NORTH PLAINS
GROUNDWATER
Conservation District

CERTIFIED MAIL 7011 1570 0001 1219 9339

June 24, 2013

Texas Water Development Board
Stephen F. Austin Bldg.
P.O. Box 13231
Austin, Texas 78711-3231

Dear Ms. Callahan:

The North Plains Groundwater Conservation District adopted its Management Plan on May 14, 2013. Attached is a copy of the plan and associated documents for your review.

Sincerely,

Steven D. Walthour, PG
General Manager

Attachment

Texas Water Development Board

Groundwater Conservation District Management Plan Checklist, effective December 6, 2012

District name: ☐ Official review ☐ Prereview

Reviewing staff: **Date plan received:** **Date plan reviewed:**

A management plan shall contain, unless explained as not applicable, the following elements, 31 TAC §356.52(a):

	Citation of rule	Citation of statute	Present in plan and administratively complete	Citation of source or method	Evidence that best available data was used	Notes
Is a paper hard copy of the plan available?	31 TAC §356.53(a)(1)					Yes
Is an electronic copy of the plan available?	31 TAC §356.53(a)(2)					Yes
1. Is an estimate of the modeled available groundwater in the District based on the desired future condition established under Section 36.108 included?	31 TAC §356.52(a)(5)(A)	TWC §36.1071(e)(3)(A)				Yes pg. MAG 13-14, DFC pg. 8, 26
2. Is an estimate of the amount of groundwater being used within the District on an annual basis for at least the most recent five years included?	31 TAC §356.52(a)(5)(B); §356.10(2)	TWC §36.1071(e)(3)(B)				Yes pg. 14 & Appendix A
For sections 3-5 below, each district must use the groundwater availability modeling information provided by the TWDB in conjunction with available site-specific information provided by the district when developing the required estimates, 31 TAC §356.52(c):						
3. Is an estimate of the annual amount of recharge, from precipitation, if any, to the groundwater resources within the District included?	31 TAC §356.52(a)(5)(C)	TWC §36.1071(e)(3)(C)				Yes p. 16 and Appendix B
4. For each aquifer in the district, is an estimate of the annual volume of water that discharges from the aquifer to springs and any surface water bodies, including lakes, streams and rivers, included?	31 TAC §356.52(a)(5)(D)	TWC §36.1071(e)(3)(D)				Yes p. 16-17 and Appendix B
5. Is an estimate of the annual volume of flow	31 TAC §356.52(a)(5)(E)	TWC §36.1071(e)(3)(E)				
a) into the District within each aquifer,						Yes pg. 16 and Appendix B
b) out of the District within each aquifer,						Yes pg. 16 and Appendix B
c) and between aquifers in the District,						Yes pg. 16 and Appendix B
if a groundwater availability model is available, included?						Available GAM 12-003 Revised, Appendix B
6. Is an estimate of the projected surface water supply within the District according to the most recently adopted state water plan included?	31 TAC §356.52(a)(5)(F)	TWC §36.1071(e)(3)(F)				Yes pg. 17 and Appendix A
7. Is an estimate of the projected total demand for water within the District according to the most recently adopted state water plan included?	31 TAC §356.52(a)(5)(G)	TWC §36.1071(e)(3)(G)				Yes pg. 17-18, Appendix A
8. Did the District consider and include the water supply needs from the adopted state water plan?		TWC §36.1071(e)(4)				Yes pg. 18 and Appendix A
9. Did the District consider and include the water management strategies from the adopted state water plan?		TWC §36.1071(e)(4)				Yes pg. 19-20 and Appendix A
10. Did the district include details of how it will manage groundwater supplies in the district	31 TAC §356.52(a)(4)					Yes pg. 20-21
11. Are the actions, procedures, performance, and avoidance necessary to effectuate the management plan, including specifications and proposed rules, all specified in as much detail as possible, included in the plan?		TWC §36.1071(e)(2)				Yes pg. 21
12. Was evidence that the plan was adopted, after notice and hearing, included? Evidence includes the posted agenda, meeting minutes, and copies of the notice printed in the newspaper(s) and/or copies of certified receipts from the county courthouse(s).	31 TAC §356.53(a)(3)	TWC §36.1071(a)				Yes Appendix E,F,G, H, I, J
13. Was evidence that, following notice and hearing, the District coordinated in the development of its management plan with regional surface water management entities?	31 TAC §356.51	TWC §36.1071(a)				Yes Appendix K
14. Has any available site-specific information been provided by the district to the executive administrator for review and comment before being used in the management plan when developing the estimates required in subsections 31 TAC §356.52(a)(5)(C),(D), and (E)?	31 TAC §356.52(c)	TWC §36.1071(h)				The District used information provided by the Texas Water Development Board.

Mark an affirmative response with YES
Mark a negative response with NO
Mark a non-applicable checklist item with N/A

Management goals must be consistent with the established desired future conditions of the district's management area

Management goals required to be addressed unless declared not applicable	Management goal (time-based and quantifiable) 31 TAC §356.51	Methodology for tracking progress 31TAC §356.52(a)(4)	Management objective(s) (specific and time-based statements of future outcomes)	Performance standard(s) (measures used to evaluate the effectiveness of district activities)	Notes
Providing the most efficient use of groundwater 31 TAC 356.52(a)(1)(A); TWC §36.1071(a)(1)	15)	16)	17)	18)	p. 22
Controlling and preventing waste of groundwater 31 TAC 356.52(a)(1)(B); TWC §36.1071(a)(2)	19)	20)	21)	22)	P. 22
Controlling and preventing subsidence 31 TAC 356.52(a)(1)(C); TWC §36.1071(a)(3)	23)	24)	25)	26)	P. 23
Addressing conjunctive surface water management issues 31 TAC 356.52(a)(1)(D); TWC §36.1071(a)(4)	27)	28)	29)	30)	p 23
Addressing natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater 31 TAC 356.52(a)(1)(E); TWC §36.1071(a)(5)	31)	32)	33)	34)	p 23-24
Addressing drought conditions 31 TAC 356.52(a)(1)(F); TWC §36.1071(a)(6)	35)	36)	37)	38)	P 24
Addressing	39)	40)	41)	42)	
	39a)	40a)	41a)	42a)	p 25
	39b)	40b)	41b)	42b)	p 25
	39c)	40c)	41c)	42c)	p 25-26
	39d)	40d)	41d)	42d)	p 26-27
	39e)	40e)	41e)	42e)	p 26
where appropriate and cost effective 31 TAC 356.52(a)(1)(G); TWC §36.1071(a)(7)					
Addressing the desired future conditions established under TWC §36.108. 31 TAC 356.52(a)(1)(H); TWC §36.1071(a)(8)	43)	44)	45)	46)	pg. 26-27
Does the plan identify the performance standards and management objectives for effecting the plan? 31 TAC §356.52(a)(2)&(3); TWC §36.1071(e)(1)			47)	48)	Yes

Mark required elements that are present in the plan with YES
Mark any required elements that are missing from the plan with NO
Mark plan elements that have been indicated as not applicable to the district with N/A

NORTH PLAINS
GROUNDWATER
Conservation District

Management Plan

2013-2023

Revised
2013

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

Gene Born – *President, Lipscomb County*
Brian Bezner – *Vice President, Dallam County*
Bob Zimmer – Secretary, *Hutchinson and Hansford Counties*
Wesley Spurlock – *Member, Sherman County*
Harold Grall – *Member, Moore County*
Daniel Krienke – *Member, Ochiltree County*
Phil Haaland – *Member, Hartley County*

DISTRICT STAFF

Steven D. Walthour, PG - *General Manager*

DISTRICT OFFICE

P.O. Box 795, 603 East 1st St.
Dumas, Texas 79029
Phone: 806-935-6401
Fax: 806-935-6633
E-mail: swalthour@northplainsgcd.org
Web: www.northplainsgcd.org

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J. TRANSCRIPTS OF PUBLIC HEARING ON NOVEMBER 29, 2012

K. DISTRICT COORDINATES THE DEVELOPMENT OF THIS MANAGEMENT PLAN WITH SURFACE WATER MANAGEMENT ENTITIES (31 TAC §356.6(a)(4)

North Plains Groundwater Conservation District

Management Plan

Re-Adopted 2013

SECTION I – DISTRICT MISSION STATEMENT

The North Plains Groundwater Conservation District Board of Directors adopted the mission statement, "Maintaining our way of life through conservation, protection, and preservation of our groundwater resources."

SECTION II – PURPOSE OF MANAGEMENT PLAN

A. Introduction

The Texas Water Code requires the District to adopt a management plan that addresses the following management goals, as applicable:

(1) Providing the most efficient use of groundwater;

(2) Controlling and preventing waste of groundwater;

(3) Controlling and preventing subsidence;

(4) Addressing conjunctive surface water management issues;

(5) Addressing natural resource issues;

(6) Addressing drought conditions;

(7) Addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost-effective; and

(8) Addressing the desired future conditions (DFC) adopted by the District under Section 36.108.

The 75th Texas Legislature in 1997 enacted Senate Bill 1 ("SB 1") to establish a comprehensive statewide water planning process. In particular, SB 1 contained provisions that required groundwater conservation districts to prepare management plans to identify the water supply resources and water demands that will shape the decisions of each district. SB 1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries. The Texas Legislature enacted Senate Bill 2 ("SB 2") in 2001 and House Bill 1763 ("HB 1763") in 2005 to build on the planning requirements of SB 1 and to further clarify the actions necessary for districts to manage and conserve the groundwater resources of the State of Texas. North Plains Groundwater Conservation District's management plan satisfies the requirements of SB 1, SB 2, HB 1763, the statutory requirements of Chapter 36 of the Texas Water Code, and the administrative requirements of the TWDB rules.

B. Groundwater Management Area Joint Planning

HB 1763 requires joint planning among districts that are in the same Groundwater Management Area (GMA). These districts must establish the DFCs of the aquifers within their respective GMAs every five years. Through this process, the districts are to consider the varying uses and conditions of the aquifer within the management area that differ substantially from one geographic area to another. The District is entirely in GMA-1 which also includes Hemphill County Underground Water Conservation District, Panhandle Groundwater Conservation District, and part of High Plains Underground Water Conservation District. GMA-1 and the District adopted DFCs relative to the District's area during the joint process. Based on those DFCs, the Texas Water Development Board (TWDB) executive administrator provides each district with the modeled available groundwater (MAG) in the management area. The Texas Water Code requires the District's management plan to include the DFCs of the aquifers within the District's jurisdiction and the amount of the modeled available groundwater from such aquifers. Well owners within the District withdraw groundwater from three aquifers including the Ogallala aquifer that is located through the District, the Rita Blanca aquifer that is located in the northwest corner of Dallam County and possibly in the extreme west portion of Hartley County; and the Santa Rosa Formation of the Dockum aquifer that is located in all or part of Dallam, Hartley, Moore and Sherman Counties.

a. Ogallala Aquifer and Rita Blanca Aquifer Desired Future Conditions

The TWDB combined the Rita Blanca aquifer with the Ogallala aquifer in one GAM. GMA-1 Joint Planning Committee and the District adopted DFCs that combined Ogallala and Rita Blanca aquifers for the District as follows:

- 40% volume in storage remaining in 50 years in Dallam, Hartley, Sherman and Moore Counties; and
- 50% volume in storage remaining in 50 years in Hansford, Hutchinson, Ochiltree and Lipscomb Counties.

This management plan uses data generated by the TWDB from GAM RUN 12-003 REVISED (Appendix B) and GAM RUN 12-005 MAG for the Ogallala and Rita Blanca aquifers for planning purposes.

b. Dockum Aquifer Desired Future Conditions

GMA-1 Joint Planning Committee and the District adopted Dockum aquifer DFC for the District that the average decline in water levels will decline no more than 30 feet over the next 50 years.

This management plan uses data generated by the TWDB from GAM RUN 12-003 REVISED (Appendix B) and GAM RUN 10-019 MAG VERSION 2 for the Dockum aquifer for planning purposes.

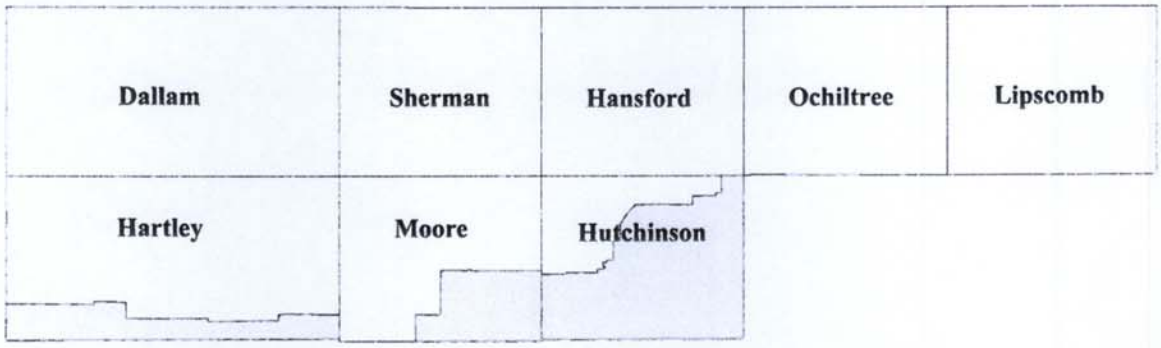
SECTION III – **DISTRICT INFORMATION**

A. Creation

In 1949, the Texas Legislature 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. The Legislature codified this portion of the Texas Civil Statutes into Chapter 52 of the Texas Water Code. Later, the Legislature amended the Texas Water Code and moved the statutes into Chapter 36.

B. Location and Extent

The District's jurisdiction is limited to the groundwater resources within a 7,335 square mile area that includes all of Dallam, Sherman, Hansford, Ochiltree, Lipscomb, and parts of Hartley, Moore and Hutchinson Counties. The District is located north of Amarillo and also north of the Canadian River.



Since the District does not cover all of Hartley, Hutchison, and Moore counties, data provided by the TWDB was used for all estimates related to demand based on a proportional area percentage. This percentage is derived by dividing the amount of acres or square miles covered by the District by the total number of acres or square miles contained within each county. The total county areas; the total county areas in the District; and the TWDB computation of the percentage of county areas within the District are as follows:

County	County Area (Sq. miles)	Area in District (Sq. miles)	Percent Area in District
Dallam	1,505	1,505	100.00
Hansford	907	907	100.00
Hartley	1,489	1,267	85.09
Hutchinson	911	266	29.20
Lipscomb	934	934	100.00
Moore	914	633	69.26
Ochiltree	907	907	100.00
Sherman	916	916	100.00
Totals	**8,483**	**7,335**	

Groundwater is the primary water supply source for an agricultural economy within the eight counties associated with the District. In 2006, the County Extension Program Councils' estimated the cash value of all crops and livestock within the region at $1.257 billion. According to the 2010 US Census reports, the counties associated with the District have 81,854 residents. The census data does not reflect population changes related to probable population increases in the District associated with economic development of the dairy or the petroleum industries in the area.

The TWDB provided population projections for each of the counties in the PWPA 2011 Adopted Plan. The TWDB projected that the population in the counties associated with the District totaled 76,355 in 2000 and would grow to 93,655 by 2060. The following table reflects the TWDB projected population from the PWPA 2011 Adopted Water Plan for each of the counties associated with the District.

COUNTY	2000	2010	2020	2030	2040	2050	2060
Dallam	6,222	6,851	7,387	7,724	7,808	7,645	7,291
Hansford	5,369	5,699	6,148	6,532	6,948	7,191	7,406
Hartley	5,537	5,697	5,889	5,989	6,026	5,950	5,646
Hutchinson	23,857	24,320	24,655	24,311	23,513	22,209	21,087
Lipscomb	3,057	3,084	3,149	3,054	2,966	2,925	2,784
Moore	20,121	23,049	26,241	29,057	31,293	32,655	33,474
Ochiltree	9,006	9,685	10,440	11,001	11,380	11,566	11,803
Sherman	3,186	3,469	3,770	3,886	4,005	4,110	4,164
Total	**76,355**	**81,854**	**87,679**	**91,554**	**93,939**	**94,251**	**93,655**

Source: PWPA 2011 Adopted Plan

C. Background

The District is governed by a seven-member elected Board of Directors. Each Director is elected from a defined area within the District for a four-year term. The elections are held in May of each even-numbered year in accordance with Chapter 36 and the Texas Election Code. The District's Board elects officers after each Director election and these officers serve for two-year terms.

The Board of Directors hold regular meetings at the District office located at 603 East 1st Street, Dumas, Texas 79029.

The District's Board develops and adopts the rules and programs, establishes District practices, hires the general manager, sets the annual budget, and determines the tax rate needed to carry out the operations of the District. The Directors conduct themselves in a manner consistent with sound ethical and business practices; consider the public interest in conducting District business; avoid impropriety, or the appearance of impropriety, ensure and maintain public confidence in the District; and control and manage the affairs of the District lawfully, fairly, impartially, and without discrimination, and in accordance with the stated purposes of the District. In September 2005, the District's Board developed and adopted a document which sets forth North Plains Groundwater Conservation District's Director Policies.

The District employs a general manager to manage the administrative affairs of the District and who, in the absence of the secretary of the District's Board, may act as secretary to the District's Board and may attest on behalf of the District. The general manager performs all duties set forth in the District's Rules, personnel policies, and the job description of the District's general manager to the reasonable satisfaction of the District's Board of Directors. The general manager's duties specifically include the employment and supervision of the District's personnel, oversight of the District's financial matters, attendance of District Board and Board Committee meetings, and the submission of reports to the District's Board concerning all phases of the services and operations of the District. Further, the general manager's duties include the continued review and development of the District's Rules and the enforcement of the District's Rules. The general manager also performs any other duties which may be assigned to him by the District's Board from time to time.

The District maintains a qualified staff to assist water users in protecting, preserving, and conserving the aquifers. The Board of Directors bases its decisions on the best data available in order to treat all water users fairly and equally. The Board of Directors determines the programs and activities that the District shall undertake to provide the best possible service to the area. The District's Rules are enforced to protect the quality of the groundwater and to prevent the waste of this precious resource.

D. Authority and Framework

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 and TWC Chapter 36. The District, acting under such authority, assumes all of the rights and responsibilities of a groundwater conservation district specified in TWC Chapter 36.

The District's goal is to provide sound management of groundwater resources and make every effort to insure that an abundant supply of potable water will be available for many future generations.

E. General Geology and Hydrology

The Ogallala aquifer is the primary aquifer within the North Plains Groundwater Conservation District. The Ogallala formation unconformably overlies Permian, Triassic, Jurassic, and Cretaceous strata and consists primarily of heterogeneous sequences of coarse-grained sand and gravel in the lower part, grading upward into fine clay, silt, and sand. Water-bearing areas of the Ogallala formation are hydraulically connected except where the Canadian River has partially or totally eroded through the formation to separate the North and South Plains. Water-bearing units of Cretaceous and Jurassic ages combine to form the Rita Blanca aquifer in the western part of Dallam and Hartley Counties. Underlying these aquifers and much of the Ogallala are Triassic (Dockum aquifer) and Permian formations. Some hydraulic continuity occurs between the Ogallala formation and the underlying Cretaceous, Triassic, and Permian formations in many areas of the High Plains. For the purposes of this document, the Ogallala aquifer will be considered to consist of the saturated sediments of the Ogallala formation and any underlying, potable water-bearing units hydraulically connected with it.

F. Local Aquifers

Ogallala aquifer

The Ogallala aquifer is present in all counties in the District and is the region's largest source of water. The Ogallala aquifer consists of Tertiary-age alluvial fan, fluvial, lacustrine, and eolian deposits derived from erosion of the Rocky Mountains. The Ogallala unconformably overlies Permian, Triassic, and other Mesozoic formations and in turn may be covered by Quaternary fluvial, lacustrine, and eolian deposits.

Dockum aquifer

The Dockum is a minor aquifer that underlies the Ogallala aquifer and extends laterally into parts of West Texas and New Mexico. The primary water-bearing zone in the Dockum Group, commonly called the "Santa Rosa", consists of up to 700 feet of sand and conglomerate interbedded with layers of silt and shale. Domestic use of the Dockum occurs in Oldham, Potter, and Randall Counties. According to the TWDB's GAM RUN 12-003 REVISED (Appendix B) recharge to the Dockum aquifer from precipitation within the NPGCD is minimal. The non-District counties, Oldham and Potter are the main sources of recharge in the PWPA and according to the TWDB's GAM RUN 12-003 REVISED there is very little to no leakage into the Dockum from the overlying Ogallala formation.

Rita Blanca aquifer

The Rita Blanca is a minor aquifer that underlies the Ogallala formation and extends into New Mexico, Oklahoma, and Colorado. The portion of the aquifer which underlies the PWPA is located in western Dallam and Hartley Counties. Groundwater in the Rita Blanca occurs in sand and gravel formations of the Cretaceous and Jurassic Age. The Romeroville Sandstone of the Dakota Group yields small quantities of water, whereas the Cretaceous Mesa Rica and Lytle Sandstones yield small to large quantities of water.

Small quantities of groundwater are also located in the Jurassic Exeter Sandstone and sandy sections of the Morrison formation.

Groundwater supplies from the Rita Blanca were incorporated into the Ogallala Model and these supplies are included in the Ogallala availability numbers.

SECTION IV - TECHNICAL DISTRICT INFORMATION REQUIRED BY TEXAS ADMINISTRATIVE CODE

A. Modeled Available Groundwater (MAG) (31 TAC §356.5(a)(5)(A), §36.1071(e)(3)(A))

The District uses groundwater availability modeling (GAM) along with information collected by the District and other resources during management planning. The Texas Water Development Board executive administrator provided GAM RUN 12-003 REVISED Report that uses results from GAMs of the northern portion of the Ogallala aquifer, which includes the Rita Blanca aquifer, and the Dockum aquifer. Additionally, the District used TWDB GAM RUN 12-005 MAG for the northern portion of the Ogallala aquifer including the Rita Blanca, and TWDB GAM Run 10-019 MAG Version 2 for the Dockum aquifer that were based on the District's adopted DFCs. The tables below are developed from those GAM Runs.

	Year					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Dallam*	404,607	352,474	309,076	270,317	234,813	203,491
Hansford	284,588	262,271	240,502	218,405	197,454	177,536
Hartley	424,813	368,430	319,149	276,075	238,186	205,137
Hutchinson	61,306	58,383	50,723	44,360	39,048	34,580
Lipscomb	290,510	283,794	273,836	256,406	237,765	219,100
Moore	193,001	186,154	162,142	137,321	114,658	95,490
Ochiltree	269,463	246,475	224,578	203,704	183,227	164,265
Sherman	322,683	300,908	263,747	229,122	197,480	169,172
Total	**2,250,971**	**2,058,889**	**1,843,753**	**1,635,710**	**1,442,631**	**1,268,771**

Ogallala and Rita Blanca aquifer MAG's (GAM RUN 12-005 MAG) by decade within the District divided by area in acre-feet per year (see Appendix E).

*The county value for Dallam County is representative of the district, since the remainder of Dallam County was annexed into the district after the MAG report was issued.

	Year					
Area	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Dallam, Hartley, Moore and Sherman Counties	1,345,104	1,207,966	1,054,114	912,835	785,137	673,290
Hansford, Hutchison, Lipscomb and Ochiltree Counties	905,867	850,923	789,639	722,875	657,494	595,481
Total	**2,250,971**	**2,058,889**	**1,843,753**	**1,635,710**	**1,442,631**	**1,268,771**

Dockum aquifer MAG (GAM Run 10-019 MAG Version 2) Addendum pumping and average drawdown for the lower portion of the Dockum aquifer for the 30-foot average drawdown scenario by decade for each county that is either all or part in the District in acre-feet per year (see Appendix F).

	Year					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Dallam	4,034	4,034	4,034	4,034	4,034	4,034
Hartley	3,567	3,567	3,567	3,567	3,567	3,567
Moore	5,395	5,395	5,395	5,395	5,395	5,395
Sherman	591	591	591	591	591	591
Total	**13,587**	**13,587**	**13,587**	**13,587**	**13,587**	**13,587**

B. Estimated Annual Groundwater Use (31 TAC §356.5(a)(5)(B), §36.1071(e)(3)(B))

According to the TWDB Historical Water Use Survey (WUS) 1,493,132 acre feet of groundwater was used in the District in 2009 and 1,283,832 acre feet in 2010. Average annual groundwater use is not expected to change significantly over the next five years.

The TWDB estimated historical groundwater use in the District for most years from 1974 through 2010 (see Appendix A). According to TWDB data, groundwater used in the District ranged from 1,033,067 acre-feet to 1,852,067 acre-feet annually.

The TWDB table summarizing groundwater use for each county for the period 1974-2010 is included in the District's Management Plan that data is located in Appendix A.

The table below summarizes by county groundwater production volumes in acre-feet reported to the District for the period 2006-2011. This annual production is reported in accordance with the District's Rules www.northplainsgcd.org/downloads/category/5-district-documents.html.

	Year					
COUNTY	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
DALLAM	264,900	269,600	314,000	317,100	296,800	369,400
HANSFORD	110,200	106,500	142,700	152,700	130,000	233,700
HARTLEY	286,200	312,400	364,600	387,300	364,900	485,400
HUTCHINSON	36,700	34,900	52,800	53,900	41,900	73,700
LIPSCOMB	28,900	32,700	30,800	30,200	34,200	51,200
MOORE	149,100	148,000	191,400	200,100	169,300	267,500
OCHILTREE	66,800	53,700	75,500	65,800	61,800	109,600
SHERMAN	208,400	220,100	275,100	284,100	250,700	396,800
TOTALS	**1,151,200**	**1,177,900**	**1,446,900**	**1,491,200**	**1,349,600**	**1,987,300**

The table below summarizes by area groundwater production volumes in acre-feet reported to the District for the period 2006-2011. The production numbers are grouped by counties sharing the same desired future condition; 40/50 for the western counties of Dallam, Hartley, Moore and Sherman, and 50/50 for the eastern counties of Hansford, Hutchinson, Lipscomb and Ochiltree. Despite the District being divided into two management areas having slightly different DFC's the District is currently managed as one area.

	Year					
AREA	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Dallam, Hartley, Moore and Sherman Counties	908,600	950,100	1,145,100	1,188,600	1,081,700	1,519,100
Hansford, Hutchinson, Lipscomb and Ochiltree Counties	242,600	227,800	301,800	302,600	267,900	468,200
Total	**1,151,200**	**1,177,900**	**1,446,900**	**1,491,200**	**1,349,600**	**1,987,300**

C. Estimated Annual Aquifer Recharge (31 TAC §356.5(a)(5)(C), §36.1071(e)(3)(C))

According to the TWDB GAM RUN 12-003 REVISED, the total annual Ogallala aquifer recharge is 88,988 acre-feet from precipitation within the District. The TWDB data is presented in Appendix B. The total annual Dockum aquifer recharge is 56 acre-feet from precipitation within the District.

D. Estimated Annual Aquifer Discharge to Springs, Lakes, Streams and Rivers (31 TAC §356.5(a)(5)(D), §36.1071(e)(3)(D))

According to the TWDB GAM RUN 12-003 REVISED, the total estimated annual volume of water that discharges from the Ogallala aquifer to springs and any surface water body including lakes, streams, and rivers is 31,294 acre-feet. The Dockum aquifer currently has no discharge to springs and any other surface water bodies. The TWDB data is presented in Appendix B.

E. Estimated Aquifer Annual Flow Volume Into and Out of the District and Annual Flow Between Aquifers (31 TAC §356.5(a)(5)(E), §36.1071(e)(3)(E))

According to the GAM RUN 12-003 REVISED (see Appendix B), the estimated annual Ogallala aquifer flow volume into and flow out of the District as well as the annual volume of flow between the Ogallala aquifer and other aquifers in the District is expressed in acre-feet as follows:

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the District	Ogallala aquifer	88,988
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Ogallala aquifer	31,294
Estimated annual volume of flow into the District within each aquifer in the District	Ogallala aquifer	43,548
Estimated annual volume of flow out of the District within each aquifer in the District	Ogallala aquifer	42,012
Estimated net annual volume of flow between each aquifer in the District*	From Ogallala aquifer into the Dockum aquifer	Not Applicable

*The Groundwater Availability Model for the Dockum Aquifer estimates the flow from the Ogallala Aquifer to the Dockum Aquifer averages 6,895 acre-feet per year; however, the model report for the Dockum Aquifer indicates the model was not designed to precisely model this parameter.

According to the TWDB GAM RUN 12-003 REVISED, the estimated annual Dockum aquifer flow volume into and flow out of the District as well as the annual volume of flow between the Dockum aquifer and other aquifers in the District is expressed in acre-feet as follows:

Management Plan requirement	Aquifer	Results
Estimated annual amount of recharge from precipitation to the District	Dockum aquifer	56
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Dockum aquifer	0
Estimated annual volume of flow into the District within each aquifer in the District	Dockum aquifer	4,209
Estimated annual volume of flow out of the District within each aquifer in the District	Dockum aquifer	2,313
Estimated net annual volume of flow between each aquifer in the District*	From Ogallala aquifer into the Dockum aquifer	Not Applicable

*The Groundwater Availability Model for the Dockum Aquifer estimates the flow from the Ogallala Aquifer to the Dockum Aquifer averages 6,895 acre-feet per year; however, the model report for the Dockum Aquifer indicates the model was not designed to precisely model this parameter.

F. Projected Surface Water Supply (31 TAC §356.5(a)(5)(F), §36.1071(e)(3)(F))

According to the 2012 State Water Plan estimates of each county associated with the District, the projected surface water supply amounts in acre-feet are as follows:

County	2010	2020	2030	2040	2050	2060
Dallam	741	741	741	741	741	741
Hansford	2,486	2,486	2,486	2,486	2,486	2,486
Hartley	1,422	1,422	1,422	1,422	1,422	1,422
Hutchinson	529	693	693	693	693	693
Lipscomb	723	723	723	723	723	723
Moore	756	756	756	756	756	756
Ochiltree	2,506	2,506	2,506	2,506	2,506	2,506
Sherman	731	731	731	731	731	731
Total	**9,894**	**10,058**	**10,058**	**10,058**	**10,058**	**10,058**

Source: TWDB 2012 State Water Plan

Projected surface water supplies have been collected and reported by the TWDB through the 2012 State Water Plan and included in the District's Management Plan and that data is located in Appendix A.

G. Projected Total Water Demand (31 TAC §356.5(a)(5)(G), §36.1071(e)(3)(G))

According to the 2012 State Water Plan and based on the TWDB estimated land area and the District estimates based on the percent of each county within the District, the projected total water demand in acre-feet is as follows:

County	2010	2020	2030	2040	2050	2060
Dallam	297,251	289,813	281,566	267,509	238,974	210,433
Hansford	136,267	120,959	117,814	112,359	101,031	89,735
Hartley	251,839	242,446	235,786	224,363	200,970	177,598
Hutchinson	24,392	24,041	24,073	23,771	22,711	21,930
Lipscomb	20,033	18,647	18,053	17,039	15,296	13,574
Moore	126,050	118,120	116,010	111,712	101,978	92,397
Ochiltree	67,502	58,768	57,332	54,722	49,489	44,303
Sherman	226,168	207,035	201,290	190,136	171,361	151,320
Total	**1,149,502**	**1,079,829**	**1,051,924**	**1,001,611**	**901,810**	**801,290**

Source: TWDB 2012 State Water Plan

Projected water demands have been collected and broken down by the TWDB through the 2012 State Water Plan and included in the District's Management Plan located in Appendix A.

H. Estimated Water Supply Needs (31 TAC §356.5(a)(7), §36.1071(e)(4))

According to the 2012 State Water Plan, the estimated water supply needs in acre-feet are as follows:

County	2010	2020	2030	2040	2050	2060
Dallam	-132,889	-140,984	-148,630	-149,134	-133,737	-117,396
Hansford	-150	-1,082	-1,989	-5,441	-4,241	-2,823
Hartley	-181,732	-180,523	-183,457	-179,983	-161,368	-142,079
Hutchinson	-15,008	-12,175	-11,716	-11,081	-8,318	-6,921
Lipscomb	0	0	0	0	0	0
Moore	-52,565	-49,376	-55,206	-58,984	-55,463	-51,341
Ochiltree	0	0	0	0	0	0
Sherman	-72,532	-69,367	-79,690	-82,955	-77,118	-69,190

Source: TWDB 2012 State Water Plan

Projected water supply needs have been collected and broken down by the TWDB through the 2012 State Water Plan and included in the District's Management Plan located in Appendix A.

SECTION V – PROJECTED WATER MANAGEMENT STRATEGIES

(31 TAC §356.5(a)(7), §36.1071(e)(4))

To meet the long-term water supply needs of the District, the 2012 State Water Plan recommends four water management strategies (see Appendix A). Those management strategies and the county that they would be applicable to are as follows:

Management Strategy	Dallam	Hansford	Hartley	Hutchinson	Lipscomb	Moore	Ochiltree	Sherman
Drill Additional Groundwater Wells	•	•		•		•	•	
Irrigation Conservation	•	•	•	•	•	•	•	•
Municipal Conservation	•	•		•		•	•	
Voluntary Transfer from Other Users				•		•		

Source: TWDB 2012 State Water Plan

Drilling Additional Groundwater Wells – Drilling additional wells is listed as a management strategy for Manufacturing Water User Group (WUG) in Hutchinson County.

Irrigation Conservation – Irrigation conservation is an agricultural water conservation strategy recommended in all eight counties and is the water management strategy that will have the greatest impact in meeting water needs. Irrigation conservation includes:

1) Irrigation water use management strategies particularly with advanced irrigation systems, such as irrigation scheduling, volumetric measurement of water use, crop residue management, conservation tillage, and on-farm irrigation audits;
2) Land management systems, including furrow dikes, land leveling, conversion from irrigated to dry land farming, and brush control/management;
3) On-farm delivery systems, such as lining of farm ditches, low pressure center pivot sprinkler systems, drip/micro irrigation systems, surge flow irrigation, and linear movement sprinkler systems;
4) Water delivery systems, including lining of irrigation canals and replacing lateral canals with pipelines;
5) Miscellaneous systems, such as water recovery and reuse; and
6) Water conservation technologies for other agricultural sectors, including CAFOs, food processing operations, slaughter facilities, etc. and alternative energy production.

The agricultural water conservation strategies recommended by the PWPG also include the use of the North Plains Evapotranspiration Network to schedule irrigation, irrigation equipment efficiency improvements, implementation of conservation tillage methods and precipitation enhancement. The District disagrees with the strategy of using the PET Network because the funding for the Network was discontinued (the program is now inactive) after the PWPG included the strategy.

Municipal Conservation – Municipal conservation management strategies are recommended by the PWPG for Dallam, Hartley, Moore and Sherman Counties. The municipal conservation measures considered include the implementation of water efficient clothes washers for current populations, education and public awareness programs, reduction of unaccounted for water through water audits and system maintenance, and water rate structures that discourage water waste.

Voluntary Transfer from Other Users - Voluntary transfer of water or water rights from other users is recommended by the 2012 State Water Plan as a management strategy for the livestock users group.

According to the 2012 State Water Plan, if the above listed management strategies are fully implemented, the water savings in acre-feet is as follows:

County	2010	2020	2030	2040	2050	2060
Dallam	0	59,532	108,738	121,823	123,220	123,219
Hansford	0	24,818	46,569	52,523	53,260	53,260
Hartley	0	53,755	98,786	110,553	111,772	111,772
Hutchinson	200	10,903	18,480	20,384	21,600	21,595
Lipscomb	0	2,279	2,360	2,506	2,587	2,668
Moore	700	33,843	63,444	73,475	75,388	75,677
Ochiltree	0	17,321	18,012	19,171	20,414	21,658
Sherman	0	41,128	77,102	86,803	87.896	87,896
TOTAL	**900**	**243,579**	**433,491**	**487,238**	**496,137**	**497,745**

Source: TWDB 2012 State Water Plan

SECTION VI - METHODOLOGY TO TRACK DISTRICT PROGRESS IN ACHIEVING MANAGEMENT GOALS - 31 TAC § 356.5(a)(6)

The District General Manager and staff will produce an annual report for the District Board of Directors each year for the purpose of providing information on the progress of District activities and programs. The report will specifically contain status updates on the management goals, objectives and standards as presented in this management plan. This

report will be presented to the District's Board of Directors in a timely manner, taking into consideration seasonal workloads and events, such as legislative sessions. The District will continue to enforce its rules to conserve, preserve, protect, and prevent the waste of the groundwater resources under its jurisdiction. The District's Board periodically reviews the District's Rules and makes revisions as needed to manage the groundwater resources within the District pursuant to TWC Chapter 36. The District's Board will consider all groundwater uses and needs and will develop rules which are fair and impartial to implement this management plan. A copy of the most current annual report will be available for public review on the District website at www.northplainsgcd.org and at the District office.

VII - ACTIONS. PROCEDURES, PERFORMANCE, AND AVOIDANCE FOR DISTRICT IMPLEMENTATION OF MANAGEMENT PLAN - 11 TAC § 356.5 (a)(3): 31 TAC, § 356.5 (a)(4) / 36.1071(e)(2)

This management plan, as required by Chapter 36 of the Texas Water Code, explains the goals, objectives and standards that will be used to conserve, protect and preserve the groundwater in the District. The District will implement and utilize the provisions of this management plan for determining the direction or priority for all District activities. District operations, all agreements entered into by the District, and any additional planning efforts in which the District may participate will be consistent with the provisions of this plan. The District shall attempt to treat all citizens fairly. The District, as needed, shall seek the cooperation of state, regional, and local water management entities in the implementation of this plan and/or management of groundwater supplies within the District. A current copy of the District Rules is located on the District's website http://www.northplainsgcd.org/about-us/district-rules.html. The Rules of the District, with substantial input and feedback from stakeholders, have been created in accordance with Chapter 36 of the Texas Water Code for the purpose of successfully implementing the management plan. The rules are strictly and fairly enforced. The District may amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code and to insure the best management of the groundwater within the District. The rules govern the management strategies of the District including, but not limited to: well permitting, well spacing, production reporting, annual allowable production and groundwater conservation reserve. The District executes its responsibilities with transparency and stakeholder involvement as a priority, exceeding the legal requirements for notice and hearing on meetings and other District activities. All District documents are made available to the public pursuant to the Texas Information Act.

SECTION VIII – GROUNDWATER MANAGEMENT GOALS, METHODOLOGY, OBJECTIVES, AND PERFORMANCE STANDARDS

A. Management Goal: To Provide For The Most Efficient Use Of Groundwater (31TAC §356.5(A)(1))

A.1. **Management Objective:**

Calculate total annual groundwater withdrawals through water use reporting by all producing water right owners that have a well capable of producing more than 25,000 gallons of groundwater a day.

A.1. **Performance Standards:**

Annually the District will collect production reports on all properties containing non-exempt wells and calculate annual groundwater withdrawals for the District. A summary will be presented to the Board of Directors each year.

A.2. **Management Objective:**

Provide support through the District's North Plains Research Field to promote research into drought tolerant crops, efficient water management strategies and other research promoting water use efficiencies.

A.2. **Performance Standards:**

Annually the District will summarize its activities at the North Plains Research Field to be presented to the Board of Directors.

B. Management Goal: Controlling And Preventing The Waste Of Groundwater (31TAC §356.5(A)(1)(B))

B.1. **Management Objective:**

Control and prevent the waste of groundwater as defined by the TWC through the enforcement of District "Waste" rules.

B.1. **Performance Standards:**

Annually the District will summarize enforcement of "Waste" rule violations and report to the Board of Directors.

C. **Management Goal: Controlling And Preventing Subsidence (31TAC §356.5(A)(1)(C))**

Due to the depth to water and the nature of the geology of the aquifer within the District, subsidence is unlikely and the District's Board of Directors, upon recommendation from the staff, has determined that this goal is not applicable to the District.

D. **Management Goal: Conjunctive Surface Water Management Issues (31TAC §356.5(A)(1)(D))**

Following notice and hearing, the District coordinates the development of this management plan with surface water management entities as required by 31 TAC §356.6(a)(4). Documentation regarding this coordination effort is located in Appendix C. The District also coordinates the development of this plan with the Panhandle Regional Planning group, as referenced in Appendix D.

D. 1. Management Objective: – Each year, the District will participate in the regional planning process by attending at least 75 percent of the Region A – Panhandle Regional Water Planning Group meetings to encourage the development of surface water supplies to meet the needs of water user groups in the District.

D. 1. Performance Standard: – The summary of attendance of a District representative at Region A- Panhandle Regional Water Planning Group meetings will be reported to the District Board of Directors.

E. **Management Goal: Natural Resource Issues That Impact The Use And Availability Of Groundwater And Which Are Impacted By The Use Of Groundwater (31TAC §356.5(A)(1)(E))**

The District has determined that the current natural resource issues that may impact the use and availability of groundwater within the District are water quality issues and declining water tables.

E.1. **Management Objective:**
Monitor aquifer characteristics that impact the use and availability of groundwater and which are impacted by the use of groundwater through District programs by maintaining a network of water quality and water level monitor wells.

E.1. **Performance Standards:**

A. District staff will collect and analyze water samples from appropriate monitor wells periodically but not less often than once every five years.
B. District staff will perform water quality analyses for select constituents for District well owners upon request.
C. District staff will summarize their water quality activities and make the information available to the Board of Directors and the public annually.
D. District staff will collect aquifer water level measurements annually.
E. District staff will summarize groundwater level declines and average depth to water and make the information available to the Board of Directors and the public annually.
F. District staff will summarize or update aquifer saturated material information and make the information available to the Board of Directors and the public at least every two years.

E.2. . **Management Objective:**
Investigate and address deteriorated wells that may cause a threat to water quality.

E.2. **Performance Standard:**

A. District staff will pursue repair or plugging of deteriorated wells.

B. District staff will summarize the deteriorated well activities and make the information available to the Board of Directors and the public annually.

F. Management Goal: Addressing Drought Conditions (31TAC §356.5(A)(1)(F))

North Plains Groundwater Conservation District lies in an area of the state of Texas that has a year-round semi-arid climate. Semi-drought conditions are experienced year round, and the District works to educate the public about methods to conserve water all year, but particularly during dry periods.

F.1. **Management Objective:**
Provide residential stakeholders with information and tools to conserve during dry and peak use periods.

F.1. **Performance Standards:**

Annually, the District will conduct water conservation communications and education activities. These activities will be summarized annually and presented to the Board of Directors.

G. Management Goal: Water Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, Or Brush Control, Where Appropriate And Cost-Effective (31TAC §356.5(A)(1)(G))

G.1. Water Conservation

G.1a. **Management Objective:**
Support research and field demonstrations to foster adoption of agriculture water conservation technologies and practices.

G.1a. **Performance Standards:**

Annually the District will summarize the project results to be presented to the Board of Directors.

G.1b. **Management Objective:**

Conduct conservation education activities to encourage water conservation (prevention of waste) and create informed and educated citizens who will be dedicated stewards of their resources.

G.1b. **Performance Standards:**

Annually the District will disseminate groundwater conservation and waste prevention information through a variety of media, activities and events. Activities will target agricultural, residential and young stakeholders. A summary of educational activities will be presented to the Board of Directors each year.

G.2. Recharge Enhancement

The District has limited surface water resources to effectuate enhanced recharge through diversion or infiltration of surface water. The District explored recharge enhancement through its precipitation enhancement program. The District discontinued its funding for the precipitation enhancement program in 2006. The District could not quantify if, and to what extent, the program positively affected precipitation and subsequent recharge in the District. Therefore, recharge enhancement through surface water diversion or infiltration, or through precipitation enhancement could not be proven to be effective for the District. The District has determined that this objective is not applicable at this time.

G.3. Rainwater Harvesting

G.3. **Management Objective:**

Provide public information regarding Rainwater Harvesting.

G.3. **Performance Standards:**

The District's activities in rainwater harvesting education will be summarized annually and presented to the Board of Directors.

G.4. **Precipitation Enhancement**

The District discontinued its funding for precipitation enhancement program in 2007. The District could not quantify if, and to what extent, the program positively affected precipitation, or groundwater declines. Therefore, precipitation enhancement could not be proven to be cost-effective for the District. The District has determined that this objective is not applicable at this time.

G.5. **Brush Control**

G.5. **Management Objective:**

Provide public information regarding Brush Control

G.5. **Performance Standards:**

Maintain brush control literature in the District offices. The District's activities in addressing brush control education will be summarized annually and presented to the Board of Directors.

H. Management Goal: Desired Future Conditions (DFC) Of The Groundwater Resources (31TAC§356.5(A)(1)(H))

H.1. **Management Objective:**

Revise District Rules to achieve Desired Future Conditions of the Ogallala, Rita Blanca and Dockum aquifers.

H.1. **Performance Standards:**

The District will update its rules within one year of adoption of this management plan.

Annually the District will review its rules and conservation programs to determine if they are achieving the DFCs.

H.2. **Management Objective:**

Monitor the condition of the aquifers and status of groundwater production compared to the adopted DFCs.

H.2. **Performance Standards:**

Annually review groundwater production information, GAMs, and water level measurements to characterize aquifer conditions compared to the DFCs and report findings to the Board of Directors.

H.3. **Management Objective:**

Joint plan with other Groundwater Conservation Districts to achieve DFCs.

H.3. **Performance Standards:**

At least annually report the joint planning committee activities to the Board of Directors.

H.4. **Management Objective:**

Manage groundwater withdrawal amounts based on an allowable production limitation in order to achieve DFCs.

H.4. **Performance Standards:**

Annually the District will summarize the previous year's allowable production compliance. Each year the compliance results will be presented to the Board of Directors.

I. Management Goal: Other Management Goals Included In The Plan By The District

No other management goals are listed at this time.

SECTION IX – ACTION REQUIRED FOR PLAN APPROVAL

The District's Board of Directors adopted this groundwater management plan by resolution on _____. This Plan is in effect on _____ and will remain in effect until _____, 2023 unless amended by the District's Board.

Any amendments to the groundwater management plan shall be developed by the District using the District's best available data and forwarded to the PWPG for use in their planning process.

REFERENCES

Allen, Stephen, 2012, Estimated Historical Water Use and 2012 State Water Plan Dataset: North Plains Groundwater Conservation District, Texas Water Development Board Report, 22p.

Jigmond, Marius, 2012, Modeled Available Groundwater for the Ogallala Aquifer in Groundwater Management Area 1: Texas Water Development Board, GAM RUN 12-005 MAG Report, 26p. Location: http://www.twdb.state.tx.us/groundwater/management_areas/gma1.asp

Kohlrenken, William, 2012, North Plains Groundwater Conservation District Management Plan: Texas Water Development Board, GAM RUN 12-003 REVISED Report, 12 p. Location: http://www.twdb.state.tx.us/groundwater/management_areas/gma1.asp

Oliver, Wade, 2011, Modeled Available Groundwater for the Dockum Aquifer in Groundwater Management Area 1: Texas Water Development Board, GAM Run 10-019 MAG Version 2 Report, 12 p. Location: http://www.twdb.state.tx.us/groundwater/management_areas/gma1.asp

North Plains Groundwater Conservation District, 2008, Groundwater Management Plan: 59 p. location: http://www.northplainsgcd.org/downloads/category/5-district-documents.html

North Plains Groundwater Conservation District, 2012, Permitting and Production Reporting Database, digital file. Location: North Plains Groundwater Conservation District, 603 East First Street Dumas Texas 79029.

Texas Water Development Board, Regional Water Management Plan, Region A – Regional Water Planning Group. Location: http://www.twdb.state.tx.us/waterplanning/rwp/plans/2011/

Rules of the North Plains Groundwater Conservation District, as amended. Location: http://www.northplainsgcd.org/downloads/category/5-district-documents.html

2012 State Water Plan
Location: http://www.twdb.state.tx.us/waterplanning/swp/2012/

APPENDICES

A. **ALLEN, STEPHENS, 2012, ESTIMATED HISTORICAL WATER USE AND 2012 STATE WATER PLAN DATASET:**
North Plains Groundwater Conservation District, Texas Water Development Board Report, 22p

B. **GAM RUN 12-003 REVISED : NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN**
by William Kohlrenken
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-8279 July 2, 2012

C. **GAM RUN 12-005 MAG: MODELED AVAILABLE GROUNDWATER FOR THE OGALLALA AQUIFER IN GROUNDWATER MANAGEMENT AREA 1**
by Marius Jigmond
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-8499 August 21, 2012

D. **GAM RUN 10-019 MAG VERSION 2**
by Wade Oliver
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-3132 August 30, 2011

E. **COPY OF THE DISTRICT'S RESOLUTION ADOPTING THE PLAN**

F. **NOTICE OF HEARING – MAY 14, 2013**

G. **TRANSCRIPTS OF PUBLIC HEARING – MAY 14, 2013**

H. **MINUTES OF BOARD MEETING – MAY 14, 2013**

I. **NOTICE OF HEARING – NOVEMBER 29, 2012**

J. TRANSCRIPTS OF PUBLIC HEARING – NOVEMBER 29, 2012

K. DISTRICT COORDINATES THE DEVELOPMENT OF THIS MANAGEMENT PLAN WITH SURFACE WATER MANAGEMENT ENTITIES (31 TAC §356.6(a)(4))

Estimated Historical Groundwater Use And 2012 State Water Plan Datasets:

North Plains Groundwater Conservation District

by Stephen Allen
Texas Water Development Board
Groundwater Resources Division
Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
October 10, 2012

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/GMPchecklist0911.pdf

The five reports included in part 1 are:

1. Estimated Historical Groundwater 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)
   reports 2-5 are from the 2012 State Water Plan (SWP)

Part 2 of the 2-part package is the groundwater availability model (GAM) report. 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 updated Historical Groundwater Use and 2012 State Water Planning data available as of 10/10/2012. Although it does not happen frequently, neither of these datasets are static and are subject to change pending the availability of more accurate data (Historical Water Use Survey data) or an amendment to the 2012 State Water Plan (2012 State Water Planning data). District personnel must review these datasets and correct any discrepancies in order to ensure approval of their groundwater management plan.

The Historical Water Use dataset can be verified at this web address:

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

The 2012 State Water Planning dataset can be verified by contacting Wendy Barron (wendy.barron@twdb.texas.gov or 512-936-0886).

The values presented in the data tables of this report are county-based. In cases where groundwater conservation districts cover only a portion of one or more counties the data values are modified with an apportioning multiplier to create new values that more accurately represent district conditions. The multiplier used as part of the following formula is a land area ratio: (data value * (land area of district in county / land area of county)). For two of the four State Water Plan tables (Projected Surface Water Supplies and Projected Water Demands) only the county-wide water user group (WUG) data values (county other, manufacturing, steam electric power, irrigation, mining and livestock) are modified using the multiplier. WUG values for municipalities, water supply corporations, and utility districts are not apportioned; instead, their full values are retained when they are located within the district, and eliminated when they are located outside (we ask each district to identify these locations).

The two other SWP tables (Projected Water Supply Needs and Projected Water Management Strategies) are not apportioned because district-specific values are not statutorily required. Each district needs only "consider" the county values in those tables.

In the Historical Groundwater Use table every category of water use (including municipal) is apportioned. Staff determined that breaking down the annual municipal values into individual WUGs was too complex.

TWDB recognizes that the apportioning formula used is not perfect but it is the best available process with respect to time and staffing constraints. If a district believes it has data that is more accurate it has the option of including those data in the plan with an explanation of how the data were derived. Apportioning percentages are listed above each applicable table.

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 Groundwater Use
TWDB Historical Water Use Survey (WUS) Data

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

DALLAM COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	1,450	97	0	243,520	2	897	245,966
1980	GW	1,225	110	0	325,286	0	1,422	328,043
1984	GW	1,478	110	0	285,751	0	1,836	289,175
1985	GW	1,326	110	0	255,917	0	1,844	259,197
1986	GW	1,205	110	0	290,175	0	1,908	293,398
1987	GW	1,353	0	0	245,433	0	1,753	248,539
1988	GW	1,207	0	0	242,647	0	1,592	245,446
1989	GW	1,225	0	0	286,576	0	1,623	289,424
1990	GW	1,134	0	0	327,651	0	1,638	330,423
1991	GW	1,056	0	0	159,217	0	1,674	161,947
1992	GW	1,110	0	0	212,268	0	2,346	215,724
1993	GW	1,158	0	0	382,730	0	2,637	386,525
1994	GW	1,445	0	0	362,837	0	2,789	367,071
1995	GW	1,541	0	0	393,961	0	2,954	398,456
1996	GW	1,994	0	0	393,795	0	3,029	398,818
1997	GW	1,991	0	0	465,588	0	2,869	470,448
1998	GW	1,925	0	0	409,412	0	2,979	414,316
1999	GW	1,884	0	0	442,946	0	2,977	447,807
2000	GW	1,962	0	0	458,870	0	2,963	463,795
2001	GW	1,979	0	0	410,472	0	3,061	415,512
2002	GW	1,901	0	0	503,761	0	2,750	508,412
2003	GW	1,865	0	0	391,440	0	3,100	396,405
2004	GW	1,695	0	0	402,698	0	6,643	411,036
2006	GW	1,519	9	0	346,414	0	7,895	355,837
2007	GW	1,580	9	0	366,071	0	8,293	375,953
2008	GW	1,838	6	0	407,938	0	6,829	416,611
2009	GW	1,597	6	0	419,927	0	6,531	428,061
2010	GW	1,695	6	0	363,654	0	2,410	367,765

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

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

HANSFORD COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	1,524	31	0	409,341	66	1,311	412,273
1980	GW	1,370	3	0	297,430	642	1,864	301,309
1984	GW	1,502	37	0	252,284	878	3,258	257,959
1985	GW	1,469	38	0	222,268	482	4,271	228,528
1986	GW	1,338	45	0	214,417	723	1,913	218,436
1987	GW	1,207	37	0	175,901	612	4,066	181,823
1988	GW	1,305	45	0	182,977	645	1,515	186,487
1989	GW	1,336	44	0	188,528	615	1,547	192,070
1990	GW	1,413	43	0	224,977	615	1,633	228,681
1991	GW	1,347	53	0	258,308	1,250	1,672	262,630
1992	GW	1,062	42	0	173,610	1,160	2,367	178,241
1993	GW	1,062	37	0	179,394	1,144	2,463	184,100
1994	GW	1,282	44	0	178,797	1,067	2,293	183,483
1995	GW	1,179	43	0	181,259	982	2,462	185,925
1996	GW	1,164	44	0	211,978	982	2,177	216,345
1997	GW	1,168	37	0	221,598	763	2,707	226,273
1998	GW	1,302	20	0	170,599	588	2,574	175,083
1999	GW	1,248	25	0	208,955	588	2,635	213,451
2000	GW	1,303	42	0	216,288	588	1,643	219,864
2001	GW	1,247	532	0	165,564	507	1,671	169,521
2002	GW	1,215	33	0	219,969	766	1,657	223,640
2003	GW	1,101	17	0	218,724	766	1,713	222,321
2004	GW	1,154	17	0	231,027	1,072	1,805	235,075
2006	GW	1,260	35	0	134,030	402	5,088	140,815
2007	GW	1,044	48	0	106,015	339	3,399	110,845
2008	GW	1,084	62	0	140,900	339	3,211	145,596
2009	GW	1,006	27	0	152,554	272	4,529	158,388
2010	GW	1,090	32	0	128,462	225	2,631	132,440

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

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

HARTLEY COUNTY

83.56 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	552	15	0	157,069	2	1,532	159,170
1980	GW	621	0	0	169,309	0	1,898	171,828
1984	GW	653	0	0	183,424	0	2,407	186,484
1985	GW	611	0	0	159,523	0	2,809	162,943
1986	GW	656	0	0	101,665	0	1,775	104,096
1987	GW	706	0	0	93,915	0	2,874	97,495
1988	GW	605	0	0	109,984	0	1,080	111,669
1989	GW	654	0	0	161,356	0	1,106	163,116
1990	GW	632	0	0	146,146	0	1,238	148,016
1991	GW	682	0	0	123,801	0	1,270	125,753
1992	GW	668	0	0	156,905	0	2,449	160,022
1993	GW	633	0	0	132,183	0	2,529	135,345
1994	GW	740	0	0	192,831	0	2,125	195,696
1995	GW	823	0	0	170,773	0	2,344	173,940
1996	GW	921	0	0	187,711	0	2,515	191,147
1997	GW	943	0	0	202,081	0	2,455	205,479
1998	GW	874	0	0	256,250	0	2,661	259,785
1999	GW	1,039	0	0	310,466	0	2,676	314,181
2000	GW	1,172	0	0	299,290	0	1,422	301,884
2001	GW	1,118	0	0	244,629	0	1,424	247,171
2002	GW	1,048	0	0	326,836	0	1,489	329,373
2003	GW	1,121	0	0	342,288	0	1,749	345,158
2004	GW	1,405	0	0	338,582	0	1,975	341,962
2006	GW	915	0	0	256,746	0	5,189	262,850
2007	GW	1,031	0	0	270,322	0	3,391	274,744
2008	GW	1,019	0	0	304,726	0	4,077	309,822
2009	GW	903	0	0	320,110	2	4,729	325,744
2010	GW	958	0	0	284,567	2	3,380	288,907

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

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

HUTCHINSON COUNTY

30.53 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	721	4,736	117	26,731	580	42	32,927
1980	GW	844	4,721	211	22,641	589	37	29,043
1984	GW	1,234	7,311	0	18,361	248	16	27,170
1985	GW	1,326	4,220	0	19,600	311	21	25,478
1986	GW	1,209	3,982	0	14,939	257	17	20,404
1987	GW	993	4,471	0	18,277	233	16	23,990
1988	GW	871	4,598	0	15,693	211	16	21,389
1989	GW	829	4,841	0	13,661	196	20	19,547
1990	GW	651	4,913	0	17,671	196	20	23,451
1991	GW	747	4,654	0	18,784	147	20	24,352
1992	GW	729	4,234	0	20,455	145	22	25,585
1993	GW	891	6,239	0	14,734	127	25	22,016
1994	GW	1,124	4,137	0	19,143	110	34	24,548
1995	GW	1,182	4,413	0	19,444	124	30	25,193
1996	GW	1,253	4,113	0	15,272	124	16	20,778
1997	GW	1,089	4,437	0	13,285	124	16	18,951
1998	GW	1,663	4,477	0	14,054	94	19	20,307
1999	GW	1,224	4,662	0	16,786	94	20	22,786
2000	GW	888	4,338	0	17,941	1,875	17	25,059
2001	GW	1,508	5,383	0	12,218	1,833	14	20,956
2002	GW	1,500	4,921	0	14,716	381	16	21,534
2003	GW	1,014	4,593	0	11,106	108	16	16,837
2004	GW	1,187	4,227	0	11,700	373	22	17,509
2006	GW	967	7,928	0	12,493	71	173	21,632
2007	GW	926	7,668	0	10,531	63	118	19,306
2008	GW	1,326	8,172	0	15,395	66	151	25,110
2009	GW	1,010	8,893	0	16,236	77	149	26,365
2010	GW	1,313	8,317	0	12,242	108	112	22,092

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

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

LIPSCOMB COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	499	2	0	21,074	31	254	21,860
1980	GW	651	94	0	27,156	0	75	27,976
1984	GW	870	165	0	17,794	9	84	18,922
1985	GW	799	94	0	8,783	9	67	9,752
1986	GW	881	154	0	8,027	9	72	9,143
1987	GW	709	59	0	8,518	7	88	9,381
1988	GW	682	59	0	16,483	7	92	17,323
1989	GW	630	73	0	18,361	6	92	19,162
1990	GW	769	73	0	16,317	6	91	17,256
1991	GW	792	69	0	15,217	6	93	16,177
1992	GW	666	73	0	14,184	6	105	15,034
1993	GW	739	75	0	12,972	6	96	13,888
1994	GW	776	77	0	17,718	6	66	18,643
1995	GW	716	76	0	18,007	6	68	18,873
1996	GW	743	91	0	14,619	6	172	15,631
1997	GW	654	81	0	10,984	6	96	11,821
1998	GW	808	103	0	18,174	6	75	19,166
1999	GW	650	95	0	28,792	6	77	29,620
2000	GW	899	76	0	36,005	6	73	37,059
2001	GW	475	140	0	27,971	6	68	28,660
2002	GW	584	159	0	21,422	6	83	22,254
2003	GW	718	140	0	20,688	6	93	21,645
2004	GW	718	158	0	23,440	6	90	24,412
2006	GW	605	102	0	28,020	0	647	29,374
2007	GW	605	143	0	32,319	0	719	33,786
2008	GW	634	187	0	30,974	0	782	32,577
2009	GW	540	171	0	29,915	144	774	31,544
2010	GW	637	193	0	31,415	130	716	33,091

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

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

MOORE COUNTY

76.51 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	2,222	6,657	528	250,882	132	958	261,379
1980	GW	2,489	7,581	865	219,073	989	1,551	232,548
1984	GW	2,665	5,726	409	220,282	770	2,160	232,012
1985	GW	2,643	5,840	0	203,580	755	2,544	215,362
1986	GW	2,662	5,496	36	193,979	715	2,353	205,241
1987	GW	2,568	5,186	0	212,161	591	2,402	222,908
1988	GW	2,552	4,574	0	150,776	552	1,513	159,967
1989	GW	2,800	4,988	0	272,213	550	1,552	282,103
1990	GW	2,915	5,027	275	279,841	550	1,712	290,320
1991	GW	2,366	4,833	269	268,161	516	1,757	277,902
1992	GW	2,472	4,985	119	243,206	333	2,998	254,113
1993	GW	2,196	4,976	220	266,200	445	3,246	277,283
1994	GW	2,022	5,224	259	253,454	445	3,161	264,565
1995	GW	2,792	5,321	244	241,518	421	3,321	253,617
1996	GW	3,307	5,128	337	274,295	421	3,518	287,006
1997	GW	3,345	5,029	183	251,213	389	4,898	265,057
1998	GW	3,532	5,228	246	251,745	115	3,406	264,272
1999	GW	3,479	3,186	167	211,712	115	3,487	222,146
2000	GW	3,811	5,139	128	223,118	110	3,001	235,307
2001	GW	3,628	2,898	303	197,107	324	2,956	207,216
2002	GW	3,822	2,223	18	245,225	114	2,914	254,316
2003	GW	3,743	3,233	60	223,549	67	2,829	233,481
2004	GW	3,535	5,863	82	224,076	53	1,924	235,533
2006	GW	3,577	6,471	83	139,103	37	3,611	152,882
2007	GW	3,074	5,518	2,632	191,572	31	1,969	204,796
2008	GW	3,123	5,614	2,086	143,173	34	2,401	156,431
2009	GW	3,334	5,692	2,086	150,351	24	2,178	163,665
2010	GW	2,777	5,516	1,834	124,401	47	1,550	136,125

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

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

OCHILTREE COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	1,642	38	0	207,585	1,820	1,398	212,483
1980	GW	1,457	0	0	127,629	423	1,187	130,696
1984	GW	2,054	0	0	128,608	471	1,441	132,574
1985	GW	2,268	0	0	112,100	97	1,357	115,822
1986	GW	2,544	0	0	110,158	100	169	112,971
1987	GW	2,147	0	0	98,025	105	1,207	101,484
1988	GW	2,262	0	0	86,990	107	110	89,469
1989	GW	2,315	0	0	80,513	117	112	83,057
1990	GW	2,611	0	0	126,751	117	119	129,598
1991	GW	2,366	0	0	129,121	234	122	131,843
1992	GW	1,796	1	0	85,263	195	168	87,423
1993	GW	1,627	1	0	93,417	193	177	95,415
1994	GW	1,849	3	0	91,109	201	197	93,359
1995	GW	1,815	5	0	86,438	201	198	88,657
1996	GW	2,012	1	0	85,237	201	243	87,694
1997	GW	1,938	1	0	61,882	203	174	64,198
1998	GW	2,140	1	0	54,346	203	244	56,934
1999	GW	1,997	0	0	71,369	203	295	73,864
2000	GW	2,235	0	0	97,939	164	278	100,616
2001	GW	1,935	3	0	65,523	122	264	67,847
2002	GW	2,282	0	0	81,896	115	276	84,569
2003	GW	2,239	0	0	68,707	119	268	71,333
2004	GW	2,248	0	0	74,436	124	305	77,113
2006	GW	2,039	0	0	66,539	49	3,158	71,785
2007	GW	1,879	0	0	51,134	48	2,365	55,426
2008	GW	1,818	0	0	75,402	11	2,450	79,681
2009	GW	2,085	1	0	66,859	130	2,102	71,177
2010	GW	2,260	30	0	60,484	96	1,300	64,170

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

Groundwater use estimates are currently unavailable for 2005. TWDB staff anticipates the calculation and posting of these estimates at a later date.

SHERMAN COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	779	19	0	330,193	5	1,892	332,888
1980	GW	908	0	0	312,395	0	1,463	314,766
1984	GW	743	0	0	225,833	24	2,466	229,066
1985	GW	718	0	0	244,782	24	2,852	248,376
1986	GW	686	0	0	246,733	29	2,724	250,172
1987	GW	667	0	0	187,749	24	2,638	191,078
1988	GW	554	0	0	198,925	25	1,813	201,317
1989	GW	587	0	0	249,500	23	1,853	251,963
1990	GW	614	0	0	247,675	23	1,999	250,311
1991	GW	604	0	0	260,108	23	2,050	262,785
1992	GW	636	0	0	295,249	22	3,089	298,996
1993	GW	592	0	0	229,547	23	3,383	233,545
1994	GW	706	0	0	268,879	23	3,141	272,749
1995	GW	694	0	0	272,883	23	3,269	276,869
1996	GW	667	0	0	259,210	23	2,719	262,619
1997	GW	640	0	0	272,135	23	3,299	276,097
1998	GW	756	0	0	295,069	20	3,686	299,531
1999	GW	716	0	0	327,385	20	3,743	331,864
2000	GW	777	0	0	393,710	20	2,797	397,304
2001	GW	765	0	0	336,219	18	2,752	339,754
2002	GW	763	0	0	404,395	18	2,793	407,969
2003	GW	825	0	0	357,560	0	2,812	361,197
2004	GW	737	0	0	386,966	0	5,980	393,683
2006	GW	561	2	0	259,255	0	7,896	267,714
2007	GW	628	2	0	222,185	0	7,217	230,032
2008	GW	581	2	0	274,019	0	6,488	281,090
2009	GW	638	3	0	282,660	34	4,853	288,188
2010	GW	630	2	0	236,631	32	1,947	239,242

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

DALLAM COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
A	LIVESTOCK	CANADIAN	LIVESTOCK LOCAL SUPPLY	741	741	741	741	741	741
	Sum of Projected Surface Water Supplies (acre-feet/year)			**741**	**741**	**741**	**741**	**741**	**741**

HANSFORD COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
A	IRRIGATION	CANADIAN	CANADIAN RIVER COMBINED RUN-OF-RIVER IRRIGATION	22	22	22	22	22	22
A	LIVESTOCK	CANADIAN	LIVESTOCK LOCAL SUPPLY	2,464	2,464	2,464	2,464	2,464	2,464
	Sum of Projected Surface Water Supplies (acre-feet/year)			**2,486**	**2,486**	**2,486**	**2,486**	**2,486**	**2,486**

HARTLEY COUNTY

83.56 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
A	LIVESTOCK	CANADIAN	LIVESTOCK LOCAL SUPPLY	1,422	1,422	1,422	1,422	1,422	1,422
	Sum of Projected Surface Water Supplies (acre-feet/year)			**1,422**	**1,422**	**1,422**	**1,422**	**1,422**	**1,422**

HUTCHINSON COUNTY

30.53 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
A	IRRIGATION	CANADIAN	CANADIAN RIVER COMBINED RUN-OF-RIVER IRRIGATION	29	29	29	29	29	29
A	LIVESTOCK	CANADIAN	LIVESTOCK LOCAL SUPPLY	151	151	151	151	151	151
A	MANUFACTURING	CANADIAN	MEREDITH LAKE/RESERVOIR	349	513	513	513	513	513
	Sum of Projected Surface Water Supplies (acre-feet/year)			**529**	**693**	**693**	**693**	**693**	**693**

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

LIPSCOMB COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
A	IRRIGATION	CANADIAN	CANADIAN RIVER COMBINED RUN-OF-RIVER IRRIGATION	66	66	66	66	66	66
A	LIVESTOCK	CANADIAN	LIVESTOCK LOCAL SUPPLY	657	657	657	657	657	657
	Sum of Projected Surface Water Supplies (acre-feet/year)			**723**	**723**	**723**	**723**	**723**	**723**

MOORE COUNTY

76.51 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
A	IRRIGATION	CANADIAN	CANADIAN RIVER COMBINED RUN-OF-RIVER IRRIGATION	5	5	5	5	5	5
A	LIVESTOCK	CANADIAN	LIVESTOCK LOCAL SUPPLY	751	751	751	751	751	751
	Sum of Projected Surface Water Supplies (acre-feet/year)			**756**	**756**	**756**	**756**	**756**	**756**

OCHILTREE COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
A	LIVESTOCK	CANADIAN	LIVESTOCK LOCAL SUPPLY	2,506	2,506	2,506	2,506	2,506	2,506
	Sum of Projected Surface Water Supplies (acre-feet/year)			**2,506**	**2,506**	**2,506**	**2,506**	**2,506**	**2,506**

SHERMAN COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
A	IRRIGATION	CANADIAN	CANADIAN RIVER COMBINED RUN-OF-RIVER IRRIGATION	32	32	32	32	32	32
A	LIVESTOCK	CANADIAN	LIVESTOCK LOCAL SUPPLY	699	699	699	699	699	699
	Sum of Projected Surface Water Supplies (acre-feet/year)			**731**	**731**	**731**	**731**	**731**	**731**

Projected Water Demands
TWDB 2012 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.

DALLAM COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	DALHART	CANADIAN	1,319	1,422	1,487	1,503	1,471	1,403
A	COUNTY-OTHER	CANADIAN	181	195	204	206	202	192
A	IRRIGATION	CANADIAN	292,031	283,315	274,642	260,187	231,278	202,368
A	LIVESTOCK	CANADIAN	3,509	4,654	4,996	5,373	5,788	6,246
A	TEXLINE	CANADIAN	211	227	237	240	235	224
	Sum of Projected Water Demands (acre-feet/year)		**297,251**	**289,813**	**281,566**	**267,509**	**238,974**	**210,433**

HANSFORD COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	MINING	CANADIAN	543	533	529	525	521	516
A	SPEARMAN	CANADIAN	707	745	776	811	831	849
A	LIVESTOCK	CANADIAN	3,683	3,956	4,256	4,586	4,948	5,346
A	IRRIGATION	CANADIAN	130,694	115,027	111,506	105,637	93,899	82,162
A	COUNTY-OTHER	CANADIAN	266	319	364	412	441	466
A	MANUFACTURING	CANADIAN	49	52	54	56	58	62
A	GRUVER	CANADIAN	325	327	329	332	333	334
	Sum of Projected Water Demands (acre-feet/year)		**136,267**	**120,959**	**117,814**	**112,359**	**101,031**	**89,735**

HARTLEY COUNTY

83.56 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	COUNTY-OTHER	CANADIAN	437	452	460	462	456	434
A	IRRIGATION	CANADIAN	246,445	235,345	228,141	216,134	192,119	168,104
A	LIVESTOCK	CANADIAN	4,267	5,935	6,460	7,037	7,674	8,376
A	DALHART	CANADIAN	686	710	721	726	717	680
A	MANUFACTURING	CANADIAN	4	4	4	4	4	4
	Sum of Projected Water Demands (acre-feet/year)		**251,839**	**242,446**	**235,786**	**224,363**	**200,970**	**177,598**

Projected Water Demands
TWDB 2012 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.

HUTCHINSON COUNTY

30.53 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	BORGER	CANADIAN	2,352	2,384	2,351	2,274	2,148	2,039
A	HI TEXAS WATER COMPANY	CANADIAN	341	346	341	330	312	296
A	TCW SUPPLY INC	CANADIAN	603	611	602	583	550	523
A	MINING	CANADIAN	122	120	120	121	121	121
A	LIVESTOCK	CANADIAN	209	210	213	216	220	223
A	IRRIGATION	CANADIAN	13,160	12,203	11,830	11,207	9,962	8,717
A	COUNTY-OTHER	CANADIAN	17	17	17	17	16	15
A	MANUFACTURING	CANADIAN	7,223	7,780	8,234	8,670	9,049	9,680
A	STINNETT	CANADIAN	365	370	365	353	333	316
A	FRITCH	CANADIAN						
	Sum of Projected Water Demands (acre-feet/year)		**24,392**	**24,041**	**24,073**	**23,771**	**22,711**	**21,930**

LIPSCOMB COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	BOOKER	CANADIAN	354	362	351	341	336	320
A	MANUFACTURING	CANADIAN	89	95	100	104	108	116
A	COUNTY-OTHER	CANADIAN	394	402	390	379	373	356
A	IRRIGATION	CANADIAN	16,956	15,546	15,070	14,277	12,690	11,104
A	LIVESTOCK	CANADIAN	1,005	1,007	1,028	1,051	1,076	1,104
A	MINING	CANADIAN	1,235	1,235	1,114	887	713	574
	Sum of Projected Water Demands (acre-feet/year)		**20,033**	**18,647**	**18,053**	**17,039**	**15,296**	**13,574**

MOORE COUNTY

76.51 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	MINING	CANADIAN	536	536	482	434	390	351
A	SUNRAY	CANADIAN	534	608	674	727	758	777
A	FRITCH	CANADIAN						
A	LIVESTOCK	CANADIAN	2,166	2,758	3,008	3,282	3,584	3,917
A	IRRIGATION	CANADIAN	112,830	103,289	100,128	94,858	84,318	73,779

Projected Water Demands
TWDB 2012 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.

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	COUNTY-OTHER	CANADIAN	536	734	967	1,151	1,264	1,332
A	MANUFACTURING	CANADIAN	6,028	6,465	6,820	7,170	7,477	7,985
A	STEAM ELECTRIC POWER	CANADIAN	153	153	153	153	153	163
A	DUMAS	CANADIAN	2,734	2,962	3,163	3,322	3,419	3,478
A	CACTUS	CANADIAN	533	615	615	615	615	615
	Sum of Projected Water Demands (acre-feet/year)		**126,050**	**118,120**	**116,010**	**111,712**	**101,978**	**92,397**

OCHILTREE COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	BOOKER	CANADIAN	2	2	2	2	2	2
A	COUNTY-OTHER	CANADIAN	181	181	181	181	181	181
A	IRRIGATION	CANADIAN	60,844	51,839	50,252	47,607	42,317	37,028
A	LIVESTOCK	CANADIAN	3,367	3,463	3,605	3,761	3,932	4,119
A	PERRYTON	CANADIAN	1,960	2,135	2,265	2,353	2,396	2,451
A	MINING	CANADIAN	1,148	1,148	1,027	818	661	522
	Sum of Projected Water Demands (acre-feet/year)		**67,502**	**58,768**	**57,332**	**54,722**	**49,489**	**44,303**

SHERMAN COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	MINING	CANADIAN	17	16	16	16	16	16
A	COUNTY-OTHER	CANADIAN	218	236	243	250	257	260
A	LIVESTOCK	CANADIAN	4,933	5,579	5,889	6,230	6,606	7,019
A	IRRIGATION	CANADIAN	220,372	200,521	194,437	182,913	163,736	143,269
A	STRATFORD	CANADIAN	628	683	705	727	746	756
	Sum of Projected Water Demands (acre-feet/year)		**226,168**	**207,035**	**201,290**	**190,136**	**171,361**	**151,320**

Projected Water Supply Needs
TWDB 2012 State Water Plan Data

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

DALLAM COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	COUNTY-OTHER	CANADIAN	0	0	0	0	0	0
A	DALHART	CANADIAN	0	0	0	0	0	0
A	IRRIGATION	CANADIAN	-132,889	-140,984	-148,630	-149,134	-133,737	-117,396
A	LIVESTOCK	CANADIAN	0	0	0	0	0	0
A	TEXLINE	CANADIAN	39	23	13	10	15	26
	Sum of Projected Water Supply Needs (acre-feet/year)		**-132,889**	**-140,984**	**-148,630**	**-149,134**	**-133,737**	**-117,396**

HANSFORD COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	COUNTY-OTHER	CANADIAN	147	105	76	75	94	88
A	GRUVER	CANADIAN	75	-77	-229	-282	-333	-334
A	IRRIGATION	CANADIAN	-150	-1,005	-1,484	-4,548	-3,077	-1,640
A	LIVESTOCK	CANADIAN	0	0	0	0	0	0
A	MANUFACTURING	CANADIAN	41	39	39	45	53	58
A	MINING	CANADIAN	57	67	71	75	79	84
A	SPEARMAN	CANADIAN	543	55	-276	-611	-831	-849
	Sum of Projected Water Supply Needs (acre-feet/year)		**-150**	**-1,082**	**-1,989**	**-5,441**	**-4,241**	**-2,823**

HARTLEY COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	COUNTY-OTHER	CANADIAN	0	0	0	0	0	0
A	DALHART	CANADIAN	0	0	0	0	0	0
A	IRRIGATION	CANADIAN	-181,732	-180,523	-183,457	-179,983	-161,368	-142,079
A	LIVESTOCK	CANADIAN	0	0	0	0	0	0
A	MANUFACTURING	CANADIAN	0	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet/year)		**-181,732**	**-180,523**	**-183,457**	**-179,983**	**-161,368**	**-142,079**

Projected Water Supply Needs
TWDB 2012 State Water Plan Data

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

HUTCHINSON COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	BORGER	CANADIAN	650	1,396	722	359	78	-196
A	COUNTY-OTHER	CANADIAN	0	0	0	0	0	0
A	FRITCH	CANADIAN	180	133	100	89	87	66
A	HI TEXAS WATER COMPANY	CANADIAN	59	54	59	70	88	104
A	IRRIGATION	CANADIAN	-15,008	-12,175	-11,652	-10,612	-7,534	-5,455
A	LIVESTOCK	CANADIAN	0	0	0	0	0	0
A	MANUFACTURING	CANADIAN	0	173	-64	-469	-784	-1,270
A	MINING	CANADIAN	195	143	112	106	109	91
A	STINNETT	CANADIAN	229	182	147	135	130	109
A	TCW SUPPLY INC	CANADIAN	184	119	76	63	63	39
	Sum of Projected Water Supply Needs (acre-feet/year)		**-15,008**	**-12,175**	**-11,716**	**-11,081**	**-8,318**	**-6,921**

LIPSCOMB COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	BOOKER	CANADIAN	2	2	2	2	2	2
A	COUNTY-OTHER	CANADIAN	79	71	83	94	100	117
A	IRRIGATION	CANADIAN	66	66	66	66	66	66
A	LIVESTOCK	CANADIAN	0	0	0	0	0	0
A	MANUFACTURING	CANADIAN	31	25	20	16	12	4
A	MINING	CANADIAN	0	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet/year)		**0**	**0**	**0**	**0**	**0**	**0**

MOORE COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	CACTUS	CANADIAN	0	0	-204	-262	-309	-354
A	COUNTY-OTHER	CANADIAN	0	0	-264	-505	-652	-741
A	DUMAS	CANADIAN	0	-387	-1,163	-1,672	-2,219	-2,478
A	FRITCH	CANADIAN	0	0	0	0	0	0
A	IRRIGATION	CANADIAN	-52,317	-48,090	-52,425	-54,994	-50,321	-45,420

Projected Water Supply Needs
TWDB 2012 State Water Plan Data

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

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	LIVESTOCK	CANADIAN	0	0	0	0	0	0
A	MANUFACTURING	CANADIAN	-173	-800	-1,033	-1,396	-1,718	-2,067
A	MINING	CANADIAN	0	0	0	0	0	0
A	STEAM ELECTRIC POWER	CANADIAN	-75	-99	-117	-128	-136	-154
A	SUNRAY	CANADIAN	0	0	0	-27	-108	-127
	Sum of Projected Water Supply Needs (acre-feet/year)		**-52,565**	**-49,376**	**-55,206**	**-58,984**	**-55,463**	**-51,341**

OCHILTREE COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	BOOKER	CANADIAN	0	0	0	0	0	0
A	COUNTY-OTHER	CANADIAN	205	225	248	293	342	369
A	IRRIGATION	CANADIAN	0	0	0	0	0	0
A	LIVESTOCK	CANADIAN	0	0	0	0	0	0
A	MINING	CANADIAN	0	100	0	0	0	0
A	PERRYTON	CANADIAN	1,170	995	865	777	734	679
	Sum of Projected Water Supply Needs (acre-feet/year)		**0**	**0**	**0**	**0**	**0**	**0**

SHERMAN COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
A	COUNTY-OTHER	CANADIAN	0	0	0	0	0	0
A	IRRIGATION	CANADIAN	-72,532	-69,367	-79,690	-82,955	-77,118	-69,190
A	LIVESTOCK	CANADIAN	0	0	0	0	0	0
A	MINING	CANADIAN	0	0	0	0	0	0
A	STRATFORD	CANADIAN	372	317	295	273	254	244
	Sum of Projected Water Supply Needs (acre-feet/year)		**-72,532**	**-69,367**	**-79,690**	**-82,955**	**-77,118**	**-69,190**

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

DALLAM COUNTY

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
IRRIGATION, CANADIAN (A)							
IRRIGATION CONSERVATION	CONSERVATION [DALLAM]	0	59,275	108,476	121,561	122,958	122,958
TEXLINE, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [DALLAM]	0	250	250	250	250	250
MUNICIPAL CONSERVATION	CONSERVATION [DALLAM]	0	7	12	12	12	11
Sum of Projected Water Management Strategies (acre-feet/year)		**0**	**59,532**	**108,738**	**121,823**	**123,220**	**123,219**

HANSFORD COUNTY

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
GRUVER, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [HANSFORD]	0	350	350	350	350	350
MUNICIPAL CONSERVATION	CONSERVATION [HANSFORD]	0	10	16	17	17	17
IRRIGATION, CANADIAN (A)							
IRRIGATION CONSERVATION	CONSERVATION [HANSFORD]	0	24,436	45,264	51,215	51,951	51,951
SPEARMAN, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [HANSFORD]	0	0	900	900	900	900
MUNICIPAL CONSERVATION	CONSERVATION [HANSFORD]	0	22	39	41	42	42
Sum of Projected Water Management Strategies (acre-feet/year)		**0**	**24,818**	**46,569**	**52,523**	**53,260**	**53,260**

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

HARTLEY COUNTY

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
IRRIGATION, CANADIAN (A)							
IRRIGATION CONSERVATION	CONSERVATION [HARTLEY]	0	53,755	98,786	110,553	111,772	111,772
Sum of Projected Water Management Strategies (acre-feet/year)		**0**	**53,755**	**98,786**	**110,553**	**111,772**	**111,772**

HUTCHINSON COUNTY

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
BORGER, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [HUTCHINSON]	0	0	336	336	748	500
MUNICIPAL CONSERVATION	CONSERVATION [HUTCHINSON]	0	24	71	114	107	102
FRITCH, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [CARSON]	200	200	200	200	200	200
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [HUTCHINSON]	0	200	200	200	200	200
IRRIGATION, CANADIAN (A)							
IRRIGATION CONSERVATION	CONSERVATION [HUTCHINSON]	0	7,514	14,044	15,905	16,128	16,128
PRECIPITATION ENHANCEMENT	WEATHER MODIFICATION [HUTCHINSON]	0	2,965	2,965	2,965	2,965	2,965
MANUFACTURING, CANADIAN (A)							
VOLUNTARY TRANSFER FROM OTHER USERS	OGALLALA AQUIFER [HUTCHINSON]	0	0	664	664	1,252	1,500
Sum of Projected Water Management Strategies (acre-feet/year)		**200**	**10,903**	**18,480**	**20,384**	**21,600**	**21,595**

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

LIPSCOMB COUNTY

All values are in acre-feet/year

WUG, Basin (RWPG) / Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
IRRIGATION, CANADIAN (A)							
IRRIGATION CONSERVATION	CONSERVATION [LIPSCOMB]	0	2,279	2,360	2,506	2,587	2,668
Sum of Projected Water Management Strategies (acre-feet/year)		**0**	**2,279**	**2,360**	**2,506**	**2,587**	**2,668**

MOORE COUNTY

All values are in acre-feet/year

WUG, Basin (RWPG) / Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
CACTUS, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [MOORE]	300	700	350	1,500	1,100	800
MUNICIPAL CONSERVATION	CONSERVATION [MOORE]	0	18	31	31	31	31
COUNTY-OTHER, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [MOORE]	0	0	500	500	1,000	1,000
MUNICIPAL CONSERVATION	CONSERVATION [MOORE]	0	29	63	75	83	87
VOLUNTARY TRANSFER FROM OTHER USERS	OGALLALA AQUIFER [MOORE]	0	0	50	100	100	100
DUMAS, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [MOORE]	0	387	1,163	1,672	2,219	2,500
MUNICIPAL CONSERVATION	CONSERVATION [MOORE]	0	89	158	166	171	174
IRRIGATION, CANADIAN (A)							
IRRIGATION CONSERVATION	CONSERVATION [MOORE]	0	31,602	58,995	66,995	67,846	67,846
MANUFACTURING, CANADIAN (A)							
VOLUNTARY TRANSFER FROM OTHER USERS	OGALLALA AQUIFER [MOORE]	200	800	1,100	1,400	1,800	2,100
STEAM ELECTRIC POWER, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [MOORE]	200	200	200	200	200	200

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

All values are in acre-feet/year

WUG, Basin (RWPG) / Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
SUNRAY, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [MOORE]	0	0	800	800	800	800
MUNICIPAL CONSERVATION	CONSERVATION [MOORE]	0	18	34	36	38	39
Sum of Projected Water Management Strategies (acre-feet/year)		**700**	**33,843**	**63,444**	**73,475**	**75,388**	**75,677**

OCHILTREE COUNTY

All values are in acre-feet/year

WUG, Basin (RWPG) / Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
IRRIGATION, CANADIAN (A)							
IRRIGATION CONSERVATION	CONSERVATION [OCHILTREE]	0	17,257	17,899	19,053	19,694	20,335
PERRYTON, CANADIAN (A)							
DRILL ADDITIONAL GROUNDWATER WELL	OGALLALA AQUIFER [OCHILTREE]	0	0	0	0	600	1,200
MUNICIPAL CONSERVATION	CONSERVATION [OCHILTREE]	0	64	113	118	120	123
Sum of Projected Water Management Strategies (acre-feet/year)		**0**	**17,321**	**18,012**	**19,171**	**20,414**	**21,658**

SHERMAN COUNTY

All values are in acre-feet/year

WUG, Basin (RWPG) / Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
IRRIGATION, CANADIAN (A)							
IRRIGATION CONSERVATION	CONSERVATION [SHERMAN]	0	41,128	77,102	86,803	87,896	87,896
Sum of Projected Water Management Strategies (acre-feet/year)		**0**	**41,128**	**77,102**	**86,803**	**87,896**	**87,896**

GAM Run 12-003Revised: North Plains Groundwater Conservation District Management Plan

by William Kohlrenken
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-8279
September 17, 2012

Cynthia K. Ridgeway is the Manager of the Groundwater Availability Modeling Section and is responsible for oversight of work performed by William Kohlrenken under her direct supervision. The seal appearing on this document was authorized by Cynthia K. Ridgeway, P.G. 471 on September 17, 2012.

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GAM Run 12-003Revised: North Plains Groundwater Conservation District Management Plan

by William Kohlrenken
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-8279
September 17, 2012

EXECUTIVE SUMMARY:

Texas State Water Code, Section 36.1071, Subsection (h), 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. Information derived from groundwater availability models that shall be included in the groundwater management plan includes:

- the annual amount of recharge from precipitation to the groundwater resources within the district, if any;
- 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
- the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The purpose of this report is to provide Part 2 of a two-part package of information to North Plains Groundwater Conservation District for its groundwater management plan. The groundwater management plan for the North Plains Groundwater Conservation District is due for approval by the executive administrator of the TWDB before July 14, 2013.

This report discusses the method, assumptions, and results from model runs using the following two groundwater availability models: the northern portion of the Ogallala Aquifer, which includes the Rita Blanca Aquifer, and the Dockum Aquifer. Tables 1 and 2 summarize the groundwater availability model data required by the statute,

and Figures 1 and 2 show the area of each model from which the values in the respective tables were extracted. This model run replaces the results of GAM Run 07-06 and the first version of GAM Run 12-003. It meets current standards set after the release of GAM Run 07-06 and it is based on the most current groundwater district boundaries dated August 22, 2012. If after review of the figures, the North Plains Groundwater Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the TWDB immediately.

METHODS:

Groundwater availability models for the northern part of the Ogallala Aquifer, which includes the Rita Blanca Aquifer (1980 through 2008), and the Dockum Aquifer (1980 through 1997) were run for this analysis. Water budgets for each year of the transient model period were extracted and the average annual water budget values for recharge, surface water outflow, inflow to the district, outflow from the district, net inter-aquifer flow (upper), and net inter-aquifer flow (lower) for the portions of the aquifers located within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

Ogallala Aquifer

- Version 3.01 of the groundwater availability model for the northern portion of the Ogallala Aquifer was used for this analysis. This model is an update to the previously developed groundwater availability model for the northern portion of the Ogallala Aquifer described in Dutton and others (2001) and Dutton (2004). See Kelley and others (2010), Dutton (2004), and Dutton and others (2001) for assumptions and limitations of the model.
- The model for the northern portion of the Ogallala Aquifer has one layer which collectively represents the Ogallala and Rita Blanca aquifers. Water budgets for the district have been determined for the Ogallala Aquifer and Rita Blanca Aquifer and represented collectively as the "Ogallala Aquifer."
- The root mean square error (a measure of the difference between simulated and actual water levels during model calibration) for the Ogallala Aquifer is 45.7 feet for the calibration period through 2008 (Kelley and others, 2010). This represents 1.4 percent of the range of measured water levels (Kelley and others, 2010).

Dockum Aquifer

- Version 1.01 of the groundwater availability model was used for the Dockum Aquifer. See Ewing and others (2008) for assumptions and limitations of the groundwater availability model.
- The model includes three layers representing the younger geologic units overlying the Dockum Aquifer (layer 1), the upper portion of the Dockum Aquifer (layer 2), and the lower portion of the Dockum Aquifer (layer 3).
- Of the three layers, individual water budgets for the district were determined for the Dockum Aquifer (Layers 2 and 3). The water budgets for Layers 2 and 3 are combined.
- The aquifers represented in Layer 1 of the groundwater availability model are only included in the model for the purpose of more accurately representing flow between these units and the Dockum Aquifer. This model is not intended to explicitly simulate flow in these overlying units (Ewing and others, 2008).
- The root mean square error (a measure of the difference between simulated and actual water levels during model calibration) in the groundwater availability model is 82 feet for the Upper Dockum Aquifer, and 108 feet for the Lower Dockum Aquifer for the calibration period (1980 to 1990) and 83 and 78 feet for the same aquifers, respectively, in the verification period (1991 to 1999) (Ewing and others, 2008). These root mean square errors are between two and three percent of the range of measured water levels (Ewing and others, 2008).
- The MODFLOW Drain package was used to simulate both evapotranspiration and springs. However, there were no model grid cells representing evapotranspiration within the district so there was no drain flow incorporated into the surface water outflow values shown in Table 2.
- Groundwater in the Dockum Aquifer ranges from fresh to brine in composition (Ewing and others, 2008). Groundwater with total dissolved solids of less than 1,000 milligrams per liter are considered fresh, total dissolved solids of 1,000 to 10,000 milligrams per liter are considered brackish, and total dissolved solids greater than 35,000 milligrams per liter are considered brines.

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 results for the aquifers located within the district and averaged over the duration of the calibration and verification portion of the model runs in the district, as shown in tables 1 and 2. The components of the modified budget shown in tables 1 and 2 include:

- 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.
- Surface water outflow—The total water discharging from the aquifer (outflow) to surface water features such as streams, reservoirs, and drains (springs).
- Flow into and out of district—The lateral flow within the aquifer between the district and adjacent counties.
- Flow between aquifers—The vertical flow between 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 tables 1 and 2. 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 district or county boundaries, 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 (see Figures 1 and 2).

TABLE 1: SUMMARIZED INFORMATION FOR THE OGALLALA AQUIFER (INCLUDING THE RITA BLANCA AQUIFER) THAT IS NEEDED FOR NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	*Aquifer or confining unit*	*Results*
Estimated annual amount of recharge from precipitation to the district	Ogallala Aquifer	88,988
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Ogallala Aquifer	31,294
Estimated annual volume of flow into the district within each aquifer in the district	Ogallala Aquifer	43,548
Estimated annual volume of flow out of the district within each aquifer in the district	Ogallala Aquifer	42,012
Estimated net annual volume of flow between each aquifer in the district*	From Ogallala Aquifer into the Dockum Aquifer	Not Applicable

*The Groundwater Availability Model for the Dockum Aquifer estimates the flow from the Ogallala Aquifer to the Dockum Aquifer averages 6,895 acre-feet per year; however, the model report for the Dockum Aquifer indicates the model was not designed to precisely model this parameter.

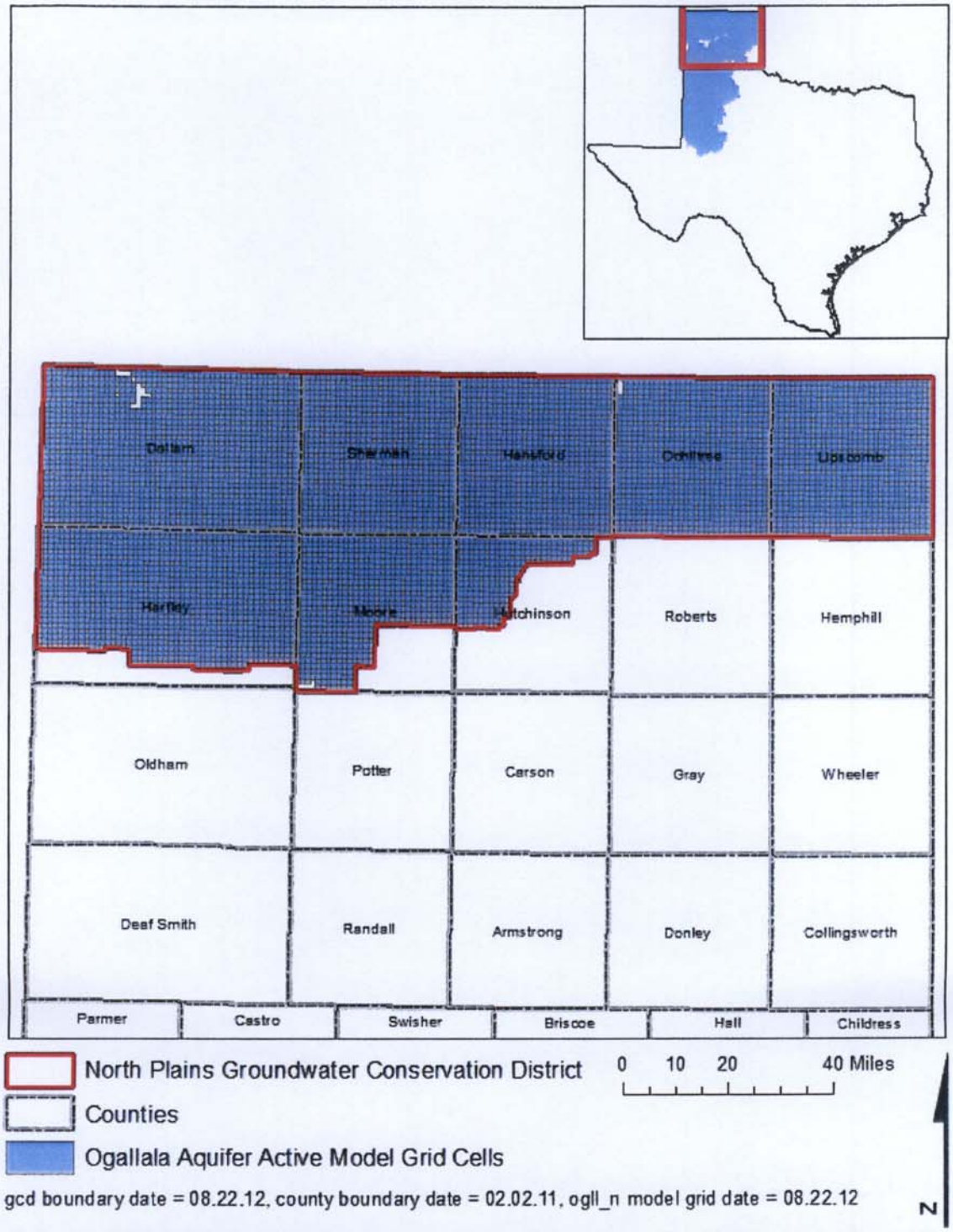

FIGURE 1: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE OGALLALA AQUIFER FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE OGALLALA AND RITA BLANCA AQUIFERS EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 2: SUMMARIZED INFORMATION FOR THE DOCKUM AQUIFER THAT IS NEEDED FOR NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	*Aquifer*	*Results*
Estimated annual amount of recharge from precipitation to the district	Dockum Aquifer	56
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Dockum Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Dockum Aquifer	4,209
Estimated annual volume of flow out of the district within each aquifer in the district	Dockum Aquifer	2,313
Estimated net annual volume of flow between each aquifer in the district*	From Ogallala Aquifer into the Dockum Aquifer	Not Applicable

*The Groundwater Availability Model for the Dockum Aquifer estimates the flow from the Ogallala Aquifer to the Dockum Aquifer averages 6,895 acre-feet per year; however, the model report for the Dockum Aquifer indicates the model was not designed to precisely model this parameter.

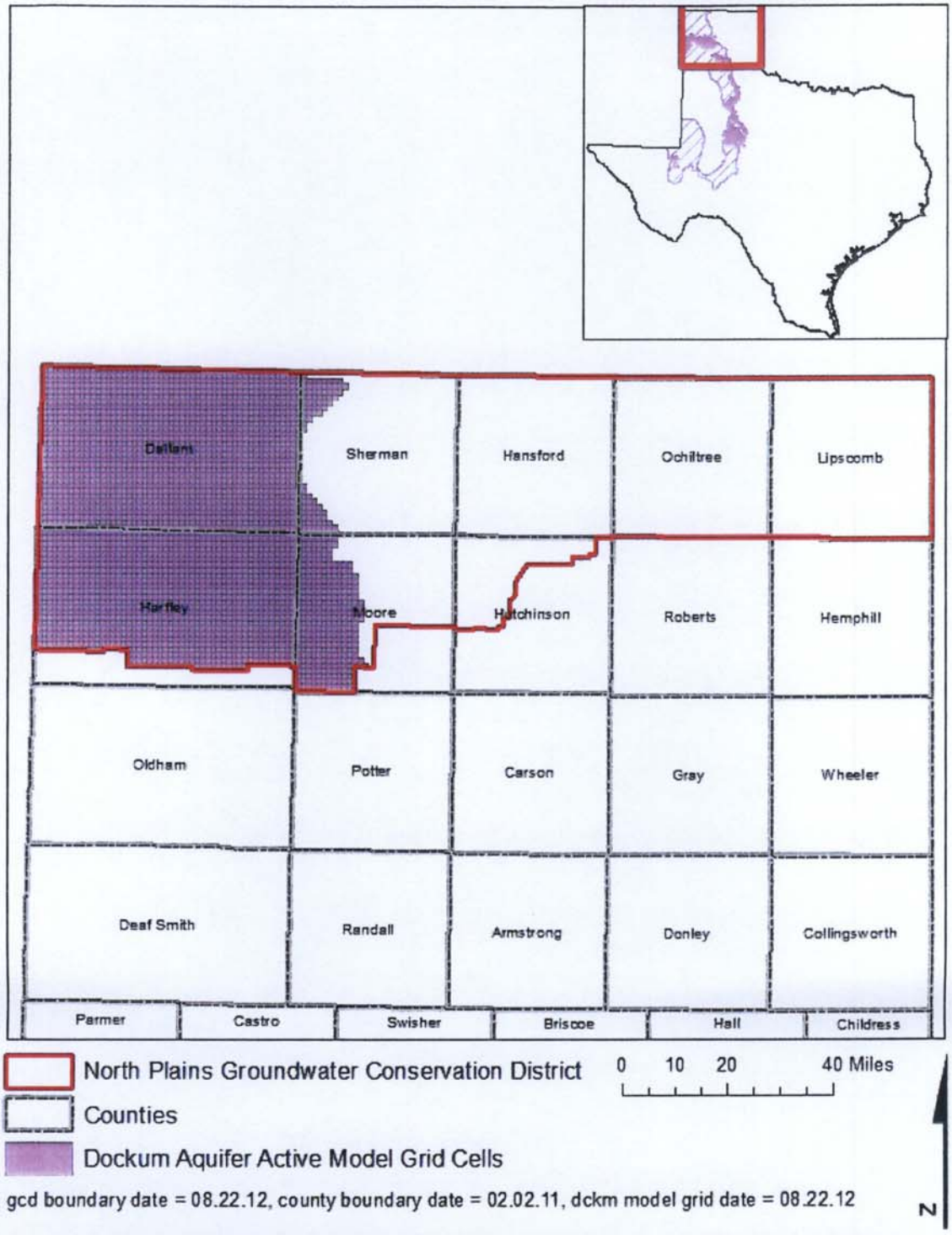

FIGURE 2: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE DOCKUM AQUIFER FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

LIMITATIONS

The groundwater model(s) used in completing this analysis is the best available scientific tool that can be used to meet the stated objective(s). 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.

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.

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GAM Run 12-005 MAG: Modeled Available Groundwater for the Ogallala Aquifer in Groundwater Management Area 1

by Marius Jigmond
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-8499
August 21, 2012

Cynthia K. Ridgeway, the Manager of the Groundwater Availability Modeling Section, is responsible for oversight of work performed by Marius Jigmond under her direct supervision. The seal appearing on this document was authorized by Cynthia K. Ridgeway, P.G. 471 on August 21, 2012.

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GAM Run 12-005 MAG: Modeled Available Groundwater for the Ogallala Aquifer in Groundwater Management Area 1

by Marius Jigmond
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August 21, 2012

EXECUTIVE SUMMARY:

An updated Groundwater Availability Model (GAM) for the Ogallala Aquifer (northern portion) developed by INTERA, Inc. (Kelley and others, 2010) has been approved by the Texas Water Development Board (TWDB). Accordingly, the TWDB has conducted a GAM model run and is issuing updated modeled available groundwater numbers as requested by members of Groundwater Management Area 1. This model run supersedes model run 09-026 (Oliver, 2011) with respect to results extracted from the groundwater availability model for the northern portion of the Ogallala Aquifer. Estimates of modeled available groundwater extracted from the groundwater availability model for the southern portion of the Ogallala Aquifer remain unchanged.

In addition, legislation that became effective September 1, 2011 changed the definition and meaning of "Managed Available Groundwater" to "Modeled Available Groundwater." Modeled available groundwater represents estimates of total pumping as presented in the former "Managed Available Groundwater" report 09-026 (Oliver, 2011). The modeled available groundwater for the Ogallala Aquifer, as a result of the desired future conditions adopted by Groundwater Management Area 1, declines from 3,666,259 acre-feet per year in 2010 to 2,151,403 acre-feet per year in 2060. This report summarizes modeled available groundwater by county, groundwater conservation district, river basin, and geographic area for each decade between 2010 and 2060. The pumping estimates were extracted from the Groundwater Availability Model Run performed by INTERA, Inc. (Kelley and others, 2010) as part of the recalibration process.

REQUESTOR:

Mr. John R. Spearman, chairman of Groundwater Management Area 1.

DESCRIPTION OF REQUEST:

In a letter dated December 22, 2011, Mr. Spearman requested that the updated groundwater flow model for the Ogallala Aquifer (northern portion) be considered for adoption as an official GAM by TWDB. TWDB has adopted the updated model as the official GAM and is issuing revised modeled available groundwater estimates. The modeled available groundwater estimates are based on the desired future conditions for the Ogallala Aquifer as described in Resolution 2009-01 and adopted July 7, 2009:

- **"40 [percent] volume in storage remaining in 50 years in the following:**
  - **North Plains [Groundwater Conservation District] consisting of all or parts of the following counties: Dallam, Hartley, Moore and Sherman; and**
  - **Parts of the following counties that are not in a Groundwater Conservation District will also fall under the 40/50 [desired future condition], those counties being Dallam, Hartley and Moore**
- **50 [percent] volume in storage remaining in 50 years in the following:**
  - **High Plains Underground Water Conservation District consisting of parts of the following counties: Armstrong, Potter and Randall;**
  - **North Plains [Groundwater Conservation District] consisting of all or parts of the following counties: Hansford, Hutchinson, Lipscomb and Ochiltree;**
  - **Panhandle Groundwater Conservation District consisting of all or part of the following counties: Armstrong, Carson, Donley, Gray, Hutchinson, Potter, Roberts and Wheeler; and**
  - **All or parts of the following counties that are not in a Groundwater Conservation District will also fall under the 50/50 [desired future condition], those counties being Hutchinson, Oldham and Randall**
- **80 [percent] volume in storage remaining in 50 years in Hemphill County; provided that, in the event it is legally determined that the roughly 390-acre tract of land located in southwest Hemphill County and described more particularly in Attachment A (the "390-acre tract") lies within the jurisdiction of the Panhandle Groundwater Conservation District and not within the jurisdiction of the Hemphill County Underground Water Conservation District, then the Desired Future Condition for the 390-acre tract shall be 50 [percent] volume in storage remaining in 50 years and the Desired Future Condition for the remainder of Hemphill County shall be 80 [percent] volume in storage remaining in 50 years"**

The three geographic areas defined in the above desired future conditions statement are shown in Figure 1. Please note that the Attorney General of Texas, Opinion No. GA-0792, dated August 26, 2010, indicates the roughly 390-acre tract of land located in southwest Hemphill County lies within the jurisdiction of the Hemphill County

Underground Water Conservation District. As such the 80 percent volume in storage remaining in 50 years condition applies to the entire Hemphill County.

METHODS:

The Ogallala Aquifer within Groundwater Management Area 1 is covered by two GAMs. The GAM for the northern portion of the Ogallala Aquifer, documented in Dutton and others (2001), Dutton (2004), and Kelley and others (2010) covers the majority of Groundwater Management Area 1 and includes the Rita Blanca Aquifer. The GAM for the southern portion of the Ogallala Aquifer, documented in Blandford and others (2003) and Blandford and others (2008), covers the remaining areas of the Ogallala Aquifer within Groundwater Management Area 1. The area covered by each of the groundwater availability models is shown in Figure 2. Notice that there is an area in Potter and Randall counties where the two models overlap. Since the model for the northern portion of the Ogallala Aquifer is the primary model for Groundwater Management Area 1, results from the northern model were preferentially used over the results from the southern model in the overlap area.

The previously completed availability model run (Kelley and others, 2010) documents the model results reviewed by members of Groundwater Management Area 1. This new model run honors the above desired future conditions. The model run for the northern portion of the Ogallala Aquifer presented in this report divides the modeled available groundwater by county, groundwater conservation district, geographic area, and river basin within Groundwater Management Area 1. Note that Groundwater Management Area 1 is entirely contained within the Panhandle Regional Water Planning Area (Region A). The locations of these areas are shown in Figure 3.

For the southern portion of the Ogallala Aquifer, which covers portions of Oldham, Potter, Randall, and Armstrong counties, the Groundwater Availability Model Run 08-016 Supplement (Smith, 2008) was previously completed and meets the above request. Since completion of the model run, however, the groundwater availability model for the southern portion of the Ogallala Aquifer has been updated (Blandford and others, 2008). For this reason, the updated groundwater availability model was used to reassess these areas. This report documents the methods used in the updated groundwater availability model run for the southern portion of the Ogallala Aquifer in addition to reporting modeled available groundwater for Groundwater Management Area 1.

Modeled Available Groundwater and Permitting

As defined in Chapter 36 of the Texas Water Code, "modeled available groundwater" is 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. The estimated amount of pumping exempt from permitting, which the Texas Water Development Board is required to develop after soliciting input from applicable groundwater conservation districts, will be provided in a separate report.

PARAMETERS AND ASSUMPTIONS:

Northern Portion of the Ogallala Aquifer

The parameters and assumptions for the GAM run for the northern portion of the Ogallala Aquifer are described below:

- We used version 3.01 of the GAM for the northern portion of the Ogallala Aquifer. This model is an update to the previous versions documented in Dutton and others (2001) and Dutton (2004). See Kelley and others (2010), Dutton (2004), and Dutton and others (2001) for assumptions and limitations of the GAM.
- The GAM for the northern portion of the Ogallala Aquifer has only one layer which collectively represents the Ogallala and Rita Blanca aquifers. As described in the Resolution 2009-01 adopted by the members of Groundwater Management Area 1, the adopted desired future conditions apply to both the Ogallala and Rita Blanca aquifers. In both the desired future conditions statement and this report as a whole the Ogallala and Rita Blanca aquifers are referred to collectively as the "Ogallala Aquifer."
- The root mean squared error (a measure of the difference between simulated and measured water levels during model calibration) for the model for the northern portion of the Ogallala Aquifer is 45.7 feet. This represents 1.6 percent of the range of measured water levels across the model area.
- Cells were assigned to individual counties, groundwater conservation districts, and river basins as shown in the February 3, 2012 version of the file that associates the model grid to political and natural boundaries for the northern portion of the Ogallala. Note that some minor corrections were made to county

and groundwater conservation district grid cell assignments compared to the original Groundwater Availability Model Run 09-001 (Smith, 2009).

- See section 4.2 of Kelley and others (2010) for additional details about the pumping in the model run for the northern portion of the Ogallala Aquifer that meets the above desired future conditions.

Southern Portion of the Ogallala Aquifer

The parameters and assumptions for the GAM run for the southern portion of the Ogallala Aquifer are described below:

- We used version 2.01 of the GAM for the southern portion of the Ogallala Aquifer, which also includes the Edwards-Trinity (High Plains) Aquifer. This model is an expansion on and update to the previously developed groundwater availability model for the southern portion of the Ogallala Aquifer described in Blandford and others (2003). See Blandford and others (2008) and Blandford and others (2003) for assumptions and limitations of the GAM.
- The model includes four layers representing the southern portion of the Ogallala Aquifer and the Edwards-Trinity (High Plains) Aquifer. However, only Layer 1 of the model, representing the Ogallala Aquifer, is active within Groundwater Management Area 1. For this reason, results are only presented for the Ogallala Aquifer from the GAM.
- The mean absolute error (a measure of the difference between simulated and measured water levels during model calibration) for the Ogallala Aquifer in 2000 is 33 feet. This represents 1.8 percent of the range of measured water levels across the model area.
- Cells were assigned to individual counties, groundwater conservation districts, and river basins as shown in the September 14, 2009 version of the file that associates the model grid to political and natural boundaries for the southern portion of the Ogallala Aquifer and Edwards-Trinity (High Plains) Aquifer.

The pumping for areas outside of Groundwater Management Area 1 is the same as described for the "base" scenario in GAM Run 09-023 (Oliver, 2010).

RESULTS:

Table 1 contains modeled available groundwater for the Ogallala Aquifer within Groundwater Management Area 1. It contains pumping totals from the groundwater availability models for the northern and southern portions of the Ogallala Aquifer subdivided by county, groundwater conservation district, and river basin. These areas are shown in figure 1. Note that all of Groundwater Management Area 1 is within the Panhandle Regional Water Planning Area (Region A). For this reason results have not been divided by Regional Water Planning Area.

Table 2 shows modeled available groundwater summarized by county and geographic area within Groundwater Management Area 1 and the total for the area as a whole. The modeled available groundwater for Groundwater Management Area 1 in 2010 is 3,666,259 acre-feet per year. This declines to 2,151,403 acre-feet of pumping per year by 2060 due to reductions in pumping necessary to minimize the occurrence of dry cells. A model cell becomes inactive when the water level in the cell drops below the base of the aquifer. In this situation, pumping cannot occur for the remainder of the model simulation.

Table 3 shows modeled available groundwater summarized by groundwater conservation district and geographic area. Geographic areas are shown in figure 3.

Table 4 shows modeled available groundwater summarized by geographic area. The decline in the volume of water stored in the Ogallala Aquifer over 50 years for each of these areas matches the desired future condition adopted by the members of Groundwater Management Area 1. For Area 1, which consists of Dallam, Sherman, Hartley, and Moore counties modeled available groundwater declines from 1,387,054 acre-feet per year to 691,874 acre-feet per year between 2010 and 2060. For Area 2, consisting of Hemphill County, pumping remains relatively constant between 42,000 and 45,000 acre-feet per year. For Area 3, which encompasses the remaining counties in Groundwater Management Area 1, modeled available groundwater declines from 2,234,035 to 1,416,370 acre-feet per year for the same time period.

Table 5 shows the results summarized by river basin. Between 2010 and 2060, the estimated total pumping declines from 3,027,060 to 1,739,871 acre-feet per year in the Canadian River basin. In the Red River basin for the same time period, modeled available groundwater declines from 639,199 to 411,532 acre-feet per year.

LIMITATIONS:

The groundwater model used in developing estimates of modeled available groundwater is the best available scientific tool that can be used to estimate the pumping that will achieve the desired future conditions. Although the groundwater model used in this analysis is the best available scientific tool for this purpose, it, like all models, has limitations. 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 develop estimates of modeled available groundwater is the need to make assumptions about the location in the aquifer where future pumping will occur. As actual pumping changes in the future, it will be necessary to evaluate the amount of that pumping as well as its location in the context of the assumptions associated with this analysis. Evaluating the amount and location of future pumping is as important as evaluating the changes in groundwater levels, spring flows, and other metrics that describe the condition of the groundwater resources in the area that relate to the adopted desired future condition.

Given these limitations, users of this information are cautioned that the modeled available groundwater numbers should not be considered a definitive, permanent description of the amount of groundwater that can be pumped to meet the adopted desired future condition. 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.

It is important for groundwater conservation districts to monitor future groundwater pumping as well as whether or not they are achieving their desired future conditions. Because of the limitations of the model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine the modeled available groundwater numbers given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future.

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TABLE 1: MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE OGALLALA AND RITA BLANCA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY COUNTY, GROUNDWATER CONSERVATION DISTRICT (GCD), AND RIVER BASIN. UWCD REFERS TO UNDERGROUND WATER CONSERVATION DISTRICT.

County	District	Basin	Year					
			2010	2020	2030	2040	2050	2060
Armstrong	High Plains UWCD No. 1	Red	8,301	8,301	8,301	8,301	8,241	8,186
	Panhandle GCD	Red	44,587	37,066	32,778	29,115	25,920	23,142
Carson	Panhandle GCD	Canadian	96,113	81,718	73,958	66,324	59,324	53,120
		Red	93,885	89,424	80,108	71,529	63,665	56,289
Dallam	North Plains GCD	Canadian	314,814	277,174	245,338	216,215	188,745	163,943
	No District	Canadian	89,793	75,300	63,738	54,102	46,068	39,548
Donley	Panhandle GCD	Red	82,437	74,540	70,208	64,373	58,707	53,537
Gray	Panhandle GCD	Canadian	43,874	39,813	36,848	33,749	30,659	27,766
		Red	147,516	120,860	109,180	98,784	89,135	80,128
Hansford	North Plains GCD	Canadian	284,588	262,271	240,502	218,405	197,454	177,536
Hartley	North Plains GCD	Canadian	424,813	368,430	319,149	276,075	238,186	205,137
	No District	Canadian	27,646	21,118	17,852	15,019	12,780	10,961
Hemphill*	Hemphill County UWCD	Canadian	24,763	22,931	22,969	23,262	23,412	23,642
		Red	20,407	18,828	19,429	19,515	19,577	19,517
Hutchinson	North Plains GCD	Canadian	61,306	58,383	50,723	44,360	39,048	34,580
	Panhandle GCD	Canadian	14,798	13,968	14,414	14,293	13,865	13,194
	No District	Canadian	85,918	64,082	59,436	53,496	47,662	42,664
Lipscomb	North Plains GCD	Canadian	290,510	283,794	273,836	256,406	237,765	219,100
Moore	North Plains GCD	Canadian	193,001	186,154	162,142	137,321	114,658	95,490
	No District	Canadian	14,304	13,200	11,845	10,296	8,915	7,623
Ochiltree	North Plains GCD	Canadian	269,463	246,475	224,578	203,704	183,227	164,265
Oldham	No District	Canadian	20,553	19,360	18,722	17,694	16,406	15,198
		Red	3,952	3,122	2,885	2,772	2,306	2,269
Potter	High Plains UWCD No. 1	Canadian	1,731	1,118	1,041	1,041	1,041	740
		Red	3,521	2,664	1,147	326	326	326
	Panhandle GCD	Canadian	26,810	20,926	19,580	17,919	16,277	14,710
		Red	3,351	2,164	1,770	1,489	1,270	1,080
Randall	High Plains UWCD No. 1	Red	61,381	57,858	56,203	51,346	47,118	39,007
	No District	Red	28,773	27,756	26,195	24,352	21,763	19,377
Roberts	Panhandle GCD	Canadian	419,579	372,950	350,415	321,680	290,903	261,482
		Red	15,380	17,951	18,202	17,565	16,609	15,557
Sherman	North Plains GCD	Canadian	322,683	300,908	263,747	229,122	197,480	169,172
Wheeler	Panhandle GCD	Red	125,708	119,556	114,817	107,697	100,289	93,117
Total			**3,666,259**	**3,310,163**	**3,012,056**	**2,707,647**	**2,418,801**	**2,151,403**

*Hemphill county 2010 is taken from simulation year 2011

TABLE 2: MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE OGALLALA AND RITA BLANCA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY COUNTY AND GEOGRAPHIC AREA.

County	Geographic Area	Year					
		2010	2020	2030	2040	2050	2060
Armstrong	3	52,888	45,367	41,079	37,416	34,161	31,328
Carson	3	189,998	171,142	154,066	137,853	122,989	109,409
Dallam	1	404,607	352,474	309,076	270,317	234,813	203,491
Donley	3	82,437	74,540	70,208	64,373	58,707	53,537
Gray	3	191,390	160,673	146,028	132,533	119,794	107,894
Hansford	3	284,588	262,271	240,502	218,405	197,454	177,536
Hartley	1	452,459	389,548	337,001	291,094	250,966	216,098
Hemphill*	2	45,170	41,759	42,398	42,777	42,989	43,159
Hutchinson	3	162,022	136,433	124,573	112,149	100,575	90,438
Lipscomb	3	290,510	283,794	273,836	256,406	237,765	219,100
Moore	1	207,305	199,354	173,987	147,617	123,573	103,113
Ochiltree	3	269,463	246,475	224,578	203,704	183,227	164,265
Oldham	3	24,505	22,482	21,607	20,466	18,712	17,467
Potter	3	35,413	26,872	23,538	20,775	18,914	16,856
Randall	3	90,154	85,614	82,398	75,698	68,881	58,384
Roberts	3	434,959	390,901	368,617	339,245	307,512	277,039
Sherman	1	322,683	300,908	263,747	229,122	197,480	169,172
Wheeler	3	125,708	119,556	114,817	107,697	100,289	93,117
Total		**3,666,259**	**3,310,163**	**3,012,056**	**2,707,647**	**2,418,801**	**2,151,403**

*Hemphill county 2010 is taken from simulation year 2011

TABLE 3: MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE OGALLALA AND RITA BLANCA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND GEOGRAPHIC AREA. UWCD REFERS TO UNDERGROUND WATER CONSERVATION DISTRICT.

District	Geographic Area	Year					
		2010	2020	2030	2040	2050	2060
Hemphill County UWCD*	2	45,170	41,759	42,398	42,777	42,989	43,159
High Plains UWCD No. 1	3	74,934	69,941	66,692	61,014	56,726	48,259
North Plains GCD	1	1,255,311	1,132,666	990,376	858,733	739,069	633,742
	3	905,867	850,923	789,639	722,875	657,494	595,481
Panhandle GCD	3	1,114,038	990,936	922,278	844,517	766,623	693,122
No District	1	131,743	109,618	93,435	79,417	67,763	58,132
	3	139,196	114,320	107,238	98,314	88,137	79,508
Total		**3,666,259**	**3,310,163**	**3,012,056**	**2,707,647**	**2,418,801**	**2,151,403**

*Hemphill county 2010 is taken from simulation year 2011

TABLE 4: MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE OGALLALA AND RITA BLANCA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY GEOGRAPHIC AREA.

Geographic Area	Year					
	2010	2020	2030	2040	2050	2060
1	1,387,054	1,242,284	1,083,811	938,150	806,832	691,874
2*	45,170	41,759	42,398	42,777	42,989	43,159
3	2,234,035	2,026,120	1,885,847	1,726,720	1,568,980	1,416,370
Total	**3,666,259**	**3,310,163**	**3,012,056**	**2,707,647**	**2,418,801**	**2,151,403**

*Hemphill county 2010 is taken from simulation year 2011

TABLE 5: MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE OGALLALA AND RITA BLANCA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 1. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE DIVIDED BY RIVER BASIN.

Basin	Year					
	2010	2020	2030	2040	2050	2060
Canadian*	3,027,060	2,730,073	2,470,833	2,210,483	1,963,875	1,739,871
Red*	639,199	580,090	541,223	497,164	454,926	411,532
Total	**3,666,259**	**3,310,163**	**3,012,056**	**2,707,647**	**2,418,801**	**2,151,403**

*Hemphill county 2010 is taken from simulation year 2011

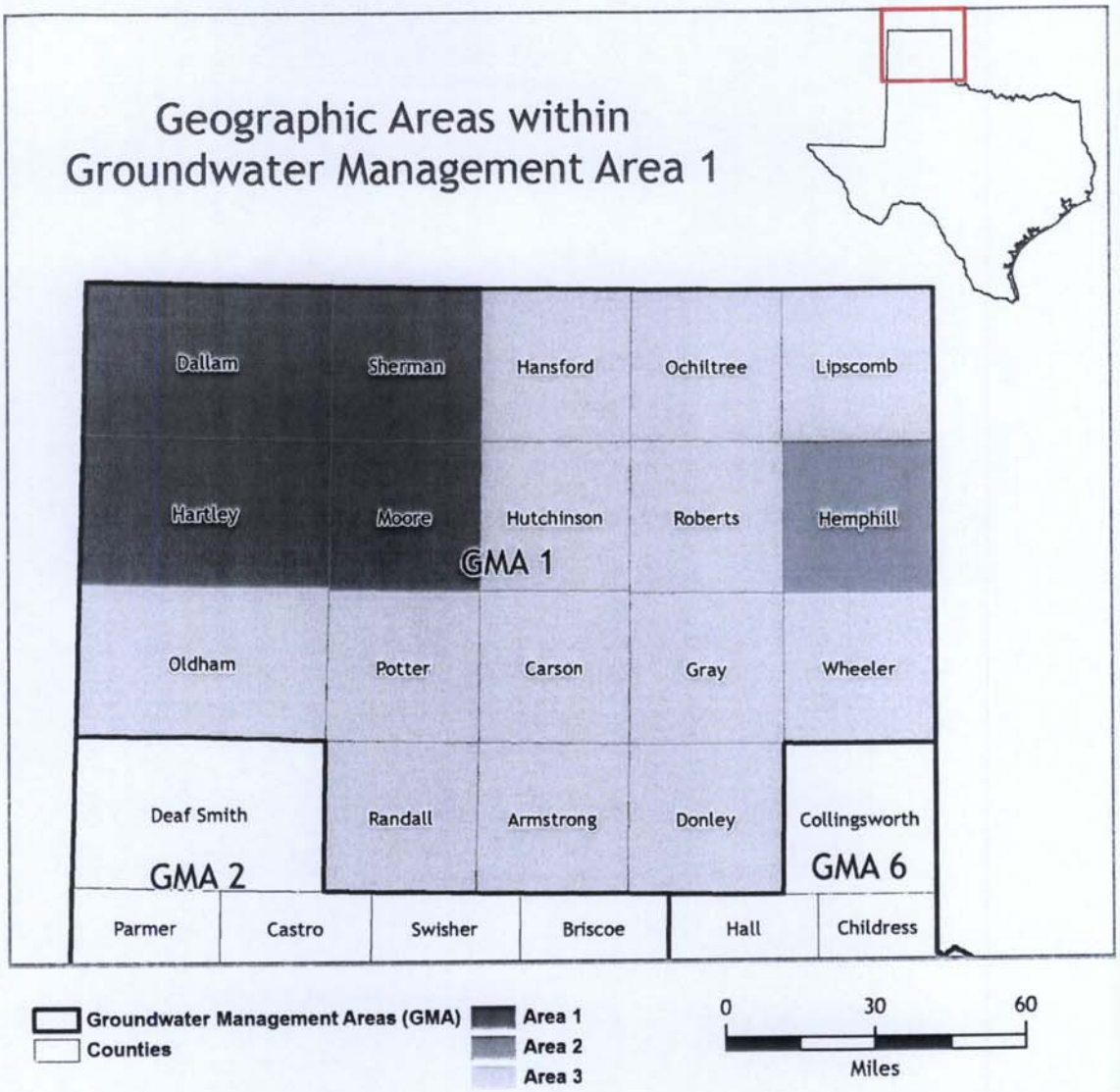

FIGURE 1: MAP SHOWING GEOGRAPHIC AREAS DEFINED BY GROUNDWATER MANAGEMENT AREA 1 IN THE DESIRED FUTURE CONDITIONS PROCESS FOR THE OGALLALA AQUIFER.

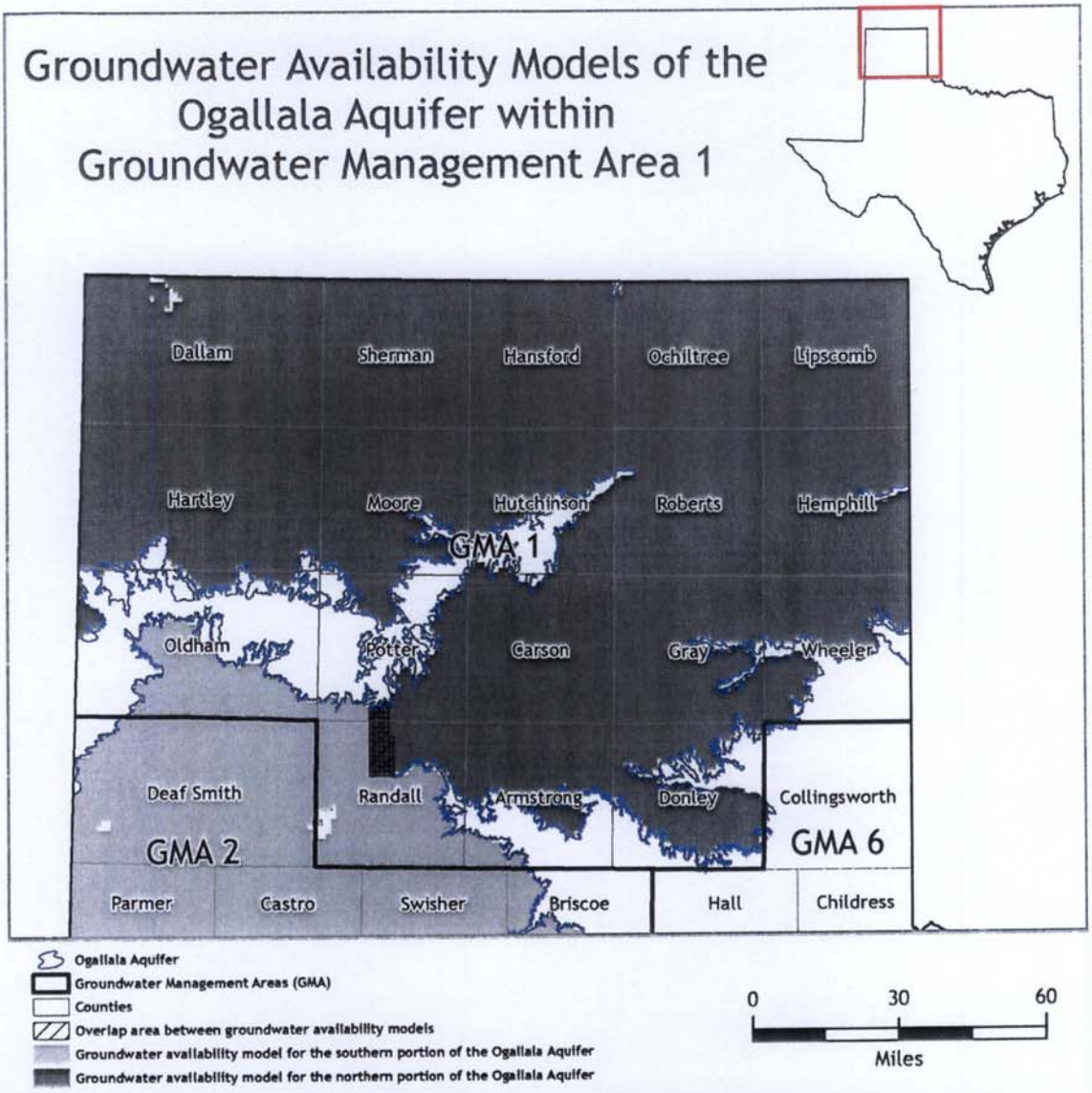

FIGURE 2: MAP SHOWING THE AREAS COVERED BY THE GROUNDWATER AVAILABILITY MODELS FOR THE NORTHERN AND SOUTHERN PORTIONS OF THE OGALLALA AQUIFER.

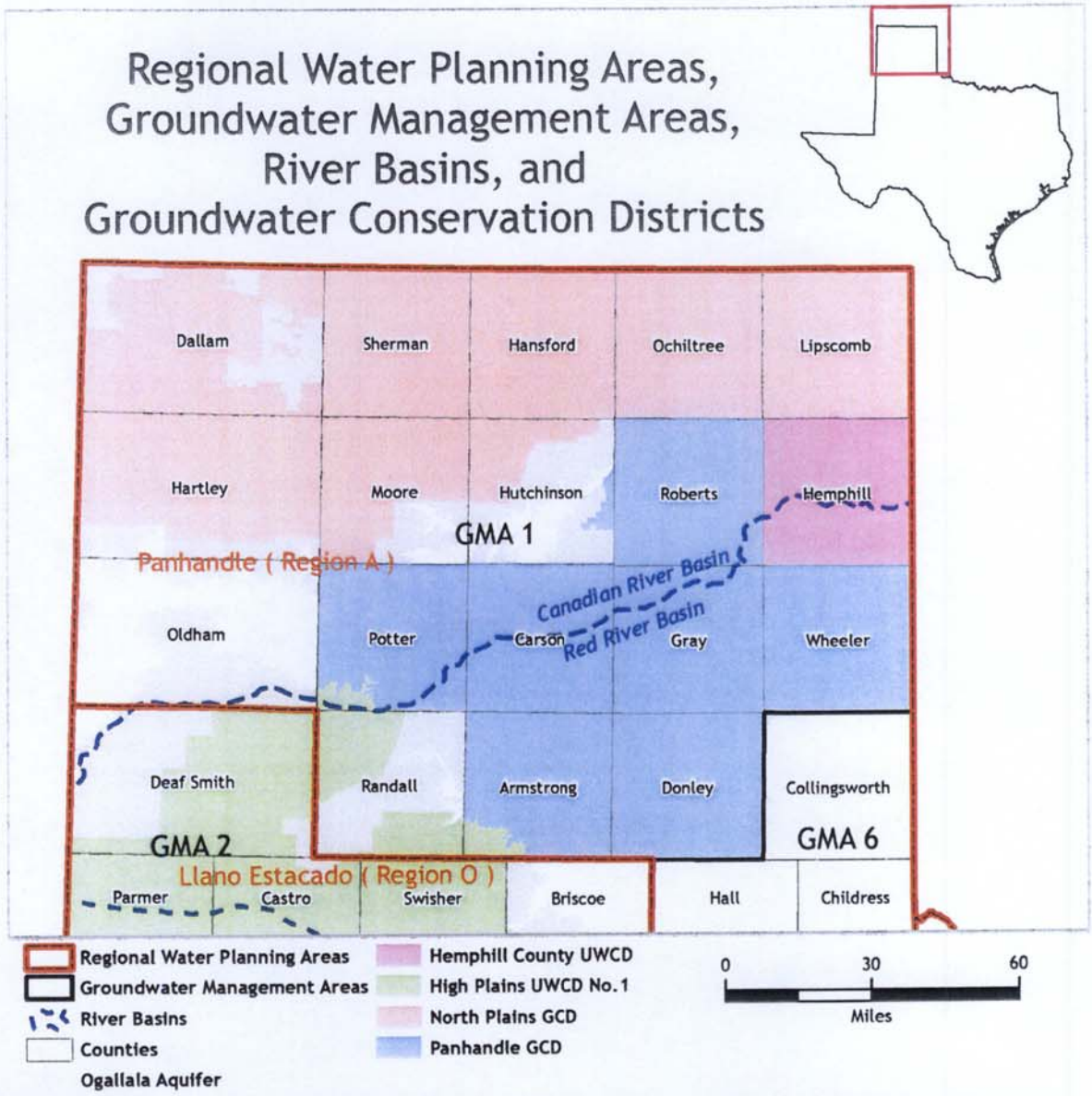

FIGURE 3: MAP SHOWING REGIONAL WATER PLANNING AREAS, GROUNDWATER MANAGEMENT AREAS, RIVER BASINS, AND GROUNDWATER CONSERVATION DISTRICTS.

GAM Run 10-019 MAG Version 2

by Mr. Wade Oliver

Texas Water Development Board
Groundwater Availability Modeling Section
(512) 463-3132
August 30, 2011

Cynthia K. Ridgeway is the Manager of the Groundwater Availability Modeling Section and is responsible for oversight of work performed by employees under her direct supervision. The seal appearing on this document was authorized by Cynthia K. Ridgeway, P.G. 471 on August 30, 2011.

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EXECUTIVE SUMMARY:

The estimated total pumping from the Dockum Aquifer that achieves the desired future condition adopted by the members of Groundwater Management Area 1 is approximately 21,200 acre-feet per year and is summarized by county, regional water planning area, and river basin as shown in Table 1. The estimated managed available groundwater for the groundwater conservation districts within Groundwater Management Area 1 for the aquifer declines from approximately 13,900 acre-feet per year to 12,900 acre-feet per year between 2010 and 2060 and is shown in Table 6. The pumping estimates were extracted from the addendum to Groundwater Availability Model Run 09-014, which Groundwater Management Area 1 used as the basis for developing a desired future condition of an average decline in water levels of "no more than 30 feet over the next 50 years." This second version of the report contains updated estimates of pumping that is exempt from permitting by High Plains Underground Water Conservation District.

REQUESTOR:

Mr. Kyle Ingham of the Panhandle Regional Planning Commission on behalf of Groundwater Management Area 1

DESCRIPTION OF REQUEST:

In a letter received June 14, 2010, Mr. Kyle Ingham provided the Texas Water Development Board (TWDB) with the desired future condition of the Dockum Aquifer adopted by the members of Groundwater Management Area 1. The desired future condition for the Dockum Aquifer, as described in Resolution No. 2010-01 and adopted June 3, 2010 by the groundwater conservation districts within Groundwater Management Area 1, is described below:

> *The Joint Planning Committee adopts the Desired Future Condition of the Dockum Aquifer contained within* [Groundwater Management Area] *1 whereby the average decline in water levels will decline no more than 30 feet over the next 50 years.*

In response to receiving the adopted desired future condition, TWDB has estimated the managed available groundwater that achieves the above desired future condition for each of the groundwater conservation districts within Groundwater Management Area 1.

METHODS:

Groundwater Management Area 1, located in the northern portion of the Texas Panhandle, contains a portion of the Dockum Aquifer, a minor aquifer as defined in the 2007 State Water Plan (TWDB, 2007). The location of Groundwater Management Area 1, the Dockum Aquifer, and the groundwater availability model cells that represent the aquifer are shown in Figure 1. The TWDB previously completed several predictive groundwater availability model simulations for the Dockum Aquifer, documented in GAM Run 09-014 (Oliver, 2010a) and its addendum (Oliver, 2010b). The "30-foot drawdown scenario" in Oliver (2010b) achieves the desired future condition specified by Groundwater Management Area 1. The pumping results for Groundwater Management Area 1 presented here, taken directly from the above scenario, have been divided

by county, regional water planning area, river basin, and groundwater conservation district. These areas are shown in Figure 2.

PARAMETERS AND ASSUMPTIONS:

The parameters and assumptions for the model run using the modified groundwater model for the Dockum Aquifer are described below:

- The results presented in this report are based on the "30-foot drawdown scenario" in the addendum to GAM Run 09-014 (Oliver, 2010b). See GAM Run 09-014 (Oliver, 2010a) and its addendum (Oliver, 2010b) for a full description of the methods, assumptions, and results for the groundwater availability model run.

- The modified version the groundwater model for the Dockum Aquifer described in Oliver and Hutchison (2010) was used for this analysis. This model is an update to the previously developed groundwater availability model for the Dockum Aquifer described in Ewing and others (2008) in order to more effectively simulate predictive conditions. See Oliver and Hutchison (2010) and Ewing and others (2008) for assumptions and limitations of the model.

- The model includes two active layers which represent the upper and lower portions of the Dockum Aquifer. Layer 2 represents the upper portion of the Dockum Aquifer. Layer 3 represents the lower portion of the Dockum Aquifer. Layer 1, which is active in version 1.01 of the model documented in Ewing and others (2008), was inactivated in the modified model as described in Oliver and Hutchison (2010).

- The mean absolute error (a measure of the difference between simulated and measured water levels during model calibration) for the lower portion of the Dockum Aquifer between 1980 and 1997 is 53 feet.

- Cells were assigned to individual counties, river basins, regional water planning areas, and groundwater conservation districts as shown in the August 3, 2010 version of file that associates the model grid to political and natural boundaries for the Dockum Aquifer. Note that some minor corrections were made to the file to correct river basin cell assignments.

- The recharge used for the model run represents average recharge as described in Ewing and others (2008).

Determining Managed Available Groundwater

As defined in Chapter 36 of the Texas Water Code, "managed available groundwater" is the amount of water that may be permitted. The pumping output from groundwater models, however, represents the total amount of pumping from the aquifer. The total pumping includes uses of water both subject to permitting and exempt from permitting. Examples of exempt uses include domestic, livestock, and oil and gas exploration. Each district may also exempt additional uses as defined by its rules or enabling legislation.

Since exempt uses are not available for permitting, it is necessary to account for them when determining managed available groundwater. To do this the Texas Water Development Board developed a standardized method for estimating exempt use for domestic and livestock purposes based on projected changes in population and the distribution of domestic and livestock wells in the area. Because other exempt uses can vary significantly from district to district, and there is much higher uncertainty associated with estimating use due to oil and gas exploration, estimates of exempt pumping outside domestic and livestock uses were not been included. The districts were also encouraged to evaluate the estimates of exempt pumping and, if desired, provide updated estimates. Once established, the estimates of exempt pumping were subtracted from the total pumping output from the groundwater model to yield the estimated managed available groundwater for permitting purposes.

RESULTS:

The estimated total pumping from the Dockum Aquifer in Groundwater Management Area 1 that achieves the above desired future condition is approximately 21,200 acre-feet per year. This pumping has been divided by county, regional water planning area, and river basin for each decade between 2010 and 2060 for use in the regional water planning process (Table 1). Note that Groundwater Management Area 1 is located entirely within the Panhandle Regional Water Planning Area (Region A).

The total pumping estimates are also summarized by county, river basin, and groundwater conservation district as shown in tables 2, 3, and 4, respectively. In Table 4, the total pumping both excluding and including areas outside of a groundwater conservation district is shown. Table 5 contains the estimates of exempt pumping in the groundwater conservation districts within Groundwater Management Area 1 either estimated by the TWDB or provided by the districts. The managed available groundwater for each groundwater conservation district, the difference between the total pumping in the district (Table 4) and the estimated exempt use (Table 5) is shown in Table 6.

Notice in Table 6 that the estimated managed available groundwater for Panhandle Groundwater Conservation District is zero beginning in 2030. This is because the estimated exempt use for the district in Table 5 is higher than the total pumping for the district in Table 4.

LIMITATIONS:

Managed available groundwater numbers included in this report are the result of subtracting the estimated future exempt use from the estimated total pumping that would achieve the desired future condition adopted by the groundwater conservation districts in the groundwater management area. These numbers, therefore, are the result of (1) running the groundwater model to estimate the total pumping required to achieve the desired future condition and (2) estimating the future exempt use in the area.

The groundwater model used in developing estimates of total pumping is the best available scientific tool that can be used to estimate the pumping that will achieve the desired future condition. Although the groundwater model used in this analysis is the best available scientific

tool for this purpose, it, like all models, has limitations. 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 develop estimates of total pumping is the need to make assumptions about the location in the aquifer where future pumping will occur. As actual pumping changes in the future, it will be necessary to evaluate the amount of that pumping as well as its location in the context of the assumptions associated with this analysis. Evaluating the amount and location of future pumping is as important as evaluating the changes in groundwater levels, spring flows, and other metrics that describe the condition of the groundwater resources in the area that relate to the adopted desired future condition.

In addition, certain assumptions have been made regarding future precipitation, recharge, and streamflow in developing these total pumping estimates. Those assumptions also need to be considered and compared to actual future data when evaluating compliance with the desired future condition.

In the case of TWDB's estimates of future exempt use, key assumptions were made as to the pattern of population growth relative to the need for domestic wells or supplied water, per capita use from domestic wells, and livestock uses of water. In the case of district estimates of future exempt use, including exempt use associated with the exploration of oil and gas, the assumptions are specific to that district. In either case, these assumptions need to be considered when reviewing future data related to exempt use.

Given these limitations, users of this information are cautioned that the total pumping numbers should not be considered a definitive, permanent description of the amount of groundwater that can be pumped to meet the adopted desired future condition. 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.

It is important for groundwater conservation districts to monitor future groundwater pumping as well as whether or not they are achieving their desired future conditions. 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 these managed available groundwater numbers given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future.

REFERENCES AND ASSOCIATED MODEL RUNS:

Ewing, J.E., Jones, T.L., Yan, T., Vreugdenhil, A.M., Fryar, D.G., Pickens, J.F., Gordon, K., Nicot, J.P., Scanlon, B.R., Ashworth, J.B., Beach, J., 2008, Groundwater Availability Model for the Dockum Aquifer – Final Report: contract report to the Texas Water Development Board, 510 p.

National Research Council, 2007. Models in Environmental Regulatory Decision Making. Committee on Models in the Regulatory Decision Process, National Academies Press, Washington D.C., 287 p.

Oliver, W., Hutchison, W.R., 2010, Modification and recalibration of the Groundwater Availability Model of the Dockum Aquifer: Texas Water Development Board, 114 p.

Oliver, W., 2010a, GAM Run 09-014: Texas Water Development Board, GAM Run 09-014 Report, 44 p.

Oliver, W., 2010b, GAM Run 09-014 Addendum: Texas Water Development Board, GAM Run 09-014 Addendum Report, 7 p.

Texas Water Development Board, 2007, Water for Texas – 2007—Volumes I-III; Texas Water Development Board Document No. GP-8-1, 392 p.

Table 1. Estimated total annual pumping for the Dockum Aquifer in Groundwater Management Area 1. Results are in acre-feet per year and are divided by county, regional water planning area, and river basin.

County	Region	Basin	Year					
			2010	2020	2030	2040	2050	2060
Armstrong	A	Red	582	582	582	582	582	582
Carson	A	Canadian	20	20	20	20	20	20
		Red	263	263	263	263	263	263
Dallam	A	Canadian	4,034	4,034	4,034	4,034	4,034	4,034
Hartley	A	Canadian	3,567	3,567	3,567	3,567	3,567	3,567
Moore	A	Canadian	5,395	5,395	5,395	5,395	5,395	5,395
Oldham	A	Canadian	2,868	2,868	2,868	2,868	2,868	2,868
		Red	104	104	104	104	104	104
Potter	A	Canadian	1,525	1,525	1,525	1,525	1,525	1,525
		Red	155	155	155	155	155	155
Randall	A	Red	2,119	2,119	2,119	2,119	2,119	2,119
Sherman	A	Canadian	591	591	591	591	591	591
Total			**21,223**	**21,223**	**21,223**	**21,223**	**21,223**	**21,223**

Table 2. Estimated total annual pumping for the Dockum Aquifer summarized by county in Groundwater Management Area 1 for each decade between 2010 and 2060. Results are in acre-feet per year.

County	Year					
	2010	2020	2030	2040	2050	2060
Armstrong	582	582	582	582	582	582
Carson	283	283	283	283	283	283
Dallam	4,034	4,034	4,034	4,034	4,034	4,034
Hartley	3,567	3,567	3,567	3,567	3,567	3,567
Moore	5,395	5,395	5,395	5,395	5,395	5,395
Oldham	2,972	2,972	2,972	2,972	2,972	2,972
Potter	1,680	1,680	1,680	1,680	1,680	1,680
Randall	2,119	2,119	2,119	2,119	2,119	2,119
Sherman	591	591	591	591	591	591
Total	**21,223**	**21,223**	**21,223**	**21,223**	**21,223**	**21,223**

Table 3. Estimated total annual pumping for the Dockum Aquifer summarized by river basin in Groundwater Management Area 1 for each decade between 2010 and 2060. Results are in acre-feet per year.

Basin	Year					
	2010	2020	2030	2040	2050	2060
Canadian	18,000	18,000	18,000	18,000	18,000	18,000
Red	3,223	3,223	3,223	3,223	3,223	3,223
Total	**21,223**	**21,223**	**21,223**	**21,223**	**21,223**	**21,223**

Table 4. Estimated total annual pumping for the Dockum Aquifer summarized by groundwater conservation district (GCD) in Groundwater Management Area 1 for each decade between 2010 and 2060. Results are in acre-feet per year. UWCD refers to Underground Water Conservation District.

Groundwater Conservation District	Year					
	2010	2020	2030	2040	2050	2060
High Plains UWCD No. 1	1,296	1,296	1,296	1,296	1,296	1,296
North Plains GCD	12,118	12,118	12,118	12,118	12,118	12,118
Panhandle GCD	2,237	2,237	2,237	2,237	2,237	2,237
Total (excluding non-district areas)	**15,651**	**15,651**	**15,651**	**15,651**	**15,651**	**15,651**
No District	5,572	5,572	5,572	5,572	5,572	5,572
Total (including non-district areas)	**21,223**	**21,223**	**21,223**	**21,223**	**21,223**	**21,223**

Table 5. Estimates of exempt use for the Dockum Aquifer in Groundwater Management Area 1 by groundwater conservation district (GCD) for each decade between 2010 and 2060. Results are in acre-feet per year. UWCD refers to Underground Water Conservation District.

Groundwater Conservation District	Source	Year					
		2010	2020	2030	2040	2050	2060
High Plains UWCD No.1	D	0	0	0	0	0	0
North Plains GCD	TA	350	395	442	476	494	493
Panhandle GCD	TA	1,423	1,875	2,290	2,763	3,281	3,703
Total		**1,773**	**2,270**	**2,732**	**3,239**	**3,775**	**4,196**

TA = Estimated exempt use calculated by TWDB and accepted by the district

D = Estimated exempt use provided by the district

Table 6. Estimates of managed available groundwater for the Dockum Aquifer in Groundwater Management Area 1 by groundwater conservation district (GCD) for each decade between 2010 and 2060. Results are in acre-feet per year. UWCD refers to Underground Water Conservation District.

Groundwater Conservation District	Year					
	2010	2020	2030	2040	2050	2060
High Plains UWCD No. 1	1,296	1,296	1,296	1,296	1,296	1,296
North Plains GCD	11,768	11,723	11,676	11,642	11,624	11,625
Panhandle GCD	814	362	0	0	0	0
Total	**13,878**	**13,381**	**12,972**	**12,938**	**12,920**	**12,921**

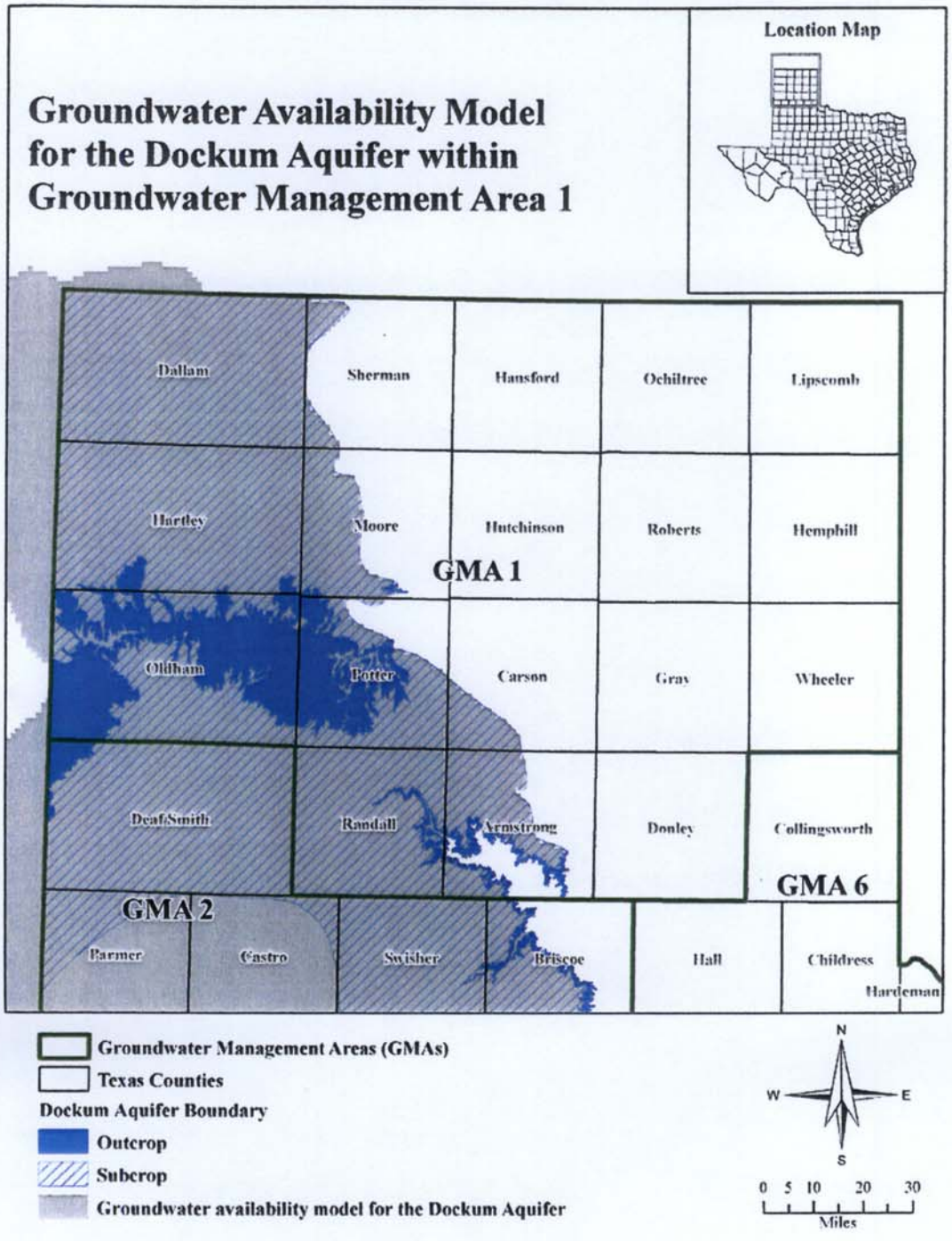

Figure 1. Map showing the areas covered by the groundwater availability model for the Dockum Aquifer and the boundary of Groundwater Management Area 1.

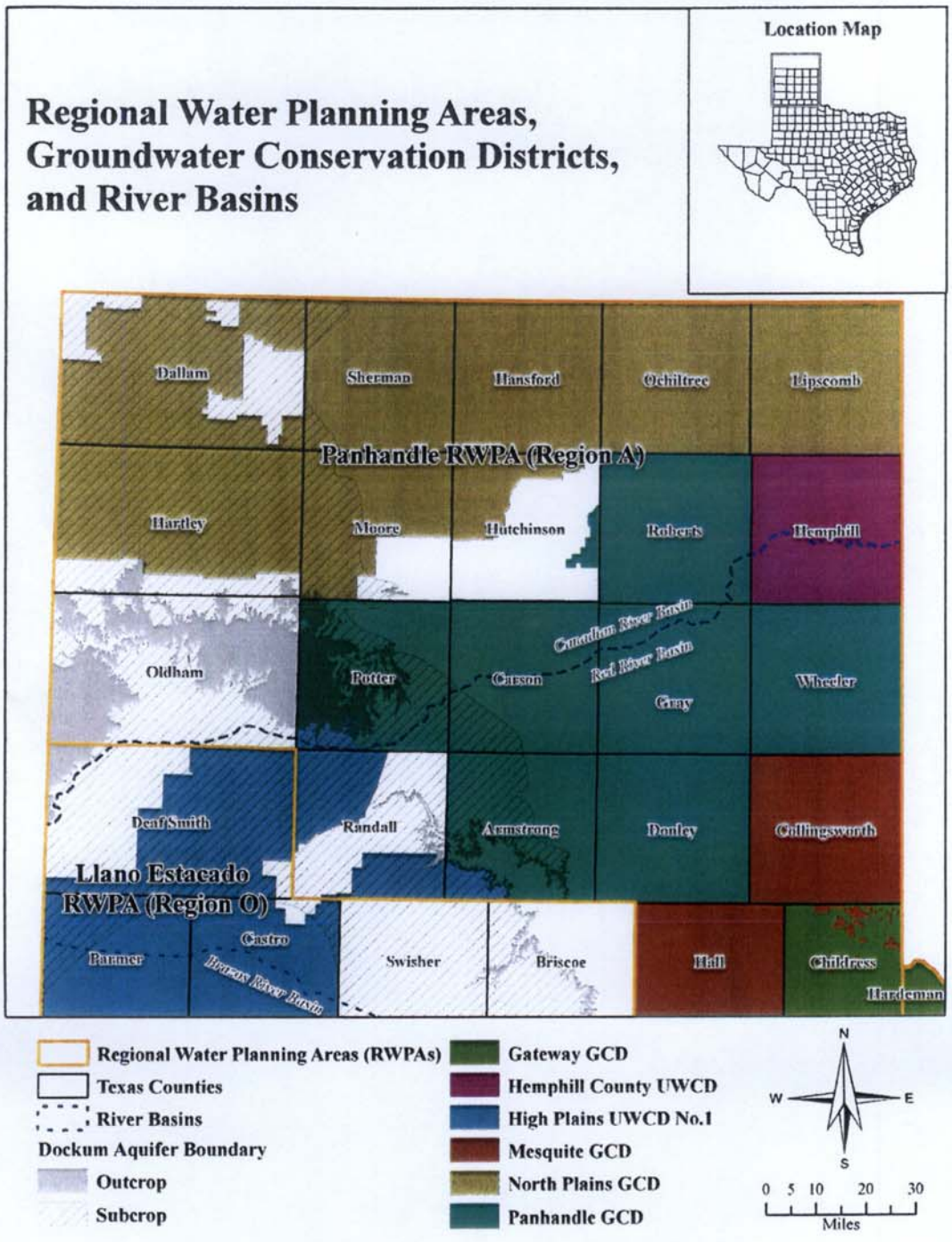

Figure 2. Map showing regional water planning areas (RWPAs), groundwater conservation districts (GCDs), counties, and river basins in and neighboring Groundwater Management Area 1. UWCD refers to Underground Water Conservation District.

BOARD RESOLUTION OF
NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT
2013 GROUNDWATER MANAGEMENT PLAN

WHEREAS, Texas Water Code, Chapter 36, Section 36.1071 requires the North Plains Groundwater District ("the District") to develop a comprehensive management plan to address specific management goals; and,

WHEREAS, Texas Water Code, Section 36.1071 also requires the District to identify the performance standards and management objectives under which the District will operate to achieve its management goals; and,

WHEREAS, the Board of Directors of the North Plains Groundwater Conservation District believes that the 2013 Management Plan of the District reflects the best management of the groundwater for the District and meets the requirements of Section 36.1071 as applicable; and,

WHEREAS, the Board further believes that the description of activities, programs, and procedures of the District included in the Plan provide performance standards and management goals and objectives necessary to effect the Plan in accordance with Section 36.1071.

NOW, THEREFORE, BE IT RESOLVED, AND IT IS HEREBY RESOLVED, THAT the Board of Directors of the North Plains Groundwater Conservation District does hereby adopt the 2013 North Plains Groundwater Conservation District Management Plan on this 14th day of May, 2013.

Gene Born, President

Bob B. Zimmer, Secretary

Danny Krienke, Director

Phil Haaland

Harold Grall, Director

Justin Crownover, Director

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT'S NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF ADOPTING A REVISED MANAGEMENT PLAN

TO: ALL INTERESTED PERSONS.

The North Plains Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

Date, Time, and Place of Public Hearing.

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

Date:	May 14, 2013
Time:	9:30 a.m. Daylight Saving Time
Location:	Hampton Inn Conference Room 2010 S. Dumas Ave. Dumas, Texas 79029.

Procedures for Submitting Public Comments on the Revised Management Plan.

A. **Oral Comments:**

Any person may appear in person, or by authorized representative, at the public hearing regarding the proposed revisions to the District's 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 legal 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 Management Plan. The District will not consider any comments of an observer in its proceedings.

All persons must indicate on the registration form whether their comments are generally directed to the entire proposed revised Management Plan or whether they are directed at specific items in the proposed revised Management Plan. If directed at specific items in the proposed revised Management Plan, the number of the items in the proposed revised Management Plan must be identified on the registration form. If it becomes apparent during the oral comments that what were indicated to be merely general comments are, in fact, specific comments, the presiding officer may ask the person to specifically identify the proposed items in the proposed revised Management Plan to which the oral comments are directed.

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 revisions to the 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.

B. **Written Comments:**

1. Written comments on the proposed revisions to the Management Plan must be filed with the District by mail or hand-delivery at the District's office at 603 East First Street, P. O. Box 795, Dumas, Texas 79029-0795. All written comments must be filed with the District and date-stamped no later than **Monday, May 6, 2013 at 5:00 p.m. Daylight Saving Time**.

2. Written comments should be filed on 8½ x11 inch paper and be typed or legibly written. Written comments must indicate whether the comments are general and directed at all of the proposed revisions of the Management Plan, or whether they are directed at specific items in the proposed Management Plan. If directed at specific items in the proposed Management Plan, the number of the proposed item must be identified and followed by the comments on the specifically identified item of the Management Plan.

C. **Response to Comments:**

Please note that while the District Board and staff will consider both oral and written comments, the staff may not prepare written responses to these comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the proposed revisions to the District's Management Plan.

Procedure for Obtaining the Revised Management Plan.

Copies of the proposed Management Plan may be obtained from the District by:

1. telephoning 1 (806) 935-6401;

2. e-mailing a request to the District at kwelch@northplainsgcd.org;

3 visiting the offices of the District at 603 East First Street, Dumas, Texas 79029-0795; or,

4. visiting the District's website at www.northplainsgcd.org.

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The meeting of the District's Board of Directors to consider the adoption of the proposed revised Management Plan will be on May 14, 2013 at 10:00 a.m. Daylight Saving Time.

SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN

SECTION VI - METHODOLOGY TO TRACK DISTRICT PROGRESS IN ACHIEVING MANAGEMENT GOALS - 31 TAC § 356.5(a)(6)

The District General Manager and staff will produce an annual report for the District Board of Directors each year for the purpose of providing information on the progress of District activities and programs. The report will specifically contain status updates on the management goals, objectives and standards as presented in this management plan. This report will be presented to the District's Board of Directors in a timely manner, taking into consideration seasonal workloads and events, such as legislative sessions. The District will continue to enforce its rules to conserve, preserve, protect, and prevent the waste of the groundwater resources under its jurisdiction. The District's Board periodically reviews the District's Rules and makes revisions as needed to manage the groundwater resources within the District pursuant to TWC Chapter 36. The District's Board will consider all groundwater uses and needs and will develop rules which are fair and impartial to implement this management plan. A copy of the most current annual report will be available for public review on the District website at www.northplainsgcd.org and at the District office.

SECTION VII - ACTIONS. PROCEDURES, PERFORMANCE, AND AVOIDANCE FOR DISTRICT IMPLEMENTATION OF MANAGEMENT PLAN - 11 TAC § 356.5 (a)(3): 31 TAC, § 356.5 (a)(4) / 36.1071(e)(2)

This management plan, as required by Chapter 36 of the Texas Water Code, explains the goals, objectives and standards that will be used to conserve, protect and preserve the groundwater in the District. The District will implement and utilize the provisions of this management plan for determining the direction or priority for all District activities. District operations, all agreements entered into by the District, and any additional planning efforts in which the District may participate will be consistent with the provisions of this plan. The District shall attempt to treat all citizens fairly. The District, as needed, shall seek the cooperation of state, regional, and local water management entities in the implementation of this plan and/or management of groundwater supplies within the District. A current copy of the District Rules is located on the District's

website www.northplainsgcd.org. The Rules of the District, with substantial input and feedback from stakeholders, have been created in accordance with Chapter 36 of the Texas Water Code for the purpose of successfully implementing the management plan. The rules are strictly and fairly enforced. The District may amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code and to insure the best management of the groundwater within the District. The rules govern the management strategies of the District including, but not limited to: well permitting, well spacing, production reporting, annual allowable production and groundwater conservation reserve. The District executes its responsibilities with transparency and stakeholder involvement as a priority, exceeding the legal requirements for notice and hearing on meetings and other District activities. All District documents are made available to the public pursuant to the Texas Information Act.

SECTION VIII – GROUNDWATER MANAGEMENT GOALS, METHODOLOGY, OBJECTIVES, AND PERFORMANCE STANDARDS

(1) Providing the most efficient use of groundwater by calculating total annual groundwater withdrawals through water use reporting by all producing water right owners that have a well capable of producing more than 25,000 gallons of groundwater a day, and by providing support through the District's North Plains Research Field to promote research into drought tolerant crops, efficient water management strategies and other research promoting water use efficiencies;

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(3) Controlling and preventing subsidence is not applicable to the District;

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(5) Addressing natural resource issues by monitoring aquifer characteristics that impact the use and availability of groundwater and which are impacted by the use of groundwater through District programs by maintaining a network of water quality and water level monitor wells;

(6) Addressing drought conditions by providing residential stakeholders with information and tools to conserve during dry and peak use periods;

(7) Addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost effective through various District programs; and

(8) Addressing the desired future conditions (DFC) adopted by the District under Section 36.108 by identifying the DFCs, by providing the modeled available groundwater data, by managing groundwater withdrawal amounts based on an allowable production

limitation in order to achieve DFCs, and setting a date to amend the District's rules after the adoption of the Management Plan.

Issued this 11th day of April, 2013.

Steve Walthour, General Manager
North Plains Groundwater Conservation District

Amarillo Globe News
P.O. Box 2901, Amarillo, Texas 806-376-4488
Legal Notice

Amarillo Daily News

NORTH PLAINS GROUNDWATER
CONSERVATION DISTRICT
P O BOX 795
DUMAS TX 79029

RECEIVED
APR 22 2013
BY:----------

REFERENCE: 1000503248
G2694938 ADOPTING REVISED MANGAEMENT PLAN

THE STATE OF TEXAS
BEFORE ME, a Notary Public in and for the
State of Texas, personally appeared

Diane Maynard

LEGAL CLERK of the Amarillo Globe-News Publishing Company, after being by me duly sworn did dispose and state that the above statement is true and correct and the attached was published on the dates set forth therein.

RUTH ELLEN LYNCH
NOTARY PUBLIC,
STATE OF TEXAS
My Commission Expires 05-21-2015

PUBLISHED ON: 04/13, 4/17

FILED ON 04/13/2013

Sworn and subscribed to before me the 18 day of April 2

Ruth Ellen Lynch

Notary Public State of Texas

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Issued this 11th day of April, 2013.

/s/ Steve Walthour, General Manager
North Plains Groundwater Conservation District

Open Meeting Submission

Success!

Row inserted

TRD:	2013002424
Date Posted:	04/12/2013
Status:	Accepted
Agency Id:	0978
Date of Submission:	04/12/2013
Agency Name:	North Plains Groundwater Conservation District
Board:	North Plains Groundwater Conservation District
Liaison Id:	6
Date of Meeting:	05/14/2013
Time of Meeting:	09:30 AM (**##:## AM Local Time)**
Street Location:	Hampton Inn Conference Center - 2010 S Dumas Ave
City Location:	Dumas
State Location:	TX
Liaison Name:	Kristen Alwan
Additional Information Obtained From:	Kristen Alwan, Executive Assistant
Agenda:	NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT¿S NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF ADOPTING A REVISED MANAGEMENT PLAN TO: ALL INTERESTED PERSONS. The North Plains Groundwater Conservation District ("District") will conduct a public hearing concerning the District¿s intent to adopt a revised Management Plan.

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Issued this 11th day of April, 2013.

/s/ Steve Walthour, General Manager
North Plains Groundwater Conservation District

New

Kristen Alwan

From: liaison@sos.state.tx.us
Sent: Friday, April 12, 2013 1:50 PM
To: Kristen Alwan
Subject: S.O.S. Acknowledgment of Receipt

Agency: North Plains Groundwater Conservation District
Liaison: Kristen Alwan

Acknowledgment of Receipt

The Office of the Secretary of State has posted notice of the following meeting:

Meeting Information:
North Plains Groundwater Conservation District
05/14/2013 09:30 AM "TRD# 2013002424"
Notice posted: 04/12/13 01:49 PM
Proofread your current open meeting notice at:

http://info.sos.state.tx.us/pls/pub/pubomquery$omquery.queryTRD?p_trd=2013002424

Destination	Start Time	Time	Prints	Result	Note
Hartley Co.	04-12 13:13	00:02:18	005/005	OK	
Dallam Co.	04-12 13:15	00:04:13	005/005	OK	
Lipscomb Co.	04-12 13:20	00:04:35	005/005	OK	
Moore Co.	04-12 13:25	00:01:46	005/005	OK	
Sherman Co.	04-12 13:28	00:02:14	005/005	OK	
Hutchinson Co.	04-12 13:30	00:01:40	005/005	OK	
Ocholtree Co.	04-12 13:36	00:00:56	000/005	No Ans	
Hansford CO.	04-12 13:37	00:00:56	000/005	No Ans	

Note TMR: Timer TX, POL: Polling, ORG: Original Size Setting, FME: Frame Erase TX, MIX: Mixed Original TX, CALL: Manual TX, CSAC: CSAC, FWD: Forward, PC: PC-Fax, BND: Double-Sided Binding Direction, SP: Special Original, FCODE: F-code, RTX: Re-TX, RLY: Relay, MBX: Confidential, BUL: Bulletin, SIP: SIP Fax, IPADR: IP Address Fax, I-FAX: Internet Fax

Result OK: Communication OK, S-OK: Stop Communication, PW-OFF: Power Switch OFF, TEL: RX from TEL, NG: Other Error, Cont: Continue, No Ans: No Answer, Refuse: Receipt Refused, Busy: Busy, M-Full:Memory Full, LOVR:Receiving length Over, POVER:Receiving page Over, FIL:File Error, DC:Decode Error, MDN:MDN Response Error, DSN:DSN Response Error.

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT'S NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF ADOPTING A REVISED MANAGEMENT PLAN

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Destination	Start Time	Time	Prints	Result	Note
Ocholtree Co.	04-12 15:18	00:03:42	005/005	OK	
Hansford CO.	04-12 15:25	00:00:56	000/005	No Ans	

Note TMR: Timer TX, POL: Polling, ORG: Original Size Setting, FME: Frame Erase TX, MIX: Mixed Original TX, CALL: Manual TX, CSRC: CSRC, FWD: Forward, PC: PC-Fax, BND: Double-Sided Binding Direction, SP: Special Original, FCODE: F-Code, RTX: Re-TX, RLY: Relay, MBX: Confidential, BUL: Bulletin, SIP: SIP Fax, IPADR: IP Address Fax, I-FAX: Internet Fax

Result OK: Communication OK, S-OK: Stop Communication, PW-OFF: Power Switch OFF, TEL: RX from TEL, NG: Other Error, Cont: Continue, No Ans: No Answer, Refuse: Receipt Refused, Busy: Busy, M-Full:Memory Full, LOVR:Receiving length Over, POVER:Receiving page Over, FIL:File Error, DC:Decode Error, MDN:MDN Response Error, DSN:DSN Response Error.

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT'S NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF ADOPTING A REVISED MANAGEMENT PLAN

TO: ALL INTERESTED PERSONS.

The North Plains Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

Date, Time, and Place of Public Hearing.

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

Date: May 14, 2013
Time: 9:30 a.m. Daylight Saving Time
Location: Hampton Inn Conference Room
2010 S. Dumas Ave.
Dumas, Texas 79029.

Procedures for Submitting Public Comments on the Revised Management Plan.

A. **Oral Comments:**

Any person may appear in person, or by authorized representative, at the public hearing regarding the proposed revisions to the District's 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 legal 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 Management Plan. The District will not consider any comments of an observer in its proceedings.

All persons must indicate on the registration form whether their comments are generally directed to the entire proposed revised Management Plan or whether they are directed at specific items in the proposed revised Management Plan. If directed at specific items in the proposed revised Management Plan, the number of the items in the proposed revised Management Plan must be identified on the registration form. If it becomes apparent during the oral comments that what were indicated to be merely general comments are, in fact, specific comments, the presiding officer may ask the person to specifically identify the proposed items in the proposed revised Management Plan to which the oral comments are directed.

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

Pauletta Rhoades

From: Microsoft Exchange
To: kvera.cdc@co.hansford.tx.us
Sent: Wednesday, April 17, 2013 9:49 AM
Subject: Relayed: Notice to post for Public Hearing - NPGCD

Delivery to these recipients or distribution lists is complete, but delivery notification was not sent by the destination:

kvera.cdc@co.hansford.tx.us

Subject: Notice to post for Public Hearing - NPGCD

Sent by Microsoft Exchange Server 2007

AMARILLO COURT REPORTING, INC.

Certified Shorthand Reporters

May 31, 2013

Mr. F. Keith Good
LEMON, SHEARER, PHILLIPS & GOOD
P.O. Box 1066
Perryton, Texas 79070

RE: NPGCD Formal Public Hearing for the Purpose of Adopting a Revised Management Plan

Dear Mr. Good:

Enclosed herewith you will find the original transcript and exhibits of the Formal Public Hearing held on May 14, 2013.

Should you have any questions or need anything further, please do not hesitate to call.

Sincerely,

Lisa C. Love

Lisa C. Love
Office Manager

xc: File

Enclosures

P.O. Box 19628 • Amarillo. Texas 79114-9628

phone: 806.374.4091 toll free: 1.800.658.9534 fax: 806.374.4093

ORIGINAL

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT

MAY 14, 2013

FORMAL PUBLIC HEARING

For the Purpose of

ADOPTING A REVISED MANAGEMENT PLAN

APPEARANCES

BOARD OF DIRECTORS
Mr. Gene Born, President
Mr. Brian Bezner, Vice President
Mr. Bob Zimmer, Secretary
Mr. Daniel Krienke
Mr. Harold Grall
Mr. Phil Haaland
Mr. Justin Crownover

DISTRICT STAFF AND COUNSEL
Mr. Steve Walthour, General Manager
Ms. Paulette Roads
Mr. Kirk Welch
Mr. Keith Good - Counsel
Ms. Ellen Orr

PROCEEDINGS

PRESIDENT BORN: Let's call this meeting to order. We have a forum. Harold, would you say the opening prayer.

MR. GRALL: Be happy to.

(Invocation.)

PRESIDENT BORN: At this time we will conduct the public hearing for the propose of adopting North Plains Ground Water Conservation District proposed revised Management Plan.

At this time, I'll turn the meeting over to our Counsel, Keith Good.

MR. GOOD: Thank you, Mr. President. This is a formal hearing required under Chapter 36.1071 of the Water Code. The District has developed and proposed a Management Plan. It has submitted that management plan to the Texas Water Development Board for review and comment. Those comments have been received. The Management Plan has been modified accordingly -- the proposed Management Plan has been modified accordingly, and at this time, this meeting is open for public comment on the Management Plan. And if you wish to comment, if you would, please stand and state your name and make your comments. The comments will be reported by Dana Moreland, who is the court reporter present here today.

Steve.

MR. WALTHOUR: Kirk Welch on my staff is going to go through with you changes that we are proposing based on previous hearings in Water Development Board. And I thought we would do that at this time so that at least you'll have that in front of you to make your decision of what you do later in the meeting.

Kirk, I turn it over to you.

MR. WELCH: Okay. Thank you, Steve. If everybody has got a copy where you can kind of follow along. So we do know it's been an ongoing process since about this time last year, more or less, that we really were working at looking at the Management Plan.

I'm trying to find a place to stand where I don't have my back to somebody. What about here.

So you have the Management Plan in hand, sort of follow along. Revisions that have taken place since the original plan was proposed, the proposed plan was presented based on the hearings, the initial hearings that we had, included moving the management objective for using production limitations to manage. So using production limitations to manage was moved from Management Goal B. And if you will -- you can kind of go through there and find that things that were changed are highlighted.

But management goal -- excuse me that's

Management Goal 8 for reducing waste, that was moved to management goal -- that was moved to Management Goal H for achieving DFCs. And that was based on comment from the original set of hearings. So any questions on that? Okay. Then we can move on.

Most of the changes -- after that, that was the only change that was made from the first set of public hearings. That was the only revision. And so at that point then it did go to the Texas Water Development Board.

Most of the changes required by the Water Development Board were administrative. They sent a list of required changes and of suggested changes. And we have correspondence from them that clearly show that these are the things that have to be changed for this to be approved by the Water Development Board, and then a list of recommendations that were exactly that, recommendations, and that's also included in your packet.

Most of those changes that were required by the Water Development Board were administrative, basically updating references to the latest data sets or the latest GAM runs. When the original work was done, again, it started almost a year ago, some of that referenced older GAM runs, and so you'll see highlights. Starting on page 4 and then throughout the document, you'll see there are small little highlighted areas that, really, they are

talking about a GAM run or referring to a GAM run, and that's just updating to the most current data that's out there.

Other required changes included documentation that the Dallam County numbers that are presented here are based on GAM runs that were prior to Dallam County being annexed into the District, so that had to be footnoted. And let's see. Those are --

MR. KRIENKE: You mean the white areas?

MR. WELCH: Yeah. The white areas, right.

MR. KRIENKE: You had part of Dallam County.

MR. WELCH: Right. The white areas, the pigment areas. It was prior to the pigment areas being annexed into the District. And that would be on page 13, is one example where you can see that in the tables. You can see a footnote below the table that explains that the GAM was prior to the annexation of the pigments.

MR. KRIENKE: You know, during that process, of adopting the DFC, if I recall, we had to assign a number of water usage for the white areas, did we not, that we thought was going to be -- we had to account for the water somehow.

MR. WALTHOUR: The white area accounting was the Water Development Board's estimate, and we checked the Water Development Board estimate, and what they thought

production was in those areas.

MR. KRIENKE: And is that reflected in this document? Or how does those two coincide with the new Management Plan, but yet are those areas accounted for and that water account for?

MR. WALTHOUR: Yeah, that's accounted for in the appendices.

MR. KRIENKE: Okay.

MR. WELCH: Any other questions on that? Okay.

There were a couple of recommendations or a couple of required calculation adjustments: Page 14, the Dockum MAG table, and that's highlighted; page 16, the Ogallala annual flow table, and that's highlighted. And those, they didn't match the data sets. We had to go back and just see. That's the reasons for the prereview for the Water Development Board, is to catch those little inconsistencies with the data sets.

And then also a footnote from the GAM that was added to the estimated annual flow tables, and that's on page 16 and 17. So, again, mainly administrative things that needed to be covered.

The total surface water supply and water demand tables -- and I don't have a page number on that one -- but that one was also changed to make Dallam County numbers and the totals based on the Dallam County numbers

all match the Water Development Board data packet, and then also to remove the year 2000 from that table, because it was not included in the State Water Plan. So, really, it's just a matter of getting everything to line up.

Okay. So all of that to say, finally, the two biggest things that were required changes would be two sections that they required us to add.

Section VI, which is the methodology to track the progress of these goals and progress towards reaching these goals. And that's, as stated there, it's a full paragraph on Section VI, but it is mainly saying that we, as the District staff and management, will produce the report annually that will go down the checklist of these goals and present status to the Board, based on the activities during the year to achieve the goals. That's Section VI.

Section VII was another section that had been left out as a separate section. But what it -- it covers actions, procedures, performance, and avoidance for implementation of the Management Plan. We didn't put it in there, because when we read that as a group, and this is something that started, again, a year ago, we felt like that in describing the goals, the strategies, that that covered these particular actions, procedures, performance, but it needed to be separated out as a specific section,

and so we did that as well. Those are -- those are the required changes, and you see all of those highlighted in yellow.

As I said, they also listed some recommendations that did not have to be implemented for approval. We included almost all of those recommendations, other than there were three recommendations that would require us to include specific resources. They were mainly all Texas Water Development Board resources for information. And I might let Steve expound on it a little bit, but we basically decided that we didn't want to be tied to any particular documents outside of the Management Plan as references for resources. So that's kind of where we landed there. They were recommendations and not requirements, and so we wanted to leave that open so that we didn't have any, I guess, any conflicts in what we would actually recommend as a District in compared to the resources that we were recommending, or if they are changing best practices that we might run into during the duration of the Plan. So we didn't really want to get locked down to those resources.

Steve, do you want to expound on that at all?

MR. WALTHOUR: Yes. For example, one of the resources they wanted us to point people to was best management practices for plugging a well. Their well

plugging procedure that they were wanting us to point to was inconsistent with our rules and with the TDLR exceptions that we have in place. So at that point, we felt like it was more important for us not to put it in the Plan, especially if we're not going to follow it and end up in a problem later that -- and giving the public some information that probably doesn't fit our area, and that's one of the things.

On best management practices, we felt like that, truly, I believe, we are above -- we are so far advanced in some of the best management practices that are being submitted at the state level now with our irrigated agriculture that we felt like we would be better off just leaving that out at this point.

And that's really all I have to comment on.

MR. WELCH: Any questions? That basically sums up the revisions as it is before you.

MR. ZIMMER: My compliments to you and the staff. I saw the e-mail that was highly complimentary of how you submitted everything without having to have additional amendments, that most districts didn't seem to be able to do that. So to all of y'all on the staff, you did a good job. I appreciate that.

MR. WELCH: I'll comment on that too. It started last year with our intern who was working on it.

PRESIDENT BORN: All right. Thank you.

MR. GOOD: Any public comment? There being none, Mr. President, you may declare this hearing closed.

PRESIDENT BORN: Okay. We will adjourn until 10:00.

(Hearing closed.)

NORTH PLAINS
GROUNDWATER
Conservation District

Management Plan

2013-2023

Revised
2013

CERTIFICATION

I, Dana Foster Moreland, Certified Shorthand Reporter in and for the State of Texas, do hereby certify that the above and foregoing contains a true and correct transcription of the Public Hearing of the North Plains Groundwater Conservation District held on May 14, 2013.

Dana Foster Moreland

DANA FOSTER MORELAND, CSR
Texas CSR #2341 (Exp. 12/31/13)
Firm No. 23
AMARILLO COURT REPORTING, INC.
P. O. Box 19628
Amarillo, Texas 79114
(806) 374-4091

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

Gene Born – *President, Lipscomb County*
Brian Bezner – *Vice President, Dallam County*
Bob Zimmer – Secretary, *Hutchinson and Hansford Counties*
Wesley Spurlock – *Member, Sherman County*
Harold Grall – *Member, Moore County*
Daniel Krienke – *Member, Ochiltree County*
Phil Haaland – *Member, Hartley County*

DISTRICT STAFF

Steven D. Walthour, PG - *General Manager*

DISTRICT OFFICE

P.O. Box 795, 603 East 1st St.
Dumas, Texas 79029
Phone: 806-935-6401
Fax: 806-935-6633
E-mail: swalthour@northplainsgcd.org
Web: www.northplainsgcd.org

TABLE OF CONTENTS

North Plains Groundwater Conservation District

Management Plan

Re-Adopted 2013

SECTION I – DISTRICT MISSION STATEMENT

The North Plains Groundwater Conservation District Board of Directors adopted the mission statement, "Maintaining our way of life through conservation, protection, and preservation of our groundwater resources."

SECTION II – PURPOSE OF MANAGEMENT PLAN

A. Introduction

The Texas Water Code requires the District to adopt a management plan that addresses the following management goals, as applicable:

(1) Providing the most efficient use of groundwater;

(2) Controlling and preventing waste of groundwater;

(3) Controlling and preventing subsidence;

(4) Addressing conjunctive surface water management issues;

(5) Addressing natural resource issues;

(6) Addressing drought conditions;

(7) Addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost-effective; and

(8) Addressing the desired future conditions (DFC) adopted by the District under Section 36.108.

The 75th Texas Legislature in 1997 enacted Senate Bill 1 ("SB 1") to establish a comprehensive statewide water planning process. In particular, SB 1 contained provisions that required groundwater conservation districts to prepare management plans to identify the water supply resources and water demands that will shape the decisions of each district. SB 1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries. The Texas Legislature enacted Senate Bill 2 ("SB 2") in 2001 and House Bill 1763 ("HB 1763") in 2005 to build on the planning requirements of SB 1 and to further clarify the actions necessary for districts to manage and conserve the groundwater resources of the State of Texas. North Plains Groundwater Conservation District's management plan satisfies the requirements of SB 1, SB 2, HB 1763, the statutory requirements of Chapter 36 of the Texas Water Code, and the administrative requirements of the TWDB rules.

B. Groundwater Management Area Joint Planning

HB 1763 requires joint planning among districts that are in the same Groundwater Management Area (GMA). These districts must establish the DFCs of the aquifers within their respective GMAs every five years. Through this process, the districts are to consider the varying uses and

conditions of the aquifer within the management area that differ substantially from one geographic area to another. The District is entirely in GMA-1 which also includes Hemphill County Underground Water Conservation District, Panhandle Groundwater Conservation District, and part of High Plains Underground Water Conservation District. GMA-1 and the District adopted DFCs relative to the District's area during the joint process. Based on those DFCs, the Texas Water Development Board (TWDB) executive administrator provides each district with the modeled available groundwater (MAG) in the management area. The Texas Water Code requires the District's management plan to include the DFCs of the aquifers within the District's jurisdiction and the amount of the modeled available groundwater from such aquifers. Well owners within the District withdraw groundwater from three aquifers including the Ogallala aquifer that is located through the District, the Rita Blanca aquifer that is located in the northwest corner of Dallam County and possibly in the extreme west portion of Hartley County; and the Santa Rosa Formation of the Dockum aquifer that is located in all or part of Dallam, Hartley, Moore and Sherman Counties.

a. Ogallala Aquifer and Rita Blanca Aquifer Desired Future Conditions

The TWDB combined the Rita Blanca aquifer with the Ogallala aquifer in one GAM. GMA-1 Joint Planning Committee and the District adopted DFCs that combined Ogallala and Rita Blanca aquifers for the District as follows:

- 40% volume in storage remaining in 50 years in Dallam, Hartley, Sherman and Moore Counties; and
- 50% volume in storage remaining in 50 years in Hansford, Hutchinson, Ochiltree and Lipscomb Counties.

This management plan uses data generated by the TWDB from GAM RUN 12-003 REVISED (Appendix B) and GAM RUN 12-005 MAG for the Ogallala and Rita Blanca aquifers for planning purposes.

b. Dockum Aquifer Desired Future Conditions

GMA-1 Joint Planning Committee and the District adopted Dockum aquifer DFC for the District that the average decline in water levels will decline no more than 30 feet over the next 50 years.

This management plan uses data generated by the TWDB from GAM RUN 12-003 REVISED (Appendix B) and GAM RUN 10-019 MAG VERSION 2 for the Dockum aquifer for planning purposes.

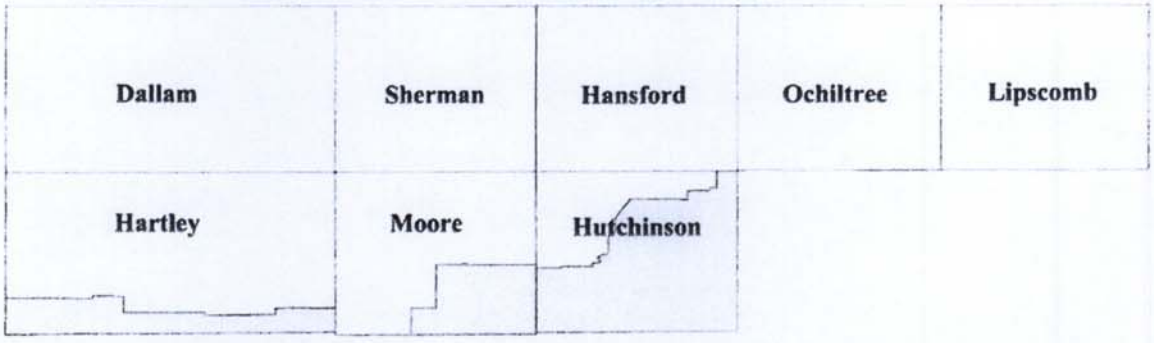
SECTION III – DISTRICT INFORMATION

A. Creation

In 1949, the Texas Legislature 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. The Legislature codified this portion of the Texas Civil Statutes into Chapter 52 of the Texas Water Code. Later, the Legislature amended the Texas Water Code and moved the statutes into Chapter 36.

B. Location and Extent

The District's jurisdiction is limited to the groundwater resources within a 7,335 square mile area that includes all of Dallam, Sherman, Hansford, Ochiltree, Lipscomb, and parts of Hartley, Moore and Hutchinson Counties. The District is located north of Amarillo and also north of the Canadian River.



Since the District does not cover all of Hartley, Hutchison, and Moore counties, data provided by the TWDB was used for all estimates related to demand based on a proportional area percentage. This percentage is derived by dividing the amount of acres or square miles covered by the District by the total number of acres or square miles contained within each county. The total county areas; the total county areas in the District; and the TWDB computation of the percentage of county areas within the District are as follows:

County	County Area (Sq. miles)	Area in District (Sq. miles)	Percent Area in District
Dallam	1,505	1,505	100.00
Hansford	907	907	100.00
Hartley	1,489	1,267	85.09
Hutchinson	911	266	29.20
Lipscomb	934	934	100.00
Moore	914	633	69.26
Ochiltree	907	907	100.00
Sherman	916	916	100.00
Totals	**8,483**	**7,335**	

Groundwater is the primary water supply source for an agricultural economy within the eight counties associated with the District. In 2006, the County Extension Program Councils' estimated the cash value of all crops and livestock within the region at $1.257 billion. According to the 2010 US Census reports, the counties associated with the District have 81,854 residents. The census data does not reflect population changes related to probable population increases in the District associated with economic development of the dairy or the petroleum industries in the area.

The TWDB provided population projections for each of the counties in the PWPA 2011 Adopted Plan. The TWDB projected that the population in the counties associated with the District totaled 76,355 in 2000 and would grow to 93,655 by 2060. The following table reflects the TWDB projected population from the PWPA 2011 Adopted Water Plan for each of the counties associated with the District.

COUNTY	2000	2010	2020	2030	2040	2050	2060
Dallam	6,222	6,851	7,387	7,724	7,808	7,645	7,291
Hansford	5,369	5,699	6,148	6,532	6,948	7,191	7,406
Hartley	5,537	5,697	5,889	5,989	6,026	5,950	5,646
Hutchinson	23,857	24,320	24,655	24,311	23,513	22,209	21,087
Lipscomb	3,057	3,084	3,149	3,054	2,966	2,925	2,784
Moore	20,121	23,049	26,241	29,057	31,293	32,655	33,474
Ochiltree	9,006	9,685	10,440	11,001	11,380	11,566	11,803
Sherman	3,186	3,469	3,770	3,886	4,005	4,110	4,164
Total	**76,355**	**81,854**	**87,679**	**91,554**	**93,939**	**94,251**	**93,655**

Source: PWPA 2011 Adopted Plan

C. Background

The District is governed by a seven-member elected Board of Directors. Each Director is elected from a defined area within the District for a four-year term. The elections are held in May of each even-numbered year in accordance with Chapter 36 and the Texas Election Code. The District's Board elects officers after each Director election and these officers serve for two-year terms.

The Board of Directors hold regular meetings at the District office located at 603 East 1st Street, Dumas, Texas 79029.

The District's Board develops and adopts the rules and programs, establishes District practices, hires the general manager, sets the annual budget, and determines the tax rate needed to carry out the operations of the District. The Directors conduct themselves in a manner consistent with sound ethical and business practices; consider the public interest in conducting District business; avoid impropriety, or the appearance of impropriety, ensure and maintain public confidence in the District; and control and manage the affairs of the District lawfully, fairly, impartially, and without discrimination, and in accordance with the stated purposes of the District. In September 2005, the District's Board developed and adopted a document which sets forth North Plains Groundwater Conservation District's Director Policies.

The District employs a general manager to manage the administrative affairs of the District and who, in the absence of the secretary of the District's Board, may act as secretary to the District's Board and may attest on behalf of the District. The general manager performs all duties set forth in the District's Rules, personnel policies, and the job description of the District's general manager to the reasonable satisfaction of the District's Board of Directors. The general manager's duties specifically include the employment and supervision of the District's personnel, oversight of the District's financial matters, attendance of District Board and Board Committee meetings, and the submission of reports to the District's Board concerning all phases of the services and operations of the District. Further, the general manager's duties include the continued review and development of the District's Rules and the enforcement of the District's Rules. The general manager also performs any other duties which may be assigned to him by the District's Board from time to time.

The District maintains a qualified staff to assist water users in protecting, preserving, and conserving the aquifers. The Board of Directors bases its decisions on the best data available in order to treat all water users fairly and equally. The Board of Directors determines the programs and activities that the District shall undertake to provide the best possible service to the area. The District's Rules are enforced to protect the quality of the groundwater and to prevent the waste of this precious resource.

D. Authority and Framework

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 and TWC Chapter 36. The District, acting under such authority, assumes all of the rights and responsibilities of a groundwater conservation district specified in TWC Chapter 36.

The District's goal is to provide sound management of groundwater resources and make every effort to insure that an abundant supply of potable water will be available for many future generations.

E. General Geology and Hydrology

The Ogallala aquifer is the primary aquifer within the North Plains Groundwater Conservation District. The Ogallala formation unconformably overlies Permian, Triassic, Jurassic, and Cretaceous strata and consists primarily of heterogeneous sequences of coarse-grained sand and gravel in the lower part, grading upward into fine clay, silt, and sand. Water-bearing areas of the Ogallala formation are hydraulically connected except where the Canadian River has partially or totally eroded through the formation to separate the North and South Plains. Water-bearing units of Cretaceous and Jurassic ages combine to form the Rita Blanca aquifer in the western part of Dallam and Hartley Counties. Underlying these aquifers and much of the Ogallala are Triassic (Dockum aquifer) and Permian formations. Some hydraulic continuity occurs between the Ogallala formation and the underlying Cretaceous, Triassic, and Permian formations in many areas of the High Plains. For the purposes of this document, the Ogallala aquifer will be considered to consist of the saturated sediments of the Ogallala formation and any underlying, potable water-bearing units hydraulically connected with it.

F. Local Aquifers

Ogallala aquifer

The Ogallala aquifer is present in all counties in the District and is the region's largest source of water. The Ogallala aquifer consists of Tertiary-age alluvial fan, fluvial, lacustrine, and eolian deposits derived from erosion of the Rocky Mountains. The Ogallala unconformably overlies Permian, Triassic, and other Mesozoic formations and in turn may be covered by Quaternary fluvial, lacustrine, and eolian deposits.

Dockum aquifer

The Dockum is a minor aquifer that underlies the Ogallala aquifer and extends laterally into parts of West Texas and New Mexico. The primary water-bearing zone in the Dockum Group, commonly called the "Santa Rosa", consists of up to 700 feet of sand and conglomerate interbedded with layers of silt and shale. Domestic use of the Dockum occurs in Oldham, Potter, and Randall Counties. According to the TWDB's GAM RUN 12-003 REVISED (Appendix B) recharge to the Dockum aquifer from precipitation within the NPGCD is minimal. The non-District counties, Oldham and Potter are the main sources of recharge in the PWPA and according to the TWDB's GAM RUN 12-003 REVISED there is very little to no leakage into the Dockum from the overlying Ogallala formation.

Rita Blanca aquifer

The Rita Blanca is a minor aquifer that underlies the Ogallala formation and extends into New Mexico, Oklahoma, and Colorado. The portion of the aquifer which underlies the PWPA is located in western Dallam and Hartley Counties. Groundwater in the Rita Blanca occurs in sand and gravel formations of the Cretaceous and Jurassic Age. The Romeroville Sandstone of the Dakota Group yields small quantities of water, whereas the Cretaceous Mesa Rica and Lytle Sandstones yield small to large quantities of water.

Small quantities of groundwater are also located in the Jurassic Exeter Sandstone and sandy sections of the Morrison formation.

Groundwater supplies from the Rita Blanca were incorporated into the Ogallala Model and these supplies are included in the Ogallala availability numbers.

SECTION IV - TECHNICAL DISTRICT INFORMATION REQUIRED BY TEXAS ADMINISTRATIVE CODE

A. Modeled Available Groundwater (MAG) (31 TAC §356.5(a)(5)(A), §36.1071(e)(3)(A))

The District uses groundwater availability modeling (GAM) along with information collected by the District and other resources during management planning. The Texas Water Development Board executive administrator provided GAM RUN 12-003 REVISED Report that uses results from GAMs of the northern portion of the Ogallala aquifer, which includes the Rita Blanca aquifer, and the Dockum aquifer. Additionally, the District used TWDB GAM RUN 12-005 MAG for the northern portion of the Ogallala aquifer including the Rita Blanca, and TWDB GAM Run 10-019 MAG Version 2 for the Dockum aquifer that were based on the District's adopted DFCs. The tables below are developed from those GAM Runs.

	Year					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Dallam*	404,607	352,474	309,076	270,317	234,813	203,491
Hansford	284,588	262,271	240,502	218,405	197,454	177,536
Hartley	424,813	368,430	319,149	276,075	238,186	205,137
Hutchinson	61,306	58,383	50,723	44,360	39,048	34,580
Lipscomb	290,510	283,794	273,836	256,406	237,765	219,100
Moore	193,001	186,154	162,142	137,321	114,658	95,490
Ochiltree	269,463	246,475	224,578	203,704	183,227	164,265
Sherman	322,683	300,908	263,747	229,122	197,480	169,172
Total	**2,250,971**	**2,058,889**	**1,843,753**	**1,635,710**	**1,442,631**	**1,268,771**

Ogallala and Rita Blanca aquifer MAG's (GAM RUN 12-005 MAG) by decade within the District divided by area in acre-feet per year (see Appendix E).

*The county value for Dallam County is representative of the district, since the remainder of Dallam County was annexed into the district after the MAG report was issued.

Area	Year 2010	2020	2030	2040	2050	2060
Dallam, Hartley, Moore and Sherman Counties	1,345,104	1,207,966	1,054,114	912,835	785,137	673,290
Hansford, Hutchison, Lipscomb and Ochiltree Counties	905,867	850,923	789,639	722,875	657,494	595,481
Total	**2,250,971**	**2,058,889**	**1,843,753**	**1,635,710**	**1,442,631**	**1,268,771**

Dockum aquifer MAG (GAM Run 10-019 MAG Version 2) Addendum pumping and average drawdown for the lower portion of the Dockum aquifer for the 30-foot average drawdown scenario by decade for each county that is either all or part in the District in acre-feet per year (see Appendix F).

County	Year 2010	2020	2030	2040	2050	2060
Dallam	4,034	4,034	4,034	4,034	4,034	4,034
Hartley	3,567	3,567	3,567	3,567	3,567	3,567
Moore	5,395	5,395	5,395	5,395	5,395	5,395
Sherman	591	591	591	591	591	591
Total	**13,587**	**13,587**	**13,587**	**13,587**	**13,587**	**13,587**

B. Estimated Annual Groundwater Use
(31 TAC §356.5(a)(5)(B), §36.1071(e)(3)(B))

According to the TWDB Historical Water Use Survey (WUS) 1,493,132 acre feet of groundwater was used in the District in 2009 and **1,283,832 acre feet in 2010**. Average annual groundwater use is not expected to change significantly over the next five years.

The TWDB estimated historical groundwater use in the District for most years from 1974 through 2010 (see Appendix A). According to TWDB data, groundwater used in the District ranged from 1,033,067 acre-feet to 1,852,067 acre-feet annually.

The TWDB table summarizing groundwater use for each county for the period 1974-2010 is included in the District's Management Plan that data is located in Appendix A.

The table below summarizes by county groundwater production volumes in acre-feet reported to the District for the period 2006-2011. This annual production is reported in accordance with the District's Rules www.northplainsgcd.org/downloads/category/5-district-documents.html.

COUNTY	Year 2006	2007	2008	2009	2010	2011
DALLAM	264,900	269,600	314,000	317,100	296,800	369,400

HANSFORD	110,200	106,500	142,700	152,700	130,000	233,700
HARTLEY	286,200	312,400	364,600	387,300	364,900	485,400
HUTCHINSON	36,700	34,900	52,800	53,900	41,900	73,700
LIPSCOMB	28,900	32,700	30,800	30,200	34,200	51,200
MOORE	149,100	148,000	191,400	200,100	169,300	267,500
OCHILTREE	66,800	53,700	75,500	65,800	61,800	109,600
SHERMAN	208,400	220,100	275,100	284,100	250,700	396,800
TOTALS	**1,151,200**	**1,177,900**	**1,446,900**	**1,491,200**	**1,349,600**	**1,987,300**

The table below summarizes by area groundwater production volumes in acre-feet reported to the District for the period 2006-2011. The production numbers are grouped by counties sharing the same desired future condition; 40/50 for the western counties of Dallam, Hartley, Moore and Sherman, and 50/50 for the eastern counties of Hansford, Hutchinson, Lipscomb and Ochiltree. Despite the District being divided into two management areas having slightly different DFC's the District is currently managed as one area.

	Year					
AREA	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Dallam, Hartley, Moore and Sherman Counties	908,600	950,100	1,145,100	1,188,600	1,081,700	1,519,100
Hansford, Hutchinson, Lipscomb and Ochiltree Counties	242,600	227,800	301,800	302,600	267,900	468,200
Total	**1,151,200**	**1,177,900**	**1,446,900**	**1,491,200**	**1,349,600**	**1,987,300**

C. Estimated Annual Aquifer Recharge
(31 TAC §356.5(a)(5)(C), §36.1071(e)(3)(C))

According to the TWDB GAM RUN 12-003 REVISED, the total annual Ogallala aquifer recharge is 88,988 acre-feet from precipitation within the District. The TWDB data is presented in Appendix B. The total annual Dockum aquifer recharge is 56 acre-feet from precipitation within the District.

D. Estimated Annual Aquifer Discharge to Springs, Lakes, Streams and Rivers
(31 TAC §356.5(a)(5)(D), §36.1071(e)(3)(D))

According to the TWDB GAM RUN 12-003 REVISED, the total estimated annual volume of water that discharges from the Ogallala aquifer to springs and any surface water body including lakes, streams, and rivers is 31,294 acre-feet. The Dockum aquifer currently has no discharge to springs and any other surface water bodies. The TWDB data is presented in Appendix B.

E. Estimated Aquifer Annual Flow Volume Into and Out of the District and Annual Flow Between Aquifers
(31 TAC §356.5(a)(5)(E), §36.1071(e)(3)(E))

According to the GAM RUN 12-003 REVISED (see Appendix B), the estimated annual Ogallala aquifer flow volume into and flow out of the District as well as the annual volume of flow between the Ogallala aquifer and other aquifers in the District is expressed in acre-feet as follows:

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the District	Ogallala aquifer	88,988
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Ogallala aquifer	31,294
Estimated annual volume of flow into the District within each aquifer in the District	Ogallala aquifer	43,548
Estimated annual volume of flow out of the District within each aquifer in the District	Ogallala aquifer	42,012
Estimated net annual volume of flow between each aquifer in the District*	From Ogallala aquifer into the Dockum aquifer	Not Applicable

*The Groundwater Availability Model for the Dockum Aquifer estimates the flow from the Ogallala Aquifer to the Dockum Aquifer averages 6,895 acre-feet per year; however, the model report for the Dockum Aquifer indicates the model was not designed to precisely model this parameter.

According to the TWDB GAM RUN 12-003 REVISED, the estimated annual Dockum aquifer flow volume into and flow out of the District as well as the annual volume of flow between the Dockum aquifer and other aquifers in the District is expressed in acre-feet as follows:

Management Plan requirement	Aquifer	Results
Estimated annual amount of recharge from precipitation to the District	Dockum aquifer	56

Management Plan requirement	Aquifer	Results
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Dockum aquifer	0
Estimated annual volume of flow into the District within each aquifer in the District	Dockum aquifer	4,209
Estimated annual volume of flow out of the District within each aquifer in the District	Dockum aquifer	2,313
Estimated net annual volume of flow between each aquifer in the District*	From Ogallala aquifer into the Dockum aquifer	Not Applicable

*The Groundwater Availability Model for the Dockum Aquifer estimates the flow from the Ogallala Aquifer to the Dockum Aquifer averages 6,895 acre-feet per year; however, the model report for the Dockum Aquifer indicates the model was not designed to precisely model this parameter.

F. Projected Surface Water Supply
(31 TAC §356.5(a)(5)(F), §36.1071(e)(3)(F))

According to the 2012 State Water Plan estimates of each county associated with the District, the projected surface water supply amounts in acre-feet are as follows:

County	2010	2020	2030	2040	2050	2060
Dallam	741	741	741	741	741	741
Hansford	2,486	2,486	2,486	2,486	2,486	2,486
Hartley	1,422	1,422	1,422	1,422	1,422	1,422
Hutchinson	529	693	693	693	693	693
Lipscomb	723	723	723	723	723	723
Moore	756	756	756	756	756	756
Ochiltree	2,506	2,506	2,506	2,506	2,506	2,506
Sherman	731	731	731	731	731	731
Total	**9,894**	**10,058**	**10,058**	**10,058**	**10,058**	**10,058**

Source: TWDB 2012 State Water Plan

Projected surface water supplies have been collected and reported by the TWDB through the 2012 State Water Plan and included in the District's Management Plan and that data is located in Appendix A.

G. Projected Total Water Demand
(31 TAC §356.5(a)(5)(G), §36.1071(e)(3)(G))

According to the 2012 State Water Plan and based on the TWDB estimated land area and the District estimates based on the percent of each county within the District, the projected total water demand in acre-feet is as follows:

County	2010	2020	2030	2040	2050	2060
Dallam	297,251	289,813	281,566	267,509	238,974	210,433

Hansford	136,267	120,959	117,814	112,359	101,031	89,735
Hartley	251,839	242,446	235,786	224,363	200,970	177,598
Hutchinson	24,392	24,041	24,073	23,771	22,711	21,930
Lipscomb	20,033	18,647	18,053	17,039	15,296	13,574
Moore	126,050	118,120	116,010	111,712	101,978	92,397
Ochiltree	67,502	58,768	57,332	54,722	49,489	44,303
Sherman	226,168	207,035	201,290	190,136	171,361	151,320
Total	**1,149,502**	**1,079,829**	**1,051,924**	**1,001,611**	**901,810**	**801,290**

Source: TWDB 2012 State Water Plan

Projected water demands have been collected and broken down by the TWDB through the 2012 State Water Plan and included in the District's Management Plan located in Appendix A.

H. Estimated Water Supply Needs
(31 TAC §356.5(a)(7), §36.1071(e)(4))

According to the 2012 State Water Plan, the estimated water supply needs in acre-feet are as follows:

County	2010	2020	2030	2040	2050	2060
Dallam	-132,889	-140,984	-148,630	-149,134	-133,737	-117,396
Hansford	-150	-1,082	-1,989	-5,441	-4,241	-2,823
Hartley	-181,732	-180,523	-183,457	-179,983	-161,368	-142,079
Hutchinson	-15,008	-12,175	-11,716	-11,081	-8,318	-6,921
Lipscomb	0	0	0	0	0	0
Moore	-52,565	-49,376	-55,206	-58,984	-55,463	-51,341
Ochiltree	0	0	0	0	0	0
Sherman	-72,532	-69,367	-79,690	-82,955	-77,118	-69,190

Source: TWDB 2012 State Water Plan

Projected water supply needs have been collected and broken down by the TWDB through the 2012 State Water Plan and included in the District's Management Plan located in Appendix A.

SECTION V – PROJECTED WATER MANAGEMENT STRATEGIES

(31 TAC §356.5(a)(7), §36.1071(e)(4))

To meet the long-term water supply needs of the District, the 2012 State Water Plan recommends four water management strategies (see Appendix A). Those management strategies and the county that they would be applicable to are as follows:

Management Strategy	Dallam	Hansford	Hartley	Hutchinson	Lipscomb	Moore	Ochiltree	Sherman
Drill Additional Groundwater Wells	•	•		•		•	•	
Irrigation Conservation	•	•	•	•	•	•	•	•
Municipal Conservation	•	•		•		•	•	
Voluntary Transfer from Other Users				•		•		

Source: TWDB 2012 State Water Plan

Drilling Additional Groundwater Wells – Drilling additional wells is listed as a management strategy for Manufacturing Water User Group (WUG) in Hutchinson County.

Irrigation Conservation – Irrigation conservation is an agricultural water conservation strategy recommended in all eight counties and is the water management strategy that will have the greatest impact in meeting water needs. Irrigation conservation includes:

1) Irrigation water use management strategies particularly with advanced irrigation systems, such as irrigation scheduling, volumetric measurement of water use, crop residue management, conservation tillage, and on-farm irrigation audits;
2) Land management systems, including furrow dikes, land leveling, conversion from irrigated to dry land farming, and brush control/management;
3) On-farm delivery systems, such as lining of farm ditches, low pressure center pivot sprinkler systems, drip/micro irrigation systems, surge flow irrigation, and linear movement sprinkler systems;
4) Water delivery systems, including lining of irrigation canals and replacing lateral canals with pipelines;
5) Miscellaneous systems, such as water recovery and reuse; and
6) Water conservation technologies for other agricultural sectors, including CAFOs, food processing operations, slaughter facilities, etc. and alternative energy production.

The agricultural water conservation strategies recommended by the PWPG also include the use of the North Plains Evapotranspiration Network to schedule irrigation, irrigation equipment efficiency improvements, implementation of conservation tillage methods and precipitation enhancement. The District disagrees with the strategy of using the PET Network because the funding for the Network was discontinued (the program is now inactive) after the PWPG included the strategy.

Municipal Conservation – Municipal conservation management strategies are recommended by the PWPG for Dallam, Hartley, Moore and Sherman Counties. The municipal conservation measures considered include the implementation of water efficient clothes washers for current populations, education and public awareness programs, reduction of unaccounted for water through water audits and system maintenance, and water rate structures that discourage water waste.

Voluntary Transfer from Other Users - Voluntary transfer of water or water rights from other users is recommended by the 2012 State Water Plan as a management strategy for the livestock users group.

According to the 2012 State Water Plan, if the above listed management strategies are fully implemented, the water savings in acre-feet is as follows:

County	2010	2020	2030	2040	2050	2060
Dallam	0	59,532	108,738	121,823	123,220	123,219
Hansford	0	24,818	46,569	52,523	53,260	53,260
Hartley	0	53,755	98,786	110,553	111,772	111,772
Hutchinson	200	10,903	18,480	20,384	21,600	21,595
Lipscomb	0	2,279	2,360	2,506	2,587	2,668
Moore	700	33,843	63,444	73,475	75,388	75,677
Ochiltree	0	17,321	18,012	19,171	20,414	21,658
Sherman	0	41,128	77,102	86,803	87.896	87,896
TOTAL	**900**	**243,579**	**433,491**	**487,238**	**496,137**	**497,745**

Source: TWDB 2012 State Water Plan

SECTION VI - METHODOLOGY TO TRACK DISTRICT PROGRESS IN ACHIEVING MANAGEMENT GOALS - 31 TAC § 356.5(a)(6)

The District General Manager and staff will produce an annual report for the District Board of Directors each year for the purpose of providing information on the progress of District activities and programs. The report will specifically contain status updates on the management goals, objectives and standards as presented in this management plan. This report will be presented to the District's Board of Directors in a timely manner, taking into consideration seasonal workloads and events, such as legislative sessions. The District will continue to enforce its rules to conserve, preserve, protect, and prevent the waste of the groundwater resources under its jurisdiction. The District's Board periodically reviews the District's Rules and makes revisions as needed to manage the groundwater resources within the District pursuant to TWC Chapter 36. The District's

Board will consider all groundwater uses and needs and will develop rules which are fair and impartial to implement this management plan. A copy of the most current annual report will be available for public review on the District website at www.northplainsgcd.org and at the District office.

VII - ACTIONS. PROCEDURES, PERFORMANCE, AND AVOIDANCE FOR DISTRICT IMPLEMENTATION OF MANAGEMENT PLAN - 11 TAC § 356.5 (a)(3): 31 TAC, § 356.5 (a)(4) / 36.1071(e)(2)

This management plan, as required by Chapter 36 of the Texas Water Code, explains the goals, objectives and standards that will be used to conserve, protect and preserve the groundwater in the District. The District will implement and utilize the provisions of this management plan for determining the direction or priority for all District activities. District operations, all agreements entered into by the District, and any additional planning efforts in which the District may participate will be consistent with the provisions of this plan. The District shall attempt to treat all citizens fairly. The District, as needed, shall seek the cooperation of state, regional, and local water management entities in the implementation of this plan and/or management of groundwater supplies within the District. A current copy of the District Rules is located on the District's website www.northplainsgcd.org. The Rules of the District, with substantial input and feedback from stakeholders, have been created in accordance with Chapter 36 of the Texas Water Code for the purpose of successfully implementing the management plan. The rules are strictly and fairly enforced. The District may amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code and to insure the best management of the groundwater within the District. The rules govern the management strategies of the District including, but not limited to: well permitting, well spacing, production reporting, annual allowable production and groundwater conservation reserve. The District executes its responsibilities with transparency and stakeholder involvement as a priority, exceeding the legal requirements for notice and hearing on meetings and other District activities. All District documents are made available to the public pursuant to the Texas Information Act.

SECTION VIII – GROUNDWATER MANAGEMENT GOALS, METHODOLOGY, OBJECTIVES, AND PERFORMANCE STANDARDS

A. **Management Goal: To Provide For The Most Efficient Use Of Groundwater (31TAC §356.5(A)(1))**

A.1. **Management Objective:**

Calculate total annual groundwater withdrawals through water use reporting by all producing water right owners that have a well capable of producing more than 25,000 gallons of groundwater a day.

A.1. **Performance Standards:**

Annually the District will collect production reports on all properties containing non-exempt wells and calculate annual groundwater withdrawals for the District. A summary will be presented to the Board of Directors each year.

A.2. **Management Objective:**

Provide support through the District's North Plains Research Field to promote research into drought tolerant crops, efficient water management strategies and other research promoting water use efficiencies.

A.2. **Performance Standards:**

Annually the District will summarize its activities at the North Plains Research Field to be presented to the Board of Directors.

B. **Management Goal: Controlling And Preventing The Waste Of Groundwater**
(31TAC §356.5(A)(1)(B))

B.1. **Management Objective:**

Control and prevent the waste of groundwater as defined by the TWC through the enforcement of District "Waste" rules.

B.1. **Performance Standards:**

Annually the District will summarize enforcement of "Waste" rule violations and report to the Board of Directors.

C. **Management Goal: Controlling And Preventing Subsidence**
(31TAC §356.5(A)(1)(C))

Due to the depth to water and the nature of the geology of the aquifer within the District, subsidence is unlikely and the District's Board of Directors, upon recommendation from the staff, has determined that this goal is not applicable to the District.

D. **Management Goal: Conjunctive Surface Water Management Issues (31TAC §356.5(A)(1)(D))**

Following notice and hearing, the District coordinates the development of this management plan with surface water management entities as required by 31 TAC §356.6(a)(4). Documentation regarding this coordination effort is located in Appendix C. The District also coordinates the development of this plan with the Panhandle Regional Planning group, as referenced in Appendix D.

D. 1. Management Objective: – Each year, the District will participate in the regional planning process by attending at least 75 percent of the Region A – Panhandle Regional Water Planning Group meetings to encourage the development of surface water supplies to meet the needs of water user groups in the District.

D. 1. Performance Standard: – The summary of attendance of a District representative at Region A- Panhandle Regional Water Planning Group meetings will be reported to the District Board of Directors.

E. **Management Goal: Natural Resource Issues That Impact The Use And Availability Of Groundwater And Which Are Impacted By The Use Of Groundwater**
(31TAC §356.5(A)(1)(E))

The District has determined that the current natural resource issues that may impact the use and availability of groundwater within the District are water quality issues and declining water tables.

E.1. **Management Objective:**
Monitor aquifer characteristics that impact the use and availability of groundwater and which are impacted by the use of groundwater through District programs by maintaining a network of water quality and water level monitor wells.

E.1. **Performance Standards:**

A. District staff will collect and analyze water samples from appropriate monitor wells periodically but not less often than once every five years.
B. District staff will perform water quality analyses for select constituents for District well owners upon request.
C. District staff will summarize their water quality activities and make the information available to the Board of Directors and the public annually.
D. District staff will collect aquifer water level measurements annually.

E. District staff will summarize groundwater level declines and average depth to water and make the information available to the Board of Directors and the public annually.

F. District staff will summarize or update aquifer saturated material information and make the information available to the Board of Directors and the public at least every two years.

E.2. **Management Objective:**

Investigate and address deteriorated wells that may cause a threat to water quality.

E.2. **Performance Standard:**

A. District staff will pursue repair or plugging of deteriorated wells.

B. District staff will summarize the deteriorated well activities and make the information available to the Board of Directors and the public annually.

F. Management Goal: Addressing Drought Conditions (31TAC §356.5(A)(1)(F))

North Plains Groundwater Conservation District lies in an area of the state of Texas that has a year-round semi-arid climate. Semi-drought conditions are experienced year round, and the District works to educate the public about methods to conserve water all year, but particularly during dry periods.

F.1. **Management Objective:**

Provide residential stakeholders with information and tools to conserve during dry and peak use periods.

F.1. **Performance Standards:**

Annually, the District will conduct water conservation communications and education activities. These activities will be summarized annually and presented to the Board of Directors.

G. Management Goal: Water Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, Or Brush Control, Where Appropriate And Cost-Effective (31TAC §356.5(A)(1)(G))

G.1. **Water Conservation**

G.1a. **Management Objective:**

Support research and field demonstrations to foster adoption of agriculture water conservation technologies and practices.

G.1a. **Performance Standards:**

Annually the District will summarize the projects results to be presented to the Board of Directors.

G.1b. **Management Objective:**

Conduct conservation education activities to encourage water conservation (prevention of waste) and create informed and educated citizens who will be dedicated stewards of their resources.

G.1b. **Performance Standards:**

Annually the District will disseminate groundwater conservation and waste prevention information through a variety of media, activities and events. Activities will target agricultural, residential and young stakeholders. A summary of educational activities will be presented to the Board of Directors each year.

G.2. **Recharge Enhancement**

The District has limited surface water resources to effectuate enhanced recharge through diversion or infiltration of surface water. The District explored recharge enhancement through its precipitation enhancement program. The District discontinued its funding for the precipitation enhancement program in 2006. The District could not quantify if, and to what extent, the program positively affected precipitation and subsequent recharge in the District. Therefore, recharge enhancement through surface water diversion or infiltration, or through precipitation enhancement could not be proven to be effective for the District. The District has determined that this objective is not applicable at this time.

G.3. **Rainwater Harvesting**

G.3. **Management Objective:**

Provide public information regarding Rainwater Harvesting.

G.3. **Performance Standards:**

The District's activities in rainwater harvesting education will be summarized annually and presented to the Board of Directors.

G.4. **Precipitation Enhancement**

The District discontinued its funding for precipitation enhancement program in 2007. The District could not quantify if, and to what extent, the program positively affected precipitation, or groundwater declines. Therefore, precipitation enhancement could not be proven to be cost-effective for the District. The District has determined that this objective is not applicable at this time.

G.5. **Brush Control**

G.5. **Management Objective:**

Provide public information regarding Brush Control

G.5. **Performance Standards:**

Maintain brush control literature in the District offices. The District's activities in addressing brush control education will be summarized annually and presented to the Board of Directors.

H. Management Goal: Desired Future Conditions (DFC) Of The Groundwater Resources (31TAC§356.5(A)(1)(H))

H.1. **Management Objective:**

Revise District Rules to achieve Desired Future Conditions of the Ogallala, Rita Blanca and Dockum aquifers.

H.1. **Performance Standards:**

The District will update its rules within one year of adoption of this management plan.

Annually the District will review its rules and conservation programs to determine if they are achieving the DFCs.

H.2. **Management Objective:**

Monitor the condition of the aquifers and status of groundwater production compared to the adopted DFCs.

H.2. **Performance Standards:**

Annually review groundwater production information, GAMs, and water level measurements to characterize aquifer conditions compared to the DFCs and report findings to the Board of Directors.

H.3. **Management Objective:**

Joint plan with other Groundwater Conservation Districts to achieve DFCs.

H.3. **Performance Standards:**

At least annually report the joint planning committee activities to the Board of Directors.

H.4. Management Objective:

Manage groundwater withdrawal amounts based on an allowable production limitation in order to achieve DFCs.

H.4. Performance Standards:

Annually the District will summarize the previous year's allowable production compliance. Each year the compliance results will be presented to the Board of Directors.

I. Management Goal: Other Management Goals Included In The Plan By The District

No other management goals are listed at this time.

SECTION IX – ACTION REQUIRED FOR PLAN APPROVAL

The District's Board of Directors adopted this groundwater management plan by resolution on _____. This Plan is in effect on _____ and will remain in effect until _____, 2023 unless amended by the District's Board.

Any amendments to the groundwater management plan shall be developed by the District using the District's best available data and forwarded to the PWPG for use in their planning process.

REFERENCES

Allen, Stephen, 2012, Estimated Historical Water Use and 2012 State Water Plan Dataset: North Plains Groundwater Conservation District, Texas Water Development Board Report, 22p.

Jigmond, Marius, 2012, Modeled Available Groundwater for the Ogallala Aquifer in Groundwater Management Area 1: Texas Water Development Board, GAM RUN 12-005 MAG Report, 26p. Location: http://www.twdb.state.tx.us/groundwater/management_areas/gma1.asp

Kohlrenken, William, 2012, North Plains Groundwater Conservation District Management Plan: Texas Water Development Board, GAM RUN 12-003 REVISED Report, 12 p. Location: http://www.twdb.state.tx.us/groundwater/management_areas/gma1.asp

Oliver, Wade, 2011, Modeled Available Groundwater for the Dockum Aquifer in Groundwater Management Area 1: Texas Water Development Board, GAM Run 10-019 MAG Version 2 Report, 12 p. Location: http://www.twdb.state.tx.us/groundwater/management_areas/gma1.asp

North Plains Groundwater Conservation District, 2008, Groundwater Management Plan: 59 p. location: http://www.northplainsgcd.org/downloads/category/5-district-documents.html

North Plains Groundwater Conservation District, 2012, Permitting and Production Reporting Database, digital file. Location: North Plains Groundwater Conservation District, 603 East First Street Dumas Texas 79029.

Texas Water Development Board, Regional Water Management Plan, Region A – Regional Water Planning Group. Location: http://www.twdb.state.tx.us/waterplanning/rwp/plans/2011/

Rules of the North Plains Groundwater Conservation District, as amended. Location: http://www.northplainsgcd.org/downloads/category/5-district-documents.html

2012 State Water Plan
Location: http://www.twdb.state.tx.us/waterplanning/swp/2012/

APPENDICES

A. **ALLEN, STEPHENS, 2012, ESTIMATED HISTORICAL WATER USE AND 2012 STATE WATER PLAN DATASET:**
North Plains Groundwater Conservation District, Texas Water Development Board Report, 22p

B. **GAM RUN 12-003 REVISED : NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN**
by William Kohlrenken
Texas Water Development Board

Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-8279 July 2, 2012

C. DISTRICT COORDINATES THE DEVELOPMENT OF THIS MANAGEMENT PLAN WITH SURFACE WATER MANAGEMENT ENTITIES (31 TAC §356.6(a)(4).

D. DISTRICT COORDINATES THE DEVELOPMENT OF THIS PLAN WITH THE PANHANDLE REGIONAL PLANNING GROUP.

E. GAM RUN 12-005 MAG: MODELED AVAILABLE GROUNDWATER FOR THE OGALLALA AQUIFER IN GROUNDWATER MANAGEMENT AREA 1
by Marius Jigmond
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-8499 August 21, 2012

F. GAM RUN 10-019 MAG VERSION 2
by Wade Oliver
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
(512) 463-3132 August 30, 2011

G. CERTIFIED COPY OF THE DISTRICT'S RESOLUTION ADOPTING THE PLAN

H. NOTICE OF HEARING – TEARSHEET AMARILLO GLOBE-NEWS NOVEMBER 6, 2012

I. MINUTES FROM PUBLIC HEARING ON NOVEMBER 29, 2012

J. CERTIFIED COPY OF COVER LETTER ATTACHED TO COPY SENT TO ALL SURFACE WATER MANAGEMENT ENTITIES

DRAFT

BOARD RESOLUTION OF
NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT
2013 GROUNDWATER MANAGEMENT PLAN

WHEREAS, Texas Water Code, Chapter 36, Section 36.1071 requires the North Plains Groundwater District ("the District") to develop a comprehensive management plan to address specific management goals; and,

WHEREAS, Texas Water Code, Section 36.1071 also requires the District to identify the performance standards and management objectives under which the District will operate to achieve its management goals; and,

WHEREAS, the Board of Directors of the North Plains Groundwater Conservation District believes that the 2013 Management Plan of the District reflects the best management of the groundwater for the District and meets the requirements of Section 36.1071 as applicable; and,

WHEREAS, the Board further believes that the description of activities, programs, and procedures of the District included in the Plan provide performance standards and management goals and objectives necessary to effect the Plan in accordance with Section 36.1071.

NOW, THEREFORE, BE IT RESOLVED, AND IT IS HEREBY RESOLVED, THAT the Board of Directors of the North Plains Groundwater Conservation District does hereby adopt the 2013 North Plains Groundwater Conservation District Management Plan on this 14th day of May, 2013.

Gene Born, President

Bob B. Zimmer, Secretary

Danny Krienke, Director

Phil Haaland

Harold Grall, Director

Justin Crownover, Director

MINUTES OF THE MAY 14, 2013
BOARD OF DIRECTORS MEETING OF
NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT

The Board of Directors of North Plains Groundwater Conservation District met in regular session May 14, 2013, at 9:30 a.m. in the Conference Room of the Hampton Inn, 2010 South Dumas Avenue, Dumas, Texas 79029. The following persons were present:

Members Present:

Gene Born; President
Daniel L. Krienke, Director;
Bob Zimmer, Secretary;
Phil Haaland, Director;
Harold Grall, Director; and,
Justin Crownover, Director.

Staff Present during part or all of the meeting:

Steve Walthour, General Manager;
Dale Hallmark, Assistant General Manager and Hydrologist;
Kirk Welch, Assistant General Manager/District Outreach;
Pauletta Rhoades, Finance and Administration Coordinator;
Kristen Alwan, Executive Assistant;
Paul Sigle, Ag Engineer;
Rebekah Purl, Intern; and,
Laura West, Production Monitoring Coordinator.

Others present during part or all of the meeting:

Scott Clawson;
Mark Howard;
Marty Jones;
Amy Haschke;
David Grotegut;
Tom Moore;
F. Keith Good, District General Counsel; and,
Ellen Orr, Paralegal.

President Born declared a quorum present and called the meeting to order at 9:32 a.m.

Director Harold Grall gave the invocation and President Born led the pledge.

President Born recessed the regular Board meeting at 9:35 a.m. and called the Public Hearing to order for the purpose of considering the District's intent to adopt a revised Management Plan. The Public Hearing was closed at 9:45 a.m.

By consensus, the Board recessed the regular Board Meeting until 10:00 a.m.

At 10:02 a.m. the regular Board Meeting was reconvened.

President Born asked if there were persons present who desired to make public comment. No public comment was made.

Bob Zimmer moved to approve the Consent Agenda consisting of the approval of the Minutes of the Board Meeting of April 8, 2013; the un-audited District expenses presented to the Board from April 1, 2013 through April 34, 2013, including the General

Manager's Expense and Activity Report; the approval of payment of professional services and out-of-pocket expenses to Lemon, Shearer, Phillips & Good, P.C. in the amount of $4,961.08 for April 1, 2013, through April 30, 2013; and the report regarding the Budget and Financial Condition of the District for the first six months of the 2012-2013 fiscal year. Harold Grall seconded the motion and it was unanimously approved.

In October 2012, the District proposed to adopt a new management plan that among other things would update the requirement to address Desired Future Conditions. The District conducted Stakeholders' Meetings for public comment and questions on the proposed Management Plan in Perryton, Texas at 7 pm on November 19th and in Dalhart Texas at 7 pm on November 20th. The District conducted a public hearing concerning the District's intent to adopt a revised Management Plan on November 29, 2012 in Dumas, Texas. The purpose of these meetings was to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan. Written comments that indicated whether the comments are general and directed at all of the proposed revisions of the Management Plan, or whether they are directed at specific items in the proposed Management Plan were accepted in the District offices. Written comments and a transcript of the hearing were provided to the Board at the meeting.

In January 2013, District staff incorporated proposed amendments to the plan based on the hearings and submitted the Proposed Management Plan to the Texas Water Development Board for review. The TWDB responded with a list of required and suggested changes. District staff incorporated all required changes and most of the suggested changes and returned the Proposed Revised Management Plan to the TWDB and received an email indicating the review was complete.

The Board amended the original proposed plan as presented at the April 8, 2013 Board meeting and held a public hearing on May 14, 2013 concerning the District's intent to adopt a revised Management Plan. The public hearing was for the purpose of providing interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

Danny Krienke moved that after considering the oral and written commentary which the District received regarding the proposed Management Plan as amended, that the Board adopt the following resolution. Harold Grall seconded the motion and the following resolution was unanimously adopted by the Board:

WHEREAS, Texas Water Code, Chapter 36, Section 36.1071 requires the North Plains Groundwater District ("the District") to develop a comprehensive management plan to address specific management goals; and,

WHEREAS, Texas Water Code, Section 36.1071 also requires the District to identify the performance standards and management objectives under which the District will operate to achieve its management goals; and,

WHEREAS, the Board of Directors of the North Plains Groundwater Conservation District believes that the 2013 Management Plan of the District reflects the best management of the groundwater for the District and meets the requirements of Section 36.1071 as applicable; and,

WHEREAS, the Board further believes that the description of activities, programs, and procedures of the District included in the Plan provide performance standards and management goals and objectives necessary to effect the Plan in accordance with Section 36.1071.

NOW, THEREFORE, BE IT RESOLVED, AND IT IS HEREBY RESOLVED, THAT the Board of Directors of the North Plains Groundwater Conservation District

does hereby adopt the 2013 North Plains Groundwater Conservation District Management Plan on this 14th day of May, 2013.

The Board reviewed the General Manager's recommendations for a proposed modification of Chapter 8 of the District Rules based upon the April Board meeting.

The Board also reviewed Chapter 3 of the current Rules of the District and discussed the following issues:

- Chapter 3 – Are there alternatives to the current well classification and spacing system?
    - What is the criteria to create a small well category for permitting from possibly 0-25 gpm because we currently have a gap in what is currently required for a permit and our current well classification rules?
    - What is the criteria to change spacing to move wells further away from the 100 yard spacing requirement to allow well owners to drill wherever they want on their property?
    - Should we clarify that the 1 well per 80 acres apply on a section by section basis as the board originally intended?
    - Should there be a reduction in the density of wells from 8 to another number or should there be no limit on the number of wells?
    - What happens to the original well that is to be replaced?
    - How should we treat spacing from domestic wells?
    - Should we create an easement category to allow drilling closer to domestic wells?
    - How do we treat wells that are capped in the density standards?

The Board directed counsel and District staff to draft proposed rules for Chapter 3 as discussed at this meeting and provide a copy of the draft at the next board meeting along with a discussion of the issues which the Board might desire to review and amend in Chapter 7.

At 10:50 a.m. the Board recessed and at 11:01 the Board reconvened.

A Schedule of Well Permits was presented to the Board for its review. Bob Zimmer moved to remove DA-5602, HA-4965, HA-4967, SH-4253, HA-5427 and OC-5203 from the Schedule of Well Permits and to approve the remainder of the Schedule of Well Permits because the Wells are properly equipped and otherwise comply with District Rules. Phil Haaland seconded the motion and the motion passed unanimously.

COUNTY	OWNER	WELL	METER LOCATION	CL	MAX	QTR	SEC	BLK	SUR	YARDS N S	YARDS E W
DALLAM	MATHEW KOEHN	DA-4814	WELL	C	800	SE	7	2	FDW	191S	278E
DALLAM	SHERWIN & JO ETTA KOEHN	DA-5305	WELL	C	800	SW	74	7	CSS	389S	121W
DALLAM	WTB FARMS	DA-5414	WELL	B	400	NW	31	1	CSS	734N	533W
DALLAM	WTB FARMS	DA-5415	WELL	B	400	NW	31	1	CSS	735N	113W
HARTLEY	FOUR STAR MIDDLEWATER LT	HA-2588	PIVOT	C	800	NE	27	12	CSS	6N	2W
HARTLEY	LARSEN FARMS LLC	HA-5157	WELL	C	800	NE	2	11	CSS	459N	441E
HARTLEY	DANIEL FORD	HA-5417	WELL	D	1800	NE	0	2	F&A	430N	464E
HARTLEY	PHIL HAALAND	HA-5427	WELL	C	800	SW	44	48	H&TC	34S	51W

HARTLEY	EDWARD CARSON	HA-5490	WELL	B	400	NE	80	2	B&B	434N	459E
HARTLEY	AWE AG SERVICES	HA-5664	WELL	C	800	NE	7	0	JC POOL	14N	222E
HANSFORD	DAVID THOMAS	HN-5327	WELL	D	1800	SE	11	45	H&TC	883S	835E
HANSFORD	MICHEAL & TONYA YANKE	HN-5505	WELL	D	1800	SW	132	2	GH&H	92S	530W
OCHLTREE	DANIEL KRIENKE	OC-5203	WELL	D	1800	NW	7	12	H&GN	832N	129W
OCHILTREE	NEED IT MORE LP	OC-5228	WELL	D	1800	SW	135	4-T	T&NO	278S	102W
OCHILTREE	DAVID PECKENPAUGH	OC-5299	WELL	D	1800	NE	55	R	AB&M	103N	246E
OCHILTREE	DON MCLAIN FAMILY LTD PARTNERSHIP	OC-5325	WELL	D	1800	NE	140	4-T	T&NO	733N	707E
SHERMAN	WILLIAMS JERRY DAYNELL CADDELL AND RONNIE	SH-4851	WELL	D	1800	NW	87	1-C	GH&H	644N	130W
SHERMAN	KENQUINT LLC	SH-5308	WELL	C	800	SW	178	1-C	GH&H	104S	189W
SHERMAN	KENQUINT LLC	SH-5354	WELL	C	800	SE	178	1-C	GH&H	869S	970E
SHERMAN	KENQUINT LLC	SH-5355	WELL	C	800	NE	178	1-C	GH&H	113N	915E
SHERMAN	BUSBY CHILDRENS TRUST	SH-5394	WELL	C	800	NE	112	1-T	T&NO	108N	494E
SHERMAN	W&C LAND AND CATTLE LTD	SH-5399	WELL	B	400	SE	61	1-T	T&NO	441S	872E
SHERMAN	W&C LAND AND CATTLE LTD	SH-5400	WELL	B	400	SE	61	1-T	T&NO	773S	865E

Danny Krienke moved to approve Well Permit HA-5427 because the Well is properly equipped and otherwise complies with District Rules. Bob Zimmer seconded the motion and it passed by the majority vote of the Board with Phil Haaland abstaining from the vote.

Phil Haaland moved to approve Well Permit OC-5203 because the Well is properly equipped and otherwise complies with District Rules. Bob Zimmer seconded the motion and it passed by the majority vote of the Board with Danny Krienke abstaining from the vote.

The General Manager presented a report to the Board regarding the District's 200-12 Demonstration Program, the Texas AgriLife Extension EPIC Demonstrations and the High Plains Initiative. The following information regarding the foregoing programs was presented to the Board:

EPIC Demonstration

The EPIC Project will now consist of seven sites, six corn fields and one sorghum field. James Born came to Scott Strawn about preforming the EPIC Project on sorghum. Paul has met with Pat Scarth to discuss his AquaPlanner product and the addition of satellite imagery to the product. He has also met with James Born, Noon Vela, Pat Scarth, and Scott Strawn to discuss and visit the Ochiltree County sites. The EPIC project will use HydroBio service on 340 acres at the Moore County and Hutchison County Sites.

200-12 Program

The 200-12 project is moving along. Currently, Randy is installing gypsum soil moisture blocks in all of the sites. Randy has completed installation of the gypsum blocks in Harold, Brent, David, Joe, Myles, and Richards fields with five of the eleven sites remaining. Randy has also pulled all the soil maps for each field from NRCS Web Soil Survey in coordination with Leon to place the gypsum blocks in the corresponding soil types. The Crop Committee meet with HydroBioARS and reviewed their product. After review, the decision was made to use their satellite imagery on a limited number of acres within the project and Leon and Randy have been providing Bridget Adams with all of the necessary information for them to complete the task.

TWDB Grant

The Texas Water Development Board Agricultural Water Conservation Grant quarterly report was filed on April 17, 2013. The report was for the period of December 1, 2012 through February 28, 2013. As of the end of the quarter, there is $79,957.51 left in the grant with $66,325.31 allocated to salaries, fringe, travel, and subcontractor services.

CIG Grant

As of the last NRCS CIG Grant quarterly report, the total expenditures are $115,373.35 leaving $384,474.65 in available funds. The staff is currently working on the quarterly report for January 1, 2013 to March 31, 2013. The quarterly report was due April 30, 2013.

Public Outreach

In October, the National Groundwater Association will be holding a conference in Dallas on Groundwater and Food Production (#5022). The conference proposes to address "How will we use new and existing tools and technology to plan, manage, protect, and allocate increasingly stressed groundwater resources to provide adequate food and drinking water supplies to nourish more than seven billion people as we move through the 21st century?" Potential topic areas to be explored include, but are not limited to, agricultural wells, aquaculture, biofuels, CAFOs, climate change, drought mitigation, emerging contaminants, groundwater sustainability, and pesticides. A current call is underway seeking abstracts in these areas and others. The general manager plans to provide at least one abstract regarding our 200-12 program and possibly one abstract for adaptive management of groundwater in agriculture production areas. Abstracts are due June 22nd.

Phil Haaland moved that the District participate in the 2014 program for High Plains. Harold Grall seconded the motion and it was unanimously approved by the Board.

The General Manager reported to the Board that the District is in the process of entering 2602 production reports that the District mailed to producers back in December. District staff anticipates having all reports processed and entered by the middle of May. The General Manager stated that the District would send a notice to all people filing production reports late and all people who overproduced groundwater in calendar year 2012. The General Manager estimated that there are approximately 120 people who filed late and/or overproduced groundwater. Mr. Walthour stated that of the 120 people in the two categories, it was also his estimate that approximately one-half of the 120 would be removed from the two categories.

In February, the Board directed the general manager to solicit bids for a building to store the equipment on the North Plains Research Field. The 60' x 100' metal building was bided in the Amarillo Globe-News on March 22 and March 25. The final date for accepting bids was on April 15. The District has received bids from Rhino Roofing, L.P.; Willis Construction; High Plains Contractors & Management Group, Inc.; and Tri-State General Contracting Group, Inc. with the amounts of the bids being $103,193.75, $111,715.00, $173,185.00, and $177,906.00, respectively. A copy of each bid was presented to the Board. Mr. Walthour reported that District staff inspected the field with Harold Grall the last week in April to determine the need for the building. Based on the staff report, the general manager recommended that the Board table this item until District staff can reassess what equipment will be housed by the building and whether or not equipment that appears to be unrelated to the operations can be moved from the existing structure to make room for the additional equipment.

Phil Haaland moved that the Board not authorize construction of a new equipment building at the North Plains Research Field at this time and directed the General Manager to work with the tenant to remove unrelated equipment stored at the Research Field to

better utilize the existing facility. Harold Grall seconded the motion and it was unanimously approved by the Board.

Kirk Welch presented a report to the Board on the District's 2013 Water Festivals. Mr. Welch stated that a total of 882 of the district's 4th graders attended this year's Water Festivals. The events were held May 1st in Dalhart, May 2nd in Dumas and May 3rd in Perryton. The number of students attending in Dalhart remained constant from last year's number of 200 students. This year Hartley and Stratford were unable to attend the Dalhart festival. Sunray was able to attend this year in Dumas, making it the largest festival in the last four years at 432 students. There were 250 students at our 8th Annual Perryton water festival. Public Relations intern, Rebekah Purl assisted Kirk with the coordination of the Festivals for 2013. RJ Vandygriff assisted with scheduling presenters and coordinating attendance with the schools in the District, as well as making a presentation at the Dalhart and Perryton festivals. The rest of the employees participated in the execution of the events, either by actual participation or by covering the responsibilities of the staff helping with the festival. The District provided t-shirts to the volunteers as well as the students and teachers who attended. This should be an effective tool in raising conservation awareness by releasing 1000 walking billboards throughout the District. The District introduced a new "Water Ranger" theme with the t-shirts and an opening skit. The theme challenges the students to learn about our water and how to "protect and defend it wherever they find it," so they can become Water Rangers. Both of these additions seemed to have been well received. To help gather feedback from the teachers and students, the District cooperated with AgriLife on a new automated post-test that will provide the District more accurate numbers on knowledge transfer with no additional District resources allocated. During the Dumas festival, Xcel Energy donated their time and food by cooking lunch for 85 teachers and volunteers. As a special surprise for the students, we were able to bring in The Green Magician, Kevin Barnes. Kevin's show helps encourage kids everywhere to care for the world around them, teaching them that even the smallest effort can make a world of difference. Both KAMR and KVII news stations from Amarillo covered the Dumas event.

The General Manager presented a report to the Board of the Bills which had been filed in the 83rd Legislative Session which may affect this District.

The General Manager reported to the Board that in April the District was notified by area wheat producers that unusually late hard freezes on multiple dates have extensively damaged their wheat crops across the Texas Panhandle.

In addition to the freezing weather, according to data released on April 30, 2013 by Eric Luebehusen, U. S. Department of Agriculture, the entire Texas Panhandle and west Texas is in a severe drought. This drought began in 2010 and current estimates believe it will extend into the foreseeable future.

The District has received reports that insurance company representatives or adjustors apparently using the Risk Management Agency guidelines are requiring farmers to continue to irrigate all or part of the wheat crop to provide samples for crop insurance assessment. The District is concerned that RMA has not developed a method of estimating crop damage as an alternative to requiring most producers over a region as large as the Texas Panhandle to continue to irrigate all or a portion of their crop to simply assess crop damage. Assessing crop damage by requiring continued irrigation diminishes the ability of a producer to plant and irrigate another crop with the same water. The method does not provide a productive benefit while wasting a valuable resource particularly during an extended drought.

The District requested that RMA develop alternative guidelines that do not require continued regional irrigation of a crop to assess damage in an area that is under drought conditions.

The Board discussed developing the 2013-2014 proposed budget and requested that the Finance Committee meet and discuss items which may need to be included in next year's budget before the next regular Board Meeting.

District Directors reported to the Board regarding meetings and/or seminars attended, weather conditions and economic development in each Director's precinct.

Steve Walthour presented the General Manager's Report, including information concerning upcoming meetings and conferences and the General Manager's activity summary.

By consensus, the Board set its next regular Board meeting for June 11, 2013 at 9:30 a.m.

Phil Haaland moved to adjourn the meeting. Bob Zimmer seconded the motion and it was unanimously approved by the Board. President Born declared the meeting adjourned at 12:27 p.m.

Gene Born, President

Bob Zimmer, Secretary

BOARD RESOLUTION OF
NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT
2013 GROUNDWATER MANAGEMENT PLAN

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WHEREAS, the Board further believes that the description of activities, programs, and procedures of the District included in the Plan provide performance standards and management goals and objectives necessary to effect the Plan in accordance with Section 36.1071.

NOW, THEREFORE, BE IT RESOLVED, AND IT IS HEREBY RESOLVED, THAT the Board of Directors of the North Plains Groundwater Conservation District does hereby adopt the 2013 North Plains Groundwater Conservation District Management Plan on this 14th day of May, 2013.

Gene Born, President

Bob B. Zimmer, Secretary

Danny Krienke, Director

Phil Haaland

Harold Grall, Director

Justin Crownover, Director

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT'S NOTICE OF PUBLIC HEARING ON (PROPOSED NEW SUBSECTION 3.5 E AND 3.5 F) RULES OF THE NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT AND PROPOSED MANAGEMENT PLAN 2012-2022

TO: ALL INTERESTED PERSONS.

The North Plains Groundwater Conservation District ("District") will conduct a public hearing concerning the District's (Proposed new subsection 3.5 E and 3.5 F) Rules of the North Plains Groundwater Conservation District and Proposed Management Plan 2012-2022.

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 District's (Proposed new subsection 3.5 E and 3.5 F) Rules of the North Plains Groundwater Conservation District and Proposed Management Plan 2012-2022.

Date, Time, and Place of Public Hearing.

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

Date:	November 29, 2012
Time:	7:00 PM
Location:	First State Bank 500 E 1st Street Dumas, TX 79029

Procedures for Submitting Public Comments on Proposed Rules.

A. **Oral Comments:**

Any person may appear in person, or by authorized representative, at the public hearing on the adoption of the Proposed Rule and the repeal of the Current Rule. 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 legal 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 District's (Proposed new subsection 3.5 E and 3.5 F) Rules of the North Plains Groundwater Conservation District and Proposed Management Plan 2012-2022.

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 Rule;

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.

B. **Response to Comments:**

Please note that while the District Board and staff will consider both oral and written comments, the staff may not prepare written responses to these comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the Proposed Rule and repeal the Current Rule.

Procedure for Obtaining the Proposed Rule.

Copies of the District's (Proposed new subsection 3.5 E and 3.5 F) Rules of the North Plains Groundwater Conservation District and Proposed Management Plan 2012-2022. may be obtained from the District by:

1. telephoning 1 (800) 456-8350, or 1 (806) 935-6401;

2. e-mailing a request to the District at swalthour@northplainsgcd.org;

3 visiting the offices of the District at 603 East First Street, Dumas, Texas 79029-0795; or,

4. visiting the District's website at http://www.northplainsgcd.org.

Issued this 26 day of December, 2012.

Steven D. Walthour, General Manager
North Plains Groundwater Conservation District

Z:FKG Clients/NPGCD/2011 Rule Revision/Notice of Public Hearing

Open Meeting Submission

Success!

Row inserted

TRD:	2012008038
Date Posted:	11/26/2012
Status:	Accepted
Agency Id:	0978
Date of Submission:	11/26/2012
Agency Name:	North Plains Groundwater Conservation District
Board:	North Plains Groundwater Conservation District
Liaison Id:	6
Date of Meeting:	11/29/2012
Time of Meeting:	07:00 PM **(##:## AM Local Time)**
Street Location:	500 E 1st St
City Location:	Dumas
State Location:	TX
Liaison Name:	Kristen Alwan
Additional Information Obtained From:	Kristen Alwan, Executive Assistant
Agenda:	NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT¿S NOTICE OF PUBLIC HEARING ON (PROPOSED NEW SUBSECTION 3.5 E AND 3.5 F) RULES OF THE NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT AND PROPOSED MANAGEMENT PLAN 2012-2022 TO: ALL INTERESTED PERSONS. The North Plains Groundwater Conservation District ("District") will conduct a public

hearing concerning the District¿s (Proposed new subsection 3.5 E and 3.5 F) Rules of the North Plains Groundwater Conservation District and Proposed Management Plan 2012-2022.

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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.

B. Response to Comments:

Please note that while the District Board and staff will consider both oral and written comments, the staff may not prepare written responses to these comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the Proposed Rule and repeal the Current Rule.

Procedure for Obtaining the Proposed Rule.

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1. telephoning 1 (800) 456-8350, or 1 (806) 935-6401;

2. e-mailing a request to the District at swalthour@northplainsgcd.org;

3 visiting the offices of the District at 603 East First Street, Dumas, Texas 79029-0795; or,

4. visiting the District's website at http://www.northplainsgcd.org.

New

Kristen Alwan

From: liaison@sos.state.tx.us
Sent: Monday, November 26, 2012 9:56 AM
To: Kristen Alwan
Subject: S.O.S. Acknowledgment of Receipt

Agency: North Plains Groundwater Conservation District
Liaison: Kristen Alwan

Acknowledgment of Receipt

The Office of the Secretary of State has posted notice of the following meeting:

Meeting Information:
North Plains Groundwater Conservation District
11/29/2012 07:00 PM "TRD# 2012008038"
Notice posted: 11/26/12 09:55 AM
Proofread your current open meeting notice at:

http://info.sos.state.tx.us/pls/pub/pubomquery$omquery.queryTRD?p_trd=2012008038

Destination	Start Time	Time	Prints	Result	Note
Hartley Co.	11-26 10:56	00:00:52	002/002	OK	
Dallam Co.	11-26 10:57	00:01:45	002/002	OK	
Lipscomb Co.	11-26 11:00	00:02:08	002/002	OK	
Moore Co.	11-26 11:02	00:00:38	002/002	OK	
Ocholtree Co.	11-26 11:08	00:04:01	000/002	NG	
Sherman Co.	11-26 11:12	00:00:46	002/002	OK	
Hutchinson Co.	11-26 11:13	00:00:37	002/002	OK	
Hansford CO.	11-26 11:18	00:02:44	002/002	OK	

Note TMR: Timer TX, POL: Polling, ORG: Original Size Setting, FME: Frame Erase TX, MIX: Mixed Original TX, CALL: Manual TX, CSAC: CSAC, FWD: Forward, PC: PC-Fax, BND: Double-Sided Binding Direction, SP: Special Original, FCODE: F-code, RTX: Re-TX, RLY: Relay, MBX: Confidential, BUL: Bulletin, SIP: SIP Fax, IPADR: IP Address Fax, I-FAX: Internet Fax

Result OK: Communication OK, S-OK: Stop Communication, PW-OFF: Power Switch OFF, TEL: RX from TEL, NG: Other Error, Cont: Continue, No Ans: No Answer, Refuse: Receipt Refused, Busy: Busy, M-Full:Memory Full, LOVR:Receiving length Over, POVER:Receiving page Over, FIL:File Error, DC:Decode Error, MDN:MDN Response Error, DSN:DSN Response Error.

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT'S NOTICE OF PUBLIC HEARING ON (PROPOSED NEW SUBSECTION 3.5 E AND 3.5 F) RULES OF THE NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT AND PROPOSED MANAGEMENT PLAN 2012-2022

TO: ALL INTERESTED PERSONS.

The North Plains Groundwater Conservation District ("District") will conduct a public hearing concerning the District's (Proposed new subsection 3.5 E and 3.5 F) Rules of the North Plains Groundwater Conservation District and Proposed Management Plan 2012-2022.

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 District's (Proposed new subsection 3.5 E and 3.5 F) Rules of the North Plains Groundwater Conservation District and Proposed Management Plan 2012-2022.

Date, Time, and Place of Public Hearing.

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

Date: November 29, 2012
Time: 7:00 PM
Location: First State Bank
500 E 1st Street
Dumas, TX 79029

Procedures for Submitting Public Comments on Proposed Rules.

A. **Oral Comments:**

Any person may appear in person, or by authorized representative, at the public hearing on the adoption of the Proposed Rule and the repeal of the Current Rule. 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 legal 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 District's (Proposed new subsection 3.5 E and 3.5 F) Rules of the North Plains Groundwater Conservation District and Proposed Management Plan 2012-2022.

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;

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NORTH PLAINS GROUNDWATER
CONSERVATION DISTRICT
P O BOX 795
DUMAS TX 79029

REFERENCE: 1000503248
G2565135 REVISED MANAGEMENT

THE STATE OF TEXAS
BEFORE ME, a Notary Public in and for the
State of Texas, personally appeared

Diane Maynard

LEGAL CLERK of the Amarillo Globe-News Publishing Company, after being by me duly sworn did dispose and state that the above statement is true and correct and the attached was published on the dates set forth therein.

RUTH ELLEN LYNCH
NOTARY PUBLIC,
STATE OF TEXAS
My Commission Expires 05-21-2015

PUBLISHED ON: 11/06, 11/13

FILED ON 11/06/2012

Sworn and subscribed to before me the 13 day of Nov 20

Ruth Ellen Lynch

Notary Public State of Texas

NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF
ADOPTING A REVISED MANAGEMENT PLAN

TO: ALL INTERESTED PERSONS.

The North Plains Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

Date, Time, and Place of Public Hearing.

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

Date: November 29, 2012.
Time: 7:30 p.m. Central Standard Time
Location: North Plains Groundwater Conservation District Board Room
603 East First Street
Dumas, Texas 79029.

Procedures for Submitting Public Comments on Proposed Rules.

A. Oral Comments:

Any person may appear in person, or by authorized representative, at the public hearing regarding the proposed revisions to the District's 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 legal 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 Management Plan. The District will not consider any comments of an observer in its proceedings.

All persons must indicate on the registration form whether their comments are generally directed to the entire proposed revised Management Plan or whether they are directed at specific items in the proposed revised Management Plan. If directed at specific items in the proposed revised Management Plan, the number of the items in the proposed revised Management Plan must be identified on the registration form. If it becomes apparent during the oral comments that what were indicated to be merely general comments are, in fact, specific comments, the presiding officer may ask the person to specifically identify the proposed items in the proposed revised Management Plan to which the oral comments are directed.

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 revisions to the 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 requiring limitation.

B. Written Comments:

1. Written comments on the proposed revisions to the Management Plan must be filed with the District by mail or hand-delivery at the District office at 603 East First Street, P. O. Box 795, Dumas, Texas 79029-0795. All written comments must be filed with the District and date-stamped no later than Monday, November 26, 2012 at 5:00 p.m. Central Standard Time.
2. Written comments should be filed on 81/2 x11 inch paper and be typed or legibly written. Written comments must indicate whether the comments are general and directed at all of the proposed revisions to the Management Plan, or whether they are directed at specific items in the proposed Management Plan. If directed at specific items in the proposed Management Plan, the number of the proposed item must be identified and followed by the comments on the specifically identified item of the Management Plan.

C. Response to Comments:

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

Procedure for Obtaining the Revised Management Plan.

Copies of the proposed Management Plan may be obtained from the District by:

1. telephoning 1 (806) 935-6401;
2. e-mailing a request to the District at kwelch@northplainsgcd.org
3. visiting the offices of the District at 603 East First Street, Dumas, Texas 79029-0795; or,
4. visiting the District's website at www.northplainsgcd.org

Opportunity to Attend the Board Meeting at which the Revised Management Plan May be Adopted.

The meeting of the District's Board of Directors to consider the Proposed Plan will be held on December 18, 2012 at 9:30 a.m. Central Standard Time.

SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN

(1) Providing the most efficient use of groundwater by calculating total annual groundwater withdrawals through water use reporting by all producing water right owners that have a well capable of producing more than 25,000 gallons of groundwater a day, and by providing support through the District's North Plains Research Field to promote research into drought tolerant crops, efficient water management strategies and other research promoting water use efficiencies;

(2) Controlling and preventing waste of groundwater by managing groundwater withdrawal amounts based on an allowable production limitation to encourage well owners to avoid groundwater waste and by controlling and preventing the waste of groundwater as defined by the Texas Water Code through the enforcement of District "Waste" rules;

(3) Controlling and preventing subsidence is not applicable to the District;

(4) Addressing conjunctive surface water management issues by participating with surface water management entities during the regional planning process;

(5) Addressing natural resource issues by monitoring aquifer characteristics that impact the use and availability of groundwater and which are impacted by the use of groundwater through District programs by maintaining a network of water quality and water level monitor wells;

(6) Addressing drought conditions by providing residential stakeholders with information and tools to conserve during dry and peak use periods;

(7) Addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost effective through various District programs; and

(8) Addressing the desired future conditions (DFC) adopted by the District under Section 36.108 by identifying the DFCs, by providing the modeled available groundwater data, and setting a date to amend the District's rules after the adoption of the Management Plan.

Date, Time and Place of Stakeholders' Meetings.

The District will conduct Stakeholders' Meetings for public comment and questions on the proposed Management Plan in Perryton, Texas and in Dalhart, Texas as follows:

Perryton, Texas Stakeholders' Meeting

Date: November 19, 2012.
Time: 7:00 p.m. Central Standard Time
Location: Ochiltree County Expo Center
402 Expo Drive
Perryton, Texas 79070; and,

Dalhart, Texas Stakeholders' Meeting

Date: November 20, 2012.
Time: 7:00 p.m. Central Standard Time
Location: Rita Blanca Coliseum
1219 West FM 281
Dalhart, Texas 79022.

Issued this 4th day of November, 2012.

/s/ Steve Walthour, General Manager
North Plains Groundwater Conservation District

NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT

NOVEMBER 29, 2012

FORMAL PUBLIC HEARING

For the Purpose of

ADOPTING A REVISED MANAGEMENT PLAN

and

ADOPTION OF PROPOSED NEW RULES 3.5E AND 3.5F

BOARD OF DIRECTORS
Mr. Gene Born, President
Mr. Brian Bezner, Vice President
Mr. Bob Zimmer, Secretary
Mr. Daniel Krienke
Mr. Harold Grall
Mr. Phil Haaland

DISTRICT STAFF AND COUNSEL

Mr. Steve Walthour, General Manager

Ms. Claire Walsh

Mr. Keith Good - Counsel

Ms. Ellen Orr

FORMAL PUBLIC MEETING - MANAGMENT PLAN.

MR. BORN: I'll call the meeting to order. First we are going to have a formal hearing of a management plan. At this time I'll turn it over to Counsel for the District, Keith Good. Keith.

MR. GOOD: Thank you, Gene. For the record, my name is Keith Good; I serve as general counsel for the North Plains Groundwater Conservation District. It's my pleasure to serve in that capacity this evening and to serve as one of the presiding officers of this meeting.

First of all, for those of you who haven't been to a formal hearing, this is a formal hearing, and it is being recorded by a court reporter, Dana Moreland, out of Amarillo.

The one little housekeeping item I would ask is if you would please turn your cell phones off. We have people who are interested in hearing tonight and who are interested in speaking, and we would like for those listening and those speaking to be uninterrupted by cell phones.

As I stated, this is strictly a formal hearing to receive comments on the adoption of a proposed management plan. And while I'm at it, we'll also have a hearing on the proposed Rules 3.5E and 3.5F.

The Board has worked on the management plan and

on the rules and there have been continued analysis, and there will be continued analysis of these rules and this management plan by the Board based on comments this evening.

Many of you are aware that there have been stakeholder meetings both in Perryton and in Dalhart to discuss both the rules and the management plan.

This evening Steve Walthour the General Manager will make a very similar presentation on the management plan and after that, there will be an opportunity for you to comment on the management plan, if you would like, and then there will be an opportunity for you to comment on the rules after a presentation by Steve.

We have several folks who have signed up to speak, and I would like to call on those at this time, and if you would tell me whether you want to speak on the management plan or the rules, that will be helpful. Sabrina Levin?

MS. LEVIN: Rules.

MR. GOOD: Mark Howard?

MR. HOWARD: Rules.

MR. GOOD: Marty Jones?

MR. JONES: Both.

MR. GOOD: I suspected that. Karlyle Haaland?

MR. KARLYLE HAALAND: Rules.

MR. GOOD: And Jay Goodwin?

MR. GOODWIN: Both.

MR. GOOD: Just as another housekeeping, let me put this into the record. Every person attending this meeting must conform to ethical standards of conduct and exhibit courtesy and respect for all members and observers. No person may engage in any activity during this hearing that interferes with the order and conduct of the District. If in the judgment of the presiding officer a person is acting in violation of this provision, the presiding officer will first warn the person to refrain from engaging in such conduct. Upon further violation by the same person, the presiding officer may exclude that person from the meeting.

So with that, we will ask Mr. Walthour to start the hearing on the management plan. Steve?

MR. WALTHOUR: I'm going to be over here, and we're going to show a short slide show about the management plan. At the end of that, we'll finish back up and I'll turn it back over to Steve and the Board.

To give you a little background of the management plan. We're required to every five years review our plan and then make any amendments to it and either readopt the plan we have or make amendments and adopt a new plan.

The fifth year of the plan is coming up in 2013, and we're required by the State of Texas to have it done by, generally, the first part -- well, not generally. We have to have it done by the first part of 2013, and the Board will be looking at that plan tonight.

Start off in the plan, if you don't have a copy, we've got copies, I think. And I'm going to walk through the plan, just tell you what it's about. And then at that point, I'm going to turn it back over.

Section 1 is the District's Mission Statement. The Board adopted this mission statement about four years ago. "Maintaining our way of life through conservation, protection, and preservation of groundwater resources".

The previous plan had about a page and a half of what our purpose was. This seems to be short and sweet and really what we're supposed to be doing for groundwater in our area. That's in Section I of the plan.

The purpose of the plan, first of all, I've already mentioned to you, it's required by law, and we use the plan -- we'll have to reflect, groundwater management planning will be used as a result of groundwater -- also partial result of groundwater management planning.

The other purpose of the plan is that in management of any resource, you have to have a plan, and this plan here is a fairly short plan; I think it's fairly

concise and clear. And the purpose of this is to try to outline what we need to be doing.

Some of the information that we have to provide, as far as the purpose of the plan is: Providing for the most efficient use of groundwater; controlling and preventing waste of groundwater; controlling and preventing subsidence; addressing conjunctive surface water management issues; addressing national resource issues; addressing drought conditions; addressing conservation, recharge enhancement, rainwater harvesting; and addressing the desired future conditions. That's covered under Section II.

Also we describe the Ogallala aquifer, the Rita Blanca aquifer. You will find that in Section II we have a desired future conditions showing there 40 percent volume in storage remaining in 50 years in Dallam, Hartley, Moore and Sherman counties; 50 percent of volume in storage left in the remaining in 50 years in Hansford, Hutchinson, Ochiltree and Lipscomb counties. The other aquifer that we set desired future conditions for is the Dockum aquifer. This is known as the Santa Rosa aquifer, which is primarily in Dallam, Hartley and part of Western Moore and Sherman counties. And according to the GAM runs that we've run, our desired future conditions was set at no more than 30-foot decline over a 50-year period.

The Dockum aquifer is an aquifer that is called a confined aquifer that acts different than the water table aquifer that the Ogallala is part of.

Also within the Ogallala we've included the Rita Blanca. There's a piece of -- there's another small aquifer in the very Northwest portion of the district that for modeling purposes and water availability purposes have been lumped in with the Ogallala.

Section III discusses the creation of the District. A is the Creation. We were formed as a result of the 1949 Underground Water Conversation Districts Act and we follow Chapter 52 of the Texas Civil Statutes and Texas Water Code. Location and extent. We include all of Dallam, Sherman, Hansford, Ochiltree and Lipscomb counties and parts of Hartley, Moore and Hutchinson. The reasons that we don't have all of Hartley, Moore and Hutchinson is our district was originally set up by -- the boundaries were set up by the Texas Board of Water Engineers back in the 40's, and as they thought at the time to that general extent at the bottom of Hartley, Moore and Hutchinson was the extent of all the groundwater. They knew at that point they weren't messing with the Dockum or Santa Rosa and didn't really have a great idea on that.

If you flip the page to page 10 and look up, you can see the counties by square miles. The two largest

counties we have is Dallam and Hartley, and they are about half again bigger than everything else that was within the district.

If you look down on the middle of 10 you will see a population projections. Part of this information that you'll see in here is from the state water plan. We have stuff that we are required to place in here. According to the Panhandle Regional Water Planning Group adopted plans, the 2011 plan, you can see that throughout the district we are expected to steadily rise until about 2050 and then drop off slightly from 2050 to 2060. Those are based on demographics and we are required to put it in the plan. I do not have an explanation for why it drops off from 2050 to 2060. It's a Water Development Board number.

The background of the District: We have a seven-member board. You can see that at the bottom of 10. And at the top of 11, the District Board adopts the rules and programs, establishes the District practices, hires me, the general manager. And you can go through and it says it sets a budget and it is a locally elected board. Each board member is subject there for four years. We have staggered terms. If someone runs against them, if I have more than one person running for a board seat, we hold an election. And they are elected from their

individual county, with the exception of the board member for Hansford and Hutchinson; he also includes a little piece of Hutchinson County.

The District maintains qualified staff. It's one of the most qualified staffs in the state, I think, but I probably am biased on that.

In D, you will see Authority and Framework. I've already mentioned to you that we are a Chapter 36 District of the Water Code. We were actually created as part of Section 59, Article XVI of the Texas Constitution. So that Article XVI of the Texas Constitution is what has been referred to as the Conservation Amendment of the Constitution, and it was done in 1917.

If you flip the page over on page 12, you will see General Geology and Hydrology; I've mentioned that already.

Local Aquifers. I've already described the Ogallala and the Dockum aquifer for you and the Rita Blanca.

The Rita Blanca is a sandstone type aquifer. There's not an awful lot of water in the District, in that area in the very Northwest part of Dallam County. And most of the wells that we've seen in that area are fairly small wells.

Section IV is the Technical District

Information. You'll notice on 13, Modeled Available Groundwater. We call this a MAG.

At the last legislative session, the language was changed from managed available groundwater to modeled available groundwater. And you can look down at the Ogallala and Rita Blanca aquifer MAG's which has the most water. And the things we're concerned with on that page on 13 that you can see that the MAG for 2010 was 2.2 million acre-feet of water district wide, and as you slope down by 2060, we're going to be at about 1.2 million acre-feet of groundwater available for production by the end of 2060.

You can look at the respective county that you're in, according to the MAG, and see what the available production based on the MAG is today, around 2010, and you can see what will happen in 2060.

Something that I would call your attention to that's not in this is when they run these models, one of the things that does not pop up is that they really haven't taken into account the two dryest years we've had on record the last two years. It's supposed to be applied -- generally these models are on an average of what we think normal is. We know that normal hasn't been around for the last two years.

The Ogallala and Rita Blanca aquifer MAG's, you

can look at the bottom by decade within the district. I broke it out in areas on page 14. We have two management areas. The first management area is the Western side, shows that in 2010 the available groundwater was 1.3 million acre-feet. And then for the Eastern side of the district, the available groundwater was 905,000 acre-feet of water.

A couple of things you need to keep in mind when you look at these is that the area on the west side of the district, Dallam, Hartley, Moore, Sherman counties are a bigger area than the area for Hansford, Hutchinson, Lipscomb and Ochiltree counties.

The second thing to this, if you will look down to the Dockum aquifer, there are only four counties that have any Dockum in it, and you can tell from 2010 to 2060. Since they set a 30-foot decline measure throughout the 50 years, you notice all the numbers are the same. That's how a confined aquifer works is that you pump it off, you turn the pumps off, and the aquifer recovers, as long as there's recharge going back into the system.

The Dockum aquifer is not an aquifer that we have a very good model for, and there will be some money spent in the next couple of years working on that.

B is estimated groundwater use. Annual groundwater use in this table at the bottom that's split

on 14 and on 15 is the amount of water that the District has recorded being pumped over the past, you know, since 2006 through 2011.

Also in the back in the references of this in the appendices which is not attached tonight; it's on the website, we have the Texas Water Development Board estimates of water use. We believe our water use is much more accurate than the Water Development Board's.

And you can see that 2011, if you flip it over and look on page 15, we're loping along at about 1.4 million acre-feet of water a year being pumped or between 1.2 and 1.4. You get to 2011 drought of record and you're looking at almost a 600,000 acre-foot increase in 11. It will probably be -- we think it's going to be fairly high in 2012. We're anticipating that that number will actually be lower because from what we've -- just anecdotically talking to people who produced water this year, it seems that they haven't produced as much, but we do not know what that number is going to be. But we are still in the second year of a drought that we believe started in about mid 2010 around August.

If you flip the page to 16, you can see the amount of groundwater production volumes in acre-feet reported by those district areas. 1.5 million acre-feet was recorded in 2011 out of the Western four counties, and

468,000 acre-feet was reported in 2011 for the eastern counties. But you can look at the previous years and you can see there's a huge jump between '10 and '11. We still think that's probably primarily some of the dryest conditions we've ever seen.

We also did in this Estimated Annual Aquifer Recharge you can tell under C on number 16, we get about 85,000 acre-feet of water estimated for the entire aquifer from annual just recharge from precipitation a year. But when you're pumping out 1.3 million or 1.4 million acre-feet, 85,000 acre-feet of recharge is a drop in the bucket, to say the least. The total annual Dockum aquifer recharge is about 56 acre-feet.

Estimated Annual Aquifer Discharge to Springs. We have water that leaves the Ogallala in our area and enters springs. We do have springs in the area. We have some springs that occur along the Canadian River. We also have some springs that occur over Wolf Creek over in Lipscomb and Ochiltree County. And there are actually some springs in Dallam County up in the Buffalo Springs area, so there's several springs. They account for about 31,000 acre-feet of water produced every year into spring flow.

Estimated Annual Flow Volume Into and Out of the District. This estimate is something -- all of these

estimates is what the Water Development Board requires us to provide. In this we are talking about water that comes out of New Mexico and Northwest Oklahoma Panhandle, it moves into the District, and eventually, if you go to the other end on the south and east sides of the District, east/southeast side, down around Lipscomb County, it leaves the District going back into Oklahoma or flows down into Hemphill County and into the Canadian River there.

You can look at the flow volumes on the next page for both of the aquifers of how much water moves in and out of the District. I would like you to go through those numbers on 17.

On page 18 we're talking about Projected Surface Water Supply. We do have surface water in our area. And the projection for 2000 was 18,000 acre-feet of water, surface water supply. These are water supplies that have either been designated or developed by public water supplies or industrial users and others. You can see that we pump around or have a supply of about 10,000 acre-feet of water per annum. It looks like it's going to stay about that way throughout the system.

Under G, Projected Total Water Demand, number 18, this is a water demand chart that is provided by the Texas Water Development Board on their estimates of water demand over the next 50 years. It actually shows 60

years, but for 2010 on 50 years, and this has to be included in our management plan for y'all to review.

The next page, on 19, you look at that, it says Estimated Water Supply Needs. The way this table is developed is real simple. You see the negatives. The Water Development Board, they take the number over on the Projected Total Water Demand, for example, the water demand for 2010 in Dallam County, and they look at what the available water is and the water that they don't have, have not calculated in the system pops up as a negative.

132,889 acre-foot in Dallam is basically an unmet need in that the State believes that there should be more water available than what's being used. We're pumping a lot of water today. There needs to be 132,000 acre-feet of water available with that pumping demand.

Section V is Projected Water Management Strategies. This is on page 20. This is a Texas Water Development Board State Water Plan for our area. You can see what strategies are out there.

Drill additional groundwater wells. I can tell that you that strategy is primarily for public water supplies and industrial, not for irrigation.

Irrigation conversation is a huge strategy for saving water. We believe that there are lots of efficiencies still to be found out there. We believe that

through some of our programs that we have working today that we can achieve quite a bit of conservation, better than we've done.

Municipal conservation is essentially an untapped need, untapped conservation that we're going to be working on the next few years. The reason that Hartley, Lipscomb, and Sherman counties don't have a Municipal Conservation check by them has to do with, I think, the number of persons in those counties.

Involuntary transfer of water from others. This is a -- you can read through there to see what that's about. This is actually moving water from one use to another use.

On 21, if we fully implement all of the strategies that are in the State Water Plan, the 2012 State Water Plan, we can save about -- you can look at the numbers below. By 2020 we can save 240,000 acre-feet of water a year to by 2060 almost half a million acre-feet of water just through conversation of water management strategies.

Section VI. This is the goals of District, management goals. We have several management goals I'll go over with you tonight. If I could read the whole thing to you, I would, but I do want to go through these just to kind of give you a highlight.

The first management goal is to provide for the most efficient use of groundwater. You can see we can have a couple of management objectives listed there. The second management goal is controlling and preventing the waste of groundwater. You can look through our management objectives there. We've got two management objectives and two performance standards. We have not listed all of our management objectives. We picked out the most important one to list in this management plan that we will keep focusing on for the next year.

Some things we are doing already, and it's already moved from a management objective to something we do every day, something we're not planning to continue to achieve.

Under Management Goal: Controlling and Preventing Subsidence. We don't think we have much subsidence here, though we have to address it in our plan. We basically say we don't have much subsidence here, so it's not something we're going to focus on.

Conjunctive Surface Water Management Issues. Well, look back at our 9,000, 10,000 acre-feet of water and you see, well, we don't have a heck of a lot of water there, why are we worried about a management goal? We work with all the other surface water suppliers in the area as part of our regional water planning. And as a

District we support the development of surface water, you know, other means of using water other than pumping it out of the ground. So we work with them, with those entities that particularly participate in the regional water planning group, because occasionally they will come up and ask for something that will help them develop better surface water supply.

The next Management Goal: National Resource Issues That Impact the Use Availability of Groundwater Which are Impacted by the Use of Groundwater. I did not come up with that title, that came out of the statutes. In this we -- you know, we monitor aquifer characteristics. That's where a lot of our -- Dale Hallmark back here in the very back is our hydrologist. Most all of you know him. He spends a lot of time working on those issues providing us information to help better manage our resource.

Addressing Drought Conditions. For this next five years we still focus on our irrigation needs, but we do believe that we need to expand our efforts or at least focus some of our efforts on residential stakeholders. You say, well, why are we going to focus on residential stakeholders, they really don't produce a lot of water? One of the things that I've seen, and I agree with Senator Seliger, I heard this yesterday that, you know, most of

the people in our district are unaware of just how important water conversation is because most of them still live in our little cities and they water their grass; they use water for lots of different things, and we need to continue to educate those guys and gals on water conversation as well as doing our conversation education for irrigation. Because those people are -- you know, we that live in the city, the kids that we have are going to end up probably, if they stay in this area, being a part of agriculture in the future. And the Board believes that every drop does count, and we need to have a concerted effort from everyone on conservation.

Management Goal G: Water Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, or Brush Control Where Appropriate and Cost-Effective. You will find that under the recharge enhancement we have dropped that one -- or sorry -- precipitation enhancement, we have dropped that. We discontinued our cloud seeding program in 2006 and '7 and do not do that today. We shifted those funds to do other things. We believe that we'll get more bang for our buck out of our conversation education programs and our demonstration projects.

Management Goal: Desired Future Conditions of the Groundwater Resources. In this Management Objective

you will see: Revise District Rules to achieve Desired Future Conditions of the Ogallala, Rita Blanca and Dockum aquifers. We'll be doing that over this next year. We'll be having hearings like this, and we'll be doing stakeholder meetings going through that process.

We have Management Objective: Monitor the condition of the aquifers and status of groundwater production compared to the adopted DFC's. One of the things we've realized early on is that it's not just how much water is coming out of the ground but also what is the effect on the aquifer. We really do have declines in an area based on just the pumping, you know, is the model correct?

The last Management Objective in this is joint plan with other groundwater conservation districts to achieve DFC's. We are part of Groundwater Management Area Number 1. In our area we are -- as one of my board members say, we have to play in the same sandbox as the High Plains Underground Water Conservation District, the Panhandle Groundwater Conservation District and Hemphill County. It's collectively that group of joint planning makes the decisions on what our DFC's are. The District goes to that group of joint planners and proposes the DFC and then it has to be voted on. I think 2 out of 3 of the districts have -- you know, you have to have a two-thirds

majority to pass a DFC or change a DFC.

And then the last Management Goal: Other Management Goals Included in the Plan By The District. We didn't add anything else in there; we didn't think we needed to. And then if you flip over, look at page 28, you can see the sheet that we do, Required for Plan Approval.

If you want the full copy of all of the notes for the -- and there's references in the appendices in this if you want to see where our information comes from. We have all of the copies of the appendices on our website. If you would like to see a full copy of those we can e-mail them to you and you can print them out. We did not print them out tonight to save on paper.

Some important dates that you need to fall in. The first one says, regarding this management plan, written comment regarding the plan is due by November 26. We have passed that. However, if you make written comment between now and the board meeting on December 18th, though, I personally may not have enough time to review it before it goes to the Board, we will put everything in front of the Board for consideration. So if you still have comments, you can e-mail me. I've received e-mails. I've received stuff on paper. And if there's anything else that you would like to comment on the management

plan, you can even contact me verbally, and I will attempt to try to get the information in front of the Board.

We're having the hearing tonight, and the Board will consider adoption of the management plan and any amendments that it would want to add to it on December 18th. It does not mean -- what the Board can do at that meeting generally is they can adopt the proposed plan as is, make changes to the plan, not adopt it in December, adopt it early in January, February of the next year; though we need to have it done by March. And then once it's done, we have some other hoops we have to jump through with the Texas Water Development Board to get with them so that the Water Development Board can approve the plan, finally approve the plan.

And at this point I have comments up here, but I'm going to turn it back over to you, Keith.

MR. GOOD: Thank you, Steve. Before we get into -- we've got a couple of speakers that want to address the management plan. But as I mentioned earlier, this is a formal hearing before the Board. The Board is convened here this evening for the sole purpose of hearing public comment. In that setting, the Board will not answer questions. The Board may ask questions to any speaker, but the Board will not answer questions, primarily because the Board wants to take the time to

consider all of the comments, the comments it received in stakeholders meetings, the written comments it may receive and the comments this evening. That's the reason that -- and they want to sit as a body and make those considerations.

So that's the basic game plan for that. We'll ask all of the speakers, if you will, to come up here and address the Board from the podium. We would like you to do that for two reasons, one the Board can hear you better and also the court reporter can hear you better.

So at this time we'll call Marty Jones to address the proposed management plan.

MR. JONES: I just had a couple of comments about the proposed management plan at page 26 under paragraph H having to do with DFC's, the performance standard that you have listed will update your rules within a year of adoption of the management plan, yet I noticed that we have, you know, for consideration this evening some proposed rules. My comment is that it seems to me that the District is adopting rules on a fairly regular basis or changing rules on a fairly regular basis. That I think is not a good policy. I think it's not a good policy because the folks that are sitting here to my right need to be able to plan with some certainty what they are doing from year to year and usually more than

just year to year. Most of these folks are planning for several years. And it becomes difficult for them to plan adequately for compliance with the rules if your rules are in a constant state of flux. Therefor, I think my recommendation would be that you follow what is said here in the management plan but that the management plan be amended to restrict rule changes to every -- no more often than annually or no more often than biannually or something like that, rather than ad hoc and piecemeal as some need is perceived.

The only other comment I have, and this is having to do with your page 22 relating to controlling and preventing waste of groundwater: Obviously waste is a statutorily defined term, yet I see in B.1. here some kind of implied linkage between the allowable production limitations that might be imposed by your rules and the concept of waste. I understand that a district can and a lot of districts do define the term waste in such a way as to include production in excess of an allowable production limit. And I understand that there's a lot of smart Austin lawyers who think that they therefore can parlay a violation of production allowables into something that equates with waste under the Texas Water Code. That's yet to be tested, but I wouldn't test that limit by somehow linking violation of a production limit with the concept

of what -- waste is a very specific concept under the Water Code, and I don't think that exceeding a production limit by some amount actually amounts to waste as defined under the statute, and I just don't really think you should go down that path. And that's all the comments I have about the management plan.

MR. GOOD: Thank you, Marty. At this time I call Jay Goodwin.

MR. GOODWIN: I want to address both the Board and the audience, both. You know my family has been property owners in Texas since the 1850's, been in Moore County since 1901. And I'm not up here to complain about money; you know money is not everything, but until they invent something better, it's going to have to do.

So something that troubled me -- and Marty, if you would correct me, I heard you had a meeting in October to talk about private property rights, that the greatest way to protect your private property rights is to create a larger cone of depression than your neighbors. Am I paraphrasing you right?

MR. JONES: Likely.

MR. GOODWIN: And that's not conservation minded, any ole aspects like that. How many of y'all watched the Dust Bowl program the other night on PBS? You know a lot of that was created by suitcase farming, and

we've got a scenario similar to that with suitcase financing coming in here, outside influences coming in. And whenever the resources are gone, they will be gone. But what about the future generations to come? Until we start getting multi-generational thought process on this water, it's going to -- the day of reckoning is going to happen, and it's going to happen pretty quick. So just that's all I've got to say.

MR. GOOD: Thank you, Jay. Steve, do you have a follow-up?

MR. WALTHOUR: Well, I had a question for Marty. On that section that you felt like was not -- should not be placed under that management goal under waste, preventing the waste of groundwater, if you were going to place that elsewhere in this, do you have a preference?

MR. JONES: Are you asking where to put a production limitation piece as part of the management plan?

MR. WALTHOUR: Yes.

MR. JONES: I would put it under desired future conditions I think.

MR. WALTHOUR: Okay, thank you.

MR. GOOD: Any other comment in regard to the proposed management plan?

MR. BOWMAN: I'm Mike Bowman, maybe I downloaded

or didn't download the most recent one, but I didn't come prepared to listen about the management plan because it wasn't on your agenda that I downloaded. Maybe I just didn't get --

MR. GOOD: Okay. There were two announcements published.

MR. BOWMAN: Okay, then I missed it. I'm sorry.

MR. GOOD: And just for the record, we're attaching those and they will be made part of Ms. Moreland's record this evening. If there are no further comments in regard to the management plan, we'll close the public hearing on the management plan and move into the public hearing on the proposed rules.

FORMAL PUBLIC HEARING

ADOPTION OF PROPOSED NEW RULES 3.5E AND 3.5F

MR. GOOD: These are Proposed Rules 3.5E and 3.5F. There are copies of those available; if you don't have those, we will provide those to you.

Also for the record, the District has received written comments on these proposed rules. Those comments are going to be attached and made a part of the record this evening. And for the record the comments are from Eric Kasper DBA Kasper Farms, Kasper Land and Cattle Texas; Mark Howard H Bar H Farms; and Marvin W. Jones who

submitted two written statements, one dated November 9, 2012, and another dated November 28, 2012. These will be attached and made a part of this evening's record.

MR. KRIENKE: Keith, I have a question. If any of the directors have received either phone or visiting with constituents, how would that be made a part of the record, or does it?

MR. GOOD: That would be knowledge that you have that would be part of your deliberations.

At this time I'll turn it over to Steve for presentation on these proposed rules.

MR. WALTHOUR: In front of you there is a two-pager. We did not include all of the pages of the Rules; we felt like using pages 14 in the back and 15, the things underlined are the two proposed rules.

Keep in mind these proposed rules are just proposed rules. The purpose of this hearing is to ferret out anything that the Board may not have considered. And through this process, we do these hearings to see if this is a good idea or a bad idea or if we need to look at them again.

Proposed new subsections 3.5E and 3.5F. 3.5E proposes to require meters on all the wells on each well on a property. And a property is not your entire property but the property that's a groundwater unit that you set up

at the District when you add a well.

3.5F proposes to require meters when a property is pooled. Anything that has been pooled previous to the passage of this rule would stay static and not be required to go back retroactively and put meters on those wells unless you repool it or put a new well in place. In front of you, this is the -- this is the language. I'm not going to read it to you, it's here in E. You can read through how the language fits and what the purpose of -- what the rule says.

We look at the purpose of the Rule 3.5E. We believe meters are generally more accurate in reporting and measuring district production against modeled available groundwater. We believe more accurate groundwater production from a point instead of an area for groundwater availability modeling is probably a better opportunity for us to do a little bit better job on knowing how much water is coming out of the ground.

And meter installation on all of the wells of the property is a fraction of the cost of drilling a new well. If they are repooling or doing a new well, then this could be added into -- these are the three things that are probably the purpose of doing this. A couple of things that we've noticed that I'll point out in drilling new wells in an area. This does not affect anyone that

just has a property that's continued to operate it as they are. All of those methods that we have, alternative measuring methods, stay in place until you actually go out and drill the well.

Under proposed Rule 3.5F -- I won't read it to you; it's there on the screen and in your hands. This rule was proposed in the event that you start pooling properties. It's actually more account for the groundwater coming off of that property.

One of the things that we have run into as far as the accuracy is concerned -- and there is a listing of things -- is that when we look at properties that are pooled, a big issue comes out when we compare it to groundwater modeling.

Ground water modeling is done generally, in our area, is done on about a 1-square mile basis. That's about the size of a cell. Some of our pooled units are 2 1/2 cells in size or 2 1/2 sections in size up to 1600 acres. When the water all comes off of one little area on that 1600 acres, it can cause some problems with the modeling and the accuracy of the information coming back from the MAG. And the purpose for both of these rules, as far as more accuracy is concerned, we believe that when using the alternative measuring methods, we generally as producers are reporting numbers that are

probably higher production numbers than actually are being produced. They are probably producing less than that. And I can go through each of the examples of by going to a meter we believe it to be more accurate.

The important dates on this. We talked about November 26th for purposes of written comment. We've already read into the record tonight the people who have given up written comment for this meeting on the 29th. If you want to provide anymore written comment, if you will provide it to us before our December 18th board meeting, we will certainly provide it to the Board. The earlier you provide it, the better it is I can place it in the board packets. The board packets generally go to the board a week in advance. If you have got any additional information you would like to include, if you get it to us the Tuesday before, we can include it in the packet also.

As with the management plan, the board may choose several options when it considers these rules on December 18. They could postpone consideration. They could amend what they have proposed, as long as they don't amend it too much or they have to go back through this hearing process, and/or they can adopt it. These are the options that I see that the Board can do, and that's what the purpose of this hearing is tonight.

And we're to the comment section. Keith?

MR. GOOD: Thank you, Steve. At this time we will call speakers who have signed up to speak to the podium. I would ask that in the name of time, that you do limit your comments strictly to the rules that are proposed and limit your comments to that.

At this time, we'll call Tom Moore.

MR. MOORE: I was hoping I would be the last one so I could go and sit down. I'm not much of a public speaker, and I apologize, so bear with me. I would like to address the Board, and I've tried to express to all of you that I know I think you've done a really good job in setting the rules in the past, and those rules have not caused a great deal of economic destruction to our economy. Through the time you've allowed us to adjust to the rules with the way things were set up that would allow us to go on and make provision. Like the man said, we plan years in advance, and it allowed us to make provision for the reduction in water.

And the Board has exercised sound judgment. And the gradual decline we were able to adjust to. Who would have thought the reserve would have been as important as it has been when it was set up, but it's been vital in the last few years. So you've done a good job and I appreciate that.

But in your mission statement you talk about

maintaining our way of life through conservation, protection and preservation of our groundwater resources. These two rules do nothing of the sort. The new rule doesn't add anything to the intent of the mission statement. It's needless repetition of recording. If you have got a central location recording what you're pumping, why meter it twice? It's just nothing but costly and no value. If it's being metered, it's being metered. And I realize Steve has said basically in the paperwork we may be saying we're pumping more than we are. I'm sorry, that is not my intent. My intent is to save water, and that rule does not save water.

You've done a good job of education, and I feel like y'all do make a good decision, and I appreciate your time, I really do. This is the most important board in the Panhandle of Texas, and I thank you.

MR. GOOD: Thank you, Tom. Myles Frische.

MR. FRISCHE: Right here.

MR. GOOD: Okay, here you go.

MR. FRISCHE: Well, I didn't know I was speaking.

MR. GOOD: You signed up to speak.

MR. FRISCHE: Well, I have hearing aids, and they said would you, and I suppose I will, but okay, I'm up here. Works for me.

To make a long story short, I agree with Tom. Like metering and stuff, the metering part is like I think a lot of things that we're doing right now is redundant. I mean, the rules that we've done in the past were like center metering and then have to go back and meter at the well. I mean, my family is very large in farming, it's a very economic -- costly to us to do that. And, I mean, economics to me will determine how much water you will use or not use. I mean, we strive greatly in the past and then this year again. I want to make sure that next year we have plenty of water to make everything that we do as good and not stretch our water and make everything pay and not waste any water. To me that is wasting water if you're not doing a good job in our management as being a farmer.

But, as far as the rules go, and like I said, I'm not here prepared to do anything. I guess I need to get my hearing aids tuned up. But I think a lot of the things that we do are -- and I agree with Tom, all of you guys -- and I know most of you guys up here. You're my neighbors and we've talked a lot and stuff.

But the bottom line is, economics to me will dictate. If it works, it does it. I don't think there's a man or woman sitting in this room that wants to waste one drop of water. I mean, because as the years go out,

Texas Panhandle is -- when it's all said and done, it's all just -- if we don't have water here, we have nothing. And I believe that with all my heart.

But I don't believe in redundancy. I do not -- like you guys, I mean, you guys are doing a great job at -- I don't have any notes or whatever, but I just feel like that every operator in here will do the best job that he can to make his operation work and not waste any water and make his farm very economically feasible. Because if it doesn't work for you, you won't be in business very long, and that's pretty much the way it is, you know. Thank you.

MR. GOOD: Thank you, Myles. It's been my law firm's privilege to serve this Board for many, many years of this District, and one thing that I would like to emphasize what I've seen this board do, as many of you have, too. They listen. And that's what they are here for tonight is to listen. I can take you back to this Board developing the first set of rules, basically the set that you have before you. In May of 2004, it had this hearing, this type of hearing here in Dumas. The board listened. It did not pass those rules at that time. It went back to work, and it had worked almost two years in developing that set of rules. And those rules were rewritten, reworked based on commentary from the public,

and they weren't adopted until January of 2005. So please understand that your efforts to talk to this board, the efforts to make public comment to them, those are really worthwhile efforts. They listen. And I can say that as an outsider looking in, because I've watched them work.

At this time we'll call Karlyle Haaland.

MR. KARLYLE HAALAND: Well, I'm not even sure I really want to speak, because I'm probably arguing against something that's already a done deal. I was just going to say for the record, we sell flow meters. I just want you to know that that doesn't really influence my comments here.

The flow meters, I think you're correct they are more accurate if they are functioning, but there's so many times that these meters will fail during the course of five years. A high number of them are going to fail during the course of five years or so, and there's really not a big incentive for the farmer to get it fixed. If you have a meter that's failed, that's kind of a bonus in a way. So if you look at it as a percentage of incomplete years that you have when you are reporting based on flow meter readings as compared to some of the alternative methods -- which I'm also the owner of Pivot Track, so I've got some personal I guess interest there, also. But if you compare it to that, it seems to me that your

inaccuracies are much greater using the flow meters in some ways than they are using the alternative methods. I feel like we're heading towards flow meters no matter what, and that's probably the way it's going to end up. I just wanted to get that out there. Thank you.

MR. GOOD: Thank you, Karlyle. Mark Howard.

MR. HOWARD: Hi everybody. This is the third time I've got up to speak to y'all about this. I've sent in written comments and everything, so I guess I just want you to know I haven't changed my mind. I don't think this is a cost-effective way of what we're trying to do. And I do agree totally we need to accurately report our usage; it's in everybody's best interest. Don't need to -- I feel y'all read the comments, I know you will.

But James when he spoke awhile ago kind of struck a note with me and I just wanted to -- I don't know if y'all look at our family as suitcase farmers, but we sold everything we had and came here. Now the fourth generation is coming back, and they didn't get to come home to work, they come to Hartley County to work. And I want to have the ability to encourage them to do that knowing that as y'all have been, you will continue to be fair in your rulemaking process, that they don't also constantly live in fear of the next rule that's coming out this month's meeting. We need stability.

We need the ability to -- we don't plan for one or two years. We're talking about ten- and twenty-year plans. Give us that stability, that longevity so we can make these plans, not every month coming up. I do appreciate y'all's work. I know you're in about the toughest position there is, but on paper I put down the rational side and I get up here and talk about the emotional side. Thank you for y'all's work.

MR. GOOD: Good. Thank you, Mark. And as noted, your written comments are part of the record.

Sabrina Leven.

MS. LEVEN: I'm going to say pretty much the same thing Mark said. It's a repeat that we said all along. I think my biggest concern with these rule changes is that you're not treating everyone in the District equally. A small one-section farmer that's got plenty of water can't have the ability to pool can go on down the road with a center pivot.

The bigger guys, on the other hand, they have got pooling options; their crop rotations change; they need to repool. They are going to be out the expense the extra meters. And it's like Karlyle says, I deal with all kind of meters. Half the meters I read are some type of flow meter, and they aren't always reliable. Batteries go dead, propellers break. An alternative you can always go

back to and be as accurate as you can be, and it's there pretty much all year round; you get a gas bill every month; you get an electric bill every month. Those aren't going away. Usually if anything happens, you get charged more than you actually use because of the estimates.

On the other note, y'all are looking at opening these rules up and changing a bunch of stuff to get them more in black and white. I don't understand what the big hurry is for four or five more months.

When you wrote these original rules in January 2005, you thought putting a meter at close collection point was sufficient enough. What's four or five more months going to make a difference? I think you need to wait and do all of your rules at one time. That way rules later down the line don't affect the rule that we're taking the time to pass today.

Give some security to the landowners and tenants that we're not changing rules every six months, something that they can depend on. Because y'all said close collection point; we had a lot of farmers go out and they put meters at all the pivots, because it was more accurate. Now they are going to have to go back and spend more money to put them at all the wells. That's all I've got to say. Thank you.

MR. GOOD: Thank you, Sabrina. Jay Goodwin.

MR. GOODWIN: I pass the podium.

MR. GOOD: Marty Jones.

MR. JONES: Just a couple of comments, really. Steve earlier indicated one justification for the proposed new rules was that the meters are just a fraction of the cost of a well; therefore, we should change the rules to require them everywhere. It seems to me that in terms of government regulation, that's what we're talking about here, that regulation needs to be driven by need, and then we can look at the cost. But looking at the cost as justifying the rule I think is backwards. It's somewhat like saying to me that you can raise my tax rate from 35 to 39 percent because it's not significant, but it is. These are costly, particularly where the rule says that if you put a new well on the property, you have to go back and meter every well on that property, regardless of when it was drilled or how it's being measured today. I think I would need some justification beyond just, well, it's not that expensive.

In terms of isolated drawdown effects, I have looked at a map of drawdowns on all the wells that exist in this District. I actually have it on a PowerPoint, on this little thing here. But essentially what it shows is that a lot of the wells that have been drilled in this area have been here for 30 or 40 years or even 20 years or

even just 10 years, but they have huge drawdown cones associated with them. In other words, they've reached out miles at this point so that all the wells that are in the district essentially are overlapping each other anyway.

I really don't understand why you would need additional meters to understand drawdown effects for the single-cell pieces of the management of -- or model of available groundwater of modeling in the future.

And finally with respect to 3.5F which has to do with putting meters on if you're pooling or repooling. I understand that repooling is quite the sport up here, that folks repool fairly often, and so they are going to run into having to put meters on as they repool, and I am aware of course of what Mr. Good has said, we should confine these comments to these rules.

But the pooling rule and the pooling question with respect to 3.5F kind of necessarily brings up that other topic which I think your pooling rule is a bad rule. I don't know how you justify saying 1600 acres. That seems to be an arbitrary number. 15,000 feet from diagonal corner to diagonal corner likewise seems to be an arbitrary rule, and I think you should consider changing the pooling rule to make it more like the other districts around, for example Panhandle, which it says you own it, you can pool it, as long as it is contiguous. If you get

away from continuity, then we have another issue.

But that said, I go back to what I said a moment ago about the management plan, which is I don't understand the urgency that's being addressed by these proposed rules here today. I know you're going to have to look at your rules again in connection with the changes of the management plan within the next year. I would urge you to take these rules under advisement to look at your pooling rule and the changes that you need to make to the pooling rule and then see if you need to back into some changes with respect to meters on the pool tracts.

MR. KRIENKE: Could I ask a question? What do you understand is the definition of contiguous?

MR. JONES: Well, there's various definitions of contiguous.

MR. KRIENKE: I understand, but I'm asking you personally. What would you think would be a good definition?

MR. JONES: I think it has to touch. I think at a minimum it has to touch. Some districts, as you know, require them to touch by a certain amount.

MR. KRIENKE: I understand.

MR. JONES: Maybe a quarter of a mile; I think that's arbitrary, but I think contiguous.

MR. KRIENKE: Do you think that's a bad word?

MR. JONES: Contiguous? No. I think your rule as it's written says "separate but contiguous" I don't know what that means. But otherwise I'm fine with touching.

MR. HAALAND: Some attorney wrote that.

MR. JONES: Oh, probably.

(Laughter and simultaneous speakers.)

MR. BORN: If in a pooling, it's all right for an individual to pool 40,000 if they own it, why is it not all right for a small landowner that's got a section and then 2 miles away he's got a section and then a mile more of that one has a section that's setting in a smaller area of less than 4 or 5,000 acres, but they have only got 3; why can they not pull them?

MR. JONES: You know, Wesley, I can -- let me just say this carefully. Contiguous as Mr. Krienke has discussed it as touching, I can get consensus for that amongst a lot of folks in this area, but I can't get consensus among those same folks for nontouching, noncontiguous property pooling.

MR. SPURLOCK: I knew you worked on it and thought about it a lot, so I just wanted to ask the question, because there's more people like that than there are the large landowners that can block big chunks together and be able to do anything they want then.

MR. JONES: I understand, and I appreciate the question.

MR. KRIENKE: Could I ask one more question?

MR. JONES: I think Bob had a question. Am I going to be here awhile?

MR. ZIMMER: What do you think or what is your response if you have someone that puts 30 or 40,000 acres together and they use that to go pump a well close to a boundary line extremely hard to the point maybe they cause them and their neighbor across the fence for the saturated thickness to go down 160 foot in one year; is that fair to the neighbor in your opinion?

MR. JONES: I think what you're looking at there is a question of your spacing rules and your rules with respect to what a single well can produce. If that person you are referring to is complying with the spacing rules and complying with the maximum amount that can be extracted from a well -- what is it 200 gallons a minute? If they are complying with those things, and that's still causing a problem, then I guess you would have to go look at the rules. I don't encourage you to do that very often, but to me if they are complying with those two things, then that's just one of the facts of life.

If they are not complying, and likely you are talking about not complying with gallons per minute for

that situation -- because I don't think Steve will allow spacing rules to get violated. I would look at that. I mean, obviously you've got to enforce the rules.

MR. KRIENKE: Do you think this water district has a responsibility to recognize -- or try to protect the water of properties that are not producing water at this time?

MR. JONES: So you're asking if, for example, my mother does not have an irrigation well on a section that is in this district, which is true, does the District owe her an obligation to protect her from drainage by her neighbor? I mean, if that's the question, my answer is going to be a legalistic sort of answer.

The law in the State of Texas, we learned in the Day case that we own the water, or I guess some people learned that for the first time and the rest of us learned it a long time ago. We learned that you own the water, but we also saw that the rule of capture was not abrogated.

And to me the rule of capture says that if you're my mother's neighbor and you're producing an irrigation well and she's being drained as a result of that, then she has no legal remedy. Now, is it the responsibility of the District to step in and modify the rule of capture in such a way as to protect her? I think

that's a hard philosophical question.

To some extent, compliance with your rules will protect her, as long as we're talking about spacing rules and production limit rules and those kinds of things, but I don't think it's the responsibility of the District to go beyond that.

MR. KRIENKE: Why do you think -- I'm assuming Justice Hecht wrote the opinion.

MR. JONES: He did.

MR. KRIENKE: Okay. Why do you think of all the amicus briefs that were entered into the record on that before the judges ruled on that that he chose to point out and talk about the CRMWA amicus which speaks, I believe to that point? Now, I may be wrong, but I'm asking your opinion, of course.

MR. JONES: You know, actually I had dinner with Justice Hecht about a month ago, and he's still real proud of his opinion.

MR. KRIENKE: You're not?

MR. JONES: I told him I thought he was wrong in the part of the opinion when he said we decide today for the first time this issue, and I said no that wasn't true, but otherwise I agree with his opinion all the way across. But I don't know why he chose that particular amicus to focus on.

MR. KRIENKE: Well, in your opinion what does it say?

MR. JONES: The CRMWA amicus?

MR. KRIENKE: Yes. And his writing or his whatever, his expounding on that in the body of the context of the ruling?

MR. JONES: You know, you're giving me like a terrible flashback to law school where I haven't read something in a month, and now I'm getting quizzed about it. Let me just say I don't recall well enough what CRMWA's brief says to comment, but if you have something specific in mind about it...

MR. KRIENKE: Well, that's where my question comes from, because obviously he chose that amicus, which in my opinion I think he attempted to say, first of all, maybe historic use was not good in a mined aquifer like the Ogallala, which would be different from the Edwards aquifer which is the case that was before the court, and if you want to think about what that says then, maybe he's saying that's a good thing that CRMWA went out and bought water rights for way out in the future.

So how do you view that as being important without saying that maybe a water district -- I'm just speculating -- maybe a water district has a responsibility to at least recognize that and try to protect that water

for the future. Now, I'm not saying there's no guarantee. He never went into that, but he thought that was a good thing that CRMWA did that and that it would be a bad thing if a water district chose to maybe use historic usage where that water could never be pumped.

By the same token you take that a step further, if the water districts' rules don't try to recognize that and try to protect that to some point, then the water is not going to be there either. I'm not trying to be a law professor as all.

MR. JONES: I understand and I appreciate that. Frankly, I was having a discussion just yesterday with Jimmy Gaines who you may know from the Texas Landowner's Council. He's proposing some legislation this next go-around that would essentially say that a water district has to protect his water. In other words, if he chooses not to put a well on his property, but all his neighbors have wells, that the water district has to recognize that he had a well, he had water, and it is leaving his property because his neighbors are pumping and the district has to compensate him for that. Now, I don't think we want to go down that path. You know, I mean, that would be a regulatory nightmare; it would be an administrative nightmare. I don't think you want to go down that path.

But in terms of historic use, I think Hecht would agree that historic use probably doesn't work in this kind of aquifer and that CRMWA was in fact wise to go secure what is in essence a bunch of water sites so that they are not just buying 100 acres and putting a big well down and sucking all their neighbors' water.

MR. GOOD: Marty, thank you. I'm trying to get you off the hook.

MR. JONES: Thank you, Keith.

MR. GOOD: Are there any other comments?

MR. BOWMAN: Can I make one? I'm not on your list.

MR. GOOD: Okay. State your name for the record.

MR. BOWMAN: Mike Bowman, and this is going to be a redundant ditto that everybody else talked about. It seems to me that the rule we're talking about, installing meters at every well, once again is redundant.

Most all of ours we have a meter at the pivot, so I'm not sure why we're -- if we're conserving one drop of water or saving one drop of water by having a double metering system out there.

In terms of cost, if I've got a 1600-acre pool, 10 wells on it, and I want to drill one more, the new well is going to cost me 125,000; to put 10 meters on is going

to cost another 25,000, $2,500 a meter. So it is a significant cost; it's not an insignificant cost, at least in my opinion.

MR. GOOD: Thank you. Yes, sir. State your name for the record.

MR. YANK: I've got kind of an addition to that. There are a lot of existing wells that were drilled a long time ago where they put the pump stand, the pump is right here. There's just barely enough room for the cooling coil in there, and there's no place to put the metering device in, so in addition to the $2,500, you've got to hire a man to come out and dig up the pot, move the lines down 10 to 15 feet, reattach, then you get $7,500. I've got about ten wells with that scenario. So in addition to that, you're going to have additional expenses, other than just a $2,500 meter. Whereas right now we have the one meter at the pivot. So I just wanted to add that in.

MR. GOOD: Thank you, Mike. Anyone else?

Mr. President, I declare the rulemaking Hearing closed and turn it back to you.

MR. BORN: Yes, Steve.

MR. WALTHOUR: I have a comment. If you want to make more comments to us, you can send it to us. I have a card up here with my e-mail address, but it's swalthour@northplainsGCD.org. You can send it to us via fax, or you

can send it to us or you can give us a call; we can take it that way or any way you like, if you have any other comment.

Please provide any written comment that you would like for to us review before it goes into the board packet by Tuesday. Anything after that would still be provided to the board, but it would not be reviewed beforehand. Thank you.

MR. BORN: If there's no other business before the Board, I'll entertain a motion to adjourn.

MR. SPURLOCK: So move.

MR. BEZNER: Second.

MR. BORN: All in favor signify by saying aye.

(Unanimous response of aye.)

MR. BORN: We are adjourned.

****

CERTIFICATION

I, Dana Foster Moreland, Certified Shorthand Reporter in and for the State of Texas, do hereby certify that the above and foregoing contains a true and correct transcription of the Public Hearing of the North Plains Groundwater Conservation District held on November 29, 2012.

DANA FOSTER MORELAND, CSR
Texas CSR #2341 (Exp. 12/31/13)
Firm No. 23
AMARILLO COURT REPORTING, INC.
P. O. Box 19628
Amarillo, Texas 79114
(806) 374-4091

NORTH PLAINS
GROUNDWATER
Conservation District

CERTIFIED MAIL

June 13, 2013

Kent Satterwhite, General Manager
Canadian River Municipal Water Authority
P.O. Box 99
Stanford, Texas 79078

Dear Mr. Satterwhite:

The North Plains Groundwater Conservation District adopted its Management Plan on May 14, 2013. Attached is a copy of the plan for your records and review. The District is required to develop this plan in coordination with surface water management entities on a regional basis. The District appreciates the comments and guidance from your office regarding the development and implementation of this plan and we look forward in working with your organization in the future.

Sincerely,

Steven D.
General M

Attachmen

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Kent Satterwhite, General Manager
Canadian River Municipal Water Authority
P.O. Box 99
Sanford, TX 79078

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☒ Agent ☐ Addressee

B. Received by (Printed Name) April Gibbs
C. Date of Delivery 6/18/13

D. Is delivery address different from item 1? ☒ Yes
If YES, enter delivery address below: ☐ No
PO Box 9
Stanford Tx 79078-0009

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NORTH PLAINS GROUNDWATER Conservation District

CERTIFIED MAIL

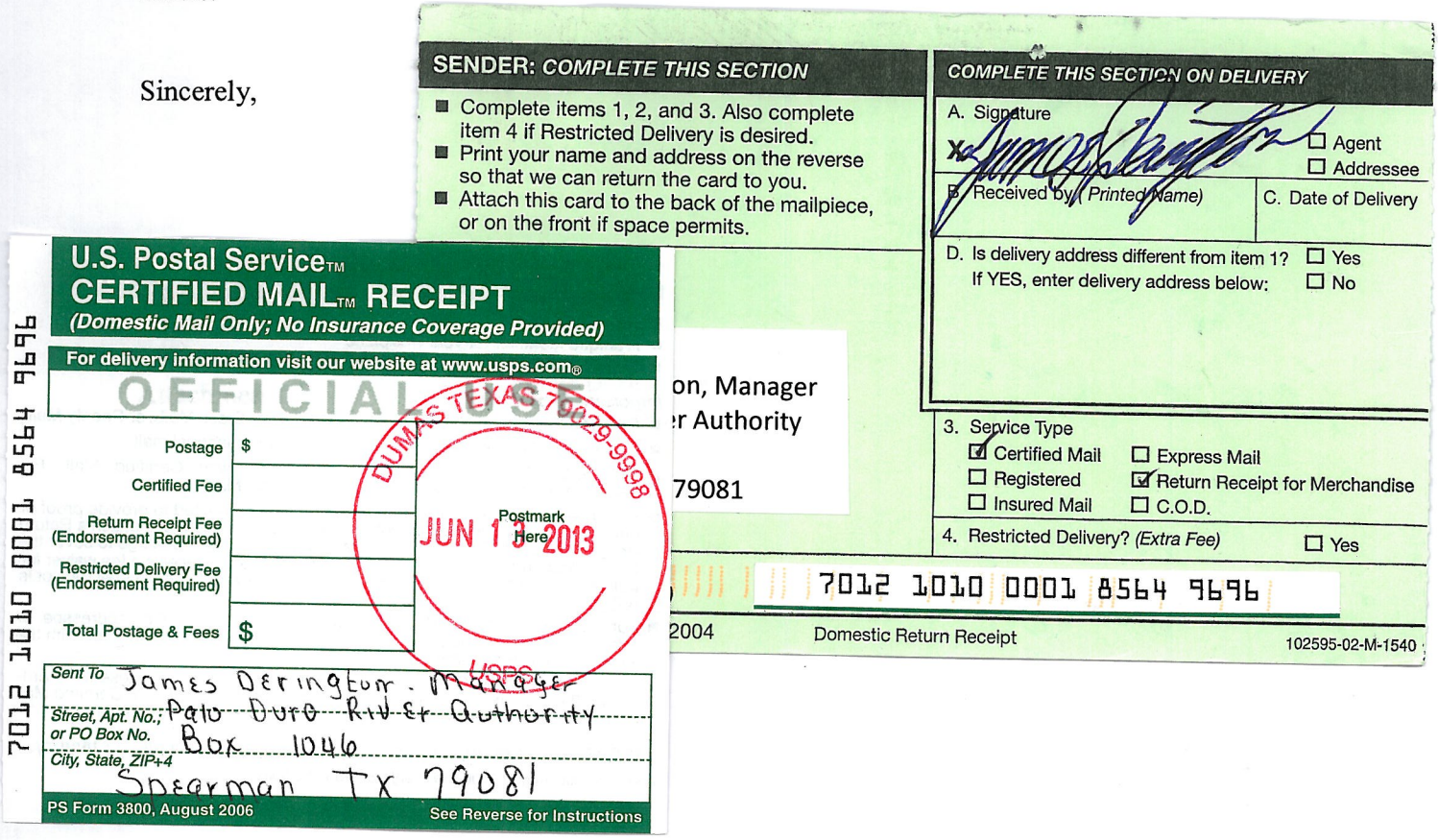
June 13, 2013

James Derington, Manager
Palo Duro River Authority
P.O. Box 1046
Spearman, Texas 79081

Dear Mr. Derington:

The North Plains Groundwater Conservation District adopted its Management Plan on May 14, 2013. Attached is a copy of the plan for your records and review. The District is required to develop this plan in coordination with surface water management entities on a regional basis. The District appreciates the comments and guidance from your office regarding the development and implementation of this plan and we look forward in working with your organization in the future.

Sincerely,



Kirk Welch

From: Steve Walthour
Sent: Monday, June 24, 2013 5:18 PM
To: ksatterwhite@crmwa.com; pdra@triangleinc.net
Cc: Kirk Welch
Subject: North Plains GCD Management Plan
Attachments: NPGCD Management Plan.pdf

Jim and Kent,

The North Plains Groundwater Conservation District adopted its Management Plan on May 14, 2013. Attached is a copy of the plan for your records and review. The District is required to develop this plan in coordination with surface water management entities on a regional basis. The District appreciates the comments and guidance from your offices regarding the development and implementation of this plan and we look forward in working with your organizations in the future.

Have a good day!

Steve Walthour
General Manager
North Plains GCD
806-922-7402

NORTH PLAINS
GROUNDWATER
Conservation District

Mission: Maintaining our way of life through conservation, protection, and preservation of our groundwater resources.

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1. Article Addressed to:

James Derington
Palo Duro River Authority
P.O. Box 1046
Spearman TX 79081

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Jim Derington ☐ Agent ☐ Addressee

B. Received by (Printed Name) Jim Derington
C. Date of Delivery 12-12-12

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If YES, enter delivery address below: ☐ No

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3. Service Type
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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Kent Satterwhite
Canadian River Municipal
Water Authority
P.O. Box 99
Sanford TX 79078

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Michelle Y Mckinney ☒ Agent ☐ Addressee

B. Received by (Printed Name) Michelle Y Mckinney
C. Date of Delivery 12-12-12

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

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2. Article Number (Transfer from service label) 7011 1570 0001 1219 8585

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NORTH PLAINS
GROUNDWATER
Conservation District

CERTIFIED MAIL – 7011 1570 0001 1219 8585

December 10, 2012

Kent Satterwhite, General Manager
Canadian River Municipal Water Authority
P.O. Box 99
Sanford, Texas 79078

Dear Mr. Satterwhite:

You will find attached a copy of the North Plains Groundwater Conservation District (District) Proposed Management Plan. Texas Water Code 36.1071 requires that following notice and hearing, the district shall, in coordination with surface water management entities on a regional basis, develop a management plan that addresses the following management goals, as applicable:

(1) providing the most efficient use of groundwater;
(2) controlling and preventing waste of groundwater;
(3) controlling and preventing subsidence;
(4) addressing conjunctive surface water management issues;
(5) addressing natural resource issues;
(6) addressing drought conditions;
(7) addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost-effective; and
(8) addressing the desired future conditions adopted by the district.

The District provided notice and held its hearing regarding the management plan on November 29, 2012. The public hearing provided interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

To develop our management plan, I request that the Palo Duro River Authority review the proposed plan and provide any comments that the Authority finds appropriate before December 18, 2012. The District will consider your comments and the adoption of its proposed Management Plan on December 18, 2012. You may provide written comments by e-mail to swalthour@northplainsgcd.org or mail comments to:

North Plains Groundwater Conservation District
PO Box 795

Dumas, Texas 79029

Additional copies of the proposed Management Plan and Notice of Hearing may be obtained from the District by:

1. telephoning 1 (806) 935-6401;

2. e-mailing a request to the District at swalthour@northplainsgcd.org;

3 visiting the offices of the District at 603 East First Street, Dumas, Texas 79029-0795; or,

4. visiting the District's website at http://www. northplainsgcd.org.

Sincerely,

Steven D. Walthour, PG.
General Manager

Attachment

NORTH PLAINS
GROUNDWATER
Conservation District

CERTIFIED MAIL – 7011 1570 0001 1219 8578

December 10, 2012

James Derington, Manager
Palo Duro River Authority
P.O. Box 1046
Spearman, Texas 79081

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4. visiting the District's website at http://www. northplainsgcd.org.

Sincerely,

Steven D. Walthour, PG.
General Manager

Attachment

Kirk Welch

From: Kirk via Dropbox [no-reply@dropbox.com]
Sent: Monday, June 24, 2013 9:43 AM
To: Kirk Welch
Subject: Kirk Welch shared "Management Plan for Surface Water-2013.pdf" with you

From Kirk:

"The North Plains Groundwater Conservation District adopted its Management Plan on May 14, 2013. A copy of the plan can be accessed by clicking the link provided. Please contact Kirk Welch at kwelch@northplainsgcd.org if you have any problems downloading the plan. The District is required to develop this plan in coordination with surface water management entities on a regional basis. The District appreciates the comments and guidance from your office regarding the development and implementation of this plan and we look forward to working with your organization in the future.

Sincerely,

Steve Walthour, General Manager
North Plains Groundwater Conservation District
806-935-6041"

Click here to view

(Kirk shared these files using Dropbox. Enjoy!)

© 2013 Dropbox

Municipal Water Supply Management Plan Email List

Company	First Name	Last Name	Address	City	State	Zip	Email
City of Spearman	Ed	Hansen	30 SW Court	Spearman	TX	79081	pubworks@antden.com
City of Darrouzett	John	Horst	PO Box 176	Darrouzett	TX	79024	horstwoodworking@gmail.com
City of Perryton	Jim	Powell	110 S. Ash	Perryton	TX	79070	jim_powell@perryton.net
City of Borger	Jim	Harder	PO Box 5250	Borger	TX	79007	jharder@ci.borger.tx.us
City of Dumas	Vince	DiPiazza	PO Box 438	Dumas	TX	79029	vdipiazza@ci.dumas.tx.us
City of Dalhart	James	Stroud	PO Box 2005	Dalhart	TX	79022	cdalhart@xit.net
City of Farnsworth Water Supply	Eschol	Blankenship	PO Box 226	Farnsworth	TX	79033	eblank@ptsi.net
City of Amarillo	Jared	Atkinson	509 SE 7th Ave	Amarillo	TX	79105	jatkinson@ci.amarillo.tx.us
City of Gruver	Steven	McKay	PO Box 947	Gruver	TX	79040	mark41784@yahoo.com
City of Cactus	Aldo	Gallegos	PO Box 365	Cactus	TX	79013	agallegos@cityofcactus.org
City of Stinnett	Mark	Anderson	609 Mackenzie	Stinnett	TX	79083	manderson@cityofstinnett.com
City of Booker	Don	Kerns	PO Box M	Booker	TX	79005	bookercity@windstream.net
City of Follett	Robert	Williamson	329 S Main	Follett	TX	79034	cityoffollett@live.com
City of Hartley Water Supply	Johnny	Frantz	PO Box 17	Hartley	TX	79018	hwsc@amaonline.com
City of Stratford	Sarah	Ortega	PO Box 188	Stratford	TX	79084	sarahortega@ci.stratford.tx.us
City of Higgins	Randy	Immel	201 N Main	Higgins	TX	79046	higginstxcity@yahoo.com
City of Texhoma	Jeff	Crippen	PO Box 736	Texhoma	TX	73949	texcity@ptsi.net
City of Waka Water Supply	Linda	Meddock	PO Box 10	Waka	TX	79093	lkmeddock@yahoo.com