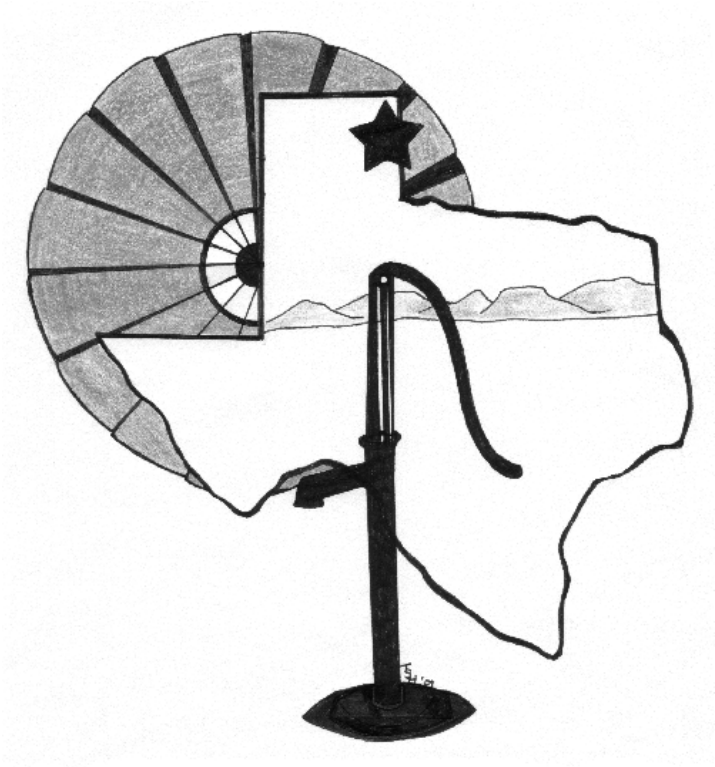


HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT MANAGEMENT PLAN

Adopted July 17, 2007

Certified by Texas Water Development Board

_____

I. District Mission

The Hemphill County Underground Water Conservation District (the District) is committed to managing and protecting the groundwater resources of Hemphill County. The District is committed to maintaining a sustainable, adequate, reliable, cost effective and high quality source of groundwater to promote the vitality, economy, and environment of the District. Given the importance of water to life and that part of the water cycle called groundwater to local families, agriculture, commerce, stream flows and wildlife habitat, the District will work to conserve, preserve and protect the aquifer that serves Hemphill County. The District will work with and for the citizens of Hemphill County and cooperate with other local, regional and state agencies involved in the study and management of groundwater resources. Any action taken by the District shall only be after full consideration and respect has been afforded to the individual property rights of all citizens of Hemphill County. The District will strive to make groundwater accessible to citizens of the District, but will also conserve the resource for all citizens of the District and future generations.

II. Purpose of Management Plan

In 1997 the 75th Texas Legislature established a statewide comprehensive regional water planning initiative with the enactment of Senate Bill 1 (SB1). Among the provisions of SB1 were amendments to Chapter 36 of the Texas Water Code requiring groundwater conservation districts to develop a groundwater management plan that shall be submitted to the Texas Water Development Board for certification as administratively complete. The groundwater management plan is specified to contain estimates on the availability of groundwater in the Districts, and details of how the District would manage groundwater and management goals for the District. In 2001 the 77th Texas Legislature further clarified the water planning and management provisions of SB1 with the enactment of Senate Bill 2 (SB2). In 2005 the 79th Texas Legislature passed House Bill 1763 which changed the certification process of management plans to an approval process. The bill also changed the required elements of management plans.

The administrative requirements of the Chapter 36 Texas Water Code provisions for groundwater management plan development are specified in Chapter 31 Texas Administrative Code Chapter 356 of the Texas Water Development Board Rules. This plan fulfills all requirements for groundwater management plans in Chapter 36 Texas Water Code and the administrative rules of the Texas Water Development Board.

This plan further addresses the process established by the District to monitor changes in the aquifer, communicate to the public the findings made by the District, and ensure that the plan can adapt through time to meet the needs of the citizens of Hemphill County.

This plan has been developed by the District using the District's best available data, including the groundwater availability modeling ("GAM") information provided by the Texas Water Development Board (TWDB) together with the District's site-specific data which has been provided to the TWDB for review and approval before usage in this plan. Upon adoption, a copy of the plan will be forwarded to the Panhandle Regional Water Planning Group and GMA 1 member Districts.

The original date of certification of the District's first management plan (the "Original Management Plan") was on January 7, 2000. The Original Management Plan is repealed and replaced by this plan.

III. District Information

A. Creation

The Texas State Legislature in 1949 authorized the creation of Underground Water Conservation Districts to perform certain prescribed duties, functions, and hold specific powers as set forth in Article 7880-3c, Texas Civil Statutes, now codified in Chapter 36 of the Texas Water Code. In 1994 a committee appointed by the Hemphill County Commissioners' Court reviewed the need for Hemphill County to either join an existing water district or to form a single county district. After investigating other districts and discussions within the county, the committee recommended that a single county district be formed. The Hemphill County Underground Water Conservation District was created the following year by the Hemphill County Underground Water Conservation District Act (Act of May 19, 1995, 74th Leg., R.S., ch. 157, 1995 Tex. Gen. Laws 1007). The District was confirmed by local election held in Hemphill County on November 4, 1997 with 88% of the voters in favor of the District.

B. Location and Extent

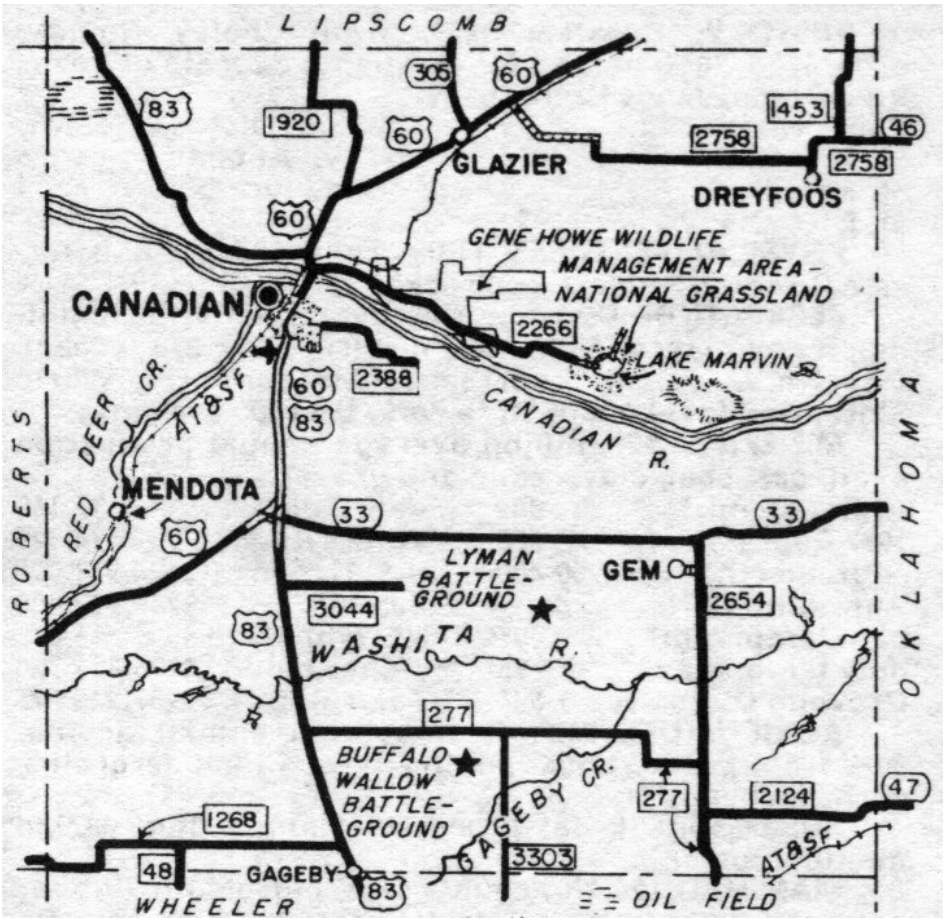
The District is located in Hemphill County and its boundaries are coterminous with the boundaries of the county. Hemphill County is about 900 square miles, containing 594,560 acres[1] and a current population of approximately 3,336.[2] The Panhandle Water Planning Area 2006 Plan showed a projected population decline of 472 from 3,496 in 2010 to a projected 3,024 in 2060. [3]

YEAR	2010	2020	2030	2040	2050	2060
POPULATION TOTAL	3,496	3,511	3,394	3,269	3,181	3,024

Table 1 Projected Population of Hemphill County

Hemphill County lies in the rolling plains on the eastern edge of the Texas Panhandle, east of the Texas High Plains. It is bordered on the east by Oklahoma, on the south by Wheeler County, on the west by Roberts County, and on the north by Lipscomb County. The center point of the county is at 35°50' north latitude and 100°15' west longitude. Canadian, the county seat, is eight to ten miles northwest of the center of the county and about 100 miles northeast of Amarillo. The county was named for John Hemphill.

Two major rivers and dozens of creeks flow within the county. The Canadian River flows easterly across the north central part of the county, and the Washita River flows west to east across the southern part. Red Deer Creek is the major tributary of the Canadian in the county; Gageby Creek is the largest county tributary of the Washita. More than three dozen smaller creeks drain into the two rivers. The elevation ranges roughly from 2,200 to 3,000 feet above sea level. The county's soils which include clay loam, sandy loam, and alluvial soils, support a variety of native grasses as well as wheat, grain sorghum, hay, and other cultivated grass crops. Cottonwood and elm trees can be found in the numerous creek bottoms.

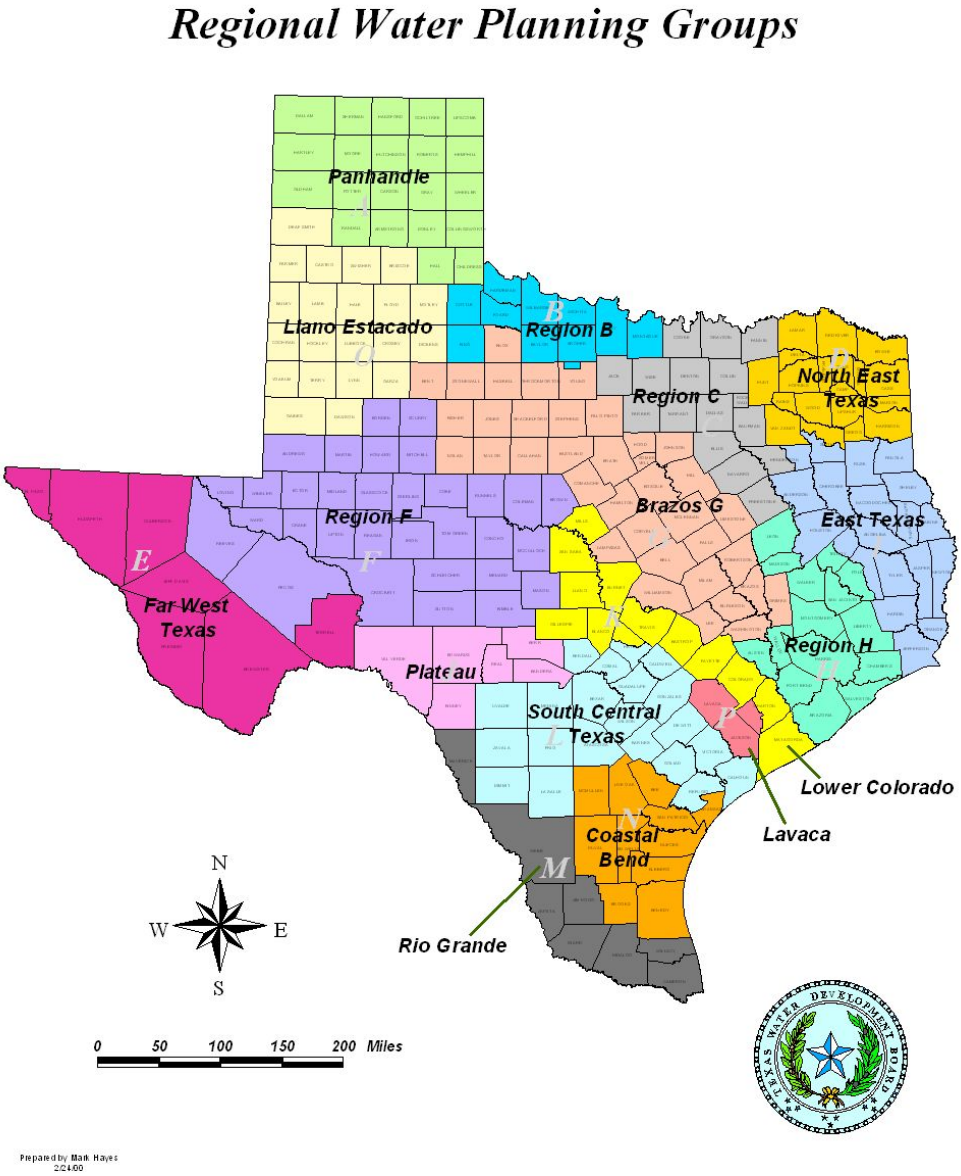


The average annual rainfall is 20.5 inches, and the growing season averages 204 days a year; the average maximum temperature is 95° F in July, and the average minimum is 23° in January.[4]

Industries within the County include agriculture, petroleum and tourism. Canadian, Texas was recently recognized by the USDA Texas Yes Program as the highest ranking, Hardworking Community overall in the areas of tourism, community development, economic development, education and training, and creating regional partnerships with other communities.

Eight years ago, Canadian decided to take advantage of its many natural resources to ensure the long term viability of the community. It began by developing and launching a long range plan that included building economic infrastructures to support a growing eco-tourism industry while also preserving the town's cultural and historic heritage. The High Plains loop of the Great Texas Wildlife Trails provides passage to 68 regional wildlife viewing sites, 12 of which are in the Canadian area. Birding and wildlife enthusiasts prospecting for a look at fauna – such as bobwhite quail, burrowing owls, prairie dogs, and the lesser prairie chicken – can take advantage of the year-round viewing opportunities or special events, including the Prairie Chicken viewings held each spring.

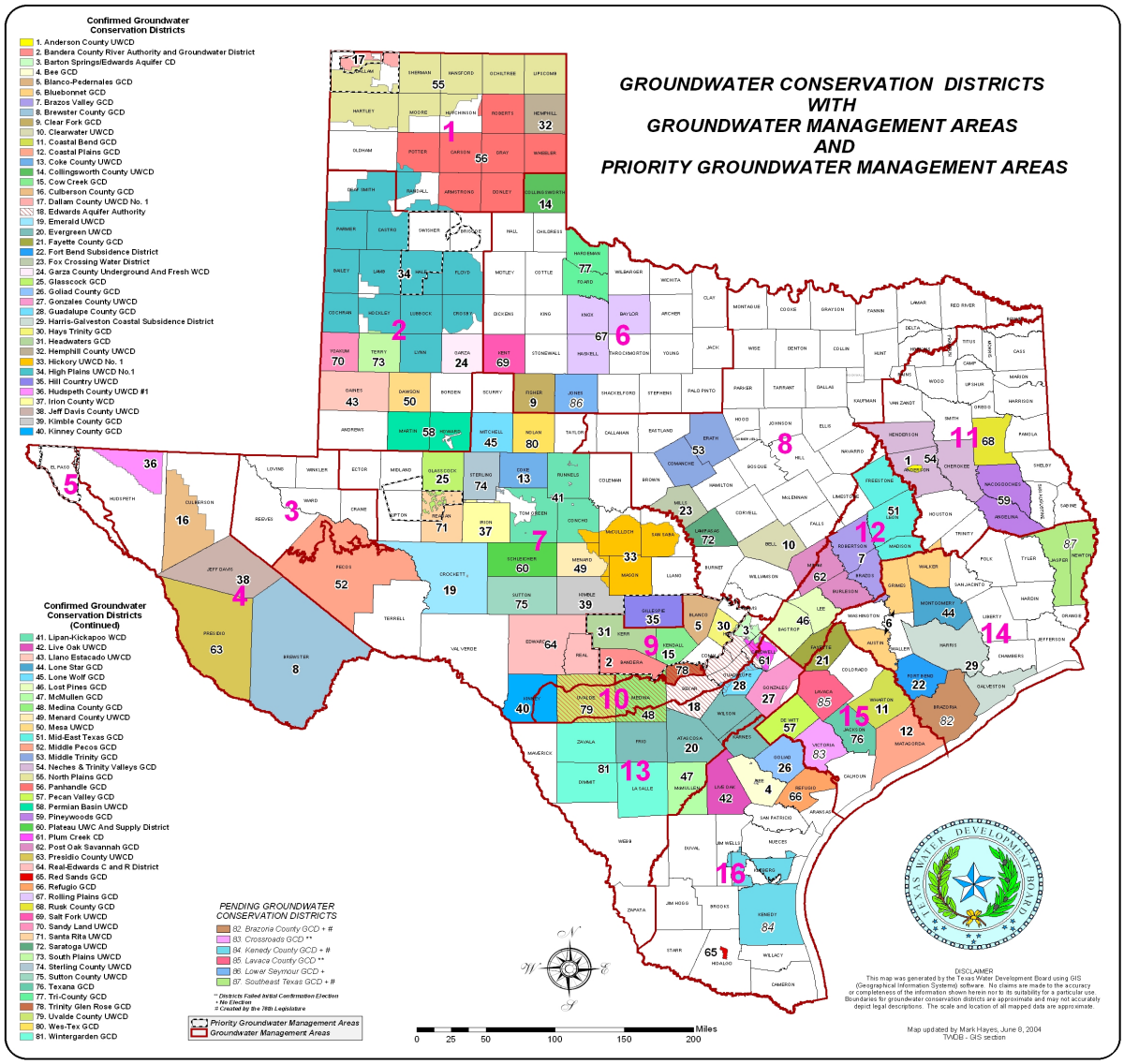
The District is located in the Panhandle Regional Water Planning Area, which is comprised of 21 counties in the Texas Panhandle. The Panhandle Regional Water Planning Area was formed pursuant to Senate Bills 1 and 2, which require all areas of the state of Texas to conduct a comprehensive water planning program. The plans that were created as a result of this legislation are the most detailed and encompassing regional level water plans created to date. [5]



The District is located in Groundwater Management Area 1. Section 36.108, Texas Water Code, obligates the District to meet annually with the other groundwater conservation districts ("GCDs") in GMA 1 to conduct joint planning and to review the management plans and accomplishments for the management area.

No later than September 1, 2010 and every five years after, the GCDs in GMA 1 shall consider groundwater availability models and other data or information for the management area and shall establish desired future conditions for the relevant aquifers within the management area.

The other confirmed GCDs that are located in GMA 1 are: Dallam County UWCD No. 1, North Plains GCD, Panhandle GCD and High Plains UWCD No. 1. Dallam County UWCD No. 1 has recently consolidated with the North Plains GCD. The Hemphill County UWCD hosted the first joint planning meeting in Canadian, Texas in October, of 2006.



C. Background

The District's Board of Directors is composed of five members elected to serve staggered four year terms. All directors are elected to serve as directors at-large. The Board of Directors holds regular meetings at the Commissioner's Courtroom located on the 2nd floor of the Hemphill County Courthouse located at 400 Main Street, Canadian, Texas on the second Tuesday of each month unless otherwise posted. All meetings of the Board of Directors are public meetings noticed and held in accordance with applicable public meeting requirements.

D. Authority of the District

The District derives its authority to manage groundwater within the District by virtue of the powers granted and authorized pursuant to Section 59, Article XVI, Texas Constitution, Chapter 36, Texas Water Code, and the District's enabling act, the Act of May 19, 1995, 74th Leg., R.S., ch. 157, 1995 Tex. Gen. Laws 1007 (Appendix A). The District, acting under such authority, assumes all the rights and responsibilities of a groundwater conservation district specified in Chapter 36 of the Texas Water Code. With the adoption of the Districts rules by the Board of Directors in a public meeting on June 8, 2004, and amended November, 2006; the authority to manage the use of groundwater in the District will be governed at all times as specified in the District rules. (Appendix B).

E. Groundwater Resources Within the District

The primary aquifer in the District is the Ogallala. Water-saturated sediments of the Ogallala formation form the aquifer. The Ogallala sediments rest on Permian age "Red Beds". Limited exposures of the red beds are found at several locations on the south side of the Canadian River channel. These red bed exposures contain fine grained sands with gypsum streaks. There are additional red bed exposures in the Washita River channel just east of the county line in Oklahoma.

The general geologic section in Hemphill County has Permian Red Beds at the base; with coarse sand and gravels at the base of the Ogallala formation resting on the Red Beds. Above the base of the Ogallala, the formation contains sands, sandstone, gravels and clays with occasional caliche. In the western part of the county at higher elevations there are fine sand and clay with interbedded caliche.

There are extensive sand hills and sand dune deposits overlying the Ogallala formation north of the Canadian River. Additional sand areas are located in the southeast corner of the county along and southeast of Hackberry Creek, and just north of the Washita River.
6

Saturated zones may be found in all parts of the Ogallala section. Saturated thickness varies from at least 340 feet in the southwest part of the county to as little as 20 feet in the east central area along the county line.[7] Water produced from the Ogallala sediments is generally good quality. In the areas where the Ogallala sediments are thin, water may be produced from the underlying Red Beds as well as the overlying Ogallala sediments. Water from such wells may be of lesser quality. The incised Canadian River channel also contains saturated sediments; water quality in these sediments may not be as good as that produced from the Ogallala.[8]

F. Topography and Drainage

TOPOGRAPHY

Total elevation relief in the county is approximately 835 feet. The maximum elevation, approximately 3005 feet above sea level, is in the southwest corner of the county. The minimum elevation, approximately 2170 feet above mean sea level, is in the Canadian River bottoms at the Oklahoma state line. A small portion of the county in the southwest is located in the generally level Llano Estacado (Staked plains) portion of the Texas Panhandle. The remainder of the county is located in eroded areas surrounding the rivers. The southwest and west portions of the county contain flat topped mesas surrounded by tributary creeks and arroyos. A significant escarpment is present between the plains areas and the Canadian River drainages. A similar escarpment is present along portions of Red Deer Creek. Generally, the terrain is rougher in the west and smoother in the east. Areas of sand dunes are located in the area north of the Canadian River. Several river terraces are present along the Canadian River. [9]

DRAINAGE

Two of the main drainage systems flow from west to east through the county. These are the Canadian and Washita Rivers[10]. These Rivers originate outside the county boundaries. Red Deer Creek, located in the western part of the county, also originates outside the county. Red Deer Creek flows in a northerly direction in the western part of the county. The three main drainage systems are described below.[11]

The Canadian River originates in New Mexico, flows across the Texas Panhandle from west to east, and continues into Oklahoma, joining the Arkansas River near the Oklahoma-Arkansas border. The Canadian River and the feeder creeks drain approximately 50% of the county land area.[12]

The headwaters for Red Deer Creek are located in Gray County. The creek flows through Gray and Roberts counties, enters Hemphill County near the southwest corner before joining the Canadian River just west of the town of Canadian.[13] Red Deer Creek drains approximately 10% of the county area.[14]

The Washita River originates outside Hemphill County between Red Deer Creek and the southwest corner of the county. The river flows east across the county, into Oklahoma, and into Lake Texoma on the Red River between Texas and Oklahoma.[15] The

Washita River and associated feeder creeks drain roughly the southern 40 % of Hemphill County. Gageby Creek, originating in Wheeler County to the south, is a major tributary.[16]

Streams feeding into the two rivers generally flow north or south for a short distance into the main stream.[17] The rivers and creeks are fed by stream flow from outside the county, surface runoff within the county and from groundwater discharges to springs and seeps located near the stream heads or along the stream courses. The discharging groundwater is from the Ogallala aquifer, the primary aquifer in the county. [18]

IV. Technical District Information

A. Estimate of Managed Available Groundwater in the District Based on the Desired Future Condition Established in Joint Planning

The desired future condition of the groundwater within the District has not yet been established in accordance with Chapter 36.108 of the Texas Water Code. In establishing the desired future condition, the GCDs in GMA 1 shall consider uses or condition of an aquifer within the management area that differ substantially from one geographic area to another. The districts may establish different desired future conditions for each aquifer, subdivision of an aquifer, or geologic strata, or each geographic area overlying an aquifer in whole or in part or subdivision of an aquifer within the boundaries of the GMA 1.

B. Estimate of the Amount of Groundwater Being Used Within the District on an Annual Basis

The estimates of the historical groundwater pumpage in Hemphill County were extracted from the TWDB Water Use Survey Database and the estimate of the amount of groundwater being used within the District on an annual basis is ~48,593 acre feet. These numbers reflect voluntary responses to a water use survey conducted by the Texas Water Development Board. The District feels this information may not accurately reflect the actual use of groundwater within the district. The District believes actual annual use may be substantially higher due to recent oil and gas activity and increased irrigation practices. The District estimates the current amount of groundwater used within the District on an annual basis to be 56,458 acre feet per year. This estimate is derived from the 2005 TWDB Water Use Survey completed by the City of Canadian (Appendix C), as well as local information obtained by the District considered to be the best available data for irrigation use (Appendix D) and an Oil and Gas Use Report by Daniel B. Stephens and Associates (Appendix E). Livestock use was taken from the TWDB Water Use Survey for 2004 as it is the most current data available. (Appendix F) Discharge is being included in this estimate in accordance with TWDB rule 32 TAC356.2(2) which defines "amount of groundwater being used" as the "quantity of groundwater withdrawn or flowing from an aquifer naturally or artificially on an annual basis." The estimate of natural discharge is derived from GAM Run 05-26 (Appendix G).

Texas Water Development Board Water Use Survey Database Estimate of Water Use									
Year	**Aquifer**	**Municipal**	**Manu-facturing**	**Power**	**Mining**	**Irriga-tion**	**Live-stock**	Dis-charge	**Total Use**
2000	Ogallala	608	1	0	0	3,373	592	45,000	49,574
2001	Ogallala	637	0	0	0	2,349	513	45,000	48,499
2002	Ogallala	627	1	0	0	4,560	567	45,000	50,755
2003	Ogallala	605	0	0	0	1,626	1,362	45,000	48,593
NOTE: All Use reported in acre-feet									

Table 2 TWDB Estimate of Water Use

Hemphill County UWCD Estimated Water Use Within District									
Year	**Aquifer**	**Municipal**	**Manu-facturing**	**Power**	**Mining**	**Irrigation**	**Live-stock**	Dis-charge	**Total Use**
2005	Ogallala	539	0	0	2,575	6,824	1,520	45,000	56,458
NOTE: All Use reported in acre-feet									

Table 3Hemphill County UWCD Estimated Water Use

C. Estimate of the Annual Amount of Recharge from Precipitation to the Groundwater Resources within the District

The estimated amount of recharge from precipitation to the groundwater resources of the District in the area North of the Canadian River is approximately 9,400 acre feet per year and the area South of the Canadian River is approximately 22,200 acre feet a year for a total of 31,600 acre feet per year. This amount was derived from the Groundwater Availability Model ("GAM") GAM Run 05-26 (Appendix G), and is equal to a rate of 3/4 inch per year over the entire county. Region A has funded a study to better quantify recharge in the vicinity of Roberts County which includes western portions of Hemphill County. The District has asked UT at Austin Bureau of Economic Geology to select one or more locations to drill exploration boreholes and conduct isotopic analyses on subsurface soil samples from various depths from the remaining portions of Hemphill County. The results of these studies should provide information to better estimate recharge in Hemphill County.

D. Estimate of the Annual Amount of Water that Discharges From the Ogallala Aquifer to Springs and Any Surface Water Bodies, Including Lakes, Streams, and Rivers

The estimated amount of discharge of water from the Ogallala Aquifer to surface water is approximately 45,000 acre feet per year. This amount was derived from GAM Run 05-26. (Appendix G).

E. Estimate of the Annual Volume of Flow Into and Out of the District Within Each Aquifer and Between Aquifers in the District

The estimated amount of lateral flow of water into the District within the Ogallala Aquifer is approximately 14,900 acre feet per year. This amount was derived from GAM run 04-16 (Appendix H). The estimated amount of lateral flow of water out of the District within the Ogallala Aquifer is approximately 3,000 acre feet per year. This amount was derived from GAM run 05-26 (Appendix G).

The exchange of water with the underlying impermeable basin is considered negligible.

F. Estimate of the Projected Surface Water Supply within the District

The estimated Projected Surface Water Supply within the District is 888 acre feet per year. This estimate is derived from the 2007 State Water Plan. While not a major reservoir site, Lake Marvin, also known as Boggy Creek Lake, was constructed in the 1930s on Boggy Creek, in the east central part of the county by the Panhandle Water Conservation Authority. The lake is in the Canadian River basin and was constructed for soil conservation, flood control, recreation, and promotion of wildlife (Breeding, 1999). The reservoir has a capacity of 553 acre feet and is surrounded by the Panhandle National Grassland. The USFS has a water right for recreational use of Lake Marvin (TWDB, 1999).[19]

Playa Lakes comprise approximately 100 acres in Hemphill County with an estimated maximum storage capacity of 299 acre feet.[20]Local supplies include stock ponds for livestock use. The amount of available supplies for this use is based on data collected by the TWDB on historical water use. [21]

Estimated Projected Surface Water Supplies									
RWPG	**WUG**	**River Basin**	**Source Name**	**2010***	**2020***	**2030***	**2040***	**2050***	**2060***
A	Livestock	Canadian	Livestock Local Supply	524	524	524	524	524	524
A	Livestock	Red	Livestock Local Supply	364	364	364	364	364	364
Total Projected Surface Water Supplies									
(acre-feet per year) =				**888**	**888**	**888**	**888**	**888**	**888**

Table 4 Estimated Projected Surface Water Supplies

G. Estimate of the Projected Total Demand for Water in the District

The projected demand totals are derived from the 2007 State Water Plan for user groups, City of Canadian, County Other, Manufacturing and Livestock. The District presented local information for approval by the TWDB for user groups Irrigation and Mining in

effort to provide more accurate water use and projected demand numbers due to the increase in irrigated acres and oil and gas exploration activity.

Estimated Projected Total Demand for Water								
RWPG	**WUG**	**River Basin**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
A	Canadian	Canadian	475	477	461	444	432	411
A	County Other	Canadian	110	111	107	103	100	96
A	County Other	Red	48	48	46	45	43	41
A	Manufacturing	Red	1	1	1	1	1	1
A	Irrigation	Canadian	4,162	4,162	4,162	4,162	4,162	4,162
A	Irrigation	Red	2,661	2,661	2,661	2,661	2,661	2,661
A	Livestock	Canadian	964	1,068	1,114	1,163	1,216	1,271
A	Livestock	Red	671	743	775	809	845	884
A	Mining	Red	2,575	2,575	2,575	2,575	2,575	2,575
Total Projected Water Demands								
(acre-feet per year) =			**11,667**	**11,846**	**11,902**	**11,963**	**12,102**	**12,102**

Table 5 Projected Water Demands

V. Water Management Strategies

The projected water demand totals for the District will be met by existing supply for all user groups from 2010 through 2060. The District will encourage conservation strategies to manage existing groundwater supplies.[22] Irrigation conservation is achieved through irrigation equipment improvements, conservation tillage practices, the use of the North Plains Evapotranspiration Network and precipitation enhancement if financially feasible.

Water Management Strategies										
RWPG	**WUG**	**River Basin**	**Water Management Strategy**	**Source Name**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
A	Irrigation	Red	Irrigation Conservation	Conservation	48	60	71	83	94	101
A	Irrigation	Canadian	Irrigation Conservation	Conservation	38	47	56	65	74	80
Total Projected Water Savings from Conservation Management Strategies										
(acre-feet per year) =					**86**	**107**	**127**	**148**	**168**	**181**

Table 6 Water Management Strategies

VI. Management Of Groundwater Supplies

The District will manage the supply of groundwater within the District in order to both conserve the resource while seeking to maintain the economic viability of all resource user groups, public and private. In consideration of the economic and cultural activities occurring within the District, the District will identify and engage in such activities and practices, that, if implemented, would result in more efficient use of groundwater.

The District shall implement a management program based on actual aquifer conditions, measured annually by the District in conjunction with the water level measuring program, and production allocation rates modified over time to insure the conservation goals are not exceeded. The District may designate multiple management areas and sub-management areas. Initially, management Area North will be that portion of the District North of the Canadian River and Management Area South will be that portion of the District South of the Canadian River. The District's management criteria is: 1) a decline rate of no more than 1% reduction in the saturated thickness per year based upon a 2 year rolling average; and 2) an average minimum aquifer storage level of 70% of the calculated 2007 saturated thickness to remain within any designated management area or sub-management areas in the year 2037.

The District will amend the District rules as necessary to implement the changes to Chapter 36 of the Texas Water Code and to implement any future groundwater management strategies as well as the goals and objectives of this plan.

It is recognized by the District that the long-term sustainable storage goal of the aquifer is dependent upon long-term use characteristics of the District and adjoining areas of the Ogallala that communicate with the boundaries of the District. The District will continue to participate in long-term studies of the aquifer with the GMA 1 Joint Planning Group, Region A Water Planning Area, and other entities.

Management will be accomplished thru the use of well spacing, production limits, production reporting, monitoring aquifer conditions, comparing measured aquifer changes against decline rates and minimum storage criteria, and adjusting allocation rates, or future management criteria, if ongoing aquifer changes exceed defined management criteria.

The District will continue to measure an adequate number of water levels distributed throughout the county on an annual basis. The District will work with new permitees and existing users to add or delete additional monitor wells to ensure an adequate monitoring network is maintained.

VII. Methodology To Track District Progress In Achieving Management Goals

The General Manager of the District shall prepare and submit an annual report ("Annual Report") to the Board of Directors (Board) of the District. The Annual Report will include an update on the District's performance in regards to achieving management goals and objectives. The general manager of the District will present the Annual Report within one hundred twenty (120) days following the completion of the District's fiscal year that starts October 1, 2007. The Board will maintain a copy of the Annual Report on file for public inspection at the District's offices upon adoption by the Board.

VIII. Actions, Procedures, Performance, And Avoidance For District Implementation Of Management Plan

The District will implement the goals and provisions of this management plan and will utilize the objectives of this management plan as a guideline in its decision-making. The District will ensure that it's planning efforts, operations, and activities will be consistent with the provisions of this plan.

The District will adopt rules in accordance with Chapter 36 of the Texas Water Code, and all rules will be followed and enforced. The District may amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code, revised Management Plans and to insure the best management of the groundwater within the District according to present aquifer conditions. The development and enforcement of the rules of the District will be based on the best scientific and technical evidence available to the District. A copy of the District's Rules is available on the District's Website: www.hemphilluwcd.org.

The District will encourage cooperation and coordination in the implementation of this plan. All operations and activities of the District will be performed in a manner that encourages cooperation with the appropriate state, regional or local water entities.

IX. Management Goals

A. Providing the Most Efficient Use of Groundwater

A.1 Objective – Each year, the District will require all new exempt or permitted wells that are constructed within the boundaries of the District to be registered or permitted with the District in accordance with the District Rules.

A.1 Performance Standard – The number of exempt and permitted wells registered or permitted by the District for the year will be incorporated into the Annual Report submitted to the Board of Directors.

A.2 Objective – Each year, the District will regulate the production of groundwater by maintaining a system of permitting the use and production of groundwater within the boundaries of the District in accordance with the District Rules.

A.2 Performance Standard – Each year the District will accept and process applications for the permitted use of groundwater in the District in accordance with the permitting process established by the District Rules. The number and type of applications made for the permitted use of groundwater in the District, and the number and type of permits issued by the District will be included in the Annual Report given to the Board of Directors.

A.3. Objective – Each year the District will conduct an investigation to evaluate the depletion and water quality of the Ogallala Aquifer through the establishment of a monitor well network within the boundaries of the District.

A.3. Performance Standard – Each year the District will utilize at least 80% of the wells established in the monitor well network to obtain samples of water quality and water level measurements. The monitor well network will evolve with time as new monitor wells are established. A progress report on the work of the District regarding monitoring of the water quality and water levels of the aquifer will be included in the Annual Report given to the Board of Directors.

B. Controlling and Preventing Waste of Groundwater

B.1. Objective – Each year, the District will make evaluation of the District rules to determine whether any amendments are recommended to decrease the amount of waste of groundwater within the District.

B.1. Performance Standard – The District will include a discussion of the annual evaluation of the District Rules and the determination of whether any amendments to the rules are recommended to prevent the waste of groundwater in the Annual Report of the District provided to the Board of Directors.

B.2 Objective – Each year the District will provide information to the public on eliminating and reducing wasteful practices in the use of groundwater.

B.2. Performance Standard – Each year, a copy of the information provided on the District's website or advertisements placed in the local newspaper regarding groundwater waste reduction will be included in the District's Annual Report to be given to the Board of Directors.

B.3. Objective –The District will ask the Texas Railroad Commission to identify the location and operators of all salt water or waste disposal wells permitted to operate within the District by the end of each fiscal year.

B.3. Performance Standard – (a) A copy of the letter to the Texas Railroad Commission asking for the location and operators of all existing salt water or waste disposal wells permitted to operate within the District and a summary of the information received will be included in the Annual Report submitted to the Board of Directors of the District.

B.3Performance Standard – (b) Each year a copy of the letter to the Texas Railroad Commission asking for an update of the location and operators of all new salt water or waste disposal wells permitted to operate within the District and a copy of the summary of the information received will be included in the Annual Report submitted to the Board of Directors of the District.

B.4. Objective – Each year the District will request the Texas Railroad Commission to provide a copy of the results of integrity tests performed on salt water or waste disposal injection wells permitted by the Texas Railroad Commission to operate within the District.

B.4. Performance Standard - Each year a copy of the letter to the Texas Railroad Commission asking for the results of integrity tests performed on the salt water or waste disposal wells permitted to operate within the District and a copy of the summary of the information received will be included in the Annual Report submitted to the Board of Directors of the District.

B.5. Objective – Each year the District will review and monitor notice of applications published in the local newspaper for the drilling and operation of salt water disposal wells to be located within the District in order to obtain a benchmark of the water quality of selected wells within 1 mile of the disposal well activity.

B.5 Performance Standard – Each year the District will subscribe to the local newspaper in order to obtain copies of the notice of application published in the newspaper of local circulation and prepare a report to be included in the Annual Report that describes the number and location of wells benchmarked.

C. Natural Resource Issues Which Impact the Use and Availability of Groundwater and Which are Impacted by the Use of Groundwater

C.1. Objective - Each year the District will review potential groundwater contamination (brines and hydrocarbon) associated the oil and gas activities by reviewing oil and gas water quality reports and District water quality reports.

C.1. Performance Standard - Each year the District will include the results of the study in the Annual Report submitted to the Board of Directors of the District.

C.2. Objective - Each year the District will review potential groundwater contamination from agricultural activities, including concentrated animal feeding operations (CAFOs), herbicides, pesticides and nitrates. The geochemical groundwater information will be obtained from the TCEQ, TWDB and/or District water quality analyses from identified potential problematic areas.

C.2. Performance Standard - Each year the District will include the results of the study in the Annual Report submitted to the Board of Directors of the District.

D. Addressing Conjunctive Surface Water Management Issues

D.1. Objective – Each year, the District will participate in the regional planning process by attending the Region A – Regional Water Planning Group meetings to encourage the development of surface water supplies as alternatives to groundwater usage to meet the needs of appropriate water user groups in the Region.

D.1. Performance Standard – The attendance of a District representative at a minimum of 50 percent of the Region A Regional Water Planning Group

meetings will be noted in the Annual Report presented to the District Board of Directors.

E. **Addressing Drought Conditions**

E.1. Objective – Each month, the District will download the updated Palmer Drought Severity Index (PDSI) map and check for periodic updates to the Drought Preparedness Council Situation Report (Situation Report) posted on the Texas Water Information Network website www.txwin.net.

E.1. Performance Standard – Quarterly, the District will make an assessment of the status of drought in the District and prepare a quarterly briefing to the Board of Directors. The downloaded PDSI maps and Situation Reports will be included with copies of the quarterly briefing in the District Annual Report to the Board of Directors.

E.2. Objective – Quarterly, the District will make an assessment of the status of drought in the District and prepare a quarterly letter to the City Manager of the City of Canadian briefing the City Manager of the Palmer Drought Severity Index (PDSI) level for Hemphill County.

E.2. Performance Standard – A copy of the letter briefing the City Manger of the City of Canadian of the Palmer Drought Severity Index (PDSI) level will be included in the Annual Report to the Board of Directors.

F. **Addressing Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, and Brush Control**

F.1. Objective –The District will sponsor at least one half-hour long presentation and/or discussion on the potential impacts and benefits of conservation, recharge enhancement, rainwater harvesting or brush control and their relative impact on local groundwater levels annually at one of its board meetings for the public.

F.1. Performance Standard – A copy or a summary of the presentation and/or discussion will be included in the Annual Report to the Board of Directors.

F.2. Objective - The District will annually submit an article or advertisement regarding water conservation for publication to at least one newspaper of general circulation in Hemphill County.

F.2. Performance Standard – A copy of the article or advertisement submitted by the District for publication to a newspaper or general circulation in the District regarding water conservation will be included in the Annual Report to the Board of Directors.

F.3. Objective – The District will develop or implement a pre-existing educational program for use on at least one public school campus located in the

District to educate students on the importance of water as a natural resource, water conservation or the prevention of contamination.

F.3. Performance Standard – A summary of the educational program developed or implemented by the District for use in public or private schools located in the District will be included in the Annual Report to the Board of Directors.

G. Addressing, in a Quantitative Manner, the Desired Future Conditions of the Groundwater Resources Selected Pursuant to § 36.108, Water Code

The desired future conditions of the groundwater within the District have not yet been established in accordance with Chapter 36.108 of the Texas Water Code. The District is actively participating in the joint planning process and the development of a desired future condition for the portion of the aquifer within the District and the GMA area.

X. Management Goals Not Applicable to District

A. Controlling and Preventing Subsidence

The rigid geologic framework of the region precludes significant subsidence from occurring due to groundwater pumping.

XI. Action Required for Plan Development and Approval

A. Planning Period

The Board of Directors of the District adopted this Management Plan by resolution on July 17, 2007. The Management Plan will remain in effect for five years from the date of approval by the Texas Water Development Board, unless the District adopts an amended management plan that is approved by the Texas Water Development Board. The amended management plan will take effect as of the date of approval by the Texas Water Development Board. In accordance with the provisions of Chapter 36 of the Texas Water Code, the District's Management Plan shall be reviewed and readopted with or without revisions at least once every five years.

B. Certified Copy of District's Resolution Adopting Management Plan –

A certified copy of the District's resolution adopting this Management Plan is located in Appendix I – District Resolution.

C. Evidence of Management Plan Adoption After Notice and Hearing -

This Management Plan was adopted after the District held a public hearing on the proposed plan on July 10, 2007. Public notice of the hearing was provided. Copies of the public notice and other documents relevant to the public hearing are located in Appendix J– Notice of Public Hearing.

D. Coordination with Surface Water Management Entities –

In developing this Management Plan, the District coordinated with certain regional surface water entities. The District regularly communicates with the Canadian River Municipal Water Authority ("CRMWA"), a regional surface water management entity, through the Region A Panhandle Regional Water Planning Area planning group and by direct communications on an as-needed basis. The District also regularly coordinates with Region A through the regional planning meetings and by written communications. Evidence, such as certified mailing of copy of management plan to CRMWA, is located in Appendix K .

REFERENCES

[1] Soil Survey of Hemphill County, Texas
[2] 2004 US Census Bureau Population Estimate
[3] Panhandle Water Planning Area 2006 Plan
[4] "HEMPHILL COUNTY." The Handbook of Texas Online. ‹http://www.tsha.utexas.edu/handbook/online/articles/view/HH/hch12.html› [Accessed Fri Sep 24 16:43:00 US/Central 2004].
[5] Panhandle Water Planning Group website: http://www.panhandlewater.org/
[6] UT GEB Bulletin 3231, Austin, Lyman C Reed and Oscar M. Longnecker, Jr., 1932
[7] Ogallala Aquifer Saturated Thickness, Hemphill County, Texas, Hemphill County Underground Water Conservation District, Canadian, TX, 2003
[8] The Ogallala Aquifer, Lubbock, C C Reeves and Judy A Reeves, 1996
[9] The Geology of Hemphill County, Texas, 1932, The University of Texas Bulletin No. 3231, The University of Texas, Austin, Texas

[10] Texas Almanac, 2002 – 2003, 2001, The Dallas Morning News, Dallas, TX
[11] The Geology of Hemphill County, Texas, 1932, The University of Texas Bulletin No. 3231, The University of Texas, Austin, Texas

[12] The Geology of Hemphill County, Texas, 1932, The University of Texas Bulletin No. 3231, The University of Texas, Austin, Texas

[13] Perryton (1970) and Amarillo (1969), Geologic Atlas of Texas (GAT) sheets, Texas Bureau of Economic Geology, 1:250,000

[14] The Geology of Hemphill County, Texas, 1932, The University of Texas Bulletin No. 3231, The University of Texas, Austin, Texas

[15] Perryton (1970) and Amarillo (1969), Geologic Atlas of Texas (GAT) sheets, Texas Bureau of Economic Geology, 1:250,000

[16] The Geology of Hemphill County, Texas, 1932, The University of Texas Bulletin No. 3231, The University of Texas, Austin, Texas

[17] Perryton (1970) and Amarillo (1969), Geologic Atlas of Texas (GAT) sheets, Texas Bureau of Economic Geology, 1:250,000

[18] The Geology of Hemphill County, Texas, 1932, The University of Texas Bulletin No. 3231, The University of Texas, Austin, Texas

[19] Region A 2006 Water Plan Table 3-16 Page 3-21 and 3.2.5.5 Page 3-22
[20] Region A 2006 Water Plan Table 1-18 Page I-47
[21] Region A 2006 Regional Water Plan Table 3-19 Page 3-35-26 and 3.2.7 Local Supplies
[22] Volume 3, 2007 State Water Planning Database, 03/13/2007