Red River Groundwater Conservation District

Groundwater Management Plan

Final Draft for Public Hearing

April 23, 2012

Contents

Red River Groundwater Conservation District

Groundwater Management Plan – 2012

The Red River Groundwater Conservation District (the "District") was created by the 81st Texas Legislature under the authority of Section 59, Article XVI, of the Texas Constitution, and in accordance with Chapter 36 of the Texas Water Code ("Water Code"), by the Act of May 25, 2009, 81st Leg., R.S., ch. 248, 2009 Tex. Gen. Laws 686, codified at Tex. Spec. Dist. Loc. Laws Code Ann. ch. 8856 ("the District Act").

The District is a governmental agency and a body politic and corporate. The District was created to serve a public use and benefit, and is essential to accomplish the objectives set forth in Section 59, Article XVI, of the Texas Constitution. The District's boundaries are coextensive with the boundaries of Fannin and Grayson Counties, Texas, and all lands and other property within these boundaries will benefit from the works and projects that will be accomplished by the District.

District Mission

The Mission of the Red River Groundwater Conservation District is to develop rules to provide protection to existing wells, prevent waste, promote conservation, provide a framework that will allow availability and accessibility of groundwater for future generations, protect the quality of the groundwater in the recharge zone of the aquifer, insure that the residents of Fannin and Grayson Counties maintain local control over their groundwater, and operate the District in a fair and equitable manner for all residents of the District.

The District is committed to manage and protect the groundwater resources within its jurisdiction and to work with others to ensure a sustainable, adequate, high quality and cost effective supply of water, now and in the future. The District will strive to develop, promote, and implement water conservation, augmentation, and management strategies to protect water resources for the benefit of the citizens, economy and environment of the District. The preservation of this most valuable resource can be managed in a prudent and cost effective manner through conservation, education, and management. Any action taken by the District shall only be after full considerations and respect has been afforded to the individual property rights of all citizens of the District.

Purpose of Management Plan

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. In 2001, the Texas Legislature enacted Senate Bill 2 ("SB 2") 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.

The Texas Legislature enacted significant changes to the management of groundwater resources in Texas with the passage of House Bill 1763 (HB 1763) in 2005. HB 1763 created a long-term planning process in which groundwater conservation districts (GCDs) in each Groundwater Management Area (GMA) are required to meet and determine the Desired Future Conditions (DFCs) for the groundwater resources within their boundaries by September 1, 2010. In addition, HB 1763 required GCDs, to share management plans with the other GCDs in the GMA for review by the other GCDs.

The Red River 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 Texas Water Development Board's (TWDB) rules.

Technical District Information Required by Texas Administrative Code

Estimate of Modeled Available Groundwater in District Based on Desired Future Conditions

Texas Water Code § 36.001 defines modeled available groundwater as "the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108".

The joint planning process set forth in Texas Water Code § 36.108 must be collectively conducted by all groundwater conservation districts within the same GMA. The District is a member of GMA 8. GMA 8 adopted DFCs for the Woodbine Aquifer on December 17, 2007, and the northern segment of the Trinity Aquifer on September 17, 2008. The adopted DFCs were then forwarded to the TWDB for development of the MAG calculations. GMA 8 readopted DFCs for the Woodbine and Trinity aquifers on April 27, 2011. The submittal package for the DFCs can be found here:

http://www.twdb.state.tx.us/groundwater/docs/DFC/GMA8_DFC_Adopted_2011-0427.pdf

A summary of the desired future conditions and the modeled available groundwater are summarized below.

Aquifer	Fannin County		Grayson County	
	Desired Future Condition	Modeled Available Groundwater (AF/yr)	Desired Future Condition	Modeled Available Groundwater (AF/yr)
	Average Drawdown in 2050 (ft) from estimated 2000 conditions		Average Drawdown in 2050 (ft) from estimated 2000 conditions	
Woodbine[1]	186	3,297	28	12,087
Paluxy[2]	212	288	175	4,708
Glen Rose[2]	196	0	161	0
Hensell[2]	182	203	160	2,345
Hosston[2]	181	209	165	2,347
Total		3,997		21,487

[1] MAG values for the Woodbine Aquifer were documented in TWDB GAM Run 10-064 (Oliver, December 20, 2010).

[2] MAG values for the Trinity Aquifer units (Paluxy, Glen Rose, Hensell, and Hosston) were documented in TWDB GAM Run 10-063 (Ridgeway and Bradley, December 14, 2011).

Amount of Groundwater Being Used within the District on an Annual Basis

Please refer to Appendix A.

Annual Amount of Recharge From Precipitation to the Groundwater Resources within the District

Please refer to Appendix B.

Annual Volume of Water that Discharges from the Aquifer to Springs and Surface Water Bodies

Please refer to Appendix B.

Estimate of the Annual Volume of Flow into the District, out of the District, and Between Aquifers in the District

Please refer to Appendix B.

Projected Surface Water Supply within the District

Please refer to Appendix A.

Projected Total Demand for Water within the District

Please refer to Appendix A.

Water Supply Needs

Please refer to Appendix A.

Water Management Strategies

Please refer to Appendix A.

Methodology to Track District Progress in Achieving Management Goals

An annual report ("Annual Report") will be created by the general manager and staff of the District and provided to the members of the Board of the District. The Annual Report will cover the activities of the District including information on the District's performance in regards to achieving the District's management goals and objectives. The Annual Report will be delivered to the Board within ninety (90) days following the completion of the District's fiscal year, beginning with the fiscal year that started on September 1, 2011. A copy of the Annual Report will be kept on file will be available for public inspection at the District's offices upon adoption.

Actions, Procedures, Performance, and Avoidance for District Implementation of Management Plan

The District is currently operating pursuant to a set of temporary rules adopted on August 29, 2011. The temporary rules were adopted under the authority of Sections 36.101 and 36.1071(f), Texas Water Code, and the District Act for the purpose of conserving, preserving, protecting, and recharging groundwater in the District in order to prevent subsidence, prevent degradation of water quality, prevent waste of groundwater, and to carry out the powers and duties of Chapter 36, Texas Water Code, and the District Act.

These rules are used by the District in the exercise of the powers conferred on the District by law and in the accomplishment of the purposes of the law creating the District. These rules may be used as guides in the exercise of discretion, where discretion is vested. However, under no circumstances and in no particular case will they or any part therein, be construed as a limitation

or restriction upon the District to exercise powers, duties and jurisdiction conferred by law. These rules create no rights or privileges in any person or water well, and shall not be construed to bind the Board in any manner in its promulgation of the District Management Plan, amendments to these Temporary Rules, or promulgation of permanent rules.

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 development and enforcement of the rules of the District has been and will continue to be based on the best scientific and technical evidence available to the District.

The District has encouraged and will continue to encourage public cooperation and coordination in the implementation of the management plan for the District, as it is amended. All operations and activities of the District have been and will be performed in a manner that best encourages cooperation with the appropriate state, regional or local water entity. The meetings of the Board of the District are noticed and conducted at all times in accordance with the Texas Open Meetings Law. The District has also made available for public inspection all official documents, reports, records and minutes of the District pursuant with the Texas Public Information Act and will continue to do so in the future.

Management Goals

A. Providing the Most Efficient Use of Groundwater

A. 1. **Objective –** The District will require all new water wells that are constructed within the boundaries of the District to be registered with the District pursuant to the District Rules.

A. 1. **Performance Standard –** The number of water wells registered by the District for each year will be included in the Annual Report submitted to the Board of Directors of the District.

A. 2. **Objective –** At least once each year, the District will evaluate the District Rules to identify whether any amendments are needed to reduce the amount of waste of groundwater within the boundaries of the District.

A. 2. **Performance Standard –** The District will include a discussion of the annual evaluation of the District Rules and the determination of whether any amendments to the rules are needed to prevent the waste of groundwater in the Annual Report of the District provided to the Board of Directors.

B. Controlling and Preventing Waste of Groundwater

B. 1. **Objective –** The District will annually provide information to the public on eliminating and reducing wasteful practices in the use of groundwater by publishing information on groundwater waste reduction on the District's website at least once a year.

B. 1. **Performance Standard –** A copy of the information on groundwater waste reduction will be provided on the District's website and the information on the published on the website will be included in the District's Annual Report to be provided to the District's Board of Directors.

B.2 **Objective** - The District will encourage the elimination and reduction of groundwater waste through the collection of a water-use fee for nonexempt production wells within the District.

B.2 **Performance Standard** - Annual reporting of the total fees paid and total groundwater used by non-exempt wells will be included in the Annual Report provided to the Board of Directors.

C. Controlling and Preventing Subsidence

This goal is not applicable to the Red River Groundwater Conservation District.

D. Conjunctive Surface Water Management Issues

D.1 **Objective** - Each year the District will participate in the regional water planning process by attending at least one of Region C Regional Water Planning Group Meetings to encourage the development of surface water supplies to meet the needs of water user groups within the District.

D.1 **Performance Standard** - The attendance of a District representative at any Regional Water Planning Group meeting will be noted in the Annual Report provided to the Board of Directors.

E. Natural Resource Issues

This goal is not applicable to the Red River Groundwater Conservation District.

F. Drought Conditions

F. 1. **Objective –** On a monthly basis, the District will download the updated Palmer Drought Severity Index (PDSI) map and update the district's rainfall map that are posted on the district's website: http://www.redrivergcd.org/Conservation.html

F. 1. **Performance Standard –** Quarterly, the District will make an assessment of the status of drought in the District and prepare a quarterly briefing to the Board of Directors. The downloaded PDSI maps and rainfall maps will be included with copies of the quarterly briefing in the District Annual Report that is provided to the Board of Directors.

G. Conservation, Recharge Enhancement, Rainwater Harvesting, and Brush Control

G. 1. **Objective (Conservation)** – The District will submit at least one article regarding water conservation for publication each year to at least one newspaper of general circulation in Fannin and Grayson Counties.

G. 1. **Performance Standard (Conservation) –** A copy of the article submitted by the District for publication to a newspaper of general circulation in Fannin and Grayson Counties regarding water conservation will be included in the Annual Report given to the Board of Directors.

G. 2. **Objective (Rainwater Harvesting) –** The District will provide information on rainwater harvesting each year by offering new information about rainwater harvesting on the District web site at least once each year.

G.2. **Performance Standard (Rainwater Harvesting) –** The District's Annual Report will provide a copy of the information on rainwater harvesting which has been posted on the District web site in the previous year.

G. 3. **Objective (Brush Control) –** The District will evaluate the State Brush Control Plan as it is revised from time to time at least once each year to determine whether projects within the District will increase the groundwater resources of the District.

G. 3. **Performance Standard (Brush Control) –** Upon review of a newly revised State Brush Control Plan, the District's Annual Report will include a copy of the most recent brush control information pertaining to the District.

Goals related to Recharge Enhancement and Precipitation Enhancement are not applicable to the Red River Groundwater Conservation District.

H. Addressing in a Quantitative Manner the Desired Future Conditions

H.1 **Objective** - Within 3 years of Groundwater Management Plan adoption, develop a Groundwater Monitoring Program within the District.

H.1 **Performance Standard** - Upon development, attachment of the District Groundwater Monitoring Program to the District's Annual Report to be given to the District's Board of Directors.

H.2 **Objective** – Once the District's Monitoring Program has been approved, conduct water level measurements at least annually on wells within the District.

H.2 **Performance Standard** - Annual evaluation of water-level trends and the adequacy of the monitoring network to monitor aquifer conditions within the District and comply with the aquifer resources desired future conditions. The evaluation will be included in the District's Annual Report to be given to the District's Board of Directors.

H.3 **Objective** - Monitor non-exempt pumping within the District for use in evaluating District compliance with aquifer desired future conditions.

H.3 **Performance Standard** - Annual reporting of groundwater used by nonexempt wells will be included in the Annual Report provided to the District's Board of Directors.

APPENDIX A

Estimated Historical Water Use And 2012 State Water Plan Datasets:

Red River Groundwater Conservation District

by Stephen Allen
Texas Water Development Board
Groundwater Resources Division
Groundwater Technical Assistance Section
(512) 463-7317

March 27, 2012

Estimated Historical Water Use And 2012 State Water Plan Datasets:

Red River Groundwater Conservation District

by Stephen Allen
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Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
March 27, 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 Water Use (checklist Item 2)

   from the TWDB Historical Water Use Survey (WUS)

2. Projected Surface Water Supplies (checklist Item 6)
3. Projected Water Demands (checklist Item 7)
4. Projected Water Supply Needs (checklist Item 8)
5. Projected Water Management Strategies (checklist Item 9)

   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 this report from the Groundwater Availability Modeling Section. Questions about the GAM can be directed to Dr. Shirley Wade, shirley.wade@twdb.texas.gov, or (512) 463-0749 (to contact the Administrative Assistant).

DISCLAIMER:

The data presented in this report represents the most updated Historical Water Use and 2012 State Water Planning data available as of 3/27/2012. 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 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/wrpi/wus/summary.asp

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

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

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

Groundwater and surface water use estimates are currently unavailable for 2005, 2009 and 2010.
TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

FANNIN COUNTY

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	1,771	994	0	147	29	153	3,094
	SW	890	269	5,994	188	2	1,303	8,646
1980	GW	2,039	0	136	0	0	152	2,327
	SW	1,423	18	5,897	14,195	0	1,220	22,753
1984	GW	1,867	0	352	740	0	154	3,113
	SW	1,264	28	6,035	2,372	0	1,397	11,096
1985	GW	1,949	0	359	906	0	141	3,355
	SW	1,575	25	6,003	2,872	0	1,285	11,760
1986	GW	1,870	0	416	667	0	148	3,101
	SW	1,013	21	5,704	1,000	0	1,345	9,083
1987	GW	1,907	1	358	758	0	136	3,160
	SW	1,325	15	6,188	2,275	0	1,239	11,042
1988	GW	2,010	3	348	1,240	0	142	3,743
	SW	1,615	20	7,000	1,860	0	1,294	11,789
1989	GW	1,828	192	169	259	0	132	2,580
	SW	1,607	14	5,565	667	0	1,200	9,053
1990	GW	2,052	2	206	362	0	134	2,756
	SW	1,678	33	6,520	930	0	1,216	10,377
1991	GW	2,222	3	142	64	0	138	2,569
	SW	1,489	28	3,280	572	0	1,237	6,606
1992	GW	2,113	10	477	352	0	102	3,054
	SW	1,308	16	2,989	1,057	0	915	6,285
1993	GW	2,339	3	410	2,352	0	111	5,215
	SW	1,381	19	4,677	1,056	0	1,005	8,138
1994	GW	2,125	4	330	2,246	0	169	4,874
	SW	1,563	15	3,991	698	0	1,523	7,790
1995	GW	2,372	27	314	2,919	0	152	5,784
	SW	1,838	32	4,628	1,311	0	1,372	9,181
1996	GW	2,172	294	67	2,458	0	176	5,167
	SW	1,556	35	7,908	1,105	161	1,583	12,348
1997	GW	2,161	295	282	2,096	0	120	4,954
	SW	1,899	50	4,685	942	161	1,069	8,806
1998	GW	2,467	773	142	2,096	0	121	5,599

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

Groundwater and surface water use estimates are currently unavailable for 2005, 2009 and 2010.
TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1998	SW	1,567	41	4,284	942	12	1,088	7,934
1999	GW	2,123	773	457	2,096	0	128	5,577
	SW	2,042	40	4,284	942	12	1,164	8,484
2000	GW	2,500	0	503	1,158	0	125	4,286
	SW	2,047	58	8,022	3,450	12	1,143	14,732
2001	GW	2,490	32	157	1,848	0	73	4,600
	SW	2,050	39	2,611	5,543	12	1,194	11,449
2002	GW	2,115	4	173	1,862	0	70	4,224
	SW	2,047	5	2,878	5,585	54	1,140	11,709
2003	GW	2,203	0	147	1,132	0	88	3,570
	SW	2,051	0	2,438	6,506	26	1,449	12,470
2004	GW	2,225	4	139	921	0	86	3,375
	SW	3,503	5	2,301	78	9	1,418	7,314
2006	GW	2,998	0	80	0	6	1,495	4,579
	SW	1,593	5	281	5,567	0	166	7,612
2007	GW	2,741	0	373	0	1	1,705	4,820
	SW	1,778	0	0	4,324	0	189	6,291
2008	GW	3,168	0	486	0	0	1,321	4,975
	SW	1,602	0	0	9,153	128	147	11,030

GRAYSON COUNTY

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	8,455	2,488	0	981	108	197	12,229
	SW	4,072	1,339	0	760	0	1,583	7,754
1980	GW	11,639	3,291	0	2,607	10	211	17,758
	SW	5,111	1,072	0	2,620	0	1,316	10,119
1984	GW	8,671	4,594	0	1,215	429	120	15,029
	SW	4,806	1,158	0	355	96	1,090	7,505
1985	GW	8,531	4,682	0	4,105	544	110	17,972
	SW	4,654	1,029	0	1,226	228	1,001	8,138
1986	GW	9,063	5,103	0	1,643	512	84	16,405
	SW	4,290	827	0	608	322	763	6,810
1987	GW	10,105	4,498	0	1,133	495	91	16,322
	SW	4,318	752	0	59	153	827	6,109
1988	GW	10,591	5,008	0	1,176	450	97	17,322

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

Groundwater and surface water use estimates are currently unavailable for 2005, 2009 and 2010.
TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1988	SW	4,999	774	0	392	0	883	7,048
1989	GW	9,350	5,108	0	2,729	505	95	17,787
	SW	4,199	694	0	240	242	858	6,233
1990	GW	9,702	5,065	0	1,528	505	101	16,901
	SW	4,483	586	0	15	242	923	6,249
1991	GW	9,371	5,117	0	1,296	809	103	16,696
	SW	3,899	596	0	13	243	932	5,683
1992	GW	9,269	4,892	0	1,064	809	114	16,148
	SW	3,251	458	0	145	243	1,029	5,126
1993	GW	8,164	4,191	0	956	809	114	14,234
	SW	5,889	2,235	0	269	243	1,022	9,658
1994	GW	7,663	3,320	0	733	815	146	12,677
	SW	6,238	2,917	0	555	243	1,313	11,266
1995	GW	8,249	3,428	0	2,361	815	131	14,984
	SW	6,796	3,084	0	665	243	1,186	11,974
1996	GW	9,067	3,143	0	1,621	815	187	14,833
	SW	8,903	3,033	0	457	243	1,683	14,319
1997	GW	8,945	3,472	0	2,810	815	103	16,145
	SW	6,725	3,075	0	702	243	920	11,665
1998	GW	10,027	3,248	0	2,759	815	123	16,972
	SW	15,256	2,874	0	1,183	243	1,109	20,665
1999	GW	10,376	2,889	0	3,223	815	137	17,440
	SW	13,403	2,724	0	806	243	1,234	18,410
2000	GW	10,473	3,602	0	2,972	815	130	17,992
	SW	10,587	2,633	0	410	243	1,167	15,040
2001	GW	11,664	2,693	0	1,720	615	71	16,763
	SW	14,963	2,080	0	234	941	1,242	19,460
2002	GW	10,475	1,745	0	1,738	615	68	14,641
	SW	17,378	1,088	0	237	941	1,196	20,840
2003	GW	9,827	1,901	0	1,733	615	70	14,146
	SW	16,673	775	0	467	941	1,212	20,068
2004	GW	7,822	1,163	0	1,546	615	70	11,216
	SW	16,337	796	0	144	941	1,212	19,430
2006	GW	10,704	1,215	0	334	20	360	12,633
	SW	15,296	1,007	0	937	0	1,080	18,320

Estimated Historical Water Use

TWDB Historical Water Use Survey (WUS) Data

Groundwater and surface water use estimates are currently unavailable for 2005, 2009 and 2010. TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
2007	GW	10,070	876	0	616	19	536	12,117
	SW	7,231	707	0	327	0	1,608	9,873
2008	GW	10,496	974	0	0	20	281	11,771
	SW	8,312	576	0	394	0	844	10,126

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

FANNIN COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
C	BONHAM	RED	BONHAM LAKE/RESERVOIR	2,332	2,057	2,242	2,755	3,363	3,363
C	COUNTY-OTHER	RED	BONHAM LAKE/RESERVOIR	242	374	466	538	0	0
C	COUNTY-OTHER	RED	RED RIVER RUN-OF-RIVER MUNICIPAL	20	20	20	20	20	20
C	COUNTY-OTHER	SULPHUR	BONHAM LAKE/RESERVOIR	0	0	0	0	0	0
C	COUNTY-OTHER	SULPHUR	SULPHUR RIVER RUN -OF-RIVER MUNICIPAL	49	49	49	49	49	49
C	COUNTY-OTHER	TRINITY	BONHAM LAKE/RESERVOIR	44	35	25	16	0	0
C	IRRIGATION	RED	RED RIVER COMBINED RUN-OF-RIVER IRRIGATION	14,758	14,758	14,758	14,758	14,758	14,758
C	LIVESTOCK	RED	LIVESTOCK LOCAL SUPPLY	1,139	1,139	1,139	1,139	1,139	1,139
C	LIVESTOCK	SULPHUR	LIVESTOCK LOCAL SUPPLY	364	364	364	364	364	364
C	LIVESTOCK	TRINITY	LIVESTOCK LOCAL SUPPLY	80	80	80	80	80	80
C	MANUFACTURING	RED	BONHAM LAKE/RESERVOIR	73	82	90	98	105	114
C	MINING	RED	RED RIVER RUN-OF-RIVER MINING	72	72	72	72	72	72
C	STEAM ELECTRIC POWER	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	16,400	16,400	16,400	16,400	16,400	16,400
	Sum of Projected Surface Water Supplies (acre-feet/year)			35,573	35,430	35,705	36,289	36,350	36,359

GRAYSON COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
C	COUNTY-OTHER	RED	RANDELL LAKE/RESERVOIR	60	60	60	60	60	60
C	COUNTY-OTHER	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	967	958	942	972	989	1,048
C	DENISON	RED	RANDELL LAKE/RESERVOIR	840	840	840	840	840	840

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
C	DENISON	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	4,980	4,980	4,980	4,980	4,980	4,980
C	HOWE	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM	30	30	30	30	30	30
C	HOWE	TRINITY	LAVON LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM	71	71	71	71	71	71
C	HOWE	TRINITY	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM	49	49	49	49	49	49
C	IRRIGATION	RED	RED RIVER COMBINED RUN-OF-RIVER IRRIGATION	394	394	394	394	394	394
C	IRRIGATION	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	150	150	150	150	150	150
C	IRRIGATION	TRINITY	RED RIVER COMBINED RUN-OF-RIVER IRRIGATION	2,000	2,000	2,000	2,000	2,000	2,000
C	LIVESTOCK	RED	LIVESTOCK LOCAL SUPPLY	1,077	1,077	1,077	1,077	1,077	1,077
C	LIVESTOCK	TRINITY	LIVESTOCK LOCAL SUPPLY	606	606	606	606	606	606
C	MANUFACTURING	RED	LAVON LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM	21	10	5	0	0	0
C	MANUFACTURING	RED	RANDELL LAKE/RESERVOIR	500	500	500	500	500	500
C	MANUFACTURING	RED	RED RIVER RUN-OF-RIVER INDUSTRIAL	30	30	30	30	30	30
C	MANUFACTURING	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	5,225	3,914	3,284	2,851	2,460	2,163
C	MANUFACTURING	RED	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM	16	13	12	11	10	7
C	MARILEE SUD	TRINITY	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	0	0	0	67	85	98

Projected Surface Water Supplies
TWDB 2012 State Water Plan Data

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
C	MINING	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	100	100	100	100	100	100
C	POTTSBORO	RED	RANDELL LAKE/RESERVOIR	0	0	0	0	0	0
C	POTTSBORO	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	560	560	560	560	560	560
C	SHERMAN	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	2,572	3,919	4,462	4,806	5,116	5,327
C	STEAM ELECTRIC POWER	RED	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	3,360	3,360	3,360	3,360	3,360	3,360
C	STEAM ELECTRIC POWER	TRINITY	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	2,240	2,240	2,240	2,240	2,240	2,240
C	VAN ALSTYNE	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM	6	101	175	198	198	193
C	VAN ALSTYNE	TRINITY	LAVON LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM	15	239	406	455	450	433
C	VAN ALSTYNE	TRINITY	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM	11	166	286	325	325	316
	Sum of Projected Surface Water Supplies (acre-feet/year)			25,880	26,367	26,619	26,732	26,680	26,632

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.

FANNIN COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
C	BONHAM	RED	2,348	2,527	3,172	4,337	5,881	7,253
C	COUNTY-OTHER	RED	1,136	1,102	1,056	1,000	950	913
C	COUNTY-OTHER	SULPHUR	183	178	170	161	153	147
C	COUNTY-OTHER	TRINITY	177	172	164	156	148	142
C	ECTOR	RED	96	99	101	102	104	107
C	HICKORY CREEK SUD	SULPHUR	17	18	19	19	20	21
C	HICKORY CREEK SUD	TRINITY	13	14	15	15	16	17
C	HONEY GROVE	RED	102	113	132	156	181	207
C	HONEY GROVE	SULPHUR	319	353	414	489	568	649
C	IRRIGATION	RED	4,608	4,608	4,608	4,608	4,608	4,608
C	LADONIA	SULPHUR	291	577	715	779	879	1,055
C	LEONARD	SULPHUR	5	5	9	14	21	26
C	LEONARD	TRINITY	298	337	457	706	1,019	1,273
C	LIVESTOCK	RED	914	914	914	914	914	914
C	LIVESTOCK	SULPHUR	292	292	292	292	292	292
C	LIVESTOCK	TRINITY	64	64	64	64	64	64
C	MANUFACTURING	RED	73	82	90	98	105	114
C	MINING	RED	12	12	12	12	12	12
C	NORTH HUNT WSC	SULPHUR	49	55	60	63	66	70
C	SAVOY	RED	108	108	106	105	107	109
C	SOUTHWEST FANNIN COUNTY SUD	RED	677	987	1,135	1,231	1,314	1,408
C	SOUTHWEST FANNIN COUNTY SUD	TRINITY	7	9	10	11	11	12
C	STEAM ELECTRIC POWER	RED	1,261	6,363	11,474	11,910	12,443	13,092
C	TRENTON	TRINITY	206	302	496	780	1,163	1,550
C	WHITEWRIGHT	RED	4	5	6	7	7	8
	Sum of Projected Water Demands (acre-feet/year)		13,260	19,296	25,691	28,029	31,046	34,063

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.

GRAYSON COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
C	BELLS	RED	185	271	348	404	456	493
C	COLLINSVILLE	TRINITY	324	441	558	666	780	899
C	COUNTY-OTHER	RED	3,029	2,963	2,850	2,634	2,404	2,149
C	COUNTY-OTHER	TRINITY	439	430	413	382	349	312
C	DENISON	RED	5,489	6,053	6,385	6,493	6,667	6,875
C	GUNTER	TRINITY	271	467	655	837	1,022	1,149
C	HOWE	RED	72	75	83	95	98	99
C	HOWE	TRINITY	331	515	754	990	1,139	1,266
C	IRRIGATION	RED	420	443	466	491	517	545
C	IRRIGATION	TRINITY	3,141	3,308	3,484	3,667	3,864	4,071
C	LIVESTOCK	RED	830	830	830	830	830	830
C	LIVESTOCK	TRINITY	467	467	467	467	467	467
C	LUELLA WSC	TRINITY	410	460	511	582	592	672
C	MANUFACTURING	RED	7,008	7,779	8,451	9,086	9,619	10,442
C	MANUFACTURING	TRINITY	2	2	2	2	2	2
C	MARILEE SUD	TRINITY	80	129	190	259	412	588
C	MINING	RED	383	382	382	381	381	381
C	MINING	TRINITY	669	668	667	667	666	665
C	POTTSBORO	RED	504	851	1,176	1,492	1,811	1,976
C	SHERMAN	RED	10,081	11,240	12,696	14,348	16,586	19,804
C	SOUTH GRAYSON WSC	TRINITY	169	264	342	434	538	672
C	SOUTHMAYD	RED	160	197	258	380	565	703
C	SOUTHWEST FANNIN COUNTY SUD	RED	38	46	47	46	46	46
C	STEAM ELECTRIC POWER	RED	3,360	5,378	7,396	7,396	7,396	7,396
C	STEAM ELECTRIC POWER	TRINITY	2,240	3,585	4,930	4,930	4,930	4,930
C	TIOGA	TRINITY	192	428	588	663	725	757
C	TOM BEAN	RED	39	45	51	57	64	67
C	TOM BEAN	TRINITY	220	256	292	326	362	381
C	TWO WAY SUD	RED	366	519	629	744	855	973
C	TWO WAY SUD	TRINITY	199	283	339	400	460	524
C	VAN ALSTYNE	TRINITY	504	1,411	2,510	3,142	3,419	3,549

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
C	WHITESBORO	RED	436	544	642	740	863	1,157
C	WHITESBORO	TRINITY	328	307	316	330	364	478
C	WHITEWRIGHT	RED	399	627	867	1,041	1,223	1,411
C	WOODBINE WSC	TRINITY	13	13	13	13	13	13
	Sum of Projected Water Demands (acre-feet/year)		42,798	51,677	60,588	65,415	70,485	76,742

Projected Water Supply Needs
TWDB 2012 State Water Plan Data

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

FANNIN COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
C	BONHAM	RED	-16	-470	-930	-1,582	-2,518	-3,890
C	COUNTY-OTHER	RED	3	169	307	435	-61	-18
C	COUNTY-OTHER	SULPHUR	-2	3	11	20	28	34
C	COUNTY-OTHER	TRINITY	-2	-6	-8	-9	-9	-9
C	ECTOR	RED	17	14	12	11	9	6
C	HICKORY CREEK SUD	SULPHUR	-1	-1	-1	-3	-3	-3
C	HICKORY CREEK SUD	TRINITY	0	-1	-1	-1	-1	-2
C	HONEY GROVE	RED	10	-1	-20	-44	-69	-95
C	HONEY GROVE	SULPHUR	32	-2	-63	-138	-217	-298
C	IRRIGATION	RED	12,770	12,770	12,770	12,770	12,770	12,770
C	LADONIA	SULPHUR	29	-257	-395	-459	-559	-735
C	LEONARD	SULPHUR	0	1	-3	-8	-14	-19
C	LEONARD	TRINITY	30	-10	-130	-379	-693	-947
C	LIVESTOCK	RED	442	442	442	442	442	442
C	LIVESTOCK	SULPHUR	213	213	213	213	213	213
C	LIVESTOCK	TRINITY	31	31	31	31	31	31
C	MANUFACTURING	RED	0	0	0	0	0	0
C	MINING	RED	60	60	60	60	60	60
C	NORTH HUNT WSC	SULPHUR	28	22	17	14	11	7
C	SAVOY	RED	11	11	13	14	12	10
C	SOUTHWEST FANNIN COUNTY SUD	RED	68	-244	-392	-489	-572	-667
C	SOUTHWEST FANNIN COUNTY SUD	TRINITY	0	0	-1	-1	-1	-1
C	STEAM ELECTRIC POWER	RED	15,219	10,117	5,006	4,570	4,037	3,388
C	TRENTON	TRINITY	8	-88	-282	-566	-949	-1,336
C	WHITEWRIGHT	RED	0	-2	-3	-4	-5	-6
	Sum of Projected Water Supply Needs (acre-feet/year)		-21	-1,082	-2,229	-3,683	-5,671	-8,026

GRAYSON COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
C	BELLS	RED	19	-67	-144	-200	-252	-289

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
C	COLLINSVILLE	TRINITY	32	-85	-202	-310	-424	-543
C	COUNTY-OTHER	RED	409	466	563	809	1,056	1,370
C	COUNTY-OTHER	TRINITY	14	23	40	71	104	141
C	DENISON	RED	643	79	-253	-361	-535	-743
C	GUNTER	TRINITY	27	-169	-357	-539	-724	-851
C	HOWE	RED	-2	-9	-21	-31	-37	-42
C	HOWE	TRINITY	115	-65	-300	-538	-684	-807
C	IRRIGATION	RED	224	201	178	153	127	99
C	IRRIGATION	TRINITY	1,106	939	763	580	383	176
C	LIVESTOCK	RED	477	477	477	477	477	477
C	LIVESTOCK	TRINITY	269	269	269	269	269	269
C	LUELLA WSC	TRINITY	40	-10	-61	-132	-142	-222
C	MANUFACTURING	RED	30	-2,071	-3,389	-4,465	-5,394	-6,517
C	MANUFACTURING	TRINITY	-2	-2	-2	-2	-2	-2
C	MARILEE SUD	TRINITY	102	53	-8	-10	-145	-308
C	MINING	RED	2	3	3	4	4	4
C	MINING	TRINITY	200	201	202	202	203	204
C	POTTSBORO	RED	179	-168	-493	-809	-1,128	-1,293
C	SHERMAN	RED	37	225	-688	-1,996	-3,924	-6,931
C	SOUTH GRAYSON WSC	TRINITY	339	241	159	66	-40	-177
C	SOUTHMAYD	RED	30	-67	-128	-250	-435	-573
C	SOUTHWEST FANNIN COUNTY SUD	RED	13	5	4	5	5	5
C	STEAM ELECTRIC POWER	RED	0	-2,018	-4,036	-4,036	-4,036	-4,036
C	STEAM ELECTRIC POWER	TRINITY	0	-1,345	-2,690	-2,690	-2,690	-2,690
C	TIOGA	TRINITY	19	-217	-377	-452	-514	-546
C	TOM BEAN	RED	3	-3	-9	-15	-22	-25
C	TOM BEAN	TRINITY	-15	-51	-87	-121	-157	-176
C	TWO WAY SUD	RED	27	-127	-236	-350	-462	-580
C	TWO WAY SUD	TRINITY	20	-64	-121	-183	-242	-306
C	VAN ALSTYNE	TRINITY	-8	-179	-769	-1,401	-1,678	-1,808
C	WHITESBORO	RED	44	-7	-79	-159	-272	-563
C	WHITESBORO	TRINITY	32	-4	-39	-71	-115	-232
C	WHITEWRIGHT	RED	35	-192	-432	-606	-787	-975
C	WOODBINE WSC	TRINITY	0	-1	-2	-3	-3	-3
	Sum of Projected Water Supply Needs (acre-feet/year)		-27	-6,921	-14,923	-19,730	-24,844	-31,238

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

FANNIN COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
BONHAM, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	16	99	163	259	401	555
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	0	4	13	23	30	39
PURCHASE FROM WATER PROVIDER (1)	BONHAM LAKE/RESERVOIR [RESERVOIR]	0	367	754	1,300	1,872	1,863
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	215	1,433
COUNTY-OTHER, RED (C)							
FANNIN COUNTY PROJECT	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	62	145	237	258	265
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	12	40	54	56	57	58
SUPPLEMENTAL WELLS	TRINITY AQUIFER [FANNIN]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
COUNTY-OTHER, SULPHUR (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	2	6	9	9	9	9
COUNTY-OTHER, TRINITY (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	2	6	8	9	9	9
ECTOR, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	1	4	5	6	6	7
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	9	31	54	56	58
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
HICKORY CREEK SUD, SULPHUR (C)							
ADDITIONAL WOODBINE AQUIFER - EXISTING WELLS	WOODBINE AQUIFER [HUNT]	0	0	0	0	0	0
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	1	1	1	2	2	2
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	0	0	0	1	1	1

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
HICKORY CREEK SUD, TRINITY (C)							
ADDITIONAL WOODBINE AQUIFER - EXISTING WELLS	WOODBINE AQUIFER [HUNT]	0	0	0	0	0	0
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	0	1	1	1	1	2
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	0	0	0	0	0	0
HONEY GROVE, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	1	7	16	21	25	31
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	0	0	0	1	1	1
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	22	57	96	117	137
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
HONEY GROVE, SULPHUR (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	2	23	51	64	80	96
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	0	1	1	2	2	3
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	68	178	301	366	430
REDISTRIBUTION OF SUPPLIES	WOODBINE AQUIFER [FANNIN]	0	-20	-40	-60	-80	-100
IRRIGATION, RED (C)							
SUPPLEMENTAL WELLS	OTHER AQUIFER [FANNIN]	0	0	0	0	0	0
LADONIA, SULPHUR (C)							
LAKE RALPH HALL - INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	17	48	82	87	94
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	2	23	36	46	59	80
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	3	8	10	11	13	15
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [DENTON]	0	11	16	18	19	19
PURCHASE FROM WATER PROVIDER (3)	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	3,405	3,405	3,405	3,405	3,405
SUPPLEMENTAL WELLS	TRINITY AQUIFER [FANNIN]	0	0	0	0	0	0

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
LEONARD, SULPHUR (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	0	0	0	1	1	2
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	0	0	0	0	0	0
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	0	1	2	4	5
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [KAUFMAN]	0	1	2	4	5	6
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	1	2	4	4	5
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	1	3	6	8
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
LEONARD, TRINITY (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	3	12	22	37	57	75
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	3	3	4	6	9	11
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	19	49	81	175	236
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	174	210
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [KAUFMAN]	0	65	119	208	240	290
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	73	251	551	849	1,087
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	76	131	305	367
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
LIVESTOCK, RED (C)							
SUPPLEMENTAL WELLS	TRINITY AQUIFER [FANNIN]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
NORTH HUNT WSC, SULPHUR (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	1	2	3	3	4	4
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
SAVOY, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	1	4	5	6	6	7
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	13	33	54	56	57
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
SOUTHWEST FANNIN COUNTY SUD, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	14	42	59	69	79	89
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	399	560	666	756	859
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
SOUTHWEST FANNIN COUNTY SUD, TRINITY (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	0	0	1	1	1	1
STEAM ELECTRIC POWER, RED (C)							
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
TRENTON, TRINITY (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	2	22	69	115	181	255
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	2	3	5	8	13	17
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	120	313	584	897	1,208
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	0
WHITEWRIGHT, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [FANNIN]	0	2	3	4	5	6
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [FANNIN]	0	0	0	0	0	0
Sum of Projected Water Management Strategies (acre-feet/year)		68	4,945	6,540	8,482	10,838	13,317

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

GRAYSON COUNTY

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
BELLS, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	2	11	17	22	26	30
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	1	2	2	3	3	4
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	80	150	210	260	300
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
COLLINSVILLE, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	100	200	300	400	500
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	4	15	24	32	40	49
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	3	4	5	6	7	8
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
COUNTY-OTHER, RED (C)							
CONVEYANCE PROJECT (1)	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	0	0
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	32	108	144	147	143	135
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
COUNTY-OTHER, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	75	860	960	1,160	1,360	1,760

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
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	5	16	21	21	21	20
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
DENISON, RED (C)							
CONVEYANCE PROJECT (1)	RANDELL LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	43	145	382	496	566	641
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	0	0	27	38	39	40
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
WATER TREATMENT PLANT - EXPANSION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	1,121	1,121	1,121
GUNTER, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	180	350	530	700	820
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	3	16	28	39	51	62
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	2	3	4	5	6	6
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	180	350	530	700	820
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
HOWE, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	1	3	4	5	5	6

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
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	1	1	1	1	1	1
PURCHASE FROM WATER PROVIDER (1)	OKLAHOMA LAKE/RESERVOIR [RESERVOIR - OKLAHOMA]	0	0	0	0	0	3
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	0	4	6	7	7
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	6	7
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	5	7	11	7	7
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	5	8	11	11
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
HOWE, TRINITY (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	4	19	35	50	61	72
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	3	5	8	10	11	13
PURCHASE FROM WATER PROVIDER (1)	OKLAHOMA LAKE/RESERVOIR [RESERVOIR - OKLAHOMA]	0	0	0	0	0	42
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	14	33	86	135	157	173
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	73	84
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [DALLAS]	0	24	9	0	0	0
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [KAUFMAN]	9	62	89	121	129	135
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE LAVON [COLLIN]	9	33	61	77	82	86
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	33	60	111	82	90

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	45	85	128	147
IRRIGATION, RED (C)							
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
IRRIGATION, TRINITY (C)							
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
LIVESTOCK, TRINITY (C)							
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
LUELLA WSC, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	38	80	140	150	220
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	5	18	27	33	36	43
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	38	80	140	150	220
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
MANUFACTURING, RED (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	1,935	3,194	4,213	5,079	6,117
MANUFACTURING CONSERVATION	CONSERVATION [GRAYSON]	1	15	175	255	272	291
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	46	109	145	188	241	315
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [DALLAS]	0	6	1	0	0	0
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	9	9	13	8	9

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	15	20	33	39
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
MANUFACTURING, TRINITY (C)							
PURCHASE FROM WATER PROVIDER (1)	CHAPMAN/COOPER LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	2	2	2	2	2	2
MARILEE SUD, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	51	100	175	277
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	0	0	12	17	29	43
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	0	0	2	2	4	6
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
MINING, TRINITY (C)							
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
POTTSBORO, RED (C)							
CONVEYANCE PROJECT (1)	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	280	600	870	1,150	1,275
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	280	600	870	1,150	1,275
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	6	45	77	112	151	181
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	6	14	20	25	32	35
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
SHERMAN, RED (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	2,782	3,514	1,619	5,492	9,016
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	67	217	333	880	1,411	1,850
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	0	0	0	78	102	119
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
SOUTH GRAYSON WSC, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	75	175	300
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	3	12	19	26	34	45
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	0	22	24	21	19
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	19	17
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [DALLAS]	0	37	6	0	0	0
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	63	44	46	27	25
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	28	30	33	39
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
SOUTHMAYD, RED (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	40	100	220	400	525

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	2	8	13	21	33	43
NEW WELLS - WOODBINE AQUIFER	WOODBINE AQUIFER [GRAYSON]	0	60	60	60	60	60
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	40	100	220	400	525
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
SOUTHWEST FANNIN COUNTY SUD, RED (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	1	2	2	3	3	3
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
STEAM ELECTRIC POWER, RED (C)							
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	4,036	4,036	4,036	4,036	4,036
STEAM ELECTRIC POWER, TRINITY (C)							
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	2,690	2,690	2,690	2,690	2,690
TIOGA, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	225	375	425	475	500
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	2	26	48	60	72	81
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	1	4	7	8	9	9
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	225	375	425	475	500
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
TOM BEAN, RED (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	2	7	13	21	22
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	3	10	12	14	16	18
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	0	1	1	1	1	1
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	2	7	13	21	22
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
TOM BEAN, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	8	33	62	99	108
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	19	57	69	79	91	99
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	2	3	4	4	5	5
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	8	33	62	99	108
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
TWO WAY SUD, RED (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	128	225	322	419	515
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	5	21	33	42	51	62
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	3	5	5	6	7	8
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	128	225	322	419	515

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
TWO WAY SUD, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	72	125	178	231	285
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	3	12	18	23	28	33
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	2	2	3	3	4	4
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	72	125	178	231	285
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
VAN ALSTYNE, TRINITY (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	5	70	152	218	265	305
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	3	12	26	35	41	43
PURCHASE FROM WATER PROVIDER (1)	OKLAHOMA LAKE/RESERVOIR [RESERVOIR - OKLAHOMA]	0	0	0	0	0	101
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	0	102	185	217	227
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	192	201
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [DALLAS]	0	38	22	0	0	0
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [KAUFMAN]	0	0	57	186	186	170
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE LAVON [COLLIN]	0	0	108	232	227	193
PURCHASE FROM WATER PROVIDER (3)	LOWER BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	60	174	310	214	216
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	128	236	336	352
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

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

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
WHITESBORO, RED (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	32	101	138	246	495
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	4	27	41	54	71	104
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	0	2	3	4	5	7
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	32	101	138	246	495
WHITESBORO, TRINITY (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	18	49	62	104	205
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	3	15	20	24	30	43
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	0	1	2	2	2	3
PURCHASE FROM WATER PROVIDER (1)	TEXOMA LAKE/RESERVOIR NORTH TEXAS MWD SYSTEM [RESERVOIR]	0	18	49	62	104	205
SUPPLEMENTAL WELLS	TRINITY AQUIFER [GRAYSON]	0	0	0	0	0	0
WHITEWRIGHT, RED (C)							
GRAYSON COUNTY PROJECT	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	200	400	600	750	900
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	3	28	49	67	90	116
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [GRAYSON]	2	4	5	7	8	9
SUPPLEMENTAL WELLS	WOODBINE AQUIFER [GRAYSON]	0	0	0	0	0	0
WOODBINE WSC, TRINITY (C)							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [GRAYSON]	0	1	2	3	3	3

Projected Water Management Strategies
TWDB 2012 State Water Plan Data

Sum of Projected Water Management Strategies (acre-feet/year)	410	16,283	22,456	27,111	35,912	44,433

APPENDIX B

GAM Run 10-032

By Mohammad Masud Hassan P.E.

Texas Water Development Board
Groundwater Availability Modeling Section
(512) 463-3337

September 29, 2010

GAM Run 10-032

By Mohammad Masud Hassan P.E.

Texas Water Development Board
Groundwater Availability Modeling Section
(512) 463-3337

Mohammad Masud Hassan is a Hydrologist in the Groundwater Availability Modeling Section and is responsible for the work performed. The seal appearing on this document was authorized by Mohammad Masud Hassan, P.E.95699 on September 29, 2010

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 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:

(1) the annual amount of recharge from precipitation to the groundwater resources within the district, if any;
(2) for each aquifer within the district, the annual volume of water that discharges from the aquifer to springs and any surface water bodies, including lakes, streams, and rivers; and
(3) the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The purpose of this model run is to provide information to the Red River Groundwater Conservation District for its groundwater management plan based on the district boundaries. The groundwater management plan for Red River Groundwater Conservation District is due for approval by the Executive Administrator of the Texas Water Development Board before September 1, 2012. The Red River Groundwater Conservation District falls within two existing aquifer systems−the Trinity Aquifer and the Woodbine Aquifer.

This report discusses the method, assumptions, and results from model runs using the groundwater availability models for the northern section of the Trinity Aquifer and Woodbine Aquifer. Tables 1 and 2 summarize the groundwater availability model data required by statute for Red River Groundwater Conservation District's groundwater management plan. Figure 1 and 2 shows the areas of the model from which the values in Table 1 and Table 2 were extracted respectively. If after review of the figures, Red River Groundwater Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the Texas Water Development Board immediately.

METHODS:

The groundwater availability model for the northern section of the Trinity Aquifer, which includes the Woodbine Aquifer, was used for this analysis. The results of the run were processed (1) to extract water budgets for each year of the 1980 through 1999 period and (2) to average the 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 northern section of the Trinity Aquifer and Woodbine Aquifer located within the district.

PARAMETERS AND ASSUMPTIONS:

- Version 1.01 of the groundwater availability model for the northern section of the Trinity Aquifer was used for this analysis. See Bené and others (2004) for assumptions and limitations of the model.
- The northern section of the Trinity Aquifer model includes seven layers representing:
    1. the Woodbine Aquifer (Layer 1),
    2. the Washita and Fredericksburg Confining Unit (Layer 2),

3. the Paluxy Aquifer (Layer 3),
4. the Glen Rose Confining Unit (Layer 4),
5. the Hensell Aquifer (Layer 5),
6. the Pearsall/Cow Creek/Hammett/Sligo Confining Unit (Layer 6), and
7. the Hosston Aquifer (Layer 7).

It should be noted that Layer 1 represent the Woodbine Aquifer and layers 3 to 7 represent the Trinity Aquifer.

- The mean absolute error (a measure of the difference between simulated and actual water levels during model calibration) for the four main aquifers in the model (Woodbine, Paluxy, Hensell, and Hosston) for the calibration and verification time periods (1980 through 1999) ranged from approximately 37 to 75 feet. The root mean squared error was less than ten percent of the maximum change in water levels across the model (Bené and others, 2004).

- As described in Bené and others (2004), the evapotranspiration package used in the groundwater availability model represents evaporation, transpiration, springs, seeps, and discharge to streams not modeled by the streamflow-routing package,. Both the streamflow-routing package and the evapotranspiration package were used, as applicable, to extract information needed for discharges to surface water in this analysis.

- Groundwater Vistas Version 5 (Environmental Simulations, Inc. 2007) was used as the interface to process model output.

RESULTS:

A groundwater budget summarizes the amount of water entering and leaving the aquifer according to the groundwater availability models. Selected components were extracted from the groundwater budget for the aquifers located within the district and averaged over the duration of the calibration and verification portion of each model run (1980 through 1999) for the Trinity Aquifer and Woodbine Aquifer in the district. The components of the modified budget shown in Tables include:

- Precipitation recharge—This is the 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—This is the total water exiting the aquifer (outflow) to surface water features such as streams, reservoirs, and drains (springs).

- Flow into and out of district—This component describes lateral flow within the aquifer between the district and adjacent counties.

- Flow between aquifers—This describes the vertical flow, or leakage, 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. “Inflow” to an aquifer from an overlying or underlying aquifer will always equal the “Outflow” from the other aquifer.

The information needed for the district's management plan is summarized in Table 1 and Table 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 Figure 1 and Figure 2).

Table 1: The Trinity Aquifer's summarized information needed for the Red River Groundwater Conservation District's groundwater management plan. All values are reported in acre-feet per year. All numbers are rounded to the nearest 1 acre-foot. Reported flow estimates include both fresh and brackish waters present in the aquifers.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Trinity Aquifer	0
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers[1]	Trinity Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Trinity Aquifer	10,535
Estimated annual volume of flow out of the district within each aquifer in the district	Trinity Aquifer	7,378
Estimated net annual volume of flow between each aquifer in the district	Washita Fredericksburg Confining Unit into Trinity Aquifer	326

Note: 1) The evapotranspiration package of the groundwater availability model includes evaporation, transpiration, springs, seeps, and discharge to streams not modeled by the streamflow-routing package (Bené and others,2004). The surface water outflow estimate in Table 1 includes the results from the evapotranspiration package for model grid cells containing springs and streams not modeled by the streamflow-routing package.

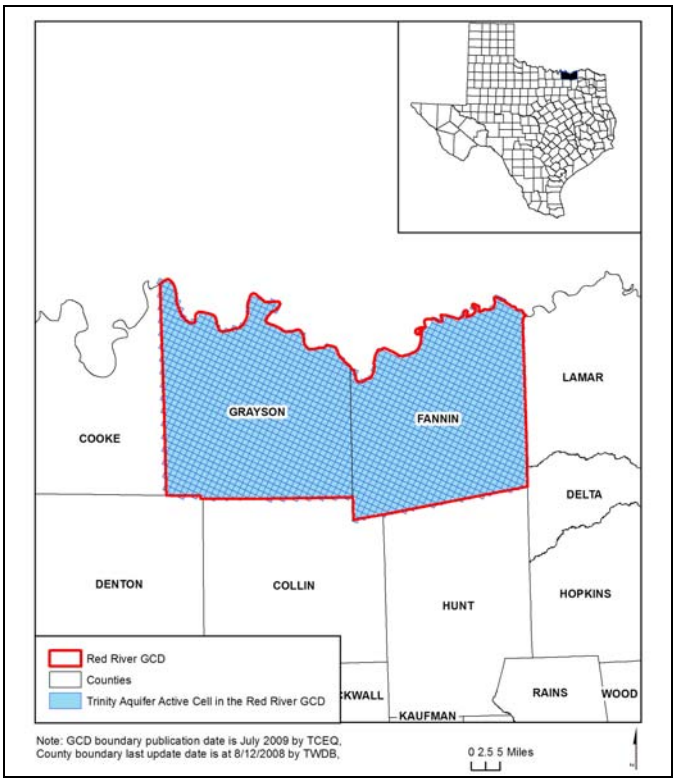

Figure 1: Area of the groundwater availability model for the northern portion of the Trinity Aquifer from which the information in Table 1 was extracted (the aquifer extent within the Red River Groundwater Conservation District boundary).

Table 2: The Woodbine Aquifer's summarized information needed for the Red River Groundwater Conservation District's groundwater management plan. All values are reported in acre-feet per year. All numbers are rounded to the nearest 1 acre-foot. Reported flow estimates include both fresh and brackish waters present in the aquifers.

Management Plan requirement	Aquifer	Results
Estimated annual amount of recharge from precipitation to the district	Woodbine Aquifer	36,390
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Woodbine Aquifer	9,571[1]
Estimated annual volume of flow into the district within each aquifer in the district	Woodbine Aquifer	1,827
Estimated annual volume of flow out of the district within each aquifer in the district	Woodbine Aquifer	2,607[2]
Estimated net annual volume of flow between each aquifer in the district	Inflow from the overlying younger units	171
	Woodbine Aquifer into Washita and Fredericksburg Confining Unit	121

Note:
1) The evapotranspiration package of the groundwater availability model includes evaporation, transpiration, springs, seeps, and discharge to streams not modeled by the streamflow-routing package (Bené and others,2004). The surface water outflow estimate in Table 2 includes the results from the evapotranspiration package for model grid cells containing springs and streams not modeled by the streamflow-routing package.
2) The River and Stream Package represent the flow between the aquifer and Red River along the District boundary. The amount of flow which is leaving the district boundary and also discharging to the Red River is 784 acre-feet per year. To avoid double accounting, this volume has been included with the annual volume of flow leaving the district..

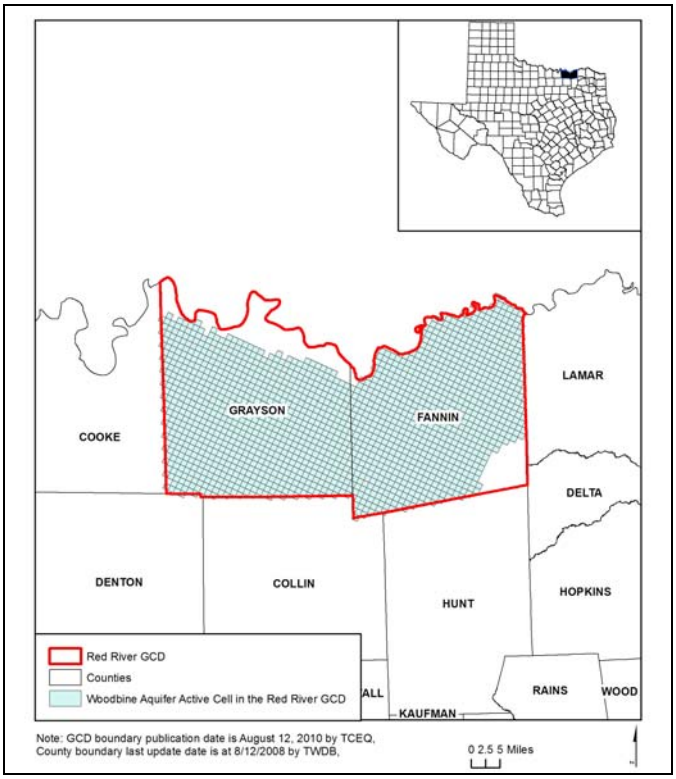

Figure 2: Area of the groundwater availability model for the Woodbine Aquifer from which the information in Table 2 was extracted.

REFERENCES:

Bené, J., Harden, B., O'Rourke, D., Donnelly, A., and Yelderman, J., 2004, Northern Trinity/Woodbine Groundwater Availability Model: contract report to the Texas Water Development Board by R.W. Harden and Associates, 391 p., http://www.twdb.state.tx.us/gam/trnt_n/trnt_n.htm.

Environmental Simulations, Inc., 2007, Guide to Using Groundwater Vistas Version 5, 381 p.

LBG-Guyton Associates, 2003, Brackish Groundwater Manual for Texas Regional Water Planning Groups: contract report to the Texas Water Development Board, 188 p., http://www.twdb.state.tx.us/RWPG/rpgm_rpts/2001483395.pdf.

Aschenbach, E., 2009, GAM Run 09-22, 6 p.
http://www.twdb.state.tx.us/gam/GAMruns/GR09-22.pdf

APPENDIX C

Red River Groundwater Conservation District

Temporary Rules for Water Wells in Fannin and Grayson Counties, Texas

As Amended on March 21, 2012

Red River Groundwater Conservation District

Temporary Rules for Water Wells in Fannin and Grayson Counties, Texas

As Amended on March 21, 2012

Procedural History of Rules Adoption

These temporary rules of the Red River Groundwater Conservation District were initially adopted by the Board of Directors on August 29, 2011, at a duly posted public meeting in compliance with the Texas Open Meetings Act and following notice and hearing in accordance with Chapter 36 of the Texas Water Code.

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PREAMBLE

The Red River Groundwater Conservation District ("District") was created in 2009 by the 81st Texas Legislature with a directive to conserve, protect and enhance the groundwater resources of Fannin and Grayson Counties, Texas. The District's boundaries are coextensive with the boundaries of Fannin and Grayson Counties, and all lands and other property within these boundaries will benefit from the works and projects that will be accomplished by the District.

The Mission of the Red River Groundwater Conservation District is to develop rules to provide protection to existing wells, prevent waste, promote conservation, provide a framework that will allow availability and accessibility of groundwater for future generations, protect the quality of the groundwater in the recharge zone of the aquifer, insure that the residents of Fannin and Grayson Counties maintain local control over their groundwater, and operate the District in a fair and equitable manner for all residents of the District.

The District is committed to manage and protect the groundwater resources within its jurisdiction and to work with others to ensure a sustainable, adequate, high quality and cost effective supply of water, now and in the future. The District will strive to develop, promote, and implement water conservation, augmentation, and management strategies to protect water resources for the benefit of the citizens, economy and environment of the District. The preservation of this most valuable resource can be managed in a prudent and cost effective manner through conservation, education, and management. Any action taken by the District shall only be after full considerations and respect has been afforded to the individual property rights of all citizens of the District.

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SECTION 1.
DEFINITION, CONCEPTS, AND GENERAL PROVISIONS

Rule 1.1 Definitions of Terms.

In the administration of its duties, the District follows the definitions of terms set forth in Chapter 36, Texas Water Code, and other definitions as follows:

(1) "Agriculture" (or "agricultural") means any of the following activities:

1. cultivating the soil to produce crops for human food, animal feed, or planting seed, or for the production of fibers;

2. the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of sod, and the cultivation of plants in containers or non-soil media, by a nursery grower;

3. raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;

4. planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure;

5. wildlife management; and

6. raising or keeping equine animals.

(2) "Animal Feeding Operation" (AFO) means: (1) a lot or facility (other than an aquatic animal production facility) where animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and where the animal confinement areas do not sustain crops, vegetation, forage growth, or postharvest residues in the normal growing season over any portion of the lot or facility; or (2) any other facility regulated as an AFO or as a Concentrated Animal Feeding Operation by the TCEQ.

(3) "Aquifer" means a water bearing geologic formation in the District.

(4) "As equipped" for purposes of determining the capacity of a well means visible pipes, plumbing, and equipment attached to the wellhead or adjacent plumbing that controls the maximum rate of flow of groundwater and that is permanently affixed to the

well or adjacent plumbing by welding, glue or cement, bolts or related hardware, or other reasonably permanent means.

(5) "Beneficial use" or "beneficial purpose" means use of groundwater for:

1. agricultural, gardening, domestic, stock raising, municipal, mining, manufacturing, industrial, commercial, or recreational purposes;

2. exploring for, producing, handling, or treating oil, gas, sulfur, lignite, or other minerals; or

3. any other purpose that is useful and beneficial to the user that does not constitute waste.

(6) "Board" means the Board of Directors of the District.

(7) "District" means the Red River Groundwater Conservation District created in accordance with Section 59, Article XVI, Texas Constitution, Chapter 36, Texas Water Code, and the District Act.

(8) "District Act" means the Act of May 25, 2009, 81st Leg., R.S., ch. 884, 2009 Tex. Gen. Laws 2313, codified at Tex. Spec. Dist. Loc. Laws Code Ann. ch. 8859 ("the District Act"), as may be amended from time to time.

(9) "Domestic use" means the use of groundwater by an individual or a household to support domestic activity. Such use may include water for drinking, washing, or culinary purposes; for irrigation of lawns, or of a family garden and/or family orchard; for watering of domestic animals. Domestic use does not include water used to support activities for which consideration is given or received or for which the product of the activity is sold. Domestic use does not include use by or for a public water system. Domestic use does not include irrigation of crops in fields or pastures. Domestic use does not include water used for open-loop residential geothermal systems.

(10) "Effective date" means August 29, 2011, which was the original date of adoption of these Temporary Rules.

(11) "Emergency purposes" means the use of groundwater to fight fires, manage chemical spills, and otherwise address emergency public safety or welfare concerns.

(12) "Exempt well" means a new or an existing well that is exempt under Rule 2.1 from certain regulatory requirements in these rules.

(13) "Existing well" means a well that was in existence or for which drilling commenced prior to April 1, 2012.

(14) "General Manager" as used herein is the appointed chief administrative officer of the District, as set forth in the District's bylaws, or the District staff or other Board designee acting at the direction of the General Manager or Board to perform the duties of the General Manager.

(15) "Groundwater" means water percolating below the surface of the earth.

(16) "Groundwater reservoir" means a specific subsurface water-bearing stratum.

(17) "Landowner" means the person who holds possessory rights to the land surface or to the withdrawal of groundwater from wells located on the land surface.

(18) "Leachate well" means a well used to remove contamination from soil or groundwater

(19) "Livestock" means, in the singular or plural, grass- or plant-eating, single- or cloven-hooved mammals raised in an agricultural setting for subsistence, profit or for its labor, or to make produce such as food or fiber, including cattle, horses, mules, asses, sheep, goats, llamas, alpacas, and hogs, as well as species known as ungulates that are not indigenous to this state from the swine, horse, tapir, rhinoceros, elephant, deer, and antelope families, but does not mean a mammal defined as a game animal in section 63.001, Parks and Wildlife Code, or as a fur-bearing animal in section 71.001, Parks and Wildlife Code, or any other indigenous mammal regulated by the Texas Department of Parks and Wildlife as an endangered or threatened species. The term "livestock use" does not include the use of water for any animal that is stabled, confined, or fed at a facility that is defined an Animal Feeding Operation.

(20) "Maintenance Purposes" means the use of water to flush mains, fire hydrants or tanks as required by TCEQ.

(21) "Meter" or "measurement device" means a water flow measuring device that can measure within +/- 5% of accuracy the instantaneous rate of flow and record the amount of groundwater produced from a well or well system during a measure of time, as specifically set forth under Section 8.

(22) "Monitoring well" means a well installed to measure some property of the groundwater or the aquifer that it penetrates, and does not produce more than 5,000 gallons per year.

(23) "New well" means a well for which drilling commenced on or after April 1, 2012.

(24) "Nursery grower" means a person who grows more than 50 percent of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, "grow" means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease and typically includes activities associated with the production or

multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.

(25) "Penalty" means a reasonable civil penalty set by rule under the express authority delegated to the District through Section 36.102(b) of the Texas Water Code.

(26) "Person" means an individual, corporation, Limited Liability Company, organization, government, governmental subdivision, agency, business trust, estate, trust, partnership, association, or other legal entity.

(27) "Poultry" means chickens, turkeys, nonmigratory game birds, and other domestic nonmigratory fowl, but does not include any other bird regulated by the Parks and Wildlife as an endangered or threatened species. The term does not include any animal that is stabled, confined, or fed at a facility that is defined by Texas Commission on Environmental Quality rules as an Animal Feeding Operation or a Concentrated Animal Feeding Operation.

(28) "Production" or "producing" means the act of extracting groundwater from an aquifer by a pump or other method.

(29) "Public Water System" or "PWS" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, which includes all uses described under the definition for "drinking water" in 30 Texas Administrative Code, Section 290.38. Such a system must have at least 15 service connections or serve at least 25 individuals at least 60 days out of the year. This term includes any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Two or more systems with each having a potential to serve less than 15 connections or less than 25 individuals but owned by the same person, firm, or corporation and located on adjacent land will be considered a public water system when the total potential service connections in the combined systems are 15 or greater or if the total number of individuals served by the combined systems total 25 or greater at least 60 days out of the year. Without excluding other meanings of the terms "individual" or "served," an individual shall be deemed to be served by a water system if he lives in, uses as his place of employment, or works in a place to which drinking water is supplied from the system.

(30) "Pump" means any facility, device, equipment, materials, or method used to obtain water from a well.

(31) "Registrant" means a person required to submit a registration.

(32) "Registration" means a well owner providing certain information about a well to the District, as more particularly described under Section 3.

(33) "Rule" or "Rules" or "Temporary Rules" means these Temporary Rules of the District regulating water wells, which shall continue to be effective until amended or repealed.

(34) "Substantially alter" with respect to the size or capacity of a well means to increase the inside diameter of the pump discharge column pipe size of the well in any way or to increase the size of the pump on the well.

(35) "TCEQ" means the Texas Commission on Environmental Quality

(36) "Transfer" means a change in a registration as follows, except that the term "transfer" shall have its ordinary meaning as read in context when used in other contexts:

(a) ownership; or

(b) the person authorized to exercise the right to make withdrawals and place the groundwater to beneficial use.

(37) "Waste" means one or more of the following:

(a) withdrawal of groundwater from the aquifer at a rate and in an amount that causes or threatens to cause an intrusion into the aquifer unsuitable for agriculture, gardening, domestic, stock raising, or other beneficial purposes;

(b) the flowing or producing of water from the aquifer by artificial means if the water produced is not used for a beneficial purpose;

(c) the escape of groundwater from the aquifer to any other underground reservoir or geologic stratum that does not contain groundwater;

(d) pollution or harmful alteration of groundwater in the aquifer by saltwater or by other deleterious matter admitted from another stratum or from the surface of the ground;

(e) willfully or negligently causing, suffering, or allowing groundwater to escape into any river, creek, natural watercourse, depression, lake, reservoir, drain, sewer, street, highway, road, or road ditch, or onto any land other than that of the owner of the well unless such discharge is authorized by permit, rule, or other order issued by the Texas Commission on Environmental Quality under Chapters 11 or 26 of the Texas Water Code;

(f) groundwater pumped for irrigation that escapes as irrigation tailwater onto land other than that of the owner of the well unless permission has been granted by the occupant of the land receiving the discharge;

(g) for water produced from an artesian well, "waste" has the meaning assigned by Section 11.205, Texas Water Code;

(h) operating a deteriorated well; or

(i) producing groundwater in violation of any District rule governing the withdrawal of groundwater through production limits on wells, managed depletion, or both.

(38) "Well" means any artificial excavation located within the boundaries of the District dug or drilled for the purpose of exploring for or withdrawing groundwater from the aquifer.

(39) "Well owner" means the person who owns a possessory interest in: (1) the land upon which a well or well system is located or to be located; (2) the well or well system; or (3) the groundwater withdrawn from a well or well system.

(40) "Well system" means a well or group of wells tied to the same distribution system.

(41) "Withdraw" means the act of extracting or producing groundwater by pumping or other method.

(42) "Year" means a calendar year (January 1 through December 31), except where the usage of the term clearly suggests otherwise.

Rule 1.2 Authority of District.

The Red River Groundwater Conservation District is a political subdivision of the State of Texas organized and existing under Section 59, Article XVI, Texas Constitution, Chapter 36, Texas Water Code, and the District Act. The District is a governmental agency and a body politic and corporate. The District was created to serve a public use and benefit.

Rule 1.3 Purpose of Rules.

These Temporary Rules are adopted under the authority of Sections 36.101 and 36.1071(f), Texas Water Code, and the District Act for the purpose of conserving, preserving, protecting, and recharging groundwater in the District in order to prevent subsidence, prevent degradation of water quality, prevent waste of groundwater, and to carry out the powers and duties of Chapter 36, Texas Water Code, and the District Act.

Rule 1.4 Use and Effect of Rules.

These rules are used by the District in the exercise of the powers conferred on the District by law and in the accomplishment of the purposes of the law creating the District. These rules may be used as guides in the exercise of discretion, where discretion is vested. However, under no

circumstances and in no particular case will they or any part therein, be construed as a limitation or restriction upon the District to exercise powers, duties and jurisdiction conferred by law. These rules create no rights or privileges in any person or water well, and shall not be construed to bind the Board in any manner in its promulgation of the District Management Plan, amendments to these Temporary Rules, or promulgation of permanent rules.

Rule 1.5 Purpose of District.

The purpose of the District is to provide for the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and of groundwater reservoirs or their subdivisions, consistent with the objectives of Section 59, Article XVI, Texas Constitution.

Rule 1.6 Construction.

A reference to a title or chapter without further identification is a reference to a title or chapter of the Texas Water Code. A reference to a section or rule without further identification is a reference to a section or rule in these Rules. Construction of words and phrases is governed by the Code Construction Act, Subchapter B, Chapter 311, Texas Government Code. The singular includes the plural, and the plural includes the singular. The masculine includes the feminine, and the feminine includes the masculine.

Rule 1.7 Methods of Service Under the Rules.

Except as provided in these rules, any notice or document required by these rules to be served or delivered may be delivered to the recipient or the recipient's authorized representative in person, by agent, by courier receipted delivery, by certified or registered mail sent to the recipient's last known address, by fax transfer to the recipient's current fax number or by e-mail and shall be accomplished by 5:00 p.m. on the date which it is due. Service by mail is complete upon deposit in a post office depository box or other official depository of the United States Postal Service. Service by fax transfer is complete upon transfer, except that any transfer completed after 5:00 p.m. shall be deemed complete the following business day. If service or delivery is by mail and the recipient has the right or is required to do some act within a prescribed period of time after service, three days will be added to the prescribed period. If service by other methods has proved unsuccessful, service will be deemed complete upon publication of the notice or document in a newspaper of general circulation in the District.

Rule 1.8 Severability.

If a provision contained in these Temporary Rules is for any reason held to be invalid, illegal, or unenforceable in any respect, the invalidity, illegality, or unenforceability does not affect any other rules or provisions of these Temporary Rules, and these Temporary Rules shall be construed as if the invalid, illegal, or unenforceable provision had never been contained in these rules.

Rule 1.9 Regulatory Compliance; Other Governmental Entities.

All registrants of the District shall comply with all applicable rules and regulations of the District and of all other governmental entities. If the District Rules and regulations are more stringent than those of other governmental entities, the District Rules and regulations are applicable.

Rule 1.10 Computing Time.

In computing any period of time prescribed or allowed by these Rules, order of the Board, or any applicable statute, the day of the act, event, or default from which the designated period of time begins to run is not included, but the last day of the period so computed is included, unless it is a Saturday, Sunday, or legal holiday, in which event the period runs until the end of the next day which is neither a Saturday, Sunday, or legal holiday.

Rule 1.11 Time Limits.

Applications, requests, or other papers or documents required or allowed to be filed under these Rules or by law must be received for filing by the District within the time limit for filing, if any. The date of receipt, not the date of posting, is determinative of the time of filing. Time periods set forth in these rules shall be measured by calendar days, unless otherwise specified.

Rule 1.12 Amending of Rules.

The Board may, following notice and hearing, amend or repeal these rules or adopt new rules from time to time.

SECTION 2.
APPLICABILITY OF REGULATORY REQUIREMENTS; EXEMPTIONS

Rule 2.1 Wells Exempt from Certain Fee Payment, Metering, and Reporting Requirements of These Temporary Rules.

(a) The requirements of these Temporary Rules relating to the payment of Water Use Fees and Groundwater Transport Fees under Section 7, the requirement to install and maintain a meter under Section 8, and the requirement to report to the District the amount of water produced from a well under Section 3 do not apply to the following types of wells:

1. A well used solely for domestic use.

2. An existing well or new well that does not have the capacity, as equipped, to produce more than 40,000 gallons per day and is used in whole or in part for and of the following: commercial, industrial, municipal, manufacturing, or public water supply use, use for oil or gas or other hydrocarbon exploration or

production, agricultural use, including without limitation the irrigation of crops or livestock or poultry use, or any other purpose of use other than solely for domestic use, except as provided by Subsection (b) of this rule.

3. Leachate wells, monitoring wells, and piezometers.

(b) For purposes of determining whether the exemption set forth under Subsection (a)(2) applies, the capacity of a well that is part of a well system shall be determined by taking the sum of the capacities of each of the individual wells, as equipped, in the system. If the total sum of the capacities is greater than 40,000 gallons per day, the well system and the individual wells that are part of it are not exempt from the fee payment, metering, and reporting requirements of these rules.

(c) A well exempted under Subsection (a) will lose its exempt status if the well is subsequently used for a purpose or in a manner that is not exempt under Subsection (a)(2).

(d) A well exempted under Subsection (a)(2) will lose its exempt status if, while the well was registered as an exempt well, the District determines that the well had the capacity, as equipped, to produce more than 40,000 gallons per day. Such wells are subject to the fee payment, metering, reporting, and other requirements of these Temporary Rules, and may be subject to enforcement under Section 8.

(e) The owner of an existing well that is exempt under this rule should nonetheless register the well with the District, as specifically described under Section 3. All new wells, whether exempt or not under this rule, are required to be registered with the District prior to drilling as set forth under Section 3.

Rule 2.2 Wells Subject to Fee Payment, Metering, and Reporting Requirements of These Temporary Rules.

All wells not described as exempt under Rule 2.1 are subject to the Water Use Fee and Groundwater Transport Fee payment (addressed in Section 7 of the Temporary Rules), metering, reporting, registration, and other requirements of these Temporary Rules. Such wells include all wells or well systems with a capacity, as equipped, to produce more than 40,000 gallons per day that are used in whole or in part for any purpose of use other than solely for domestic use.

Rule 2.3 Exemption from Certain Fees for Groundwater Used for Certain Emergency Purposes.

(a) Groundwater produced within the boundaries of the District is exempt from the assessment of applicable Water Use Fees and Groundwater Transport Fees otherwise required by Section 7 if the groundwater is used by a fire department or an emergency services district solely for emergency purposes and the use is qualified under Subsection (b).

(b) To qualify for the exemption provided for in Subsection (a), a fire department for emergency services district that uses groundwater produced from within the District, or a person that supplies groundwater produced from within the District to a fire department or emergency services district, shall submit to the District a Water Production Report that complies with Rule 3.10.

Rule 2.4 Exemption from Production Fees for Groundwater Used for Maintenance Purposes.

Groundwater used for the purposes of flushing lines, tanks or fire hydrants as required by TCEQ are exempt from fees if an approved metering device or an alternative measuring method approved by the District is used. These amounts shall be noted on the water production report and subtracted from the total amount pumped.

Rule 2.5 Exemption from Production Fees, Metering, and Reporting Requirements for Groundwater Used for Well Development.

Groundwater produced from a well during its development or rehabilitation, including groundwater used in pump tests, is exempt from the requirements relating to the payment of fees under Section 7, the requirement to install and maintain a meter under Section 8, and the requirement to report to the District the amount of water produced from a well under Section 3. However, use of the well must comply with those requirements before being placed into operation unless otherwise exempt under these rules.

SECTION 3.
REGISTRATIONS, RECORDS, REPORTS, AND LOGS; PERMIT NOT REQUIRED

Rule 3.1 Purpose and Policy.

The accurate and timely reporting to the District of activities governed by these Rules is a critical component to the District's ability to effectively and prudently manage the groundwater resources that it has been charged by law with regulating. The purpose of Section 3 is to require the submission, by the appropriate person or persons, of complete, accurate, and timely registrations, records, reports, and logs as required throughout the District Rules. Because of the important role that accurate and timely reporting plays in the District's understanding of past, current and anticipated groundwater conditions within the District, the failure to comply with these rules may result in the assessment of additional fees, civil penalties, or other enforcement action by the District, as specifically set forth under Section 9.

Rule 3.2 Permit Not Required Under Temporary Rules.

No permit of any kind is required under these Temporary Rules. Notwithstanding Chapter 36, Water Code, a permit is not required under these Temporary Rules to drill, equip, operate, or

complete a well, produce water from a well, or to substantially alter the size or capacity of a well. Permitting requirements will be developed and adopted by the District in the future after it has had a sufficient opportunity to develop a management plan and carefully consider various regulatory approaches and how such approaches may impact landowners and other water users in the District while achieving proper management of the groundwater resources. Permitting rules will be adopted only after ample opportunity has been afforded the public to participate in the development of such rules.

Rule 3.3 Well Registration.

(a) The following wells must be registered with the District:

1. all new wells drilled on or after April 1, 2012, including new wells exempt under Rule 2.1;

2. all existing wells not exempt under Rule 2.1.

(b) Existing exempt wells should be registered to limit the location of future wells that could reduce the capacity of the existing exempt wells.

(c) A person seeking to register a well shall provide the District with the following information in the registration application on a form provided by the District:

1. the name and mailing address of the registrant and the owner of the property, if different from the registrant, on which the well is or will be located;

2. if the registrant is other than the owner of the property, documentation establishing the applicable authority to file the application for well registration, to serve as the registrant in lieu of the property owner, and to construct and operate a well for the proposed use;

3. a statement of the nature and purpose of the existing or proposed use of water from the well;

4. the location or proposed location of the well, identified as a specific point measured by latitudinal, longitudinal, and elevation coordinates;

5. the location or proposed location of the use of water from the well, if used or proposed to be used at a location other than the location of the well;

6. the production capacity or proposed production capacity of the well, as equipped, in gallons per day, and the horsepower rating of the pump, as assigned by the pump manufacturer;

7. a water well closure plan or a declaration that the applicant will comply with well plugging guidelines and report closure to the District;

8. a statement that the water withdrawn from the well will be put to beneficial use; and

9. any other information deemed reasonably necessary by the Board.

(d) The timely filing of an application for registration shall provide the owner of a well described under Subsection (a)(2) with evidence that a well existed before April 1, 2012, for purposes of grandfathering the well from the requirement to comply with any well location or spacing requirements of the District, and any other entitlements that existing wells may receive under these Temporary Rules or under permanent rules adopted by the District. A well that is required to be registered under this Rule and that is not exempt under Rule 2.1 shall not be operated after April 1, 2012, without first complying with the metering provisions set forth under Section 8.

(e) Once a registration is complete, which for new wells also includes receipt by the District of the well report required by Rule 3.7 and the well registration fee, the registration shall be perpetual in nature, subject to being amended or transferred and subject to enforcement for violations of these Rules.

Rule 3.4 Time Period for Registration of Existing Non-Exempt and Exempt Wells.

(a) The owner of an existing well described under Rule 3.3(a)(2) must register the well with the District between April 1 and June 30, 2012, and must install a meter on the well as set forth under Section 8 of these rules before July 1, 2012. Failure of the owner of such a well to timely register or install a meter on the well under this Rule shall subject the well owner to enforcement under these Rules.

(b) The owner of an existing well exempt under Rule 2.1 may register the well with the District after April 1, 2012, to provide the owner with evidence that the well existed before the adoption of these Temporary Rules for purposes of grandfathering the well from the requirement to comply with any well location or spacing requirements of the District and any other entitlements that existing wells may receive under these Temporary Rules or under permanent rules adopted by the District.

Rule 3.5 Registration of New Wells or Alterations to Existing Wells Required Prior to Drilling or Alteration.

(a) An owner or well driller, or any other person legally authorized to act on their behalf, must submit and obtain approval of a registration application and submit a well report deposit with the District before any new well, except leachate wells or monitoring wells, may be drilled, equipped, or completed, or before an existing well may be substantially altered with respect to size or capacity, beginning on or after April 1, 2012.

(b) A registrant for a new well has 240 days from the date of approval of its application for well registration to drill and complete the new well, and must file the well report with the District within 60 days of completion. However, a registrant may apply for one extension of an additional 240 days or may resubmit an identical well registration without the need to pay any additional administrative fee associated with the submittal of well registrations for new wells.

(c) If the well report is timely submitted to the District, the District shall return the well report deposit to the owner or well driller. In the event that the well report required under this rule and Rule 3.7 is not filed within the deadlines set forth under Subsection (b) of this rule, the driller or owner shall forfeit the well report deposit and shall be subject to enforcement by the District for violation of this rule.

(d) Notwithstanding any other rule to the contrary, the owner and driller of a new well are jointly responsible for ensuring that a well registration required by this section is timely filed with the District and contains only information that is true and accurate. Each will be subject to enforcement action if a registration required by this section is not timely filed by either, or by any other person legally authorized to act on the behalf of either.

Rule 3.6 General Provisions Applicable to Registrations.

(a) Registration applications may be submitted to the District in person, by mail, by fax, or by internet when available by the District, using the registration form provided by the District.

(b) A determination of administrative completeness of a registration application shall be made by the General Manager within five business days after the date of receipt of an application for registration, which for new wells must include receipt of the well log deposit and well registration fee. If an application is not administratively complete, the District shall request the applicant to complete the application. The application will expire if the applicant does not complete the application within 120 days of the date of the District's request. An application will be considered administratively complete and may be approved by the General Manager without notice or hearing if:

(1) it substantially complies with the requirements set forth under Rule 3.3(b), including providing all information required to be included in the application that may be obtained through reasonable diligence; and

(2) if it is a registration for a new well:

(A) includes the well log deposit and well registration fee; and

(B) proposes a well that complies with spacing, location, and well completion requirements of Section 4.

A person may appeal the General Manager's ruling by filing a written request for a hearing before the Board. The Board will hear the applicant's appeal at the next regular

Board meeting. The General Manager may set the application for consideration by the Board at the next available Board meeting or hearing in lieu of approving or denying an application.

(c) Upon approval or denial of an application, the General Manager shall inform the registrant in writing by regular mail of the approval or denial, as well as whether the well meets the exemptions provided in Rule 2.1 or whether it is subject to the metering, fee payment, and reporting requirements of these Rules.

(d) An application pursuant to which a registration has been issued is incorporated in the registration, and the registration is valid contingent upon the accuracy of the information supplied in the registration application. A finding that false information has been supplied in the application may be grounds to refuse to approve the registration or to revoke or suspend the registration.

(e) Submission of a registration application constitutes an acknowledgment by the registrant of receipt of the rules and regulations of the District and agreement that the registrant will comply with all rules and regulations of the District.

(f) The District may amend any registration, in accordance with these Rules, to accomplish the purposes of the District Rules, management plan, the District Act, or Chapter 36, Texas Water Code.

(g) If multiple wells have been aggregated under one registration and one or more wells under the registration will be transferred, the District will require separate registration applications from each new owner for the wells over 40,000 gallons per day retained or obtained by that person.

(h) No person shall operate or otherwise produce groundwater from a well required under this section to be registered with the District before:

(1) timely submitting an accurate application for registration, or accurate application to amend an existing registration as applicable, of the well to the District; and

(2) obtaining approval from the District of the application for registration or amendment application, if such approval is required under these Rules.

Rule 3.7 Records of Drilling, Pump Installation and Alteration Activity, and Plugging.

(a) Each person who drills, deepens, completes or otherwise alters a well shall make, at the time of drilling, deepening, completing or otherwise altering the well, a legible and accurate well report recorded on forms prescribed by the District or by the Texas Department of Licensing and Regulation.

(b) The person who drilled, deepened, completed or otherwise altered a well pursuant to this rule shall, within 60 days after the date the well is completed, file the well report described in Subsection (a) with the District.

(c) Not later than the 30th day after the date a well is plugged, a driller, licensed pump installer, or well owner who plugs the well shall submit a plugging report to the District, which shall be substantially similar form to the Texas Department of Licensing and Regulation Form a004WWD (Plugging Report) and shall include all information required therein.

Rule 3.8 Transfer of Well Ownership.

(a) Within 90 days after the date of a change in ownership of a well exempt under Rule 2.1, the new well owner shall notify the District in writing of the effective date of the change in ownership, the name, daytime telephone number, and mailing address of the new well owner, along with any other contact or well-related information reasonably requested by the General Manager. The new well owner may, in addition, be required to submit an application for registration of an existing well if a registration does not yet exist for the well.

(b) Within 90 days after the date of a change in ownership of a well that is not exempt under District Rule 2.1 from the fee payment, metering, and reporting requirements of these rules, the new well owner (transferee) shall submit to the District, on a form provided by the District staff, a signed and sworn-to application for transfer of ownership.

(c) If a registrant conveys by any lawful and legally enforceable means to another person the real property interests in one or more wells or a well system that is recognized in the registration so that the transferring party (the transferor) is no longer the "well owner" as defined herein, and if an application for change of ownership under subsection (b) has been approved by the District, the District shall recognize the person to whom such interests were conveyed (the transferee) as the legal holder of the registration, subject to the conditions and limitations of these District Rules.

(d) The burden of proof in any proceeding related to a question of well ownership or status as the legal holder of a registration issued by the District and the rights there under shall be on the person claiming such ownership or status.

(e) Notwithstanding any provision of this Rule to the contrary, no application made pursuant to Subsection (b) of this Rule shall be granted by the District unless all outstanding fees, penalties, and compliance matters have first been fully and finally paid or otherwise resolved by the transferring party (transferor) for all wells included in the application or existing registration, and each well and registration made the subject of the application is otherwise in good standing with the District.

(f) The new owner of a well that is the subject of a transfer described in this rule (transferee) may not operate or otherwise produce groundwater from the well after 90 days from the date of the change in ownership until the new owner has:

(1) submitted written notice to the District of the change in ownership, for wells described in subsection (a); or

(2) submitted to the District a completed application for transfer of ownership, for wells described in subsection (b).

A new well owner that intends to alter or use the well in a manner that would constitute a substantial change from the information in the existing registration or that would trigger the requirement to register the well under these Rules must also submit and obtain District approval of a registration application or registration amendment application, as applicable, prior to altering or operating the well in the new manner.

Rule 3.9 Amendment of Registration.

A registrant shall file an application to amend an existing registration and obtain approval by the District of the application prior to engaging in any activity that would constitute a substantial change from the information in the existing registration. For purposes of this rule, a substantial change includes a change that would substantially alter the size or capacity of a pump or well, a change in the type of use of the water produced, the addition of a new well to be included in an already registered aggregate system, a change in location of a well or proposed well, a change of the location of use of the groundwater, or a change in ownership of a well. A registration amendment is not required for maintenance or repair of a well if the maintenance or repair does not increase the designed production capabilities of the pump.

Rule 3.10 Water Production Reports.

(a) Not later than March 1 and September 1 of each calendar year, beginning in 2013, the owner of any non-exempt well within the District must submit, on a form provided by the District, a report containing the following:

(1) the name of the registrant;

(2) the well numbers of each registered well within the District owned or operated by the registrant;

(3) the total amount of groundwater produced by each well or well system during the immediately preceding reporting period;

(4) the total amount of groundwater produced by each well or well system during each month of the immediately preceding reporting period;

(5) the purposes for which the water was used;

(6) for water used at a location other than the property on which the well is located, and that is not used by a fire department or emergency services district for emergency purposes or by a public water system:

(A) the location of the use of the water; and

(B) if the water was sold on a retail or wholesale basis, the name of the person to whom it was sold and the quantity sold to each person.

(7) for water used at a location other than the property on which the well is located and that is used by a public water system, a description of identified system losses, including:

(A) an estimate of the total quantity, reported in gallons or in percentages of total annual production, of water lost to system loss, if known;

(B) the sources of system losses reported under Subpart (A); and

(C) the methods, if any, employed to address the system losses reported under this subsection;

(8) the amount of groundwater produced for which a fee exemption is sought, if any, under Rule 2.4 for flushing lines, tanks, or fire hydrants, and the metering method(s) employed to determine the amount; and

(9) additionally, for fire departments, emergency services districts, and any person that provides groundwater produced from within the District to a fire department or emergency services district and that seeks a fee payment exemption under Rule 2.3:

(A) the total amount of groundwater produced or used, as applicable, solely for emergency purposes during each month of the reporting period provided under this Rule; and

(B) the total amount of groundwater produced or used, as applicable, for any purpose other than emergency purposes during each month of the reporting period provided under this Rule.

(b) There shall be two semiannual reporting periods each year. The report due March 1 shall report groundwater produced during the reporting period of the immediately preceding July 1st to December 31st. The report due September 1 shall report groundwater produced during the reporting period of the immediately preceding January 1st to June 30th. To comply with this rule, the registrant of a well shall read each water meter associated with a well within 15 days before or after June 30th and within 15 days before or after December 31st each year and report the readings to the District on the form described in Subsection (a). Additionally, to comply with this rule, all applicable information

required under Subsection (a) must be contained in the water production report filed with the District.

(c) The report required by Subsection (a) must also include a true and correct copy of the meter log required by District Rule 8.6. Once the District makes on-line submission of water production reports and meter logs available by internet to well owners, all such reports and logs may be submitted via internet.

(d) The first deadline to submit a report to the District under this Rule is:

(1) March 1, 2013, for existing wells and for new wells completed before July 1, 2012; and

(2) no later than the first September 1 or March 1 following the date the well was completed for new wells completed on or after July 1, 2012.

SECTION 4.
SPACING AND LOCATION OF WELLS; WELL COMPLETION

Rule 4.1 Spacing and Location of Existing Wells.

Wells drilled prior to April 1, 2012, shall be drilled in accordance with state law in effect, if any, on the date such drilling commenced and are exempt from the spacing, location, and completion requirements of these rules to the extent that they were drilled lawfully.

Rule 4.2 Spacing and Location of New Wells.

(a) All new wells must comply with the spacing and location requirements set forth under the Texas Water Well Drillers and Pump Installers Administrative Rules, Title 16, Part 4, Chapter 76, Texas Administrative Code, unless a written variance is granted by the Texas Department of Licensing and Regulation and a copy of the variance is forwarded to the District by the applicant or registrant, and must be drilled and located in compliance with applicable rules and regulations of other political subdivisions.

(b) After authorization to drill a new well has been granted by the District, the well may only be drilled at a location that is within ten (10) feet of the location specified in the registration.

(c) Replacement wells must be actually drilled and completed so that they are located no more than 25 feet from the well being replaced for exempt wells or 50 feet for non-exempt wells.

(d) New exempt wells must be spaced a minimum of 100 feet from existing wells registered with the District at the time the new exempt well registration is administratively complete.

(e) All new non-exempt wells must provide sufficient hydrogeologic information to the District to demonstrate that the new well will not unreasonably impact exempt or non-exempt wells in the vicinity of the proposed well that are registered with the District at the time the new non-exempt well registration is administratively complete. The District's Board will adopt hydrogeologic criteria for use by well registration applicants in the implementation of this subsection no later than April 1, 2014.

(f) Compliance with the spacing and location requirements of these rules does not necessarily authorize a person to drill a well at a specified location in the District. Agencies or other political subdivisions of the State of Texas that are located in whole or in part within the boundaries of the District may impose additional requirements related to the drilling or completion of water wells.

(g) The owner and driller of a well are jointly responsible for ensuring that the well is drilled at a location that strictly complies with the location requirements of Subsection (b). If the board determines that a well is drilled at a location that does not strictly comply with the location requirements of Subsection (b), the Board may, in addition to taking all other appropriate enforcement action, require the well to be permanently closed or authorize the institution of legal action to enjoin any continued drilling activity or the operation of the well.

SECTION 5.
REGULATION OF PRODUCTION; WASTE PROHIBITED

Rule 5.1 Temporary Production Limitations.

The maximum quantity of water that a person may withdraw from a well that is not exempt under Rule 2.1(a) is the amount of water the person produces and timely:

(1) submits payment to the District for in accordance with the fee rate adopted by the District under Section 7; and

(2) reports pumpage volumes to the District under Rule 3.10.

Rule 5.2 Regular Production Limitations.

In order to accomplish the purposes of Chapter 36, Texas Water Code, and the District Act, and to achieve the goals of the District Management Plan, the District may, after notice and hearing, establish groundwater production limitations for all wells when it adopts permanent rules for the District.

Rule 5.3 Waste Prohibited.

No person shall engage in any conduct subject to the District's regulatory jurisdiction that constitutes waste, as that term is defined herein.

A retail public utility that owns and operates a water pipeline from which groundwater escapes is not engaged in conduct subject to the District's regulatory jurisdiction so long as the retail public utility is pursuing in good faith a maintenance plan to discover and repair leaks and to identify and replace deteriorated waterlines consistent with the accepted standards of retail public water utilities located within the District.

SECTION 6
TRANSPORTATION OF GROUNDWATER OUT OF THE DISTRICT

Rule 6.1 General Provisions.

(a) A person who produces or wishes to produce water from a well not exempt under Rule 2.1(a) that is located or is to be located within the District and transport such water for use outside of the district must register the well and submit timely payment of the Groundwater Transport Fee to the District under Rule 7.2 for any water transported out of the District. The District may require the person to install any meters necessary to report the total amount of groundwater transported outside of the District for reporting purposes and for purposes of calculating the Groundwater Transport Fee.

(b) The District may not, in a manner inconsistent with rules and fees applied to production and use occurring wholly within the boundaries of the District, regulate production of groundwater or assess fees against the transport of water produced in an area of a retail public utility that is located inside the district boundaries and transported for use to an area that is within the same retail public utility but that is located outside the district boundaries.

Rule 6.2 Reporting.

A person transporting groundwater for use outside of the District and subject to the requirement to pay the Groundwater Transport Fee shall file period reports with the District describing the amount of water transported and used outside the District. The report shall be filed with the District in the same manner, for the same reporting periods, and by the same deadlines set forth for Water Production Reports under Rule 3.10. The report for groundwater transported shall be on the appropriate form provided by the District and shall state the following: (1) the name of the person; (2) the well registration numbers of each well from which the person has produced groundwater transported for use outside the District; (3) the total amount of groundwater produced from each well or well system during the immediately preceding reporting period; (4) the total amount of groundwater transported outside of the District from each well, well system or surface impoundment containing produced groundwater during each month of the

immediately preceding reporting period; (5) the purposes for which the water was transported; and (6) any other information requested by the District.

SECTION 7.
FEES AND PAYMENT OF FEES

Rule 7.1 Water Use Fees.

(a) A water use fee rate schedule shall be established by Board resolution annually at least 60 days before the end of the calendar year. The Board may adopt a different water use fee rate for water used for agricultural purposes than for water used for non-agricultural purposes. The rate shall be applied to the groundwater pumpage in the ensuing calendar year for each well not exempt under Rule 2.1. The District will review the account of any person changing the use of a well from non-exempt to exempt or vice versa to determine if additional water use fees are due or if a refund of water use fees is warranted.

(b) Wells exempt under Rule 2.1 shall be exempt from payment of water use fees. However, if exempt well status is withdrawn, the District may assess fees and penalties in accordance with the District Rules.

(c) No later than 30 days prior to the end of the calendar year, beginning with calendar year 2012, the District shall send by regular mail or e-mail to the owner or operator of each registered well that is required to pay the Water Use Fee a reminder statement setting forth the water use fee rate applicable to the water produced in the ensuing year, setting forth deadlines for submission of fee payments and production reports of meter readings, and other information deemed appropriate by the District. The initial Water Use Fee for production during the period from July 1, 2012, to December 31, 2012, will be established by the Board no later than January 1, 2012.

Rule 7.2 Groundwater Transport Fees.

The District shall impose a Groundwater Transport Fee of 1.5 times the District's Water Use Fee rate for in-District use for groundwater produced in the District that is transported for use outside of the District, except as provided by Rule 6.1(b). The procedures, requirements, and penalties related to payment of the Water Use Fee shall apply to payment of the Groundwater Transport Fee.

Rule 7.3 Payments of Water Use and Groundwater Transport Fees.

(a) All fees for groundwater production or transport in a calendar year must be paid to the District semi-annually. Fees for water produced or transported between January 1st and June 30th each year are due to the District by September 1st of the same calendar year; fees for water produced or transported between July 1st and December 31st each year are due to the District by March 1st of the following calendar year. Fee payments shall be

submitted in conjunction with the Water Production Reports, monthly logs, and groundwater transport reports if applicable.

(b) Any well that is subject to fee payment under this Rule and that provides water for both agricultural and non-agricultural purposes shall pay the water use fee rate applicable to non-agricultural purposes for all water produced from the well, unless the applicant can demonstrate through convincing evidence to the satisfaction of the District that a system is or will be in place so as to assure an accurate accounting of water for each purpose of use.

(c) The initial Water Use Fees and Groundwater Transport Fees to be submitted under Rules 7.1 and 7.2 shall be for groundwater produced or transported during the period of July 1 to December 31, 2012, which shall be due to the District no later than March 1, 2013.

Rule 7.4 Failure to Make Fee Payments.

(a) Payments not received within 30 days following the date that Water Use Fees or Groundwater Transport Fees are due and owing to the District pursuant to Rule 7.3(a) will be subject to a late payment fee of the greater of the following:

(1) $25.00; or

(2) Ten percent (10%) of the total amount of water use fees due and owing to the District.

(b) Persons failing to remit all Water Use Fees or Groundwater Transport Fees due and owing to the District within 60 days of the date such fees are due pursuant to Rule 7.3(a) shall be subject to a civil penalty not to exceed three times the amount of the outstanding fees due and owing, in addition to the late fee penalty prescribed in Subsection (a) of this Rule, and may be subject to additional enforcement measures provided for by these Rules or by order of the Board.

Rule 7.5 Returned Check Fee.

The Board, by resolution may establish a fee for checks returned to the District for insufficient funds, accounts closed, signature missing, or any other reason causing a check to be returned by the District's depository.

Rule 7.6 Well Report Deposit.

The Board, by resolution, may establish a well report deposit to be held by the District as part of the well registration procedures. The District shall return the deposit to the depositor if all relevant well logs are timely submitted to the District in accordance with these Rules. In the event the District does not timely receive all relevant well logs, or if rights granted within the registration are not timely used, the deposit shall become the property of the District.

Rule 7.7 Well Registration Fees.

The owner of any new well shall submit payment to the District of a $100 non-refundable well registration fee per well, which is due by the same deadline established under these rules for registration of the well. The well registration fee must be received by the District in order for the District to find a registration application administratively complete. The purpose of the well registration fee is to cover the administrative costs to the District associated with registering the well and administering the rules of the District related to the well. The amount of the well registration fee has been determined by the District to be less than the actual administrative costs to the District of registering the well and administering the rules of the District with respect to the well, even in light of anticipated revenues to be received from other revenue sources.

Rule 7.8 Enforcement.

After a well is determined to be in violation of these rules for failure to make payment of water use fees on or before the 60th day following the date such fees are due pursuant to Rule 7.3, all enforcement mechanisms provided by law and these Rules shall be available to prevent unauthorized use of the well and may be initiated by the General Manager without further authorization from the Board.

SECTION 8.
METERING

Rule 8.1 Water Meter Required.

(a) Except as provided in Rule 8.2, the owner of a well located in the District and not exempt under Rule 2.1 shall equip the well with a flow measurement device meeting the specifications of these Rules and shall operate the meter on the well to measure the flow rate and cumulative amount of groundwater withdrawn from the well. All meters that are existing at the time of the Effective Date of these rules, and at a minimum have the ability to measure the cumulative amount of groundwater withdrawn from the well, shall be considered existing and will not have to be replaced with meters that can also measure the flow rate, provided that the meter meets all other requirements herein. Except as provided in Rule 8.2, the owner of a new or existing well not exempt under Rule 2.1 that is located in the District shall install a meter on the well prior to producing groundwater from the well on or after July 1, 2012.

(b) A mechanically driven, totalizing water meter is the only type of meter that may be installed on a well registered with the District unless an approval for another type of reliable meter or alternative measuring method is applied for and granted by the District. The totalizer must not be resettable by the registrant and must be capable of a maximum reading greater than the maximum expected annual pumpage. Battery operated registers must have a minimum five-year life expectancy and must be permanently hermetically sealed. Battery operated registers must visibly display the expiration date of the battery. All meters must meet the requirements for registration accuracy set forth in the American

Water Works Association standards for cold-water meters as those standards existed on the date of adoption of these Rules. Meters must be able to measure instantaneous flow rate of the groundwater produced from the well, except as follows: a meter that was installed on an existing well before the effective date that is not capable of measuring the instantaneous flow rate will not have to be replaced, provided that the meter has the ability to measure the cumulative amount of groundwater withdrawn from the well and meets all other requirements herein.

(c) The water meter must be installed according to the manufacturer's published specifications in effect at the time of the meter installation, or the meter's accuracy must be verified by the registrant in accordance with Rule 8.4. If no specifications are published, there must be a minimum length of five pipe diameters of straight pipe upstream of the water meter and two pipe diameter of straight pipe downstream of the water meter. These lengths of straight pipe must contain no check valves, tees, gate valves, back flow preventers, blow-off valves, or any other fixture other than those flanges or welds necessary to connect the straight pipe to the meter. In addition, the pipe must be completely full of water throughout the region. All installed meters must measure only groundwater.

(d) Each meter shall be installed, operated, maintained, and repaired in accordance with the manufacturer's standards, instructions, or recommendations, and shall be calibrated to ensure an accuracy reading range of 95% to 105% of actual flow.

(e) The owner of a well is responsible for the purchase, installation, operation, maintenance, and repair of the meter associated with the well.

(f) Bypasses are prohibited unless they are also metered. This subsection shall not apply to any unmetered bypasses in existence on the effective date but shall apply to bypasses installed after that date. A person commits a major violation of these rules by using a bypass to avoid recording groundwater production on a well meter, which may also be subject to criminal prosecution by a local prosecuting authority.

Rule 8.2 Water Meter Exemption.

Wells exempt under Rule 2.1 shall be exempt from the requirement to obtain a water meter under Rule 8.1.

Rule 8.3 Metering Aggregate Withdrawal.

Where wells are part of an aggregate system, one or more water meters may be used for the aggregate well system if the water meter or meters are installed so as to measure the groundwater production from all wells included in the system. The provisions of Rule 8.1 apply to meters measuring aggregate pumpage.

Rule 8.4 Accuracy Verification.

(a) **Meter Accuracy to be Tested:** The General Manager may require the registrant, at the registrant's expense, to test the accuracy of a water meter and submit a certificate of the test results. The certificate shall be on a form provided by the District. The General Manager may further require that such test be performed by a third party qualified to perform such tests. The third party must be approved by the General Manager prior to the test. Except as otherwise provided herein, certification tests will be required no more than once every three years for the same meter. If the test results indicate that the water meter is registering an accuracy reading outside the range of 95% to 105% of the actual flow, then appropriate steps shall be taken by the registrant to repair or replace the water meter within 90 calendar days from the date of the test. The District, at its own expense, may undertake random tests and other investigations at any time for the purpose of verifying water meter readings. If the District's tests or investigations reveal that a water meter is not registering within the accuracy range of 95% to 105% of the actual flow, or is not properly recording the total flow of groundwater withdrawn from the well or wells, the registrant shall reimburse the District for the cost of those tests and investigations within 90 calendar days from the date of the tests or investigations, and the registrant shall take appropriate steps to bring the meter or meters into compliance with these Rules within 90 calendar days from the date of the tests or investigations. If a water meter or related piping or equipment is tampered with or damaged so that the measurement of accuracy is impaired, the District may require the registrant, at the registrant's expense, to take appropriate steps to remedy the problem and to retest the water meter within 90 calendar days from the date the problem is discovered and reported to the registrant.

(b) **Meter Testing and Calibration Equipment:** Only equipment capable of accuracy results of plus or minus two percent of actual flow may be used to calibrate or test meters.

(c) **Calibration of Testing Equipment:** All approved testing equipment must be calibrated every two years by an independent testing laboratory or company capable of accuracy verification. A copy of the accuracy verification must be presented to the District before any further tests may be performed using that equipment.

Rule 8.5 Removal of Meter for Repairs.

A water meter may be removed for repairs and the well remain operational provided that the District is notified prior to removal and the repairs are completed in a timely manner. The readings on the meter must be recorded immediately prior to removal and at the time of reinstallation. The record of pumpage must include an estimate of the amount of groundwater withdrawn during the period the meter was not installed and operating.

Rule 8.6 Water Meter Readings.

The registrant of a well not exempt under Rule 2.1 must read each water meter associated with the well and record the meter readings and the actual amount of pumpage in a log at least monthly. The logs containing the recordings shall be available for inspection by the District at

reasonable business hours. Copies of the logs must be included with the Water Production Report required by District Rule 3.10, along with fee payments as set forth under Section 7. The registrant of a well shall read each water meter associated with a well within 15 days before or after June 30th and within 15 days before or after December 31st each year, as applicable to the respective immediately preceding semi-annual reporting period, and report the readings to the District on a form provided by the District along with copies of the monthly logs and payment of all Water Use Fees by the deadlines set forth for fee payment under Rule 7.3.

Rule 8.7 Installation of Meters.

A meter required to be installed under these Rules shall be installed before producing water from the well on or after July 1, 2012.

Rule 8.8 Enforcement.

It is a major violation of these Rules to fail to meter a well and report meter readings in accordance with this Section. After a well is determined to be in violation of these rules for failure to meter or maintain and report meter readings, all enforcement mechanisms provided by law and these Rules shall be available to prevent unauthorized use of the well and may be initiated by the General Manager without further authorization from the Board.

SECTION 9.
INSPECTION AND ENFORCEMENT OF RULES

Rule 9.1 Purpose and Policy.

The District's ability to effectively and efficiently manage the limited groundwater resources within its boundaries depends entirely upon the adherence to the rules promulgated by the Board to carry out the District's purposes. Those purposes include providing for the conservation, preservation, protection and recharge of the groundwater resources within the District, to protect against subsidence, degradation of water quality, and to prevent waste of those resources. Without the ability to enforce these rules in a fair, effective manner, it would not be possible to accomplish the District's express groundwater management purposes. The enforcement rules and procedures that follow are consistent with the responsibilities delegated to it by the Texas Legislature through the District Act, and through Chapter 36 of the Texas Water Code.

Rule 9.2 Rules Enforcement.

(a) If it appears that a person has violated, is violating, or is threatening to violate any provision of the District Rules, the Board may institute and conduct a suit in a court of competent jurisdiction in the name of the District for injunctive relief, recovery of a civil penalty in an amount set by District Rule per violation, both injunctive relief and a civil penalty, or any other appropriate remedy. Each day of a continuing violation constitutes a separate violation.

(b) Unless otherwise provided in these rules, the penalty for a violation of any District rule shall be either:

(1) $10,000.00 per violation; or

(2) a lesser amount, based on the severity of the violation, as set forth in an Enforcement Policy that may include a Civil Penalty Schedule, which is attached to these Rules as Appendix A and adopted as a Rule of the District for all purposes.

(c) A penalty under this section is in addition to any other penalty provided by law and may be enforced by filing a complaint in a court of competent jurisdiction in the county in which the District's principal office or meeting place is located.

(d) If the District prevails in a suit to enforce its Rules, the District may seek, in the same action, recovery of attorney's fees, costs for expert witnesses, and other costs incurred by the District before the court. The amount of attorney's fees awarded by a court under this Rule shall be fixed by the court.

Rule 9.3 Failure to Report Pumpage and/or Transported Volumes.

The accurate reporting and timely submission of pumpage and/or transported volumes is necessary for the proper management of water resources in the District. Failure of a well owner required by these Temporary Rules to submit complete, accurate, and timely pumpage and transportation reports may result in:

(a) the assessment of any fees or penalties adopted under Rule 9.2 for meter reading and inspection as a result of District inspections to obtain current and accurate pumpage volumes; and

(b) additional enforcement measures provided by these Rules or by order of the Board.

Rule 9.4 District Inspections.

No person shall unreasonably interfere with the District's efforts to conduct inspections or otherwise comply with the requirements, obligations, and authority provided in Section 36.123 of the Texas Water Code.

Rule 9.5 Notices of Violation.

Whenever the District determines that any person has violated or is violating any provision of the District's Rules, including the terms of any rule or order issued by the District, it may use any of the following means of notifying the person or persons of the violation:

(a) Informal Notice: The officers, staff or agents of the District acting on behalf of the District or the Board may inform the person of the violation by telephone by speaking or attempting to speak to the appropriate person to explain the violation and the steps necessary to satisfactorily remedy the violation. The information received by the District through this informal notice concerning the violation will be documented, along with the date and time of the call, and will be kept on file with the District. Nothing in this subsection shall limit the authority of the District to take action, including emergency actions or any other enforcement action, without first providing notice under this subsection.

(b) Notice of Violation: The District may inform the person of the violation through a written notice of violation issued pursuant to this rule. Each notice of violation issued hereunder shall explain the basis of the violation, identify the rule or order that has been violated or is being violated, and list specific required actions that must be satisfactorily completed—which may include the payment of applicable civil penalties—to address each violation raised in the notice. Notices of violation issued hereunder shall be tendered by a delivery method that complies with District Rule 1.7. Nothing in this rule subsection shall limit the authority of the District to take action, including emergency actions or any other enforcement action, without first issuing a notice of violation.

(c) Compliance Meeting: The District may hold a meeting with any person whom the District believes to have violated, or to be violating, a District Rule or District order to discuss each such violation and the steps necessary to satisfactorily remedy each such violation. The information received in any meeting conducted pursuant to this rule subsection concerning the violation will be documented, along with the date and time of the meeting, and will be kept on file with the District. Nothing in this rule subsection shall limit the authority of the District to take action, including emergency actions or any other enforcement action, without first conducting a meeting under this subsection.

Rule 9.6 Show Cause Hearing.

(a) Upon recommendation of the General Manager to the Board or upon the Board's own motion, the Board may order any person that it believes has violated or is violating any provision of the District's Rules a District order to appear before the Board at a public meeting called for such purpose and show cause why an enforcement action, including the initiation of a suit in a court of competent jurisdiction, should not be pursued by the District against the person or persons made the subject of the show cause hearing.

(b) No show cause hearing under subsection (a) of this Rule may be held unless the District first serves, on each person to be made the subject of the hearing, written notice not less than 20 days prior to the date of the hearing. Such notice shall include the following:

1. the time and place for the hearing;

2. the basis of each asserted violation; and

3. the rule or order that the District believes has been violated or is being violated; and

4. a request that the person cited duly appear and show cause why enforcement action should not be pursued.

(c) The District may pursue immediate enforcement action against the person cited to appear in any show cause order issued by the District where the person so cited fails to appear and show cause why an enforcement action should not be pursued.

(d) Nothing in this rule shall limit the authority of the District to take action, including emergency actions or any other enforcement action, against a person at any time regardless of whether the District holds a hearing under this Rule.

SECTION 10.
EFFECTIVE DATE

Rule 10.1. Effective Date.

These Rules take effect on August 29, 2011, which was the date of their original adoption. An amendment to these Rules takes effect on the date of its original adoption. It is the District's intention that the rules and amendments thereto be applied retroactively to activities involving the production and use of groundwater resources located in the District, as specifically set forth in these Rules.

APPENDIX A.
Enforcement Policy and Civil Penalty Schedule.

Red River Groundwater Conservation District
ENFORCEMENT POLICY AND CIVIL PENALTY SCHEDULE

General Guidelines

When the General Manager discovers a violation of the District Rules that either (1) constitutes a Major Violation, or (2) constitutes a Minor Violation that the General Manager is unable to resolve within 60 days of discovering the Minor Violation, the General Manager shall bring the Major Violation or the unresolved Minor Violation and the pertinent facts surrounding it to the attention of the Board. Violations related to water well construction and completion requirements shall also be brought to the attention of the Board.

The General Manager shall recommend to the Board of Directors an appropriate settlement offer to settle the violation in lieu of litigation based upon the Civil Penalty Schedule set forth below. The Board may instruct the General Manager to tender an offer to settle the violation or to institute a civil suit in the appropriate court to seek civil penalties, injunctive relief, and costs of court and expert witnesses, damages, and attorneys' fees.

I. Minor Violations

The following acts each constitute a minor violation:

1. Failure to timely file a registration on a new well that qualifies for an exemption under Rule 2.1.

2. Failure to conduct a meter reading within the required period.

3. Failure to timely notify District regarding change of ownership.

4. Failure to timely file a Well Report.

5. Failure to timely submit required documentation reflecting alterations or increased production.

6. Operating a meter that is not accurately calibrated.

CIVIL PENALTY SCHEDULE FOR MINOR VIOLATIONS

First Violation:	**$100.00**
Second Violation:	**$200.00**

Third Violation: **Major Violation**

A second violation shall be any minor violation within 3 years of the first minor violation. A third violation shall be any minor violation following the second minor violation within 5 years of the first minor violation. Each day of a continuing violation constitutes a separate violation.

II. Major Violations

The following acts each constitute a major violation:

1. Failure to register a well not exempt under Rule 2.1 where mandated by rules, including drilling, equipping, completing, altering, or operating a well without a compliant and approved registration.

2. Failure to timely meter a well when required.

3. Failure to submit accurate Water Production Report within the required period.

4. Failure to submit accurate Groundwater Transport Report within the required period.

5. Drilling a well in a different location than authorized or in violation of spacing requirements.*****

6. Failure to close or cap an open or uncovered well.

7. Failure to submit Water Use Fees within 60 days of the date the fees are due.******

8. Failure to timely submit Groundwater Transport Fees within 60 days of the date the fees are due.******

9. Committing waste.

CIVIL PENALTY SCHEDULE FOR MAJOR VIOLATIONS

First Violation:	**$500.00**
Second Violation:	**$1,000.00**
Third Violation:	**Civil Suit for injunction, damages, and escalated penalties**

A second violation shall be any major violation within 3 years of the first major violation of the same level. A third violation shall be any major violation following the second major violation within 5 years of the first major violation. Each day of a continuing violation constitutes a separate violation.

***** In addition to the applicable penalty provided for in the Civil Penalty Schedule for Major Violations, persons who drill a well in violation of applicable spacing requirements may be required to plug the well.

****** In addition to the applicable penalty provided for in the Civil Penalty Schedule for Major Violations, persons who do not submit all Water Use Fees and Groundwater Transport Fees due and owing within 60 days of the date the fees are due pursuant to Rule 7.3(a) will be assessed a civil penalty equal to three times the total amount of outstanding Water Use Fees that are due and owing.

III. Water Well Construction and Completion Requirements

Failure to use approved construction materials: **$500 + total costs of remediation**

Failure to properly cement annular space: **$1,000 + total costs of remediation**

In addition to the civil penalties provided for in this schedule, persons who drill a well in violation of applicable spacing or completion requirements may be required to recomplete or reconstruct the well in accordance with the District's rules, or may be ordered to plug the well.

IV. Other Violations of District Rules Not Specifically Listed Herein

Any violation of a District Rule not specifically set forth herein shall be presented to the Board of Directors for a determination of whether the violation is Minor or Major, based upon the severity of the violation and the particular facts and issues involved, whereupon the procedures and the appropriate civil penalty amount set forth herein for Minor and Major Violations shall apply to the violation.

Appendix D

Resolution adopting the management plan (To be included in final plan sent to TWDB)

Appendix E

Evidence that the management plan was adopted after notice and hearing (To be included in final plan sent to TWDB)

Appendix F

Evidence that the District coordinated development of the management plan with surface water entities (To be included in final plan sent to TWDB)