (i. e. rationing) cannot and are not used in this region due to extreme economic impact potential. With irrigated agriculture providing the stability of our region's economic base, and accounting for over 97% of groundwater pumpage, we would be remiss to consider forced cutbacks directed at agriculture in such time of greatest need.

In the District, groundwater conservation is stressed at all times. The Board recognizes that irrigated agriculture production provides economic stability to the communities within the District. Therefore, through notice and hearing provisions required in the development and adoption of this management plan, the Board adopts the official position that, in times of precipitation shortage, irrigated agricultural producers will not be limited to any less pumpage of groundwater than is provided for by District rules.

In order to treat all other groundwater user groups fairly and equally, the District will encourage more stringent conservation measures, where practical, but likewise, will not limit groundwater use in any way not already provided for by District rules.

Regional Planning

The 1997 Omnibus Water Act (SB 1), 75th Texas Legislature, required the TWDB to divide the state into regions to provide for statewide water resource planning. After several hearings and a significant volume of public input, the TWDB divided the state into 16 regions, ranging in size from all or part of 3 counties to 37 counties (Fig. 5). The District was included in Region O, which is one of two regions covering most of the High Plains Aquifer System. SB 1 also required the TWDB to appoint the members of each Regional Planning Group (RPG). At least one person was required to be appointed from each of the following user/interest groups:

Public	Counties
Municipalities	Industries
Agricultural	Environmental
Small Businesses	Electric Generating Utilities
River Authorities	Water Districts
Water Utilities	

After extensive nominations process, the TWDB appointed 17 initial members to the Region O Planning Group. TWDB rules promulgated to facilitate the regional planning effort, required the initial planning group's members to add at least one new member. Three additional members were added to the Region O Planning Group on March 24, 1998 (Table 5).

SB 1 Requires RPGs to consider the following in the regional planning document due by January 1, 2001:

- any existing water or drought planning efforts addressing all or a portion of the region;
- certified groundwater conservation district management plans;
- all potentially feasible water management strategies, including but not limited to improved conservation, reuse, and management of existing water supplies, acquisition of available existing water supplies, and development of new water supplies;
- protection of existing water rights in the region;
- opportunities for and the benefits of developing regional water supply facilities or providing regional management of water supply facilities;
- appropriate provision for environmental water needs and for the effect of upstream development on the bays, estuaries, and arms of the Gulf of Mexico and the effect of plans on navigation;
- provisions for interbasin transfers , if needed;

- voluntary transfer of water within the region using, but not limited to, regional water banks, sales, leases, options, subordination agreements, and financing agreements; and
- emergency transfer of water, including information on the part of each permit, certified filing, or certificate of adjudication for non-municipal use in the region that may be transferred without causing unreasonable damage to the property of the non-municipal water rights holder.

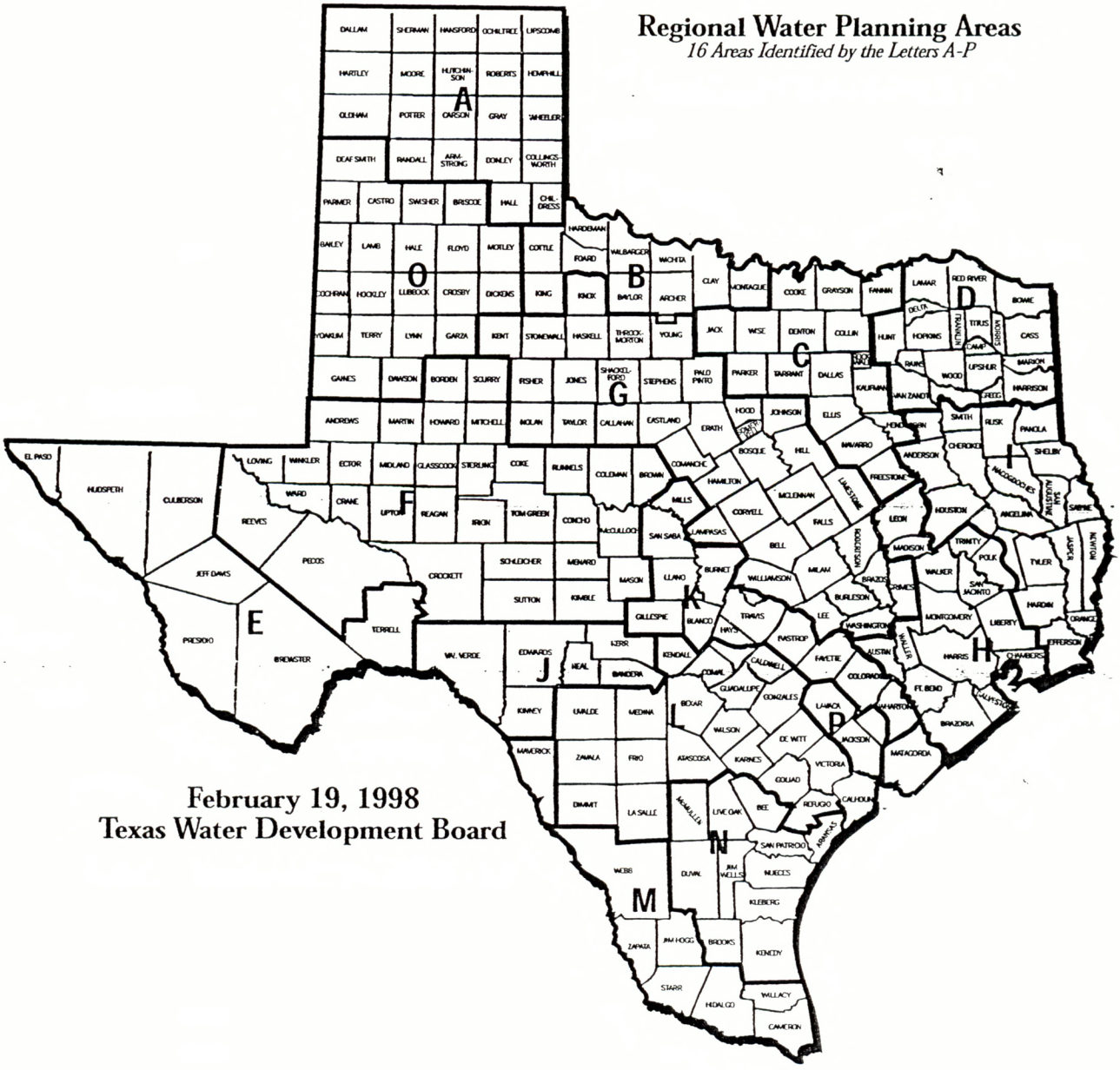
Table 5: Region O Initial Planning Group Members and User/Interest Group Represented.

User/Interest	Name	Affiliation
Public	Loyd Urban	Texas Tech Water Resources Institute
Counties	Judge Dallas Brewer	Yoakum County
Municipalities	Chess Carthel	City of Plainview
Municipalities	Bruce Blalack	Lubbock Water Utilities
Municipalities	Mayor Bob Josserand	City of Hereford
Municipalities	Jerry Webster	City of Tahoka
Industries	Gene Montgomery	Altura Energy
Agricultural	John Abernathy	Texas Tech-Ag Sciences
Agricultural	S. M. True, Jr.	Farmer
Agricultural	Richard Leonard	Farmer
Agricultural	Delmon Ellison, Jr.	Farmer
Agricultural	Ms. Delaine Baucum	Valley Irrigation and Pump
Agricultural	Harold P. (Bo) Brown	Texas Cattle Feeders
Environmental	Jim Steiert	Quality Hunts
Small Businesses	Don McElroy	Irrigation Pumps & Power
Elec.Generating Utilities	Bill Harbin	Golden Spread Electric Coop
River Authorities	John Garland	Brazos River Authority
Water Districts	A. Wayne Wyatt	High Plains UWCD No. 1
Water Districts	Kent Satterwhite	Canadian River MWA
Water Districts	Lee Arrington	South Plains UWCD
Water Utilities	Henry Reiff	Cotton Center WSC

Regional planning required under SB 1 will directly affect groundwater districts in the near future. By law, when a district's management plan is readopted by its Directors, the management plan must be modified so as not to be in conflict with the associated regional plan. Some groundwater district personnel feel that this "consistency" clause is a further loss of local control of the resource.

The Board supports the Llano Estacado Regional Water Planning group's efforts. The District will endeavor to be an active participant throughout the entire regional planning process to ensure that local control of groundwater resources is maintained and that there is no major conflict between the District's management plan and the regional planning document. However, the District agrees with the legislature that locally controlled groundwater districts are the states preferred entity to management groundwater.

Figure 5: Location of the Senate Bill 1 Planning Region



Legislative Activity

The 75th Texas Legislature officially recognized groundwater districts as the preferred method of managing groundwater resources (36.0015, Texas Water Code). Since its inception, the District has attempted to communicate with national and state lawmakers to ensure that the property rights and other groundwater related interests of its constituents are protected. The Board will continue to support the District's participation in the legislative process, to the greatest extent fiscally possible, to ensure that the interests of the District's constituency are represented. The District will attempt to keep the constituents informed of legislative activities through news releases, newsletters, and public speaking engagements.

Goals, Management Objectives and Performance Standards

Method for Tracking the District's Progress in Achieving Management Goals

The District Manager will prepare an annual report of the District's performance with regard to achieving management goals and objectives. The report will be prepared in a format that will be reflective of the performance standards listed following each management objective. The report will be presented to the Board within 60 days of the end of each fiscal year. The first annual report will be prepared upon completion of the 2000-01 fiscal period. Additionally, estimates of fiscal resources expended in the accomplishment of each objective will be included in the report. The report will be maintained on file in the open records of the District.

The District will actively enforce all rules of the District in order to conserve, preserve, protect and prevent the waste of the groundwater resources over which the District has jurisdictional authority. The Board will periodically review the District's rules, and will modify the rules, with public approval, in order to more adequately manage the groundwater resources within the District and to carry out the duties prescribed in Chapter 36, Texas Water Code.

Goal 1.0 **Implement management strategies that will protect and enhance the quantity of useable quality groundwater by encouraging the most efficient use.**

Management Objective-Water Level Monitoring

1.01 Annually, measure the depth to water in 80% or more of the wells in the District's water level monitoring network; record all measurements and/or observations; enter all measurements into District's computer data base; file all field notes in District's filing system; maintain a network of measurement wells of 160 or more wells.

Performance Standards

1.01a Percent of water level monitoring wells for which measurements were recorded each year

1.01b Percent of water level monitoring wells for which field notes were written describing reason for inability to attain measurements each year

1.01c Number of data records entered into District's data base each year

1.01d Number of water level measurement wells for which field notes are filed in District's filing system each year

1.01e Number of wells in the water level measurement network each year

1.01f Number of wells added to the network, if required, each year

Management Objective-Technical Field Services

1.02 On an annual basis, at the request of the constituents of the District, provide technical field services including, but not limited to: flow testing, draw down measurement, sprinkler pattern efficiency testing, and water management strategy consultation. District staff will attempt to fulfill 80% of the requests.

Record any observations, measurements, etc. in field log. Enter recorded information in District's computer data base.

Performance Standards

1.02a Percent of field service requests fulfilled, as evidenced by field log, each year

1.02b Number of records entered into District's computer data base each year

Management Objective-Research and Demonstrations

1.03 Considering the District's fiscal resources, participate when practical in opportunities to conduct research or perform demonstrations of methods to protect and enhance the quantity of useable quality groundwater in the District on an annual basis. Record the opportunities to participate and reasons the District did or did not participate in these activities. File notes in the District's filing system.

Performance Standards

1.03a Percentage of research and demonstration project opportunities in which the District participates each year

1.03b Number of records indicating opportunities to participate each year

Management Objective-Center Pivot Inventories

1.04 Beginning in 2001, and again every three years thereafter, perform a physical inventory of the number and type of all irrigation systems in the District. Note which center pivot irrigation systems have Low Energy Precision Application (LEPA) spaced nozzles as a measure of adoption of more efficient irrigation technology. Enter data in District's data base file by block and section.

Performance Standards

1.04a Number of irrigation systems recorded each documenting period

1.04b Percentage of center pivot irrigation systems with LEPA spaced nozzles each documenting period

1.04c Number of data entries into District's data base each documenting period

Management Objective-Loan Program

1.05 Beginning in 2001, the District will participate in the TWDB Agricultural Water Conservation Loan Program, when fiscally possible, as a lender district. The District will make loans available to all qualified applicants for the purchase of qualified water conserving irrigation equipment. The District will loan funds up to the maximum amount of the loan commitment made to the District by the TWDB.

Performance Standards

1.05a Number of Agricultural Water Conservation Equipment loan applications received each year

1.05b Number of Agricultural Water Conservation Equipment loans executed by the District to qualified applicants each year

18
20
21

Goal 2.0 **Implement management strategies that will protect and enhance the quantity of usable quality groundwater by controlling and preventing waste.**

Management Objective-Well Permitting and Well Completion

2.01 On an annual basis, at the request of the constituents of the District, issue temporary water well drilling permits for the drilling and completion of non-exempt water wells in the District within 20 days of application. Inspect all well sites to be assured that the District's completion and spacing standards are met. Send written notification to the well owner if the well fails to meet standards within 30 days of inspection. The Board will vote on final approval of the permit at the next regularly scheduled meeting after the well site has been inspected and District well completion standards have been met.

Performance Standards

2.01a Average number of days taken to issue drilling permit after request each year

2.01b Number of water well drilling permits issued each year

2.01c Number of well sites inspected after well completion each year

2.01d Number of well sites that fail to meet the standards of the District each year

2.01e Average number of days taken to mail notification letters each year

Management Objective-Open or Uncovered Wells

2.02 Annually, the District will inspect all sites reported of open or uncovered wells to substantiate or refute that an open or uncovered well exists. If an open or uncovered well is found, the District will insure that the open hole is properly closed according to District rules and, in so doing, prevent potential contamination of the groundwater resource. The reports shall be filed on forms provided by the District in order to track the progress of the closure process. The District will contact the party responsible for the open or uncovered well within 30 days of same being reported. The site will be inspected after notification to ensure the well closure process occurs within 60 days of the initial contact with the responsible party. If the well is not closed by the end of the 60 day period, the District will close the well in accordance with the District rules.

Performance Standards

2.02a Number of open or uncovered wells reported to the District each year

2.02b Number of initial inspections accomplished each year

2.02c Average number of days required to make initial contact with responsible party each year

2.02d Average number of days required to complete closure of open or uncovered wells each year

2.02e Percentage of wells remaining open or uncovered after 60 day period that are closed in accordance with District rules each year

Management Objective-Maximum Allowable Production

2.03 Annually, the District will investigate all reports filed by District constituents, on forms provided by the District, regarding pumpage of groundwater in excess of the maximum production allowable under the District's rules. Investigation of each occurrence shall occur within 30 days of receiving the report. Each case will be remedied in accordance with District rules.

Performance Standards

2.03a Percent of reports investigated each year

2.03b Average amount of time taken to investigate reports each year

2.03c Percent of incidences where violations occurred and violators were required to change operations to be in compliance with District rules each year

Management Objective-Water Quality Monitoring

2.04 Beginning in 2001, District staff will obtain water quality samples from 100 or more irrigation wells for analysis of total salts and total chlorides, in order to track water quality changes in the District, and will resample 90% of the wells sampled the previous year. The results of the tests will be published in map form, entered in to the District's computer data base, and will be made available to the public.

Performance Standards

2.04a Number of samples collected and analyzed each year

2.04b Percent of previously sampled wells that were sampled in the current testing year.

2.04c Number of maps made available to the public each year

2.04d Number of analyses entered into District's computer data base each year

34

Goal 3.0 **Implement management strategies that will provide public education and information opportunities that will assist in the accomplishment of Goals 1.0 and 2.0.**

Management Objective-Newsletter

3.01 Annually, the District will produce a minimum of four newsletter editions. Newsletters will be distributed to District constituents and other interested parties. At a minimum, two articles per year will be included that address methods of enhancing and protecting the quantity of useable quality groundwater within the District.

Performance Standards

3.01a Number of newsletter editions published each year

3.01b Number of newsletters distributed each year

3.01c Number of articles that address methods of enhancing and protecting the quantity of useable quality groundwater each year

Management Objective-News Releases

3.02 Annually, District staff in conjunction with local newspaper publishers will prepare a minimum of four news releases, for publication in local newspapers, detailing methods of protecting and enhancing the quantity of useable quality groundwater within the District.

Performance Standard

3.02 Number of news releases prepared, for publication in local newspapers, detailing methods of protecting and enhancing the quantity of useable quality groundwater within the District each year.

Management Objective-Public Speaking Engagements

3.03 Annually, District staff and/or directors shall present a minimum of four programs that address methods to protect and enhance the quantity of useable quality groundwater in the District.

Performance Standard

3.03 Number of programs that address methods to protect and enhance the quantity of useable quality groundwater in the District presented each year

Management Objective-Printed Material Resource Center and Technical File

3.04 Annually, maintain a self-service printed material resource center in the District office. Annually inventory items in the center for quantity and currentness. Through the inventory process, determine the number and type of materials procured from the center by the public each year. Maintain a technical filing system of resource materials and annually record the number of copies procured from the technical file by the public.

Performance Standards

3.04a Number of items by type procured by the public from the resource center each year

3.04b Number of items copied and given to the public from the technical file each year

22
26
30

Goals not Applicable

The following goals referenced in Chapter 36, Texas Water Code, have been determined not applicable to the District;

§ 36.1071(a)(3) Controlling and preventing subsidence
§ 36.1071(a)(4) Addressing conjunctive surface water management issues
§ 36.1071(a)(5) Addressing natural resource issues

References

Ashworth, J. B. and Hopkins, J., 1995, Aquifers of Texas: Texas Water Development Board Report 345, 69 p.

Coleman, J. and Arrington, L., 2000, unpublished report on the quantity of groundwater in storage in Gaines County, Texas

HDR Engineering, Inc., 2000, Llano Estacado Regional Water Plan, Water Supplies and Water Needs Identified by Water User Group, Austin, TX, 93p.

Knowles, T., Nordstrom, P. L., and Klemt, W. B., 1984 Evaluating the Groundwater Resources of the High Plains of Texas: Texas Department of Water Resources Report 288, 4 vol.

Peckham, D. S. and Ashworth, J. B., 1993, The High Plains Aquifer System of Texas, 1980 to 1990 Overview and Projections: Texas Water Development Board Report 341, 34 p.

Pederson, C. D., et al, 1997, Water for Texas: A Consensus Based Update to the State Water Plan: Texas Water Development Board, 3 vol.

Rainwater, K., 1998, Personal Communication, Texas Tech University, Lubbock, Texas

Sanders, D., 1962, Soil Survey of Terry County, Texas, U.S. Government Printing Office, Washington D.C., 57 p.

LLANO ESTACADO UNDERGROUND WATER CONSERVATION DISTRICT

101 S. Main, Rm. B2, Gaines County Courthouse, Seminole, TX 79360 * 915-758-1127

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Management Plan
2000-2010

WHEREAS, the Llano Estacado Underground Water Conservation District (the District) was created on May 24, 1991, by authority of HB 530 of the 72nd Texas legislature; and

WHEREAS, the registered voters of the District confirmed the District's creation in November, 1998; and

WHEREAS, SB 1, 75th Texas Legislature required the district to adopt a Management Plan as stated in Chapter 36.1071, Texas Water Code; and

WHEREAS, the Management Plan is required to be certified as administratively complete by the Executive Administrator of the Texas Water Development Board as stated in Chapter 36.1072, Texas Water Code; and

WHEREAS, the Board of Directors of the District have determined that the Management Plan adequately addresses the requirements of Chapter 36.1071, Texas Water Code; and

WHEREAS, the Management Plan shall become effective on April 14, 2000, upon adoption by the Board of Directors of the District and shall remain the effect until April 14, 2010, or until a revised Plan is adopted, whichever occurs first, therefore be it

RESOLVED, that the Board of Directors of the Llano Estacado Underground Water Conservation District hereby adopt the Management Plan; and further

RESOLVE that this Management Plan shall become effective on April 14, 2000.

Adopted this 14th day of April 2000, by the Board of Directors of the Llano Estacado Underground Water Conservation District.

Delmon Ellison, President

Ronnie Wallace, Vice-President

Shelby Elam, Secretary

Walter Billings, Member

Alton Billings, Member

STATE OF TEXAS
COUNTY OF GAINES

This instrument was acknowledged before me on the 9th day of May 2000.

Notary Public, State of Texas
Notary's Name Printed:

LORI BARNES
NOTARY PUBLIC
STATE OF TEXAS
My Commission Expires 08-02-2003

Notary's Commission Expires: 2003

Gaines County News

77th Year, 22nd Issue

Wednesday, April 5, 2000

40 cents

Notices

Notice of Public Hearing

The Llano Estacado Underground Water Conservation District will conduct a public hearing to present and receive comment on the District's Groundwater Management Plan at 10:00 a.m., Friday, April 14, 2000, in the District office, 101 S. Main, Rm. B-2, Seminole, Tx. Interested persons are invited to attend.

/s/ Delmon Ellison, Jr.
Board President

4/5-4/12

April 5, 2000
50c
12 Pages - 1 Section
Plus Supplements

Wednesday Seminole
Sentinel
Local News
Local Sports
Local Pictures
Volume 93, Number 49
Seminole (Gaines County), Texas 79360 © 2000
Wednesday, April 5, 2000
Web Site: http://www.seminolesentinel.com
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Briefly

GED Test Date

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Delmon Ellison, Jr.
Board President

Published in The Seminole Sentinel on April 5, 9 and 12, 2000.

LLANO ESTACADO UNDERGROUND WATER CONSERVATION DISTRICT

101 S. Main, Rm. B2, Gaines County Courthouse, Seminole, TX 79360 * 915-758-1127

April 14, 2000

Mr. Craig Pedersen
Executive Administrator
Texas Water Development Board
1700 N. Congress
Austin, TX 78711-3231

Dear Mr. Pedersen:

The Llano Estacado Underground Water Conservation District submits the enclosed "Management Plan" for Texas Water Development Board certification as mandated by Senate Bill 1, 75th Texas Legislature, with our compliments. The Plan was adopted by our Board of Directors on April 14, 2000, and will take effect on April 14, 2000.

The Plan was developed during open meetings of the Board of Directors in accordance with all notice and hearing requirements required by State law. Documentation that notice and hearing requirements were followed is presented in a separate attachment.

This Plan was developed without input from surface water management entities because there are no surface water management entities with any interests or operations within Gaines County, Texas.

The following cross-references are provided as a means of documenting completeness of the Plan as applicable to the statutory requirements of Senate Bill 1 and TAC Chapter 356:

Water Code	Groundwater Management Plan	Page #
§ 36.1071(a)(1)	Goal 1.0	17
	Goal 3.0	21
§ 36.1071(a)(2)	Goal 2.0	19
	Goal 3.0	21
§ 36.1071(a)(3)	Not Applicable	22
§ 36.1071(a)(4)	Not Applicable	22
§ 36.1071(a)(5)	Not Applicable	22
§ 36.1071(e)(1)	Submission of plan	
§ 36.1071(e)(2)	Management of groundwater resource	12
	Drought contingency plan	12
	Tracking progress	17
§ 36.1071(e)(3)(A)	Existing useable groundwater	10
§ 36.1071(e)(3)(B)	Historical use	10

§36.1071(e)(3)(C)	Recharge	11
§36.1071(e)(3)(D)	Projected supply/demand	11
§36.1071(e)(4)	Regional planning	13
§36.1071(E)		Rules-enclosed

§36.1071(g) and TAC 356.6(a)(5) are not applicable at this time.

The Plan will be continually in force and at a minimum, will be reviewed and updated or readopted every 5 years.

If there is any additional information that you require, please do not hesitate to call.

Sincerely,

Jason Coleman
District Manager

JC:lb
Enclosures