HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

DISTRICT MANAGEMENT PLAN

Adopted July 17, 2007
Certified by TWDB Sept. 17, 2007
Repealed and New Plan Adopted July 10, 2012
Certified by TWDB September 27, 2012

Amended and Adopted June 27, 2017
Certified by TWDB _____

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I. DISTRICT MISSION

The mission of the Hemphill County Underground Water Conservation District is to conserve and protect the groundwater resources of Hemphill County, by ensuring sustainable development through local management and the best available science.

II. PURPOSE OF THE MANAGEMENT PLAN

The District's management plan satisfies the requirements of SB 1, SB2, HB 1763, the statutory requirements of Texas Water Code (TWC) Chapter 36, and the rules and requirements of TWDB.

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 stakeholders of Hemphill County.

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 groundwater district or in accordance with statute 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). (See Appendix A) The District was confirmed by a local election held in Hemphill County on November 4, 1997 with 88% of the voters in favor of the District.

B. Directors

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. All elections are held in May of even numbered years. The Board of Directors hold regular meetings at the District Offices located at 906 S 2nd 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.

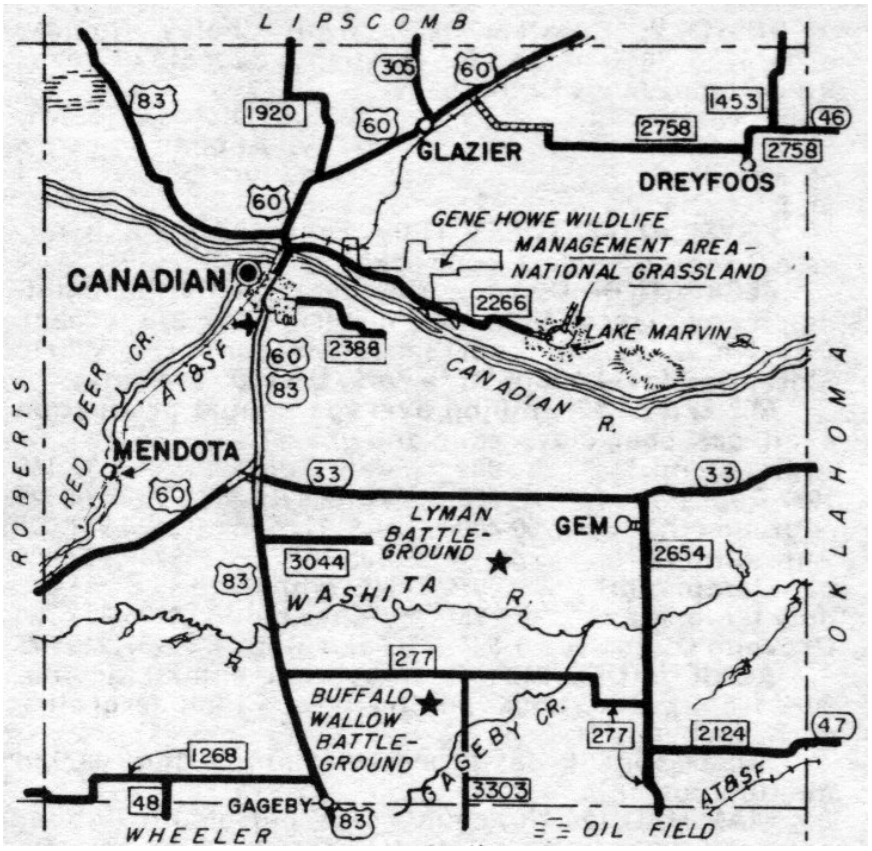
C. Authority

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 (See 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.

D. Location and Extent

The District (see Exhibit A) is located in Hemphill County and its boundaries are coterminous with the boundaries of the County. This area encompasses approximately 900 square miles, contains approximately 594,560 acres and has a current population of 4,129 according to the 2016 US Census. The District lies in the rolling plains on the eastern edge of the Texas Panhandle. 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. Industries within the county include agricultural, petroleum, tourism and hunting.

EXHIBIT A
HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT BOUNDARY



E. Topography and Drainage

Total elevation relief in the county is approximately 835 feet. The maximum elevation, approximately 3005 feet above [mean?] 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.

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

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.

The headwaters for Red Deer Creek are located in Gray County, although annual flow is not typically present until you reach Hemphill County near the southwest corner before joining the Canadian River just west of the town of Canadian. Red Deer Creek drains approximately 10% of the county area.

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. 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.

Streams feeding into the two rivers generally flow north or south for a short distance into the main stream. 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.

F. Groundwater Resources in Hemphill County

The primary aquifer in the District is the Ogallala Aquifer. 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 gravel lenses near the base of the Ogallala formation.

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.

Water produced from the Ogallala sediments is generally of 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 of as good a quality as that produced from the Ogallala.

IV. STATEMENT OF GUIDING PRINCIPLES

The District recognizes the importance of the groundwater resources in Hemphill County to our industries, our community and our heritage. This plan further addresses the process established by the District to monitor changes in the aquifer, educate 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.

V. CRITERIA FOR PLAN APPROVAL

A. Planning Horizon

The time period for this plan is five years from the date of approval by the executive administrator or, if appealed, on approval by the TWDB. This plan is being submitted as part of the five-year review and re-adoption process as required by TWDB 36.1072(e). This management plan will remain in effect until a revised management plan is approved by the executive administrator or the TWDB.

B. Board Resolution

A certified copy of the Hemphill County Underground Water Conservation District

resolution adopting the plan is located in Appendix A – Board Resolution.

C. Plan Adoption

Evidence that the plan was adopted after notice and hearing 31 TAC§356.53(a)(3); §36.1071(a);

Public notices documenting that the plan was adopted following appropriate public meetings and hearings are located in Appendix B – Notice of Meetings.

D. Coordination with Surface Water Management Entities

Evidence that following notice and hearing the District coordinated in the development of its management plan with surface water management entities. TWC §36.1071(a); §356.51;

A letter transmitting a copy of this plan to surface water management entities is located in Appendix C – Letter to Surface Water Management Entities.

VI. ESTIMATES OF TECHNICAL INFORMATION REQUIRED BY TWC § 36.1071 / 31 TAC 356.52

A. Modeled available groundwater in the district based on the desired future condition established under TWC § 36.1071(e)(3)(A)

Modeled available groundwater is defined by TWC § 36.001 (25) as "the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108." The District is located in GMA 1. The GCDs of GMA 1 have completed the joint planning process to determine the desired future conditions of the aquifers in the GMA.

The Ogallala Aquifer is the sole aquifer available to producers in Hemphill County and it is therefore the only aquifer in which we will address in this Plan.

1. Ogallala Aquifer

   a. Desired Future Conditions:

   On November 2, 2016, the joint planning committee for GMA 1 adopted the following desired future condition: the portion of the Ogallala Aquifer that lies within the jurisdiction of the Hemphill County Underground Water Conservation District is to have at least 80% of the volume in storage remaining in 50 years, for the period 2012-2062.

   b. Modeled Available Groundwater:

   The modeled available groundwater value for the Ogallala Aquifer in Hemphill County, as provided by TWDB GAM Run 16-029MAG is set forth in Appendix D.

B. Amount of groundwater being used within the District on an annual basis – 31 TAC 356.52(a)(5)(A) Implementing TWC §36.1071(e)(3)(B)

The amount of groundwater being used within the District on an annual basis as provided by the Texas Water Development Board is shown in Appendix E Estimated Historical Water Use and 2017 State Water Plan Data Set Page 3. All values are in acre feet.

C. Annual amount of recharge from precipitation to the groundwater resources within the district – 31 TAC §356.52(a)(5)(C) Implementing TWC §36.1071(e)(3)(C)

The estimate of the annual volume of recharge to the Ogallala Aquifer in Hemphill County is based on GAM Run 16-010 simulations provided by TWDB to the District for use in this plan. and is set forth in Appendix F page 6.

D. For each aquifer, the annual volume of water that discharges from the aquifer to springs and any surface water bodies, including lakes, streams, and rivers – 31 TAC §356.52(a)(5)(D) Implementing TWC §36.1071(e)(3)(D)

The estimate of the annual volume of water discharged from the Ogallala Aquifer in Hemphill County to surface water systems is based on GAM run 16-010 simulations provided by TWDB to the District for use in this plan and is set forth in Appendix F page 6.

E. Annual volume of flow into and out of the District within each aquifer and between aquifers in the District, if a groundwater availability model is available – 31 TAC §356.52(a)(5)(E) Implementing TWC §36.1071(e)(3)(E)

The estimates of the volume of water flowing into and out of the District within each aquifer and between aquifers in the District are based on GAM Run 16-010 simulations provided by TWDB to the District for use in this plan and are set forth in Appendix F page 6.

F. Projected surface water supply in the District, according to the most recently adopted state water plan - 31 TAC §356.5(a)(5)(F) Implementing TWC §36.1071(e)(3)(F)

See Appendix E – Estimated Historical Water Use and 2012 State Water Plan Data Set Pages 5 Projected Surface Water Supplies.

G. Projected total demand for water in the district according to the most recently adopted state water plan - 31 TAC §356.5(a)(5)(G) Implementing TWC §36.1071(e)(3)(G)

The projected water demands for Hemphill County from the 2017 State Water Plan are set forth in Appendix E Estimated Historical Water Use and 2017 State Water Plan Datasets Page 6.

VII. CONSIDER THE WATER SUPPLY NEEDS AND WATER MANAGEMENT STATEGIES INCLUDED IN THE ADOPTED STATE WATER PLAN - TWC §36.1071(e)(4)

A. **Water Supplies -** The most recent state water plan is the 2017 State Water Plan. In Hemphill County, there are no water needs identified for any user group in any decade. Water needs are identified when the projected water demand of a Water User Group (WUG) exceeds the projected water supplies of the WUG. See Appendix E Page 7.

B. **Water Management Strategies -** While no shortages were identified in the 2017 State Water Plan, Water Management Strategies recommended were conservation, water audits and leak repair for the City of Canadian, and for irrigation the strategy recommended was that conservation be implemented. See Appendix E Page 8.

VIII. 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 ensure that the Desired Future Conditions are achieved. 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 are: 1) a decline rate of no more than 1% reduction in the saturated thickness for 3 consecutive years; and 2) an average minimum aquifer storage level of 80% of the calculated 2012 volume in storage remaining in 50 years. 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 when available.

Management will be accomplished thru the use of well spacing, production limits, production reporting, and monitoring aquifer conditions.

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 permittees and existing users to add or delete additional monitor wells to ensure an adequate monitoring network is maintained.

IX. ACTION, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION - TWC §36.1071(e)(2)

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 its planning efforts, operations, and activities will be consistent with the provisions of this plan and will be executed in a manner that is fair to all stakeholders.

The District has adopted rules in accordance with Chapter 36 of the Texas Water Code, and the District may amend its 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 and projected aquifer conditions. The District will seek the input of its constituents during the development of this plan and the amendment of the District's rules. The enforcement and continued development 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 for review at the District office and will be available for review or for download on the District's Website: www.hemphilluwcd.org once the site is revised and restored to the web.

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.

X. METHODOLOGY FOR TRACKING DISTRICT PROGRESS IN ACHIEVING MANAGEMENT GOALS - 31 TAC §356.5(a)(6)

The General Manager of the District shall prepare and submit an Annual Report to the Board of Directors (Board) of the District. The Annual Report will include an update on the District's performance with regard to achieving its management goals and objectives based on the fiscal year ending September 30th. The general manager of the District will present the Annual Report prior to the end of the next fiscal year. Upon its adoption by the Board, the Board will maintain a copy of the Annual Report on file for public inspection at the District's offices.

XI. GOALS, MANAGEMENT OBJECTIVES AND PERFORMANCE STANDARDS

The management goals, objectives and performance standards of the District in the areas specified in 31 TAC §356.51 and §356.52 are addressed below:

Management Goals

A. Providing the Most Efficient Use of Groundwater – 31 TAC §356.52(a)(1)(A) Implementing TWC §36.1071(a)(1)

A.1 **Objective** – Each year, the District will require all new exempt or non-exempt 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 non-exempt wells registered or permitted by the District for the year will be incorporated into the Annual Report.

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

A.2 **Performance Standard –**Each year, a summary of the number and type of applications for the permitted use of groundwater in the District, and the disposition of those applications, will be included in the Annual Report.

B. Controlling and Preventing Waste of Groundwater – 31 TAC §356.52(a)(1)(B) Implementing TWC §36.1071(a)(2)

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

B1. **Performance Standard –** The District will include a discussion of the annual evaluation of the District Rules and its determination of whether any amendments to the rules are recommended to prevent the waste of groundwater in the Annual Report.

B2. **Objective –** The District will monitor the Texas Railroad Commission website to identify the location and status of all salt water or waste disposal wells permitted to operate within the District.

B2. **Performance Standard –** Each year a summary of the information collected from the Texas Railroad Commission website regarding the location and status of all injection or waste disposal wells permitted to operate within the District will be included in the Annual Report.

B.3. **Objective –** Each year the District will track the results of all mechanical integrity tests performed on any injection or waste disposal injection wells permitted by the Texas Railroad Commission to operate within the District.

B.3. **Performance Standard -** Each year a summary of the results of all mechanical integrity tests performed on the injection or waste disposal wells permitted to operate within the District will be included in the Annual Report.

B.4. **Objective –** Each year the District will monitor newspapers of general circulation in Hemphill County for the notice of the drilling and operation of injection or disposal wells to be located within the District and attempt to obtain a benchmark for BTEX and Total Chlorides from samples of selected wells within 1 mile of the injection or disposal well activity.

B.4. **Performance Standard –** Each year the District will subscribe to newspapers of general circulation in Hemphill County and prepare a report to be included in the Annual Report which describes the number and location of new water quality benchmark sites.

C. Controlling and Preventing Subsidence - 31 TAC §356.52(a)(1)(C) Implementing TWC §36.1071(a)(3)

This goal is not applicable to the Hemphill County Underground Water Conservation District.

D. Conjunctive Surface Water Management Issues – 31 TAC §356.52(a)(1)(D) Implementing TWC §36.1071(a)(4)

D.1. **Objective –** Each year, the District will participate in the regional planning process by attending the Region A – Panhandle 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 –** Each year, the attendance of a District representative at a minimum of 50 percent of the Region A Panhandle Water Planning Group meetings will be reflected in the District's Annual Report and will include the number of meetings attended, the dates, and the name of the District representative who attended.

E. Natural Resource Issues Which Impact the Use and Availability of Groundwater and Which are Impacted by the Use of Groundwater - 31 TAC §356.52(a)(1)(E) Implementing TWC §36.1071(a)(5)

E.1. **Objective -** The District will establish a point source contamination monitoring network.

E.1. **Performance Standard -** Each year the District will collect water quality samples from at least 80% of the monitoring wells designated in the point source monitoring network and provide a status report on the number of wells tested and a summary of the testing results in the Annual Report.

E.2. **Objective** - The District will establish a non-point source groundwater contamination network of monitoring wells.

E.2. **Performance Standard** - Each year the District will collect water quality samples from at least 80% of the monitoring wells designated in the non-point source monitoring network and include a status report on the number of wells tested and a summary of the testing results.

F. Drought Conditions - 31 TAC §356.52(a)(1)(F) Implementing TWC §36.1071(a)(6)

F.1. **Objective –** Each quarter, the District will monitor the drought conditions for the High Plains Region and prepare a letter briefing the City Manager of the City of Canadian as to the Palmer Drought Severity Index (PDSI) Level for Hemphill County. The source of the drought information may include information provided by the Texas Water Development Board drought information page found at http://www.twdb.state.tx.us/DATA/drought/

F.1. **Performance Standard –** A summary of the District's briefings provided to the City Manager will be included in the Annual Report.

G. Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, and Brush Control, Where Appropriate and Cost Effective - 31 TAC §356.5(a)(1)(G) Implementing TWC §36.1071(a)(7)

G.1. **Objective (Conservation)** - Each year the District will promote conservation by distributing conservation brochures/literature to the public.

G.1 **Performance Standard (Conservation) –** Each year, the annual report will include a summary of the District activity during the year to promote conservation.

G.2 **Objective (Conservation) –** Annually, the District will submit an article or advertisement regarding water conservation for publication to at least one newspaper of general circulation in Hemphill County.

G.2 **Performance Standard (Conservation) –** 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.

G.3 **Objective (Conservation) –** 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.

G.3 **Performance Standard (Conservation) –** A summary of the educational program developed or implemented by the District for use in public or private schools located within the District will be included in the Annual Report.

G.4 **Objective (Rainwater Harvesting) -** Each year the District will promote rainwater harvesting by distributing brochures/literature to the public.

G.4 **Performance Standard (Rainwater Harvesting) –** Each year, the annual report will include a summary of the District activity during the year to promote rainwater harvesting.

G.5 **Objective (Brush Control) –** Each year the District will promote brush control by distributing brochures/literature to the public.

G.5 **Performance Standard (Brush Control) –** Each year, the annual report will include a summary of the District activity during the year to promote brush control.

H. Addressing, in a Quantitative Manner, the Desired Future Conditions of the Groundwater Resources Adopted Under 31 TAC §356.52(a)(1)(H) TWC 36.108 , §36.1071(a)(8)

H.1. **Objective –** Each year the District will evaluate the status of the Ogallala Aquifer utilizing a water level monitoring network within the District boundaries.

H1. **Performance Standard –** Each year the District will obtain water level measurements from at least 80% of the wells designated in the water level monitoring network and a report on the number of water level measurements obtained will be included in the Annual Report.

H.2 **Objective -** Each year the District will monitor the status of attaining the Desired Future Condition.

H.2 **Performance Standard –** Each year the District will calculate the volume of water in place using the annual water level measurements, compare this volume to the initial 2012 volume of water, and include the results in the Annual Report.

I. Recharge Enhancement and Precipitation Enhancement

This goal is not applicable to the Hemphill County Underground Water Conservation District

XII. MANAGEMENT GOALS DETERMINED NOT APPLICABLE TO THE DISTRICT

A. Controlling and Preventing Subsidence – 31 TAC§356.5(a)(1)(C)

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

B. Recharge Enhancement and Precipitation Enhancement 31 TAC§356.5(a)(1)(G)

At this time, goals relating to recharge enhancement and precipitation enhancement are not considered to be cost effective and would cause the District to increase taxes.

RESOLUTION AND ORDER NO. 2017-03

OF THE BOARD OF DIRECTORS OF THE HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT ADOPTING AN AMENDED MANAGEMENT PLAN

WHEREAS, the Hemphill County Underground Water Conservation District ("District") was created in 1995 by the Texas Legislature, Hemphill County Underground Water Conservation District Act of May 19, 1995, 74th Leg., R.S., ch. 157, 1995 Tex. Gen. Laws 1007 ("Act");

WHEREAS, the District has "all of the rights, powers, privileges, authority, functions, and duties," provided by Chapter 36, TEX. WATER CODE ANN. Act § 5;[1]

WHEREAS, the District was created "to provide for the conservation, preservation, protection, recharging, and prevention of waste of groundwater . . ." TEX. WATER CODE ANN. § 36.0015;

WHEREAS, pursuant to the Texas Water Code, the District must develop and adopt a "comprehensive management plan" (hereinafter "Management Plan"). TEX. WATER CODE ANN. § 36.1071;

WHEREAS, the last Management Plan adopted by the District was adopted on July 10, 2012;

WHEREAS, pursuant to the Texas Water Code, the District must review and readopt its Management Plan, "with or without revisions" at least once every five years. TEX. WATER CODE ANN. § 36.1072(e);

WHEREAS, on May 23, 2017, the Board approved a draft amended Management Plan for consideration for adoption by the Board;

WHEREAS, the amended Management Plan is intended to achieve compliance with various revised mandates of Chapter 36 and update the District's management goals and objectives;

WHEREAS, the District may only adopt the amended Management Plan "[a]after notice and hearing." TEX. WATER CODE ANN. § 36.1071(g);

WHEREAS, on June 27, 2017, the District held a public hearing for the purpose of providing interested members of the public the opportunity to appear and provide oral or written comments to the District related to the proposed adoption of the amended Management Plan;

WHEREAS, the District provided advance notice of the public hearing;

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[1] Section 5 actually refers to, among other things, Chapter 52, Texas Water Code. Chapter 52 has been repealed and recodified in Chapter 36 of the Texas Water Code. *See* Act of May 29, 1995, 74th Leg., R.S., ch. 933, sec. 6, 1995 Tex. Gen. Laws 4673, 4679, 4701.

WHEREAS, in light of the consideration of no public comments, the District has made no revisions to the Proposed Management Plan as set out in Exhibit A which is attached hereto and incorporated for all purposes; and

WHEREAS, the Board has reviewed the proposed Management Plan (EXHIBIT A) and finds that it is consistent with the District's statutory authority and should be adopted.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED BY THE BOARD OF DIRECTORS OF THE HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT THAT:

Section 1. The Proposed Management Plan, which is attached to this Resolution and Order as Exhibit A, is hereby adopted as the District's Management Plan.

PASSED AND APPROVED BY THE BOARD OF DIRECTORS OF THE HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT THIS 20th DAY OF June, 2017.

JIM HALEY
Chairman, Board of Directors

ATTEST:

ELIZABETH LIGHT
Secretary, Board of Directors

APPROVED AS TO FORM:

ANDREW S. (DREW) MILLER
General Counsel

PROPOSED MANAGEMENT PLAN

VIII. MANAGEMENT OF GROUNDWATER SUPPLIES –.....9

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I. DISTRICT MISSION

The mission of the Hemphill County Underground Water Conservation District is to conserve and protect the groundwater resources of Hemphill County, by ensuring sustainable development through local management and the best available science.

II. PURPOSE OF THE MANAGEMENT PLAN

The District's management plan satisfies the requirements of SB 1, SB2, HB 1763, the statutory requirements of Texas Water Code (TWC) Chapter 36, and the rules and requirements of TWDB.

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 stakeholders of Hemphill County.

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 groundwater district or in accordance with statute 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). (See Appendix A) The District was confirmed by a local election held in Hemphill County on November 4, 1997 with 88% of the voters in favor of the District.

B. Directors

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. All elections are held in May of even numbered years. The Board of Directors hold regular meetings at the District Offices located at 906 S 2nd 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.

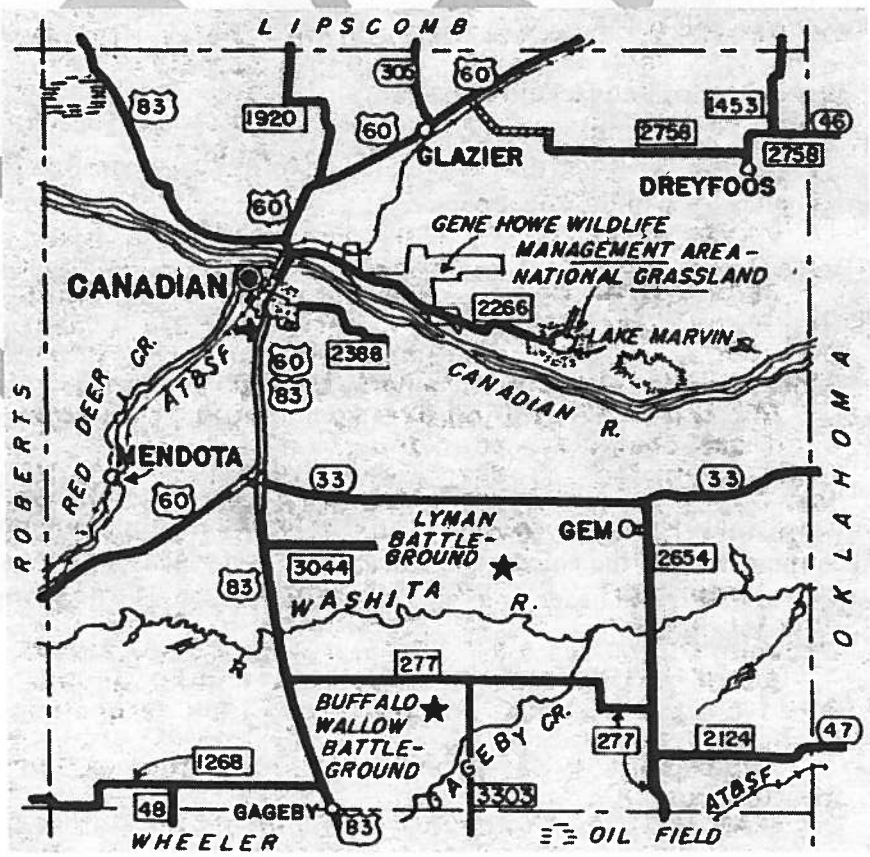
C. Authority

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 (See 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.

D. Location and Extent

The District (see Exhibit A) is located in Hemphill County and its boundaries are coterminous with the boundaries of the County. This area encompasses approximately 900 square miles, contains approximately 594,560 acres and has a current population of 4,129 according to the 2016 US Census. The District lies in the rolling plains on the eastern edge of the Texas Panhandle. 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. Industries within the county include agricultural, petroleum, tourism and hunting.

EXHIBIT A
HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT BOUNDARY



E. Topography and Drainage

Total elevation relief in the county is approximately 835 feet. The maximum elevation, approximately 3005 feet above [mean?] 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.

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

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.

The headwaters for Red Deer Creek are located in Gray County, although annual flow is not typically present until you reach Hemphill County near the southwest corner before joining the Canadian River just west of the town of Canadian. Red Deer Creek drains approximately 10% of the county area.

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. 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.

Streams feeding into the two rivers generally flow north or south for a short distance into the main stream. 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.

F. Groundwater Resources in Hemphill County

The primary aquifer in the District is the Ogallala Aquifer. 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 gravel lenses near the base of the Ogallala formation.

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.

Water produced from the Ogallala sediments is generally of 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 of as good a quality as that produced from the Ogallala.

IV. STATEMENT OF GUIDING PRINCIPLES

The District recognizes the importance of the groundwater resources in Hemphill County to our industries, our community and our heritage. This plan further addresses the process established by the District to monitor changes in the aquifer, educate 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.

V. CRITERIA FOR PLAN APPROVAL

A. Planning Horizon

The time period for this plan is five years from the date of approval by the executive administrator or, if appealed, on approval by the TWDB. This plan is being submitted as part of the five-year review and re-adoption process as required by TWDB 36.1072(e). This management plan will remain in effect until a revised management plan is approved by the executive administrator or the TWDB.

B. Board Resolution

A certified copy of the Hemphill County Underground Water Conservation District

resolution adopting the plan is located in Appendix A – Board Resolution.

C. Plan Adoption

Evidence that the plan was adopted after notice and hearing 31 TAC§356.53(a)(3); §36.1071(a);

Public notices documenting that the plan was adopted following appropriate public meetings and hearings are located in Appendix B – Notice of Meetings.

D. Coordination with Surface Water Management Entities

Evidence that following notice and hearing the District coordinated in the development of its management plan with surface water management entities. TWC §36.1071(a); §356.51;

A letter transmitting a copy of this plan to surface water management entities is located in Appendix C – Letter to Surface Water Management Entities.

VI. ESTIMATES OF TECHNICAL INFORMATION REQUIRED BY TWC § 36.1071 / 31 TAC 356.52

A. Modeled available groundwater in the district based on the desired future condition established under TWC § 36.1071(e)(3)(A)

Modeled available groundwater is defined by TWC § 36.001 (25) as "the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108." The District is located in GMA 1. The GCDs of GMA 1 have completed the joint planning process to determine the desired future conditions of the aquifers in the GMA.

The Ogallala Aquifer is the sole aquifer available to producers in Hemphill County and it is therefore the only aquifer in which we will address in this Plan.

1. Ogallala Aquifer

a. Desired Future Conditions:

On November 2, 2016, the joint planning committee for GMA 1 adopted the following desired future condition: the portion of the Ogallala Aquifer that lies within the jurisdiction of the Hemphill County Underground Water Conservation District is to have at least 80% of the volume in storage remaining in 50 years, for the period 2012-2062.

b. Modeled Available Groundwater:

The modeled available groundwater value for the Ogallala Aquifer in Hemphill County, as provided by TWDB GAM Run 16-029MAG is set forth in Appendix D.

B. Amount of groundwater being used within the District on an annual basis – 31 TAC 356.52(a)(5)(A) Implementing TWC §36.1071(e)(3)(B)

The amount of groundwater being used within the District on an annual basis as provided by the Texas Water Development Board is shown in Appendix E Estimated Historical Water Use and 2017 State Water Plan Data Set Page 3. All values are in acre feet.

C. Annual amount of recharge from precipitation to the groundwater resources within the district – 31 TAC §356.52(a)(5)(C) Implementing TWC §36.1071(e)(3)(C)

The estimate of the annual volume of recharge to the Ogallala Aquifer in Hemphill County is based on GAM Run 16-010 simulations provided by TWDB to the District for use in this plan. and is set forth in Appendix F page 6.

D. For each aquifer, the annual volume of water that discharges from the aquifer to springs and any surface water bodies, including lakes, streams, and rivers – 31 TAC §356.52(a)(5)(D) Implementing TWC §36.1071(e)(3)(D)

The estimate of the annual volume of water discharged from the Ogallala Aquifer in Hemphill County to surface water systems is based on GAM run 16-010 simulations provided by TWDB to the District for use in this plan and is set forth in Appendix F page 6.

E. Annual volume of flow into and out of the District within each aquifer and between aquifers in the District, if a groundwater availability model is available – 31 TAC §356.52(a)(5)(E) Implementing TWC §36.1071(e)(3)(E)

The estimates of the volume of water flowing into and out of the District within each aquifer and between aquifers in the District are based on GAM Run 16-010 simulations provided by TWDB to the District for use in this plan and are set forth in Appendix F page 6.

F. Projected surface water supply in the District, according to the most recently adopted state water plan - 31 TAC §356.5(a)(5)(F) Implementing TWC §36.1071(e)(3)(F)

See Appendix E – Estimated Historical Water Use and 2012 State Water Plan Data Set Pages 5 Projected Surface Water Supplies.

G. Projected total demand for water in the district according to the most recently adopted state water plan - 31 TAC §356.5(a)(5)(G) Implementing TWC §36.1071(e)(3)(G)

The projected water demands for Hemphill County from the 2017 State Water Plan are set forth in Appendix E Estimated Historical Water Use and 2017 State Water Plan Datasets Page 6.

VII. CONSIDER THE WATER SUPPLY NEEDS AND WATER MANAGEMENT STATEGIES INCLUDED IN THE ADOPTED STATE WATER PLAN - TWC §36.1071(e)(4)

A. **Water Supplies** - The most recent state water plan is the 2017 State Water Plan. In Hemphill County, there are no water needs identified for any user group in any decade. Water needs are identified when the projected water demand of a Water User Group (WUG) exceeds the projected water supplies of the WUG. See Appendix E Page 7.

B. **Water Management Strategies** - While no shortages were identified in the 2017 State Water Plan, Water Management Strategies recommended were conservation, water audits and leak repair for the City of Canadian, and for irrigation the strategy recommended was that conservation be implemented. See Appendix E Page 8.

VIII. 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 that the Desired Future Conditions are achieved. 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 for 3 consecutive years; and 2) an average minimum aquifer storage level of 80% of the calculated 2012 volume in storage remaining in 50 years. 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 when available.

Management will be accomplished thru the use of well spacing, production limits, production reporting, and monitoring aquifer conditions.

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 permittees and existing users to add or delete additional monitor wells to ensure an adequate monitoring network is maintained.

IX. ACTION, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION - TWC §36.1071(e)(2)

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 its planning efforts, operations, and activities will be consistent with the provisions of this plan and will be executed in a manner that is fair to all stakeholders.

The District has adopted rules in accordance with Chapter 36 of the Texas Water Code, and the District may amend its 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 and projected aquifer conditions. The District will seek the input of its constituents during the development of this plan and the amendment of the District's rules. The enforcement and continued development 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 for review at the District office and will be available for review or for download on the District's Website: www.hemphilluwcd.org once the site is revised and restored to the web.

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.

X. METHODOLOGY FOR TRACKING DISTRICT PROGRESS IN ACHIEVING MANAGEMENT GOALS - 31 TAC §356.5(a)(6)

The General Manager of the District shall prepare and submit an Annual Report to the Board of Directors (Board) of the District. The Annual Report will include an update on the District's performance with regard to achieving its management goals and objectives based on the fiscal year ending September 30th. The general manager of the District will present the Annual Report prior to the end of the next fiscal year. Upon its adoption by the Board, the Board will maintain a copy of the Annual Report on file for public inspection at the District's offices.

XI. GOALS, MANAGEMENT OBJECTIVES AND PERFORMANCE STANDARDS

The management goals, objectives and performance standards of the District in the areas specified in 31 TAC §356.51 and §356.52 are addressed below:

Management Goals

A. Providing the Most Efficient Use of Groundwater – 31 TAC §356.52(a)(1)(A) Implementing TWC §36.1071(a)(1)

A.1 **Objective** – Each year, the District will require all new exempt or non-exempt 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 non-exempt wells registered or permitted by the District for the year will be incorporated into the Annual Report.

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

A.2 **Performance Standard** –Each year, a summary of the number and type of applications for the permitted use of groundwater in the District, and the disposition of those applications, will be included in the Annual Report.

B. Controlling and Preventing Waste of Groundwater – 31 TAC §356.52(a)(1)(B) Implementing TWC §36.1071(a)(2)

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

B1. **Performance Standard** – The District will include a discussion of the annual evaluation of the District Rules and its determination of whether any amendments to the rules are recommended to prevent the waste of groundwater in the Annual Report.

B2. **Objective** – The District will monitor the Texas Railroad Commission website to identify the location and status of all salt water or waste disposal wells permitted to operate within the District.

B2. **Performance Standard** – Each year a summary of the information collected from the Texas Railroad Commission website regarding the location and status of all injection or waste disposal wells permitted to operate within the District will be included in the Annual Report.

B.3. **Objective** – Each year the District will track the results of all mechanical integrity tests performed on any injection or waste disposal injection wells permitted by the Texas Railroad Commission to operate within the District.

B.3. **Performance Standard** - Each year a summary of the results of all mechanical integrity tests performed on the injection or waste disposal wells permitted to operate within the District will be included in the Annual Report.

B.4. **Objective** – Each year the District will monitor newspapers of general circulation in Hemphill County for the notice of the drilling and operation of injection or disposal wells to be located within the District and attempt to obtain a benchmark for BTEX and Total Chlorides from samples of selected wells within 1 mile of the injection or disposal well activity.

B.4. **Performance Standard** – Each year the District will subscribe to newspapers of general circulation in Hemphill County and prepare a report to be included in the Annual Report which describes the number and location of new water quality benchmark sites.

C. Controlling and Preventing Subsidence - 31 TAC §356.52(a)(1)(C) Implementing TWC §36.1071(a)(3)

This goal is not applicable to the Hemphill County Underground Water Conservation District.

D. Conjunctive Surface Water Management Issues – 31 TAC §356.52(a)(1)(D) Implementing TWC §36.1071(a)(4)

D.1. **Objective** – Each year, the District will participate in the regional planning process by attending the Region A – Panhandle 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** – Each year, the attendance of a District representative at a minimum of 50 percent of the Region A Panhandle Water Planning Group meetings will be reflected in the District's Annual Report and will include the number of meetings attended, the dates, and the name of the District representative who attended.

E. Natural Resource Issues Which Impact the Use and Availability of Groundwater and Which are Impacted by the Use of Groundwater - 31 TAC §356.52(a)(1)(E) Implementing TWC §36.1071(a)(5)

E.1. **Objective** - The District will establish a point source contamination monitoring network.

E.1. **Performance Standard** - Each year the District will collect water quality samples from at least 80% of the monitoring wells designated in the point source monitoring network and provide a status report on the number of wells tested and a summary of the testing results in the Annual Report.

E.2. **Objective** - The District will establish a non-point source groundwater contamination network of monitoring wells.

E.2. **Performance Standard** - Each year the District will collect water quality samples from at least 80% of the monitoring wells designated in the non-point source monitoring network and include a status report on the number of wells tested and a summary of the testing results.

F. Drought Conditions - 31 TAC §356.52(a)(1)(F) Implementing TWC §36.1071(a)(6)

F.1. **Objective** – Each quarter, the District will monitor the drought conditions for the High Plains Region and prepare a letter briefing the City Manager of the City of Canadian as to the Palmer Drought Severity Index (PDSI) Level for Hemphill County. The source of the drought information may include information provided by the Texas Water Development Board drought information page found at http://www.twdb.state.tx.us/DATA/drought/

F.1. **Performance Standard** – A summary of the District's briefings provided to the City Manager will be included in the Annual Report.

G. Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, and Brush Control, Where Appropriate and Cost Effective - 31 TAC §356.5(a)(1)(G) Implementing TWC §36.1071(a)(7)

G.1. **Objective (Conservation)** - Each year the District will promote conservation by distributing conservation brochures/literature to the public.

G.1 **Performance Standard (Conservation)** – Each year, the annual report will include a summary of the District activity during the year to promote conservation.

G.2 **Objective (Conservation)** – Annually, the District will submit an article or advertisement regarding water conservation for publication to at least one newspaper of general circulation in Hemphill County.

G.2 **Performance Standard (Conservation)** – 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.

G.3 **Objective (Conservation)** – 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.

G3. **Performance Standard (Conservation)** – A summary of the educational program developed or implemented by the District for use in public or private schools located within the District will be included in the Annual Report.

G.4 **Objective (Rainwater Harvesting)** - Each year the District will promote rainwater harvesting by distributing brochures/literature to the public.

G.4 **Performance Standard (Rainwater Harvesting)** – Each year, the annual report will include a summary of the District activity during the year to promote rainwater harvesting.

G.5 **Objective (Brush Control)** – Each year the District will promote brush control by distributing brochures/literature to the public.

G.5 **Performance Standard (Brush Control)** – Each year, the annual report will include a summary of the District activity during the year to promote brush control.

H. Addressing, in a Quantitative Manner, the Desired Future Conditions of the Groundwater Resources Adopted Under 31 TAC §356.52(a)(1)(H) TWC 36.108 , §36.1071(a)(8)

H.1. **Objective** – Each year the District will evaluate the status of the Ogallala Aquifer utilizing a water level monitoring network within the District boundaries.

H1. **Performance Standard** – Each year the District will obtain water level measurements from at least 80% of the wells designated in the water level monitoring network and a report on the number of water level measurements obtained will be included in the Annual Report.

H.2 **Objective** - Each year the District will monitor the status of attaining the Desired Future Condition.

H.2 **Performance Standard** – Each year the District will calculate the volume of water in place using the annual water level measurements, compare this volume to the initial 2012 volume of water, and include the results in the Annual Report.

I. Recharge Enhancement and Precipitation Enhancement

This goal is not applicable to the Hemphill County Underground Water Conservation District

XII. MANAGEMENT GOALS DETERMINED NOT APPLICABLE TO THE DISTRICT

A. Controlling and Preventing Subsidence – 31 TAC§356.5(a)(1)(C)

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

B. Recharge Enhancement and Precipitation Enhancement 31 TAC§356.5(a)(1)(G)

At this time, goals relating to recharge enhancement and precipitation enhancement are not considered to be cost effective and would cause the District to increase taxes.

Affidavit of Publication

STATE OF TEXAS
COUNTY OF HEMPHILL

Before me, the undersigned authority, on this day personally appeared **Laurie E. Brown**, the **Publisher/Editor** of the ***Canadian Record***, a newspaper having general circulation in **Canadian, Hemphill County, Texas**, who being by me duly sworn, deposes and says that the foregoing attached notice was published in said newspaper on the following date(s) to wit:

June 1, 2017

Laurie E. Brown
Signature

Subscribed and sworn to before me this 3 day of July, 2017, to certify which witness my hand and seal of office.

Mary L. Smith
Notary Public in and for the State of Texas

H.C.H.W.C.K

15080

public hearing

NOTICE OF PUBLIC HEARING ON PROPOSED MANAGEMENT PLAN

The Hemphill County Underground Water Conservation District ("District") will conduct a public hearing concerning the District's amendment of its Management Plan. The purpose of the public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments to the district related to the proposed plan.

Date: Tuesday, June 27, 2017
Time: 5:15 pm
Location: Hemphill County
UWCD Board Room
908 S. 2nd Street
Canadian, Texas 79014

Pursuant to Chapter 36, Texas Water Code, the District is obligated to periodically update its Management Plan in order to achieve compliance with the mandates of Chapter 36. The amended Plan would update the District's management goals and objectives. All interested persons are encouraged to review the proposed amended Management Plan for themselves by obtaining a copy from the District, as provided below.

Any person may appear in person, or by authorized representative, at the public hearing on the proposed new Management Plan. Written comments on the proposed new management Plan must be files with the District by no later than the close of the public hearing. Written comments may be filed as follows; (1) by hand delivery at the official address of the District, 906 S. 2nd Street, Canadian, Texas 79014; (2) by mail to PO Box 1142, Canadian, Texas 79014; or (3) by hand delivery to the presiding officer at the public hearing. A copy of the proposed amended Management Plan may be obtained from the District by: (1) calling 806.323.8350; or (2) visiting the offices of the District at 906 S. 2nd Street, Canadian, Texas.

ISSUED THIS 23RD DAY OF MAY, 2017.

JANET GUTHRIE,
GENERAL MANAGER
HEMPHILL COUNTY UNDERGROUND
WATER CONSERVATION DISTRICT

22-1cH

notice of sheriff's sale

PROPERTIES TO BE SOLD: All of the right, title and interest of Ronald Keith Moore in the following described tracts of land in Hemphill County, Texas.

Tract No. 1: 640 acres, more or less, being more particularly described as Tract No. 1 in that certain Mineral Deed and Royalty Interest Assignment in Oil and Gas Leases, dated December 23, 1999 from Nellora Ernestine Pounds to Jackie Trainer, Theresa Blackwell and Keith Moore, recorded in Volume 523, Pages 126 and 129, Official Public Records, Hemphill County, Texas;

Tract No. 2: West half (W/2) of Section 18, Block 1, I&GN Railway Company Survey, Hemphill County, Texas;

Tract Nos. 3 and 4: East half of the Northwest Quarter (E/2 NW/4) and the East half (E/2) of Section 17, Block 1, I&GN Railway Company Survey, Hemphill County, Texas;

Tract Nos. 2, 3 and 4 being the same as Tract Nos. 2, 3 and 4 described in the conveyances shown under Tract No. 1 above.

Tract No. 5: Section 8, Block 1, I&GN Railway Company Survey, Hemphill County. Texas, being the same land described in that certain Mineral Deed and Royalty Interest Assignment in Oil and Gas Leases, dated May 31, 2000 from Nellora Ernestine Pounds to Jackie Trainer. Theresa Blackwell and Keith Moore, recorded in Volume 528, Page 652, Official Public Records. Hemphill County, Texas;

All properties sold shall be subject to the right of redemption of RONALD KEITH MOORE or any person having an interest therein, to redeem the property or their interest therein, if allowed, within the time and in the manner provided by law.

ALL SALES SHALL BE BY SHERIFF'S DEED AND ARE WITHOUT WARRANTY AS TO TITLE OR CONDITION, EXPRESS OR IMPLIED. AS EVIDENCED BY SHERIFF'S DEED.

The Minimum Bid is all Costs of Suit and Sale.
Published in the Canadian Record
Terms: Cash or Cashier's Check.
Additional Terms:
Real Property sold at the direction of Zuzanna E. Moore's Attorney, Michael D. Jones, Jones Gill

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

NOTICE OF PUBLIC HEARING ON PROPOSED MANAGEMENT PLAN

The Hemphill County Underground Water Conservation District ("District") will conduct a public hearing concerning the District's possible amendment of its existing Management Plan. The purpose of the public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments to the District related to the proposed new plan.

1.0 Date, Time, and Place of Public Hearing.

The date, time and place of the public hearing are as follows:

Date:	Tuesday, June 27, 2017
Time:	5:15 p.m.
Location:	Hemphill County UWCD District Board Room 908 S. 2nd Street Canadian, Texas 79014

2.0 Brief Explanation of the Proposed New Management Plan.

The District is proposing to amend its existing Management Plan. Pursuant to Chapter 36 of the Texas Water Code, the District is obligated to periodically update its Management Plan. The District is proposing the amended Plan in order to achieve compliance with the mandates of Chapter 36, Texas Water Code. The amended Plan would update the District's management goals and objectives. An exhaustive analysis of the differences between the Districts' current Management Plan and proposed amended Management Plan is not attempted here. All interested persons are encouraged to review the proposed amended Management Plan for themselves by obtaining a copy from the District, as provided below.

3.0 Procedures for Submitting Comments on the Proposed New Management Plan.

3.1 Oral Comments.

Any person may appear in person, or by authorized representative, at the public hearing on the proposed amended Management Plan. Any person making an appearance must indicate their desire to make oral comments on the registration form provided by the District at the public hearing. A person must disclose any affiliation on the registration form and, if applicable, the authority to speak for a person represented. Any other person attending the public hearing will be considered by the District to be an observer not desiring to make comment on the proposed amended Management Plan. The District will not consider any comments of an observer in its

proceedings.

The presiding officer will establish the order of oral comments of persons at the hearing. As appropriate, the presiding officer may limit:

(1) the number of times a person may speak;

(2) the time period for oral comments;

(3) cumulative, irrelevant, or unduly repetitious comments;

(4) general comments that are so vague, undeveloped, or immaterial as to be impracticable for the District to ascertain the intent or purpose of the person making the general oral comments and that are otherwise unhelpful to the District in analyzing the proposed new Management Plan;

(5) the time period for asking or responding to questions; and

(6) other matters that come to the attention of the presiding officer as requiring limitation.

3.2 Written Comments.

Written comments on the proposed new Management Plan must be filed with the District by no later than the close of the public hearing. Written comments may be filed as follows:

(1) by hand delivery at the official address of the District, 906 S. 2nd Street, Canadian, Texas 79014;

(2) by mail to P.O. Box 1142, Canadian, Texas 79014; or

(3) by hand delivery to the presiding officer at the public hearing.

Please note that while the District will consider written and oral comments, it will not prepare formal written responses to comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the proposed new Management Plan.

4.0 Procedures for Obtaining the proposed new Management Plan.

A copy of the proposed new Management Plan may be obtained from the District as follows:

(1) calling (806) 323-8350; or

(2) visiting the offices of the District at 906 S 2nd Street, Canadian, Texas.

5.0 Opportunity to Appear and Comment at Board Meeting at Which the Proposed New Management Plan May be Adopted.

The meeting of the District's Board of Directors at which the proposed new Management Plan will be considered for adoption will be an open meeting and, at that meeting, the public will

be allowed to make comments, subject to whatever reasonable limits as to the number, frequency and length of comments the District is empowered to impose pursuant to the Texas Open Meetings Act, TEX. GOV'T CODE ANN. ch. 551.

ISSUED THIS 23rd DAY OF MAY, 2017.

_____

Janet Guthrie
General Manager
Hemphill County Underground Water Conservation District

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

NOTICE OF PUBLIC HEARING ON PROPOSED MANAGEMENT PLAN

The Hemphill County Underground Water Conservation District ("District") will conduct a public hearing concerning the District's possible amendment of its existing Management Plan. The purpose of the public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments to the District related to the proposed new plan.

1.0 Date, Time, and Place of Public Hearing.

The date, time and place of the public hearing are as follows:

Date:	Tuesday, June 27, 2017
Time:	5:15 p.m.
Location:	Hemphill County UWCD District Board Room 908 S. 2nd Street Canadian, Texas 79014

2.0 Brief Explanation of the Proposed New Management Plan.

The District is proposing to amend its existing Management Plan. Pursuant to Chapter 36 of the Texas Water Code, the District is obligated to periodically update its Management Plan. The District is proposing the amended Plan in order to achieve compliance with the mandates of Chapter 36, Texas Water Code. The amended Plan would update the District's management goals and objectives. An exhaustive analysis of the differences between the Districts' current Management Plan and proposed amended Management Plan is not attempted here. All interested persons are encouraged to review the proposed amended Management Plan for themselves by obtaining a copy from the District, as provided below.

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3.1 Oral Comments.

Any person may appear in person, or by authorized representative, at the public hearing on the proposed amended Management Plan. Any person making an appearance must indicate their desire to make oral comments on the registration form provided by the District at the public hearing. A person must disclose any affiliation on the registration form and, if applicable, the authority to speak for a person represented. Any other person attending the public hearing will be considered by the District to be an observer not desiring to make comment on the proposed amended Management Plan. The District will not consider any comments of an observer in its

proceedings.

The presiding officer will establish the order of oral comments of persons at the hearing. As appropriate, the presiding officer may limit:

(1) the number of times a person may speak;

(2) the time period for oral comments;

(3) cumulative, irrelevant, or unduly repetitious comments;

(4) general comments that are so vague, undeveloped, or immaterial as to be impracticable for the District to ascertain the intent or purpose of the person making the general oral comments and that are otherwise unhelpful to the District in analyzing the proposed new Management Plan;

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(6) other matters that come to the attention of the presiding officer as requiring limitation.

3.2 Written Comments.

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(1) by hand delivery at the official address of the District, 906 S. 2nd Street, Canadian, Texas 79014;

(2) by mail to P.O. Box 1142, Canadian, Texas 79014; or

(3) by hand delivery to the presiding officer at the public hearing.

Please note that while the District will consider written and oral comments, it will not prepare formal written responses to comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the proposed new Management Plan.

4.0 Procedures for Obtaining the proposed new Management Plan.

A copy of the proposed new Management Plan may be obtained from the District as follows:

(1) calling (806) 323-8350; or

(2) visiting the offices of the District at 906 S 2nd Street, Canadian, Texas.

5.0 Opportunity to Appear and Comment at Board Meeting at Which the Proposed New Management Plan May be Adopted.

The meeting of the District's Board of Directors at which the proposed new Management Plan will be considered for adoption will be an open meeting and, at that meeting, the public will

be allowed to make comments, subject to whatever reasonable limits as to the number, frequency and length of comments the District is empowered to impose pursuant to the Texas Open Meetings Act, TEX. GOV'T CODE ANN. ch. 551.

ISSUED THIS 23rd DAY OF MAY, 2017.

Janet Guthrie
General Manager
Hemphill County Underground Water Conservation District

Posted on 5/24/17 @ 10:07AM FOR: LISA JOHNSON By: Kimberly

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

NOTICE OF OPEN MEETING

RECEIVED
9:30 AM
JUN 22 2017
LISA JOHNSON
CLERK COUNTY COURT
HEMPHILL COUNTY TEXAS
SG

BOARD MEETING AGENDA
June 27, 2017

Notice is now given that the Hemphill County Underground Water Conservation District Board of Directors will meet on Tuesday, June 27, 2017 immediately following the adjournment of Hearing scheduled at 5:15 pm in the Hemphill County Underground Water Conservation District Board Room, located at 908 S. 2nd Street, Canadian, TX. At this meeting, the following business may be considered and recommended for board action:

1. Establishment of Quorum
2. Public Comment
3. **Consent Agenda**
4. Minutes of Board Meeting held May 23, 2017
5. Consider and Take Action to Approve Management Report from General Manager, discussing recent meetings attended, well registrations and permits acted on by the General Manager, status of any administratively incomplete applications, field and water quality lab activity report, activities related to District's education program, status of unresolved protests to Salt Water Disposal Wells filed with the RRC, rainfall information, voluntary metering program
6. **Regular Agenda**
7. Meet with Ray Brady to discuss and possible action on status report
8. Discuss Management Plan Hearing and Take up, Consider and Take Action to Approve the Amended Management Plan and Adopt Resolution and Order No. 2017-03
9. Discuss Request from Kalpana Patel Kelavkar and Dr. Uddhav Kelavkar for property tax abatement.
10. Approve Engagement Letter with Doshier, Pickens and Francis, LLC to perform the financial audit for fiscal year ending September 30, 2017
11. Authorize travel and sponsorship to the TAGD Water Summit, August 29-31, 2017 San Marcos, TX
12. Review Hemphill County Appraisal District 2018 Budget
13. Approve Resolution No. FY 2017-04 Adopting an Investment Policy and Management Strategy
14. Approve Depository Request for Banking Services Forms
15. Review rules regarding waste
16. Legislative Update
17. Accept Financial Report and Ratify Bills Paid for May, 2017
18. Budget work session

19. Discuss next regular meeting Date and Time
20. Adjourn

FOR MORE INFORMATION REGARDING ANY OF THIS MEETING PLEASE CALL JANET GUTHRIE @ 806 323-8350.

At any time during the meeting and in compliance with the Texas Open Meetings Act, Chapter 551, Government Code, Vernon's Texas Codes, Annotated, the Hemphill County Underground Water Conservation District Board of Directors may meet in executive session on any of the above agenda items for consultation concerning attorney-client matters (551:071); deliberation regarding real property (551:072); deliberation regarding prospective gift (551:073); personnel matters (551:074); and deliberation regarding security devices (551:076). Any subject discussed in executive session may be subject to action during the open meeting.

PERSONS WITH DISABILITIES WHO PLAN TO ATTEND THIS MEETING AND WHO MAY NEED AUXILIARY AIDS OR SERVICES SUCH AS INTERPRETERS FOR PERSONS WHO ARE DEAF OR HEARING IMPAIRED, READERS, LARGE PRINT, OR BRAILLE, ARE REQUESTED TO CONTACT JANET GUTHRIE AT 806 323-8350 TWO (2) WORK DAYS PRIOR TO THE MEETING SO THAT APPROPRIATE ARRANGEMENTS CAN BE MADE.

Janet Guthrie,
General Manager

Posted on 6/22/17 @ 9:30AM by Sylvia Guevara for Lisa Johnson, Clerk

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

NOTICE OF OPEN MEETING

BOARD MEETING AGENDA
June 27, 2017

Notice is now given that the Hemphill County Underground Water Conservation District Board of Directors will meet on Tuesday, June 27, 2017 immediately following the adjournment of Hearing scheduled at 5:15 pm in the Hemphill County Underground Water Conservation District Board Room, located at 908 S. 2nd Street, Canadian, TX. At this meeting, the following business may be considered and recommended for board action:

1. Establishment of Quorum
2. Public Comment
3. **Consent Agenda**
4. Minutes of Board Meeting held May 23, 2017
5. Consider and Take Action to Approve Management Report from General Manager, discussing recent meetings attended, well registrations and permits acted on by the General Manager, status of any administratively incomplete applications, field and water quality lab activity report, activities related to District's education program, status of unresolved protests to Salt Water Disposal Wells filed with the RRC, rainfall information, voluntary metering program
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11. Authorize travel and sponsorship to the TAGD Water Summit, August 29-31, 2017 San Marcos, TX
12. Review Hemphill County Appraisal District 2018 Budget
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14. Approve Depository Request for Banking Services Forms
15. Review rules regarding waste
16. Legislative Update
17. Accept Financial Report and Ratify Bills Paid for May, 2017
18. Budget work session

906 S. 2nd · P.O. Box 1142 · Canadian, Texas 79014 · P 806 323-8350 · F 806 323-9574

19. Discuss next regular meeting Date and Time
20. Adjourn

FOR MORE INFORMATION REGARDING ANY OF THIS MEETING PLEASE CALL JANET GUTHRIE @ 806 323-8350.

At any time during the meeting and in compliance with the Texas Open Meetings Act, Chapter 551, Government Code, Vernon's Texas Codes, Annotated, the Hemphill County Underground Water Conservation District Board of Directors may meet in executive session on any of the above agenda items for consultation concerning attorney-client matters (551:071); deliberation regarding real property (551:072); deliberation regarding prospective gift (551:073); personnel matters (551:074); and deliberation regarding security devices (551:076). Any subject discussed in executive session may be subject to action during the open meeting.

PERSONS WITH DISABILITIES WHO PLAN TO ATTEND THIS MEETING AND WHO MAY NEED AUXILIARY AIDS OR SERVICES SUCH AS INTERPRETERS FOR PERSONS WHO ARE DEAF OR HEARING IMPAIRED, READERS, LARGE PRINT, OR BRAILLE, ARE REQUESTED TO CONTACT JANET GUTHRIE AT 806 323-8350 TWO (2) WORK DAYS PRIOR TO THE MEETING SO THAT APPROPRIATE ARRANGEMENTS CAN BE MADE.

Janet Guthrie,
General Manager

Posted @ District Office June 22, 2017 @ 9:00 a.m. By: Carolyn Price

APPENDIX C

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete
- [illegible]
- [illegible]

or on the front if space permits.

1. Article Addressed to:

Kyle Ingham
Region A / GMA 1
P.O. Box 9257
Amarillo TX 79105

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Rebecca Rush ☐ Agent ☐ Addressee

B. Received by (Printed Name) RebeccaRush C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

DOWNTOWN STATION AMARILLO TX 79105 JUN 30 2017

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7006 0810 0000 9047 4769

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

June 28, 2017

Kyle Ingham
Region A Water Planning Group
And GMA 1 Joint Planning Group
P.O. Box 9257
Amarillo, TX 79105

RE: Hemphill County UWCD
Adopted Management Plan

Dear Mr. Ingham:

Please find enclosed a copy of the Management Plan adopted by the Board of Directors of the Hemphill County Underground Water Conservation District on June 27, 2017. This plan should be held in your records for the Region A Water Planning Group and GMA 1 Joint Planning Group. If you have any questions regarding the plan, please feel free to contact me.

Sincerely,

Janet Guthrie
General Manager

Encl. Copy of 2017 Adopted Mgmt Plan

CM # 7006 0810 0000 9047 4769

912 D S. 2nd Street \ P.O. Box 1142 \ Canadian, TX 79014 \ P: 806.323.8350 \ F: 806.323.9574
www.hemphilluwcd.org

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- P[illegible] s[illegible]
- A[illegible] or on the front if space permits.

1. Article Addressed to:

KENT SATTERWHITE
CANADIAN RIVER MUNICIPAL
WATER AUTHORITY
P.O. BOX 9
SANFORD, TX 79078

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) Kelly Stull C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7006 0810 0000 9047 4745

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154(

June 28, 2017

Kent Satterwhite
Canadian River Municipal Water Authority
P.O. Box 9
Sanford, TX 79078

RE: Hemphill County UWCD
Adopted Management Plan

Dear Mr. Satterwhite:

Please find enclosed a copy of the Management Plan adopted by the Board of Directors of the Hemphill County Underground Water Conservation District on June 27, 2017. If you have any questions regarding the plan, please feel free to contact me.

Sincerely,

Janet Guthrie
General Manager

Encl. Copy of 2017 Adopted Mgmt Plan

CM #7006 0810 0000 9047 4745

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

June 28, 2017

SENDER: COMPLETE THIS SECTION

■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.

or on the front if space permits.

1. Article Addressed to:

Steve Walthour
North Plains GCD #2
P.O. Box 795
Dumas, TX 79029

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Kristen Blackwell ☑ Agent ☐ Addressee

B. Received by (Printed Name) Kristen Blackwell
C. Date of Delivery 7/7/17

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

RECEIVED
DATE 7/11/17

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7006 0810 0000 9047 4752

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

Steve Walthour
North Plains Groundwater Conservation District #2
P.O. Box 795
Dumas, TX 79029

RE: Hemphill County UWCD
Adopted Management Plan

Dear Mr. Walthour:

Please find enclosed a copy of the Management Plan adopted by the Board of Directors of the Hemphill County Underground Water Conservation District on June 27, 2017. If you have any questions regarding the plan, please feel free to contact me.

Sincerely,

Janet Guthrie
General Manager

Encl. Copy of 2017 Adopted Mgmt Plan

CM # 7006 0810 0000 9047 4752

912 D S. 2nd Street \ P.O. Box 1142 \ Canadian, TX 79014 \ P: 806.323.8350 \ F: 806.323.9574
www.hemphilluwcd.org

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

June 28, 2017

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- [illegible]
- [illegible] or on the front if space permits.

1. Article Addressed to:

JASON COLEMAN
HIGH PLAINS UWCD #1
2930 AVENUE Q
LUBBOCK, TX 79411-2499

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) Liz Casias C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7015 1660 0000 7280 7037

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154[illegible]

Jason Coleman
High Plains UWCD #1
2930 Avenue Q
Lubbock, TX 79411-2499

RE: Hemphill County UWCD
Adopted Management Plan

Dear Mr. Coleman:

Please find enclosed a copy of the Management Plan adopted by the Board of Directors of the Hemphill County Underground Water Conservation District on June 27, 2017. If you have any questions regarding the plan, please feel free to contact me.

Sincerely,

Janet Guthrie

Janet Guthrie
General Manager

Encl. Copy of 2017 Adopted Mgmt Plan

CM # 7015 1660 0000 7280 7037

912 D S. 2nd Street \ P.O. Box 1142 \ Canadian, TX 79014 \ P: 806.323.8350 \ F: 806.323.9574

www.hemphilluwcd.org

HEMPHILL COUNTY
Underground Water Conservation District
Conserving a Texas Oasis

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete
- [redacted]
- [redacted]

or on the front if space permits.

1. Article Addressed to:

C.E. Williams
Panhandle GCD
P.O. Box 637
White Deer, TX 79097

COMPLETE THIS SECTION ON DELIVERY

A. Signature
x Julee Bennett ☒ Agent ☐ Addressee

B. Received by (Printed Name) Julee Bennett C. Date of Delivery 7.3.17

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7015 1660 0000 7280 7044

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

June 28, 2017

C.E. Williams
Panhandle Groundwater Conservation District
P.O. Box 637
White Deer, TX 79097

RE: Hemphill County UWCD
Adopted Management Plan

Dear Mr. Williams:

Please find enclosed a copy of the Management Plan adopted by the Board of Directors of the Hemphill County Underground Water Conservation District on June 27, 2017. If you have any questions regarding the plan, please feel free to contact me.

Sincerely,

Janet Guthrie

Janet Guthrie
General Manager

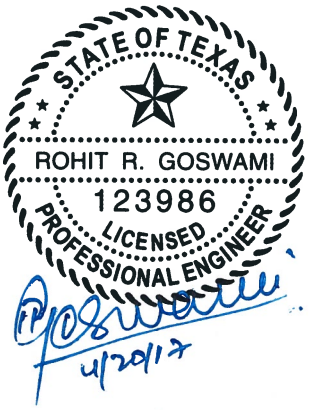
Encl. Copy of 2017 Adopted Mgmt Plan

CM # 7015 1660 0000 7280 7044

APPENDIX D

GAM RUN 16-029 MAG: MODELED AVAILABLE GROUNDWATER FOR THE AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1

Rohit Raj Goswami, Ph.D., P.E.
Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Section
(512) 463-0495
April 19, 2017



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GAM RUN 16-029 MAG:
MODELED AVAILABLE GROUNDWATER FOR THE AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1

Rohit Raj Goswami, Ph.D., P.E.
Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Section
(512) 463-0495
April 19, 2017

EXECUTIVE SUMMARY:

The modeled available groundwater for Groundwater Management Area 1 for the Ogallala Aquifer (inclusive of the Rita Blanca Aquifer) is summarized by decade for the groundwater conservation districts (Table 1) and for use in the regional water planning process (Table 2). The modeled available groundwater estimates range from 3,553,273 acre-feet per year in 2020 to 2,236,434 acre-feet per year in 2062 (Table 1). The modeled available groundwater for Groundwater Management Area 1 for the Dockum Aquifer is summarized by decade for the groundwater conservation districts (Table 3) and for use in the regional water planning process (Table 4). The modeled available groundwater estimates for the Dockum Aquifer range from 261,079 acre-feet per year in 2020 to 229,900 acre-feet per year in 2062 (Table 4). The modeled available groundwater estimates were extracted from results of a model run using the groundwater availability model for the High Plains Aquifer System (version 1.01). The model run files, which meet the desired future conditions for the relevant aquifers in Groundwater Management Area 1, were submitted to the Texas Water Development Board (TWDB) as part of the Desired Future Conditions Explanatory Report for Groundwater Management Area 1 (Deeds and Walthour, 2016). The Executive Administrator of the TWDB determined that the explanatory report and other materials were administratively complete on March 10, 2017.

REQUESTOR:

Mr. Kyle G. Ingham, chair of Groundwater Management Area 1.

DESCRIPTION OF REQUEST:

On December 16, 2016, Mr. Kyle G. Ingham provided the TWDB with the desired future conditions of the Ogallala Aquifer (inclusive of the Rita Blanca Aquifer) and the Dockum Aquifer adopted by the groundwater conservation districts in Groundwater Management Area 1 on November 2, 2016. The Blaine Aquifer in Wheeler County was designated non-relevant. The desired future conditions for the aquifers in Groundwater Management Area 1, as described in Resolution No. 2016-2, are described below:

Ogallala Aquifer (inclusive of the Rita Blanca Aquifer)

- At least 40 percent of volume in storage remaining in 50 years, for the period 2012-2062 collectively in Dallam, Hartley, Moore, and Sherman counties;
- At least 50 percent of volume in storage remaining in 50 years, for the period 2012-2062 collectively in Hansford, Lipscomb, and Ochiltree counties and that portion of Hutchinson County with North Plains [Groundwater Conservation District;]
- At least 50 percent of volume in storage remaining in 50 years, for the period 2012-2062 in Carson, Donley, Gray, Hutchinson, Oldham, Roberts, and Wheeler counties; and portions of Armstrong and Potter counties within the Panhandle [Groundwater Conservation District];
- At least 80 percent of volume in storage remaining in 50 years, for the period 2012-2062, within the Hemphill County;
- Approximately 20 feet of total average drawdown in 50 years for the period 2012-2062 collectively in Randall County and in Armstrong and Potter counties within the High Plains [Underground Water Conservation District No. 1].

Dockum Aquifer

- At least 40 percent of the available drawdown remaining in 50 years for the period 2012-2062 collectively for Dallam, Hartley, Moore, and Sherman counties[;]
- No more than 30 feet average decline in water levels in 50 years for the period 2012-2062 collectively in Carson and Oldham counties and in Armstrong and Potter counties within the Panhandle [Groundwater Conservation District]; and
- The total average drawdown is approximately 40 feet in 50 years for the period 2012-2062, collectively in Randall County, and in Armstrong and Potter counties within the High Plains [Underground Water Conservation District No. 1].

METHODS:

The groundwater availability model for the High Plains Aquifer System was run using the model files submitted with the explanatory report. The modeled available groundwater values were determined by extracting pumping rates by decade from the model results using ZONEBUDGET Version 3.01 (Harbaugh, 2009). Annual pumping rates for the Ogallala Aquifer (inclusive of the Rita Blanca Aquifer) and Dockum Aquifer were divided by county and groundwater conservation district, subtotaled by groundwater conservation district, and then summed for all of Groundwater Management Area 1 (Figures 1 and 3 and Tables 1 and 3). Modeled available groundwater for the Ogallala Aquifer (inclusive of the Rita Blanca Aquifer) and Dockum Aquifer were also divided by county, river basin, regional water planning area, and groundwater conservation district (Figures 2 and 4 and Tables 2 and 4).

Modeled Available Groundwater and Permitting

Chapter 36 of the Texas Water Code defines "modeled available groundwater" as the estimated average amount of water that may be produced annually to achieve a desired future condition. Groundwater conservation districts are required to consider modeled available groundwater, along with several other factors, when issuing permits in order to manage groundwater production to achieve the desired future condition(s). The other factors districts must consider include annual precipitation and production patterns, the estimated amount of pumping exempt from permitting, existing permits, and a reasonable estimate of actual groundwater production under existing permits.

PARAMETERS AND ASSUMPTIONS:

The parameters and assumptions for the groundwater availability are described below:

- Version 1.01 of the groundwater availability model for the High Plains Aquifer System was used for this analysis. See Deeds and Jigmond (2015) for assumptions and limitations of the groundwater availability model.
- This groundwater availability model includes 4 layers which generally represent the Ogallala Aquifer and other younger geologic units (Layer 1), geologic units that directly overlie the Dockum Aquifer, the Rita Blanca and Edwards-Trinity (High Plains) aquifers (Layer 2), upper portion of the Dockum Aquifer (Layer 3), and the lower portion of the Dockum Aquifer (Layer 4).
- The model was run with MODFLOW-NWT (Niswonger and others, 2011) which is based on MODFLOW-2005 (Harbaugh, 2005).
- The analysis assumed model extent within Texas for all aquifers except for the Rita Blanca Aquifer, which assumed the official TWDB mapped aquifer boundary.

- Only the cells in Lower Dockum (Layer 4) were considered while processing results (desired future conditions and modeled available groundwater) for the Dockum Aquifer. The Groundwater Management Area consultant, Dr. Deeds (INTERA, Incorporated), confirmed this on March 6, 2017, in response to a clarification letter sent by Groundwater staff to Groundwater Management Area 1 on February 27, 2017. Mr. Ingham, chair of Groundwater Management Area 1, agreed with the assumptions while responding to the clarification letter on March 21, 2017.

RESULTS:

The modeled available groundwater estimates for the Ogallala Aquifer (including the Rita Blanca Aquifer) range from 3,553,273 acre-feet per year in 2020 to 2,236,434 acre-feet per year in 2062 (Table 1). The modeled available groundwater estimates for the Dockum Aquifer range from 261,079 acre-feet per year in 2020 to 229,900 acre-feet per year in 2062 (Table 3). Modeled available groundwater estimates for each aquifer are summarized by groundwater conservation district and by county, river basin, and regional water planning area for use in the regional water planning process (Figures 1 to 4 and Tables1 to 4). Small differences of values between table summaries are due to rounding.

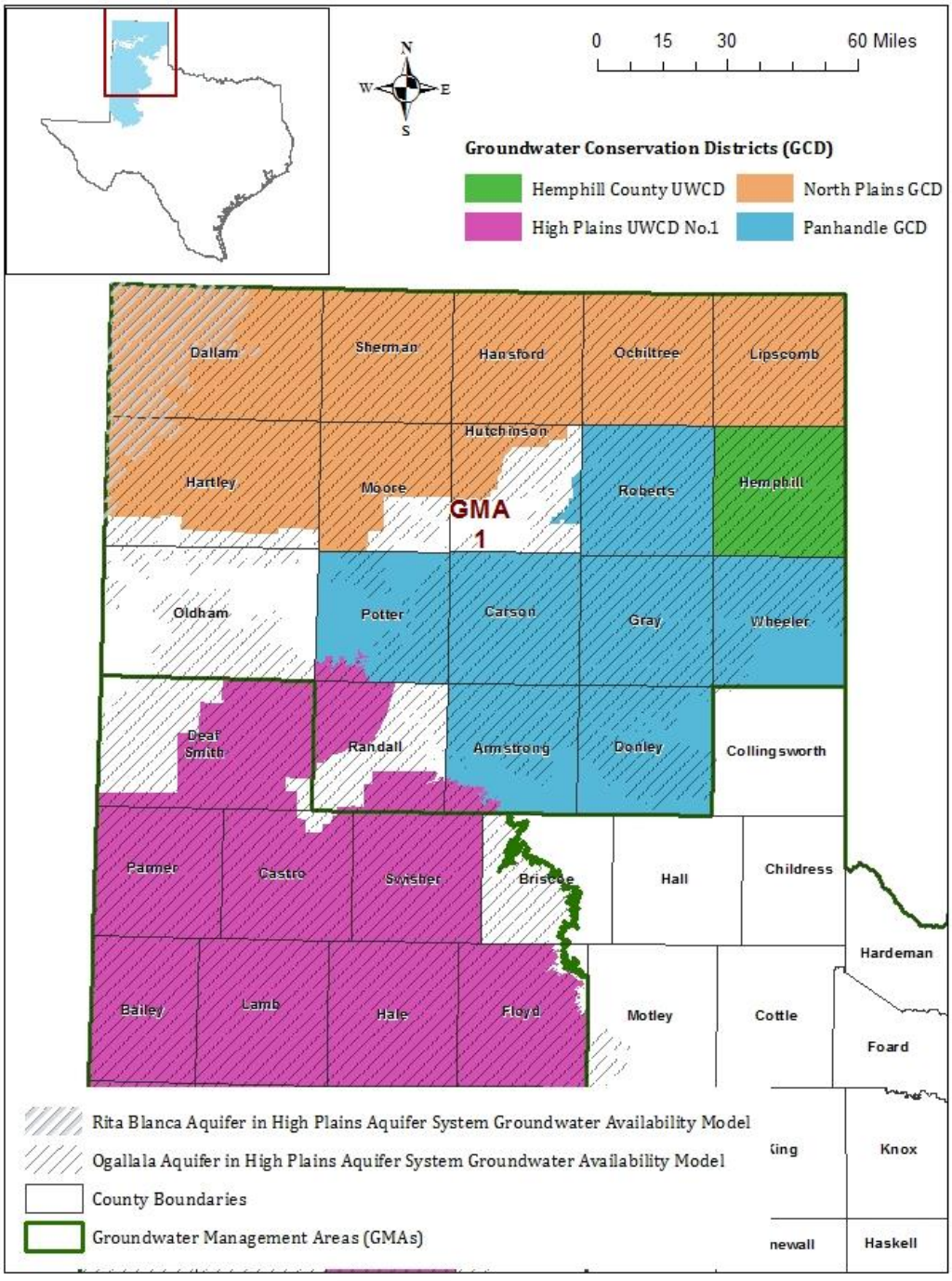

FIGURE 1. MAP SHOWING THE OGALLALA AND RITA BLANCA AQUIFERS AND GROUNDWATER CONSERVATION DISTRICTS IN GROUNDWATER MANAGEMENT AREA 1 OVERLAIN BY THE GROUNDWATER AVAILABILITY MODEL EXTENT FOR THE HIGH PLAINS AQUIFER SYSTEM.

TABLE 1. MODELED AVAILABLE GROUNDWATER FOR THE OGALLALA AND RITA BLANCA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE (2020 TO 2060) AND THE YEAR 2062. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2062
High Plains UWCD No. 1	Armstrong	Ogallala	1,286	1,048	866	723	610	591
High Plains UWCD No. 1	Potter	Ogallala	225	225	225	223	221	221
High Plains UWCD No. 1	Randall	Ogallala	39,084	37,987	32,477	28,334	25,018	24,459
High Plains UWCD No. 1 Total		**Ogallala**	**40,595**	**39,260**	**33,568**	**29,280**	**25,849**	**25,271**
Hemphill County UWCD Total	Hemphill	Ogallala	52,196	52,218	52,267	52,305	52,336	52,341
North Plains GCD	Dallam	Ogallala/Rita Blanca	387,471	287,205	225,573	166,890	112,864	103,258
North Plains GCD	Hansford	Ogallala	275,016	272,656	271,226	270,281	269,589	269,479
North Plains GCD	Hartley	Ogallala	397,585	271,523	212,321	154,433	100,407	90,842
North Plains GCD	Hutchinson	Ogallala	62,803	64,522	65,652	66,075	66,027	65,956
North Plains GCD	Lipscomb	Ogallala	266,809	266,710	266,640	266,591	266,559	266,557
North Plains GCD	Moore	Ogallala	214,853	172,621	139,322	105,016	73,384	67,650
North Plains GCD	Ochiltree	Ogallala	243,778	243,932	244,002	244,051	244,082	244,085
North Plains GCD	Sherman	Ogallala	398,056	348,895	281,690	212,744	148,552	136,776
North Plains GCD Total		**Ogallala/Rita Blanca**	**2,246,371**	**1,928,064**	**1,706,426**	**1,486,081**	**1,281,464**	**1,244,603**

Table 1 (Continued)

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2062
Panhandle GCD	Armstrong	Ogallala	57,984	53,414	48,170	43,462	38,860	38,080
Panhandle GCD	Carson	Ogallala	192,135	184,263	169,931	153,767	137,215	134,055
Panhandle GCD	Donley	Ogallala	74,808	76,289	72,962	67,873	62,058	60,901
Panhandle GCD	Gray	Ogallala	181,105	175,267	162,653	148,713	134,431	131,744
Panhandle GCD	Hutchinson	Ogallala	15,734	16,740	15,156	13,324	11,742	11,455
Panhandle GCD	Potter	Ogallala	16,969	15,820	14,442	13,162	11,836	11,609
Panhandle GCD	Roberts	Ogallala	430,618	455,129	427,218	390,247	350,459	342,748
Panhandle GCD	Wheeler	Ogallala	130,425	138,810	137,385	132,312	124,778	123,309
Panhandle GCD Total		**Ogallala**	**1,099,778**	**1,115,732**	**1,047,917**	**962,860**	**871,379**	**853,901**
No District-County	Hartley	Ogallala	19,528	17,639	14,527	11,147	8,016	7,458
No District-County	Moore	Ogallala	8,932	8,598	7,592	6,186	4,788	4,532
No District-County	Oldham	Ogallala	44,599	40,203	33,423	26,207	19,590	18,617
No District-County	Randall	Ogallala	24,826	23,945	21,864	19,471	17,012	16,541
No District-County	Hutchinson	Ogallala	16,448	14,432	13,353	12,973	13,089	13,170
No District-County Total		**Ogallala**	**114,333**	**104,817**	**90,759**	**75,984**	**62,495**	**60,318**
GMA 1 - Total		**Ogallala/Rita Blanca**	**3,553,273**	**3,240,091**	**2,930,937**	**2,606,510**	**2,293,523**	**2,236,434**

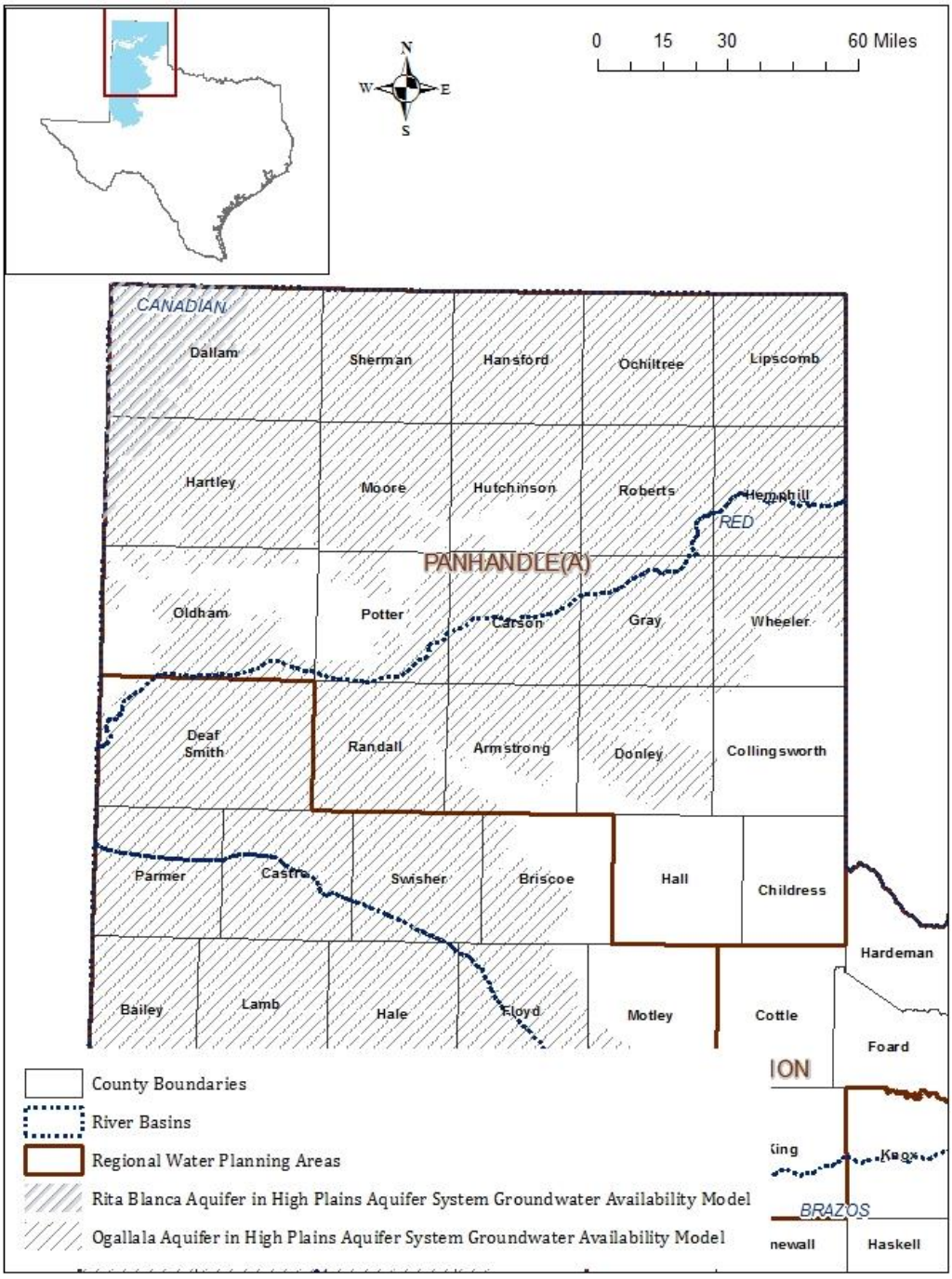

FIGURE 2. MAP SHOWING THE OGALLALA AND RITA BLANCA AQUIFERS AND REGIONAL WATER PLANNING AREAS, COUNTIES, AND RIVER BASINS IN GROUNDWATER MANAGEMENT AREA 1 OVERLAIN BY THE GROUNDWATER AVAILABILITY MODEL EXTENT FOR THE HIGH PLAINS AQUIFER SYSTEM.

TABLE 2. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE OGALLALA AND RITA BLANCA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1 SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA) FOR EACH DECADE (2020 TO 2060). VALUES ARE IN ACRE-FEET PER YEAR.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060
Armstrong	A	Red	Ogallala	59,270	54,462	49,036	44,185	39,470
Carson	A	Canadian	Ogallala	77,157	74,542	69,042	62,520	55,902
Carson	A	Red	Ogallala	114,978	109,721	100,889	91,247	81,313
Dallam	A	Canadian	Ogallala/Rita Blanca	387,471	287,205	225,573	166,890	112,864
Donley	A	Red	Ogallala	74,808	76,289	72,962	67,873	62,058
Gray	A	Canadian	Ogallala	44,778	42,146	37,337	32,130	27,432
Gray	A	Red	Ogallala	136,327	133,121	125,316	116,583	106,999
Hansford	A	Canadian	Ogallala	275,016	272,656	271,226	270,281	269,589
Hartley	A	Canadian	Ogallala	417,113	289,162	226,848	165,580	108,423
Hemphill	A	Canadian	Ogallala	27,789	30,260	31,999	33,363	34,058
Hemphill	A	Red	Ogallala	24,407	21,958	20,268	18,942	18,278
Hutchinson	A	Canadian	Ogallala	94,985	95,694	94,161	92,372	90,858
Lipscomb	A	Canadian	Ogallala	266,809	266,710	266,640	266,591	266,559
Moore	A	Canadian	Ogallala	223,785	181,219	146,914	111,202	78,172
Ochiltree	A	Canadian	Ogallala	243,778	243,932	244,002	244,051	244,082
Oldham	A	Canadian	Ogallala	37,367	34,376	29,078	23,039	17,800
Oldham	A	Red	Ogallala	7,232	5,827	4,345	3,168	1,790
Potter	A	Canadian	Ogallala	9,552	9,196	8,519	7,898	7,214
Potter	A	Red	Ogallala	7,642	6,849	6,148	5,487	4,843
Randall	A	Red	Ogallala	63,910	61,932	54,341	47,805	42,030
Roberts	A	Canadian	Ogallala	408,968	430,269	401,642	365,119	326,457
Roberts	A	Red	Ogallala	21,650	24,860	25,576	25,128	24,002
Sherman	A	Canadian	Ogallala	398,056	348,895	281,690	212,744	148,552
Wheeler	A	Red	Ogallala	130,425	138,810	137,385	132,312	124,778
GMA 1 Total				**3,553,273**	**3,240,091**	**2,930,937**	**2,606,510**	**2,293,523**

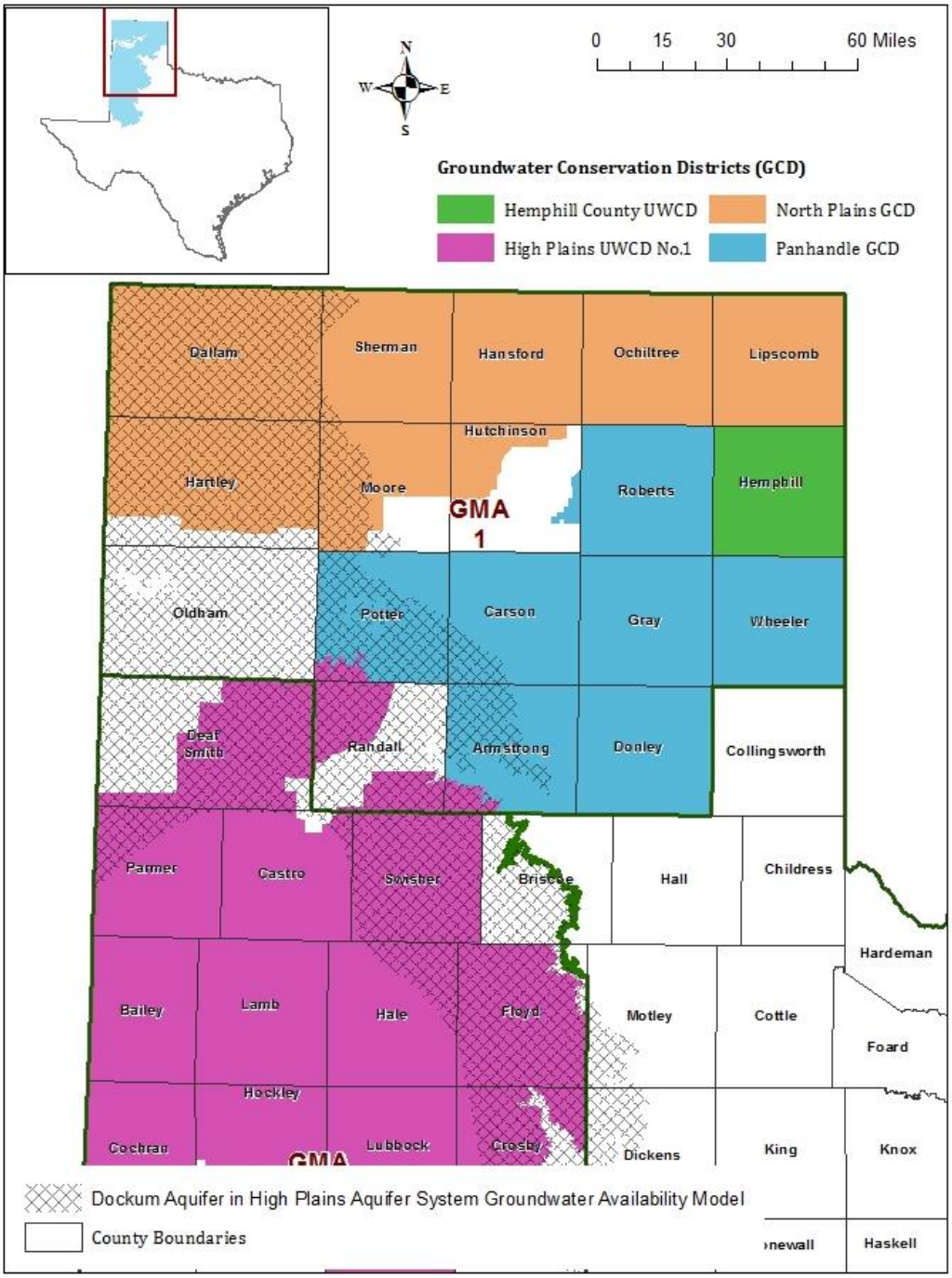

FIGURE 3. MAP SHOWING THE DOCKUM AQUIFER AND GROUNDWATER CONSERVATION DISTRICTS IN GROUNDWATER MANAGEMENT AREA 1 OVERLAIN BY THE GROUNDWATER AVAILABILITY MODEL EXTENT FOR THE HIGH PLAINS AQUIFER SYSTEM.

TABLE 3. MODELED AVAILABLE GROUNDWATER FOR THE DOCKUM AQUIFER IN GROUNDWATER MANAGEMENT AREA 1 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE (2020 TO 2060) AND THE YEAR 2062.VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2062
High Plains UWCD No. 1	Armstrong	Dockum	96	0	0	0	0	0
High Plains UWCD No. 1	Potter	Dockum	21	0	0	0	0	0
High Plains UWCD No. 1	Randall	Dockum	2,189	2,714	2,954	3,111	3,214	3,229
High Plains UWCD No. 1 Total		**Dockum**	**2,306**	**2,714**	**2,954**	**3,111**	**3,214**	**3,229**
North Plains GCD	Dallam	Dockum	14,192	14,188	14,186	14,184	14,184	14,184
North Plains GCD	Moore	Dockum	4,801	4,532	4,493	4,417	4,289	4,261
North Plains GCD	Hartley	Dockum	11,602	10,766	10,524	10,560	10,815	10,895
North Plains GCD	Sherman	Dockum	127	127	127	127	95	93
North Plains GCD Total		**Dockum**	**30,722**	**29,613**	**29,330**	**29,288**	**29,383**	**29,433**
Panhandle GCD	Armstrong	Dockum	7,131	9,024	9,588	9,704	9,535	9,494
Panhandle GCD	Carson	Dockum	68	108	140	169	198	204
Panhandle GCD	Potter	Dockum	38,803	39,113	36,937	34,505	32,008	31,558
Panhandle GCD Total		**Dockum**	**46,002**	**48,245**	**46,665**	**44,378**	**41,741**	**41,256**
No District-County	Hartley	Dockum	43,647	44,269	44,404	44,304	44,022	43,941
No District-County	Moore	Dockum	418	575	527	509	500	498
No District-County	Oldham	Dockum	129,001	128,829	120,518	111,196	101,413	99,736
No District-County	Randall	Dockum	8,983	11,302	11,909	12,002	11,855	11,807
No District- County Total		**Dockum**	**182,049**	**184,975**	**177,358**	**168,011**	**157,790**	**155,982**
GMA 1 Total		**Dockum**	**261,079**	**265,547**	**256,307**	**244,788**	**232,128**	**229,900**

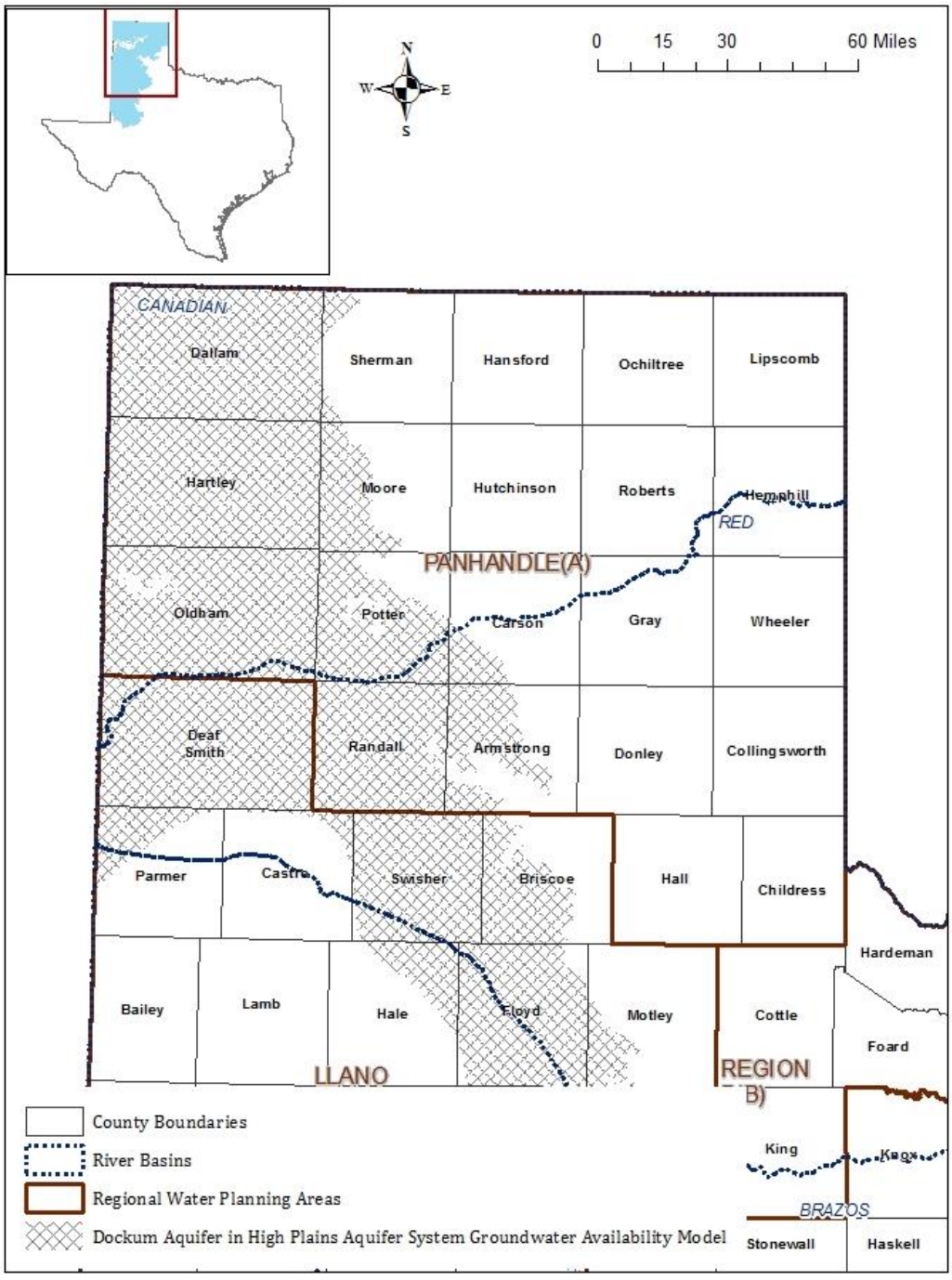

FIGURE 4. MAP SHOWING THE DOCKUM AQUIFER AND REGIONAL WATER PLANNING AREAS, COUNTIES, AND RIVER BASINS IN GROUNDWATER MANAGEMENT AREA 1 OVERLAIN BY THE GROUNDWATER AVAILABILITY MODEL EXTENT FOR THE HIGH PLAINS AQUIFER SYSTEM.

TABLE 4. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE DOCKUM AQUIFER IN GROUNDWATER MANAGEMENT AREA 1 SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA) FOR EACH DECADE (2020 TO 2060). VALUES ARE IN ACRE-FEET PER YEAR.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060
Armstrong	A	Red	Dockum	7,227	9,024	9,588	9,704	9,535
Carson	A	Canadian	Dockum	4	10	15	19	23
Carson	A	Red	Dockum	64	98	125	150	175
Dallam	A	Canadian	Dockum	14,192	14,188	14,186	14,184	14,184
Hartley	A	Canadian	Dockum	55,249	55,035	54,928	54,864	54,837
Moore	A	Canadian	Dockum	5,219	5,107	5,020	4,926	4,789
Oldham	A	Canadian	Dockum	128,938	128,771	120,466	111,146	101,365
Oldham	A	Red	Dockum	63	58	52	50	48
Potter	A	Canadian	Dockum	38,641	38,983	36,832	34,409	31,900
Potter	A	Red	Dockum	183	130	105	96	108
Randall	A	Red	Dockum	11,172	14,016	14,863	15,113	15,069
Sherman	A	Canadian	Dockum	127	127	127	127	95
GMA 1 Total			**Dockum**	**261,079**	**265,547**	**256,307**	**244,788**	**232,128**

LIMITATIONS:

The groundwater model used in completing this analysis is the best available scientific tool that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

> "Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results."

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and streamflow are specific to a particular historic time period.

Because the application of the groundwater model was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations relating to the actual conditions of any aquifer at a particular location or at a particular time.

The TWDB is available to work with groundwater conservation districts to use ongoing data collection programs to compare the predictions of the model against how the aquifer responds to the actual amount and location of pumping. Besides groundwater pumping and use trends, historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

REFERENCES:

Deeds, N.E., and Walthour, S.D., 2016, Groundwater Management Area 1 (GMA 1), Desired Future Conditions Explanatory Report (Groundwater Management Area 1), December 12, 2016.

Deeds, N.E., and Jigmond, M., 2015, Numerical model report for the High Plains Aquifer System Groundwater Availability Model, Submitted to Texas Water Development Board.

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Texas Water Code, 2011, http://www.statutes.legis.state.tx.us/docs/WA/pdf/WA.36.pdf.

APPENDIX E

Estimated Historical Water Use And 2017 State Water Plan Datasets:

Hemphill County Underground Water Conservation District

by Stephen Allen
Texas Water Development Board
Groundwater Division
Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
April 17, 2017

GROUNDWATER MANAGEMENT PLAN DATA:

This package of water data reports (part 1 of a 2-part package of information) is being provided to groundwater conservation districts to help them meet the requirements for approval of their five-year groundwater management plan. Each report in the package addresses a specific numbered requirement in the Texas Water Development Board's groundwater management plan checklist. The checklist can be viewed and downloaded from this web address:

http://www.twdb.texas.gov/groundwater/docs/GCD/GMPChecklist0113.pdf

The five reports included in this part are:

1. Estimated Historical Water Use (checklist item 2)

   from the TWDB Historical Water Use Survey (WUS)
2. Projected Surface Water Supplies (checklist item 6)
3. Projected Water Demands (checklist item 7)
4. Projected Water Supply Needs (checklist item 8)
5. Projected Water Management Strategies (checklist item 9)

   from the 2017 Texas State Water Plan (SWP)

Part 2 of the 2-part package is the groundwater availability model (GAM) report for the District (checklist items 3 through 5). The District should have received, or will receive, this report from the Groundwater Availability Modeling Section. Questions about the GAM can be directed to Dr. Shirley Wade, shirley.wade@twdb.texas.gov, (512) 936-0883.

DISCLAIMER:

The data presented in this report represents the most up-to-date WUS and 2017 SWP data available as of 4/17/2017. Although it does not happen frequently, either of these datasets are subject to change pending the availability of more accurate WUS data or an amendment to the 2017 SWP. District personnel must review these datasets and correct any discrepancies in order to ensure approval of their groundwater management plan.

The WUS dataset can be verified at this web address:

http://www.twdb.texas.gov/waterplanning/waterusesurvey/estimates/

The 2017 SWP dataset can be verified by contacting Sabrina Anderson (sabrina.anderson@twdb.texas.gov or 512-936-0886).

For additional questions regarding this data, please contact Stephen Allen (stephen.allen@twdb.texas.gov or 512-463-7317) or Rima Petrossian (rima.petrossian@twdb.texas.gov or 512-936-2420).

Estimated Historical Water Use
TWDB Historical Water Use Survey (WUS) Data

Groundwater and surface water historical use estimates are currently unavailable for calendar year 2016. TWDB staff anticipates the calculation and posting of these estimates at a later date.

HEMPHILL COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2015	GW	640	5	316	0	3,079	1,043	5,083
	SW	0	0	79	0	0	184	263
2014	GW	796	4	540	0	2,972	1,014	5,326
	SW	0	0	135	0	0	179	314
2013	GW	823	4	542	0	6,469	961	8,799
	SW	0	0	134	0	0	169	303
2012	GW	891	4	787	0	9,019	1,034	11,735
	SW	0	0	109	0	0	183	292
2011	GW	937	5	981	0	10,258	1,058	13,239
	SW	0	0	518	0	0	187	705
2010	GW	731	4	491	0	4,549	902	6,677
	SW	0	0	259	0	0	159	418
2009	GW	732	4	535	0	3,821	1,003	6,095
	SW	0	0	282	0	0	177	459
2008	GW	775	3	579	0	9,140	1,082	11,579
	SW	0	0	305	0	0	192	497
2007	GW	691	2	0	0	5,769	1,294	7,756
	SW	0	0	0	0	0	229	229
2006	GW	671	2	0	0	7,187	1,991	9,851
	SW	0	0	0	0	0	351	351
2005	GW	666	2	0	0	6,824	1,223	8,715
	SW	0	0	0	0	0	216	216
2004	GW	676	2	0	0	1,451	314	2,443
	SW	0	0	0	0	0	1,206	1,206
2003	GW	570	3	0	0	1,626	301	2,500
	SW	0	0	0	0	0	1,156	1,156
2002	GW	592	3	0	0	4,560	293	5,448
	SW	0	0	0	0	0	1,125	1,125
2001	GW	593	2	0	0	2,349	265	3,209
	SW	0	0	0	0	0	1,018	1,018
2000	GW	583	1	0	0	3,373	592	4,549
	SW	0	0	0	0	0	888	888

Projected Surface Water Supplies
TWDB 2017 State Water Plan Data

HEMPHILL COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
A	LIVESTOCK, HEMPHILL	CANADIAN	CANADIAN LIVESTOCK LOCAL SUPPLY	248	248	248	248	248	248
A	LIVESTOCK, HEMPHILL	RED	RED LIVESTOCK LOCAL SUPPLY	173	173	173	173	173	173
	Sum of Projected Surface Water Supplies (acre-feet)			**421**	**421**	**421**	**421**	**421**	**421**

Projected Water Demands
TWDB 2017 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

HEMPHILL COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	CANADIAN	CANADIAN	786	866	934	1,009	1,079	1,145
A	COUNTY-OTHER, HEMPHILL	CANADIAN	115	112	109	109	109	109
A	COUNTY-OTHER, HEMPHILL	RED	43	45	46	49	52	55
A	IRRIGATION, HEMPHILL	CANADIAN	1,316	1,251	1,162	1,033	904	775
A	IRRIGATION, HEMPHILL	RED	591	563	523	465	407	349
A	LIVESTOCK, HEMPHILL	CANADIAN	757	760	763	766	769	773
A	LIVESTOCK, HEMPHILL	RED	518	519	521	523	526	529
A	MANUFACTURING, HEMPHILL	CANADIAN	6	6	6	6	6	6
A	MINING, HEMPHILL	CANADIAN	926	705	498	293	89	27
A	MINING, HEMPHILL	RED	1,388	1,058	746	439	134	41
	Sum of Projected Water Demands (acre-feet)		**6,446**	**5,885**	**5,308**	**4,692**	**4,075**	**3,809**

Projected Water Supply Needs
TWDB 2017 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

HEMPHILL COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	CANADIAN	CANADIAN	0	0	0	0	0	0
A	COUNTY-OTHER, HEMPHILL	CANADIAN	17	20	23	23	23	23
A	COUNTY-OTHER, HEMPHILL	RED	47	45	44	41	38	35
A	IRRIGATION, HEMPHILL	CANADIAN	0	0	0	0	0	0
A	IRRIGATION, HEMPHILL	RED	0	0	0	0	0	0
A	LIVESTOCK, HEMPHILL	CANADIAN	0	0	0	0	0	0
A	LIVESTOCK, HEMPHILL	RED	0	0	0	0	0	0
A	MANUFACTURING, HEMPHILL	CANADIAN	0	0	0	0	0	0
A	MINING, HEMPHILL	CANADIAN	0	0	0	0	0	0
A	MINING, HEMPHILL	RED	0	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet)		**0**	**0**	**0**	**0**	**0**	**0**

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

HEMPHILL COUNTY

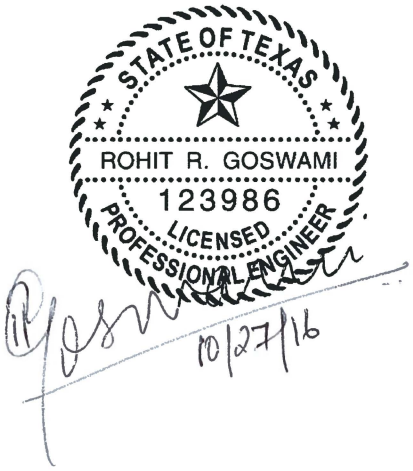
WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
CANADIAN, CANADIAN (A)							
MUNICIPAL CONSERVATION - CANADIAN	DEMAND REDUCTION [HEMPHILL]	25	27	29	32	34	36
WATER AUDITS AND LEAK REPAIR - CANADIAN	DEMAND REDUCTION [HEMPHILL]	39	43	47	50	54	57
		64	**70**	**76**	**82**	**88**	**93**
IRRIGATION, HEMPHILL, CANADIAN (A)							
IRRIGATION CONSERVATION - HEMPHILL COUNTY	DEMAND REDUCTION [HEMPHILL]	39	77	120	135	154	165
		39	**77**	**120**	**135**	**154**	**165**
IRRIGATION, HEMPHILL, RED (A)							
IRRIGATION CONSERVATION - HEMPHILL COUNTY	DEMAND REDUCTION [HEMPHILL]	18	34	54	61	70	74
		18	**34**	**54**	**61**	**70**	**74**
Sum of Projected Water Management Strategies (acre-feet)		**121**	**181**	**250**	**278**	**312**	**332**

APPENDIX F

GAM Run 16-010: Hemphill County Underground Water Conservation District Management Plan

by Rohit R. Goswami, Ph.D., P.E.
Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Section
(512) 463-0495
October 21, 2016



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GAM RUN 16-010: HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT MANAGEMENT PLAN

by Rohit R. Goswami, Ph.D., P.E.
Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Section
(512) 463-0495
October 21, 2016

EXECUTIVE SUMMARY:

Texas State Water Code, Section 36.1071, Subsection (h) (Texas Water Code, 2015), states that, in developing its groundwater management plan, a groundwater conservation district shall use groundwater availability modeling information provided by the Executive Administrator of the Texas Water Development Board (TWDB) in conjunction with any available site-specific information provided by the district for review and comment to the Executive Administrator.

The TWDB provides this information to the Hemphill County Underground Water Conservation District in two parts. Part 1 is the Estimated Historical Water Use/State Water Plan datasets report, which will be provided to you separately by the TWDB Groundwater Technical Assistance Section. Please direct questions about the water data report to Mr. Stephen Allen, (512) 463-7317 or stephen.allen@twdb.texas.gov. Part 2 is the required groundwater availability modeling information and this information includes:

1. the annual amount of recharge from precipitation, if any, to the groundwater resources within the district;

2. for each aquifer within the district, the annual volume of water that discharges from the aquifer to springs and any surface-water bodies, including lakes, streams, and rivers; and

3. the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The groundwater management plan for the Hemphill County Underground Water Conservation District should be adopted by the district on or before June 29, 2017, and submitted to the Executive Administrator of the TWDB on or before July 29, 2017. The current management plan for the Hemphill County Underground Water Conservation District expires on September 27, 2017.

This report discusses the methods, assumptions, and results from model runs using the recently released groundwater availability model for the High Plains Aquifer System (Deeds and Jigmond, 2015). This model run replaces the results of GAM Run 11-014 (Jigmond, 2011) that used version 2.01 of the groundwater availability model for the northern portion of the Ogallala Aquifer (Dutton, 2004). Table 1 summarizes the groundwater availability model data required by statute, and Figure 1 shows the area of the model from which the values in the table were extracted. If after review of the figure, the Hemphill County Underground Water Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the TWDB at your earliest convenience.

METHODS:

In accordance with the provisions of the Texas State Water Code, Section 36.1071, Subsection (h), the groundwater availability model for the High Plains Aquifer System (Deeds and Jigmond, 2015) was used to extract information for this analysis. Hemphill County Underground Water Conservation District water budgets were extracted for the historical model period (1980 through 2012), used for calibration of the model, using ZONEBUDGET Version 3.01 (Harbaugh, 2009). The average annual water budget values for recharge, surface-water outflow, inflow to the district, and outflow from the district for the portion of the aquifer system located within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

High Plains Aquifer System: Ogallala Aquifer

1. Version 1.01 of the groundwater availability model for the High Plains Aquifer System was used for this analysis. See Deeds and Jigmond (2015) for assumptions and limitations of the groundwater availability model.
2. This groundwater availability model includes 4 layers which generally represent the Ogallala Aquifer and other younger geologic units (Layer 1) overlying the Dockum Aquifer, the Rita Blanca and Edwards-Trinity (High Plains) aquifers

(Layer 2), upper portion of the Dockum Aquifer (Layer 3), and the lower portion of the Dockum Aquifer (Layer 4). The Rita Blanca, Edwards-Trinity (High Plains) and Dockum aquifers do not occur within the Hemphill Underground Water Conservation District.

3. The model was run with MODFLOW-NWT (Niswonger and others, 2011). Perennial rivers and reservoirs were simulated using the MODFLOW-NWT river package. Springs, seeps, and draws were simulated using the MODFLOW-NWT drain package. For this analysis, groundwater discharge to surface water includes groundwater leakage to the river and drain packages.

RESULTS:

A groundwater budget summarizes the amount of water entering and leaving the aquifer according to the groundwater availability model. Selected groundwater budget components listed below were extracted from the model for the High Plains Aquifer System within the district and averaged over the historical calibration period of the model run, as shown in Table 1.

1. Precipitation recharge—the areally distributed recharge sourced from precipitation falling on the outcrop areas of the aquifers (where the aquifer is exposed at land surface) within the district.

2. Surface-water outflow—the total water discharging from the aquifer (outflow) to surface-water features such as streams, reservoirs, and springs.

3. Flow into and out of district—the lateral flow within the aquifer between the district and adjacent counties.

4. Flow between aquifers—the net vertical flow between the aquifer and adjacent aquifers or confining units. This flow is controlled by the relative water levels in each aquifer or confining unit and aquifer properties of each aquifer or confining unit that define the amount of leakage that occurs.

The information needed for the district's management plan is summarized in Table 1. It is important to note that sub-regional water budgets are not exact. This is due to the size of the model cells and the approach used to extract data from the model. To avoid double accounting, a model cell that straddles a political boundary, such as a district or county boundary, is assigned to one side of the boundary based on the location of the centroid of the model cell. For example, if a cell contains two counties, the cell is assigned to the county where the centroid of the cell is located.

TABLE 1: SUMMARIZED INFORMATION FOR THE OGALLALA AQUIFER FOR THE HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST ONE ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Ogallala Aquifer	34,464
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Ogallala Aquifer	34,024
Estimated annual volume of flow into the district within each aquifer in the district	Ogallala Aquifer	20,175
Estimated annual volume of flow out of the district within each aquifer in the district	Ogallala Aquifer	5,290
Estimated net annual volume of flow between each aquifer in the district[1]	From the Ogallala Aquifer into underlying units	Not applicable

[1] The model does not simulate any formations underlying the Ogallala Aquifer within the district boundaries.

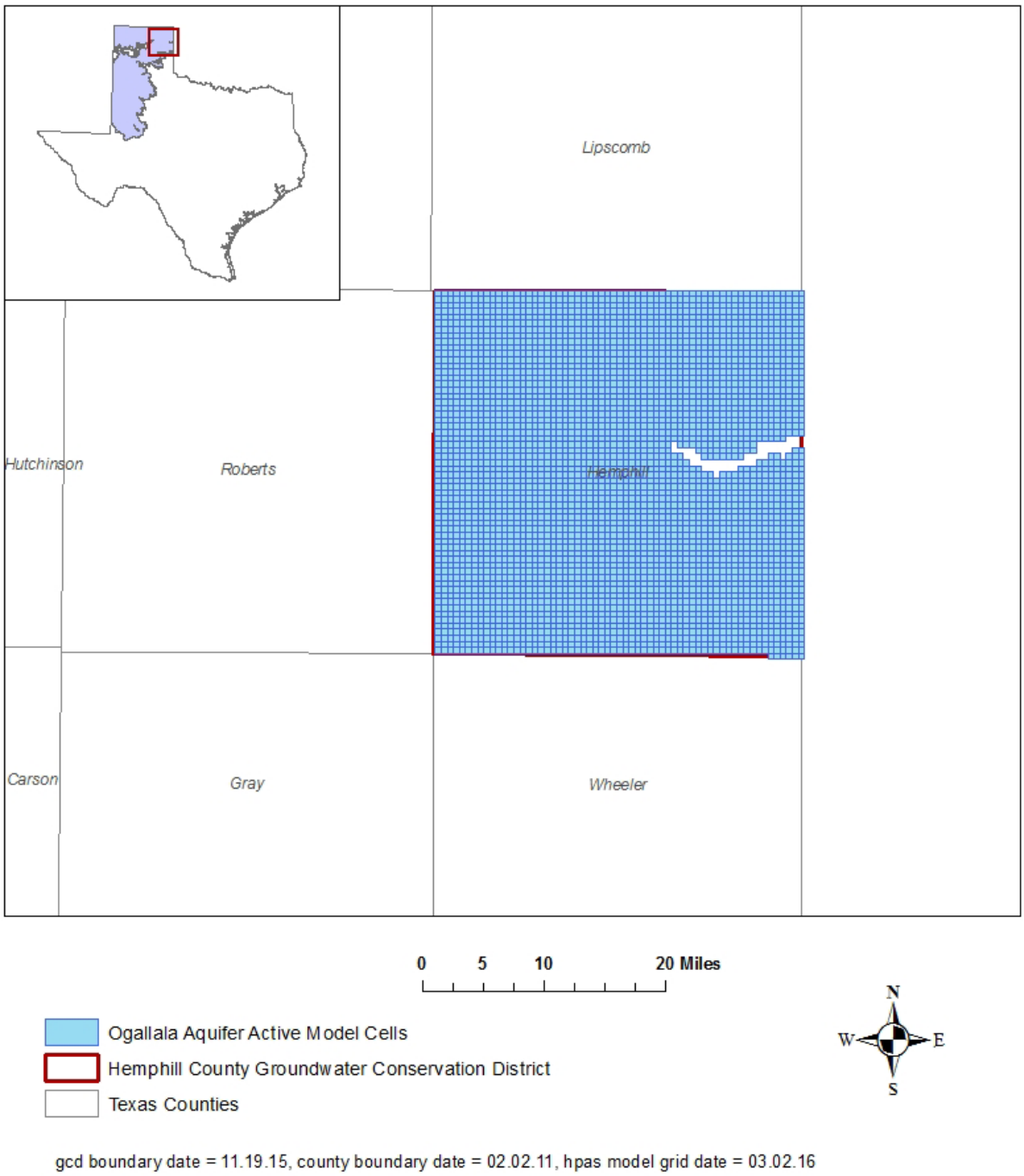

FIGURE 1: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE HIGH PLAINS AQUIFER SYSTEM FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED FOR THE HEMPHILL COUNTY UNDERGROUND WATER CONSERVATION DISTRICT [THE OGALLALA AQUIFER EXTENT MODELED WITHIN THE DISTRICT BOUNDARY].

LIMITATIONS:

The groundwater model(s) used in completing this analysis is the best available scientific tool that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

> *"Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results."*

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and interaction with streams are specific to particular historic time periods.

Because the application of the groundwater models was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations related to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and overall conditions of the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need

to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

REFERENCES:

Deeds, N. E., and Jigmond, M., 2015, Numerical Model Report for the High Plains Aquifer System Groundwater Availability Model, 640 p., http://www.twdb.texas.gov/groundwater/models/gam/hpas/HPAS_GAM_Numerical_Report.pdf.

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