

Trinity Glen Rose Groundwater Conservation District

Groundwater Management Plan

<u>Member</u>	<u>District</u>	<u>Position</u>
Brad Groves	District 2	President
John Friesenhahn	District 4	Vice President
Gary Gibbons	District 3	Secretary
Roy Horn.....	District 1	Treasurer
William Pitman	District 5	Asst. Secretary/Treasurer

Trinity Glen Rose Groundwater Conservation District
c/o Davidson & Troilo
7550 W IH 10 Ste 800
San Antonio, TX 78229
Fax: (210) 349-0041
Phone: (210) 349-6484

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TIME PERIOD FOR THIS PLAN

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This plan becomes effective upon adoption by the Trinity Glen Rose Groundwater Conservation District Board of Directors (Board) and subsequent certification by the Texas Water Development Board (TWDB). This plan incorporates a planning period of ten years in accordance with 31TAC §356.5(a). After five years, the plan will be reviewed for consistency with the applicable Regional Water Plans and the State Water Plan and shall be readopted with or without amendments. The plan may be revised at anytime in order to maintain such consistency or as necessary to address any new or revised data, Groundwater Availability Models, or District management strategies.

DISTRICT MISSION

During the 77th Legislature in 2001, the Trinity Glen Rose Groundwater Conservation District was created. On November 5, 2002, the voters of the District approved the confirmation of the District. The purpose of the District is to develop and implement regulatory, conservation and recharge programs that preserve and protect the underground water resources located within the District.

San Antonio and Bexar County are experiencing a dynamic growth northward into the Hill Country. Water resources are paramount as an ingredient enabling our families and businesses to choose where they wish to live and work. The Trinity Glen Rose Groundwater Conservation District (TGR) is the primary governing authority with the mission of providing management, conservation, preservation, protection, recharge and prevention of waste of the Trinity Group of Aquifers resource in northern Bexar County. We are a governing body of elected officials living in the area and share the Common Vision of responsible growth over this valuable natural resource.

Our mission is to further study the intricacies of the Trinity Group of Aquifers. This governing body will set rules that provide for a sustainable water resource for families and businesses that rely on the Trinity Group of Aquifers. Through well registration programs and by monitoring key wells within the District boundaries, The TGR will be able to develop proper guidelines, well drilling standards and recharge guidelines to maximize this valuable resource for the families and businesses within the boundaries of the District.

A Common Vision shared by the Conservation District and the citizens of the district will ensure a positive and harmonious relationship between the limitations of our natural resources and the inevitable growth within this geographical area.

STATEMENT OF GUIDING PRINCIPLES

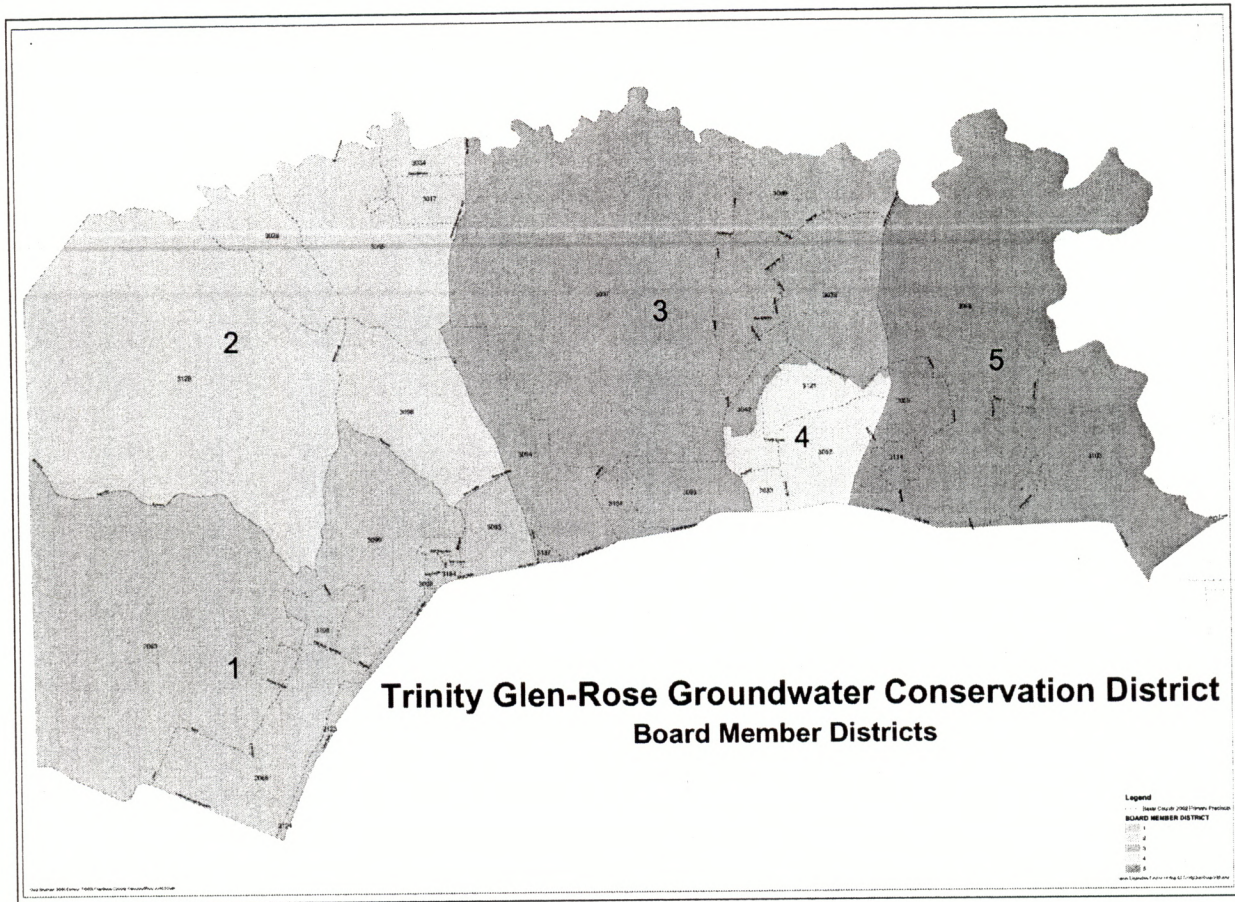
The TGR was created in order that appropriate groundwater management techniques and strategies could be implemented at the local level to address groundwater issues or problems within the District. The District has reviewed both the TWDB's Groundwater Availability Model and the best and most current site-specific data available to the District in the development of this plan utilizing a combination of these data to present reasonably comprehensive conclusions. This plan serves as a guideline the District can follow to ensure greater understanding of local aquifer conditions, development of groundwater management concepts and strategies, and subsequent implementation of appropriate groundwater management policies.

COMMITMENT TO IMPLEMENT

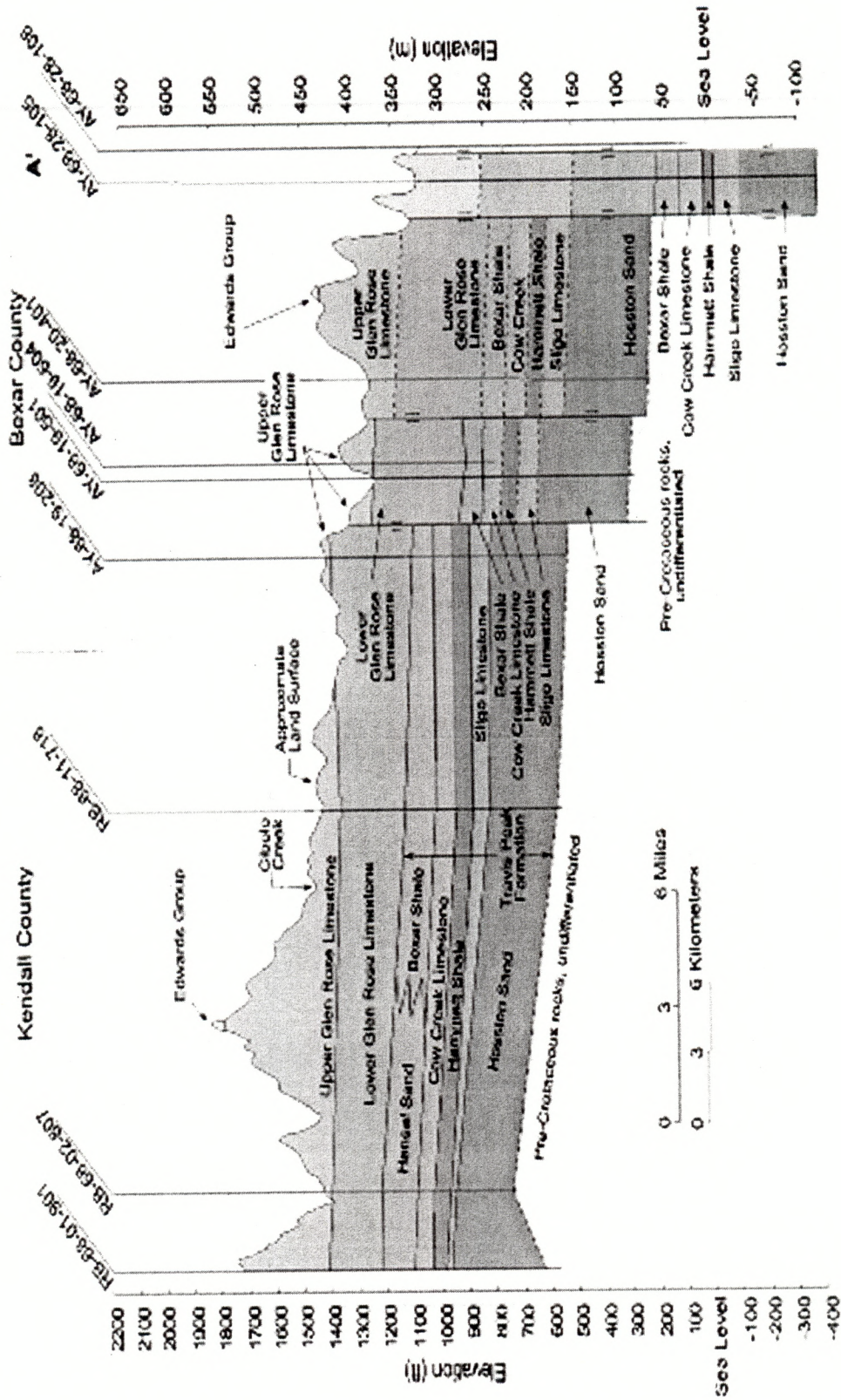
GROUNDWATER MANAGEMENT PLAN

To address potential groundwater quantity and quality issues, the District is committed to, and will actively pursue, the groundwater management strategies identified in this management plan. The management plan will be coordinated with District Rules, policies, and activities in order to effectively manage and regulate the drilling of wells, production of groundwater within the District, and the possible transfer of water out of the District, encourage conservation practices and efficient water use, develop a drought contingency plan, and provide for the identification of any critical groundwater depletion areas within the District. To the greatest extent practical, the District will cooperate with and coordinate its management plan and regulatory policies with adjacent groundwater districts, Regional Water Planning Groups, and adjacent counties with similar aquifers and/or groundwater usage.

District Boundary Map



Stratigraphic Section of the Hill Country Area



GENERAL DESCRIPTION OF THE DISTRICT

The Trinity Glen Rose Groundwater Conservation District includes all of Northern Bexar County and covers roughly 307 square miles (196,409 acres). House Bill 2005 created the TGR on September 1, 2001. This was, in part, a response to the State of Texas (TNRCC) designation that the portion of the Trinity Group of Aquifers lying within Bexar County as a Priority Groundwater Management Area (PGMA). If a PGMA designation is given, the TNRCC is mandated to ensure that management of the resource becomes a reality.

Current District rules have been finalized and approved.

North Bexar County's economy is primarily rural residential. Historically large ranches and military reservations occupied the area, but with the proliferation of suburban home sites, this has also changed. The limited agricultural economy consists of small pastures and native grassland open areas. Wildlife tends to be prolific in the area with wildlife hunting also contributing to the area economy. The predominate agricultural land use is rangeland, due to steep slopes and shallow soils that characterize the area. Cattle, sheep and goats also contribute to the agricultural sector of the county.

The largest city within in the District is San Antonio, which has an overall Census 2000 population of 1,144,646 although a smaller portion of the population, approximately 56,000, lives within the boundaries of the district. San Antonio city limits extend into nearly half of the District. The remainder of the District is made up of small cities (Fair Oaks and Grey Forest) and numerous communities scattered throughout the area. The majority of the district still remains rural residential although this area is currently and remains a prime area for future development extending out from San Antonio. North Bexar County lies within the San Antonio River basin and for statewide water planning purposes it is part of the South Central Texas Regional Water Planning Group (Region L).

Topography and Drainage

North Bexar County has one primary watershed that is the San Antonio River, which is a tributary to the Guadalupe River. Surface drainage within the District is generally from northwest to southeast. Cibolo Creek is a tributary of the San Antonio River and drains from northwest to southeast across the Trinity Group of Aquifers and forms a large portion of the boundary between North Bexar County and adjacent counties. Cibolo Creek is a major recharge feature of the Trinity Group of Aquifers in North Bexar County and eventually confluences with the San Antonio River.

The major geologic feature located within the District's boundaries is the Edwards Plateau. This broad, topographically high area is composed of Cretaceous age limestone, dolomite and marl. Deep erosion and down cutting by streams and rivers in the area have resulted in the Edwards Plateau being perceptibly higher than adjacent areas. The plateau is the southernmost extension of the Great Plains, extending westward from the Colorado River to the Pecos, and covers many Central and West Texas counties. It is bordered on the northeast by the pre-Cambrian rocks of the Llano Uplift. North Bexar County lies near the southeastern edge of the Plateau.

Elevation within the District ranges from a low of approximately 730 feet above sea level where the Cibolo Creek leaves North Bexar County to the southeast to approximately 1,892 feet above sea level at Mount Smith in the northwestern portion of the district.

**WATER RESOURCES WITHIN THE
TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT**Groundwater Resources and Supplies in North Bexar County

Within the TGR, the only major aquifer that provides groundwater to county residents is the Trinity Group of Aquifers consisting of the Upper Glen Rose Limestone, Lower Glen Rose Limestone, Cow Creek Limestone, Sligo Limestone and Hosston Sand. Well depths vary from shallow, hand-dug wells to drilled wells that vary from 100 feet deep to over 1,600 feet deep based on TWDB records for Bexar County. Depths are highly variable even within the same aquifer and depend entirely on site-specific topography and geology, especially faulting. Water quality and water quantity also vary greatly throughout the District. Water quality within a specific aquifer can often be defined or characterized in a general sense, but can still be affected by local geology, hydrology and structure. Because of these variations throughout the District, the total available amount of groundwater cannot be calculated based on the data available to the District. While recognizing that useable groundwater from the Trinity Group of Aquifers will exceed recharge, the Board decided to conservatively equate available and total usable groundwater supply to equal the annual estimated recharge as described below.

The District has investigated calculations prepared by TWDB's Dr. Robert Mace using the Trinity Group of Aquifers model. This model does not include the effects of recharge from the Cibolo Creek drainage and therefore, underestimates the recharge to North Bexar County. For the calculation of recharge, the District has considered the Cibolo Creek Watershed – Phase I draft report completed by the USGS for the U.S. Army Corps of Engineers in determining recharge to North Bexar County.

- September 2000 TWDB report on “Groundwater Availability of the Trinity Aquifer, Hill Country Area, Texas: Numerical simulations through 2050” by Robert E. Mace, et. al.
- Cibolo Creek Watershed – Phase 1 (DRAFT); USGS, NRCS, COE

For District management and planning purposes, the groundwater availability for the Trinity Group of Aquifers will be identified using the draft USGS/NRCS/COE Cibolo Creek Watershed-Phase I data combined with regional rainfall infiltration data to assist in defining groundwater availability. When using this report to estimate the Trinity Group of Aquifer recharge in North Bexar County, only the polygon area south of Cibolo Creek was used to calculate recharge to North Bexar County, rainfall data was expanded from a 10 year period to a 44 year period and polygons recharging only the Edwards Aquifer were excluded. Although field observations from well drillers indicate that wells drilled south of Cibolo Creek produce more water than wells drilled north of Cibolo Creek, data is not available to quantify the amount of available groundwater at this time. In addition, these calculations do not account for in/out-of-county flow, septic infiltration additions, inflow from Medina Lake, recharge from stock tanks or future planned water impoundments (flood reduction structures or otherwise). As additional data becomes available, the Board will review and modify this management plan.

The current total usable annual water availability in North Bexar County is currently predicted at 32,767 ac-ft of Trinity Group of Aquifers groundwater, 5,350 ac-ft of surface water (2006), with an additional variable surface water supply of 3,500 ac-ft declining over time, and 8,121 ac-ft from other sources. It is important to note that the water supplied from other sources will increase or decrease depending on demand and the service plans managed by the two major

water utilities operating within the District, San Antonio Water System and Bexar Met.

The Trinity Group of Aquifers in North Bexar County is comprised of the Upper and Lower Glen Rose Limestone, Cow Creek Limestone, Sligo Limestone and the Hosston Sand. The Trinity Group of Aquifers in this area is recharged from local precipitation on its outcrop; flow through Cibolo Creek and through the overlying units where it is in the subsurface. Yields vary greatly and are highly dependent on local subsurface physical characteristics. Yields are generally low, less than 20 gpm, but can occasionally be significantly higher, with yields of 600-800 gpm being reported in site-specific areas. Production from Trinity wells is primarily used for municipal, rural domestic and livestock demands.

Surface Water Resources and Supplies in North Bexar County

Groundwater supplies in North Bexar County are augmented by other water sources. Fair Oaks Ranch will have available to them, up to 1,400 ac-ft of surface water rights from Canyon Lake (Guadalupe- Blanco River Auth. - GBRA), and also claims 39 ac-ft of groundwater from the Trinity Aquifer in Comal County and up to 75 ac-ft of groundwater from Kendall County. San Antonio Water System (SAWS) will have available from Canyon Lake (GBRA) up to 3,950 ac-ft of confirmed surface water rights water and up to an additional 3,500 ac-ft of variable term water that declines over time. The Canyon Lake Surface water rights will be available to Fair Oaks Ranch and SAWS beginning in 2006. Additional water from other sources is/will be supplied from municipal providers.

Table 1
Historical & Projected Water Supplies by Source

NAME OF SOURCE	BASIN	YR2000	YR2010	YR2020	YR2030
Trinity Group of Aquifers	SAR	32,767	32,767	32,767	32,767
Canyon Lake Surface Water	GRB	0	7,850	6,850	5,350
Other Sources ¹	SAR/GRB	8,121	10,083	21,498	45,435
Total (ac-ft/yr)	SAR/GRB	40,888	50,700	61,115	83,552

¹ Includes Edwards Aquifer and other sources developed by the two major purveyors of municipal water - San Antonio Water System and Bexar Metropolitan Water District

Historical & Projected Total Water Usage in North Bexar County

As shown in Table 2, historical consumption in North Bexar County for the year 2000 was 16,534 ac-ft (8,413 ac-ft of Trinity Group of Aquifers groundwater and 8,121 ac-ft of other source water). Total water demand for North Bexar County is estimated to increase from 30,471 ac-ft in 2010 to 78,113 ac-ft in 2030. Of the total annual water demand, an estimated current annual demand of 8,121 ac-ft is supplied to water users through existing infrastructure from other sources. As future demands increase, changes in the infrastructure will be necessary. It is projected that the greatest demand on water resources will be from municipal suburban users who will rely on groundwater and other supplies provided by municipal providers. The majority of infrastructure improvements necessary to service these new groundwater users will be provided by either developers or municipal water supply companies. Therefore, it is anticipated that the amount of water supplied at any given time will be primarily related to suburban growth patterns.

Table 2

Projected Total Water Consumption & Demand in North Bexar County

(Source: Region L Regional Water Plan and other available demographic data)

(ac-ft/yr)

Aquifer	Basin	Source	Consumption YR2000	YR2010	Demand YR2020	YR2030
Trinity Aquifers	SAR	Groundwater	8,413	12,538	17,124	27,328
Other groundwater and Surface Sources	SAR	Ground/Surface Water	8,121	17,933	28,348	50,785
Total			16,534	30,471	45,472	78,113

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Recharge of Groundwater in North Bexar County

The annual natural recharge occurring in North Bexar County is thought to be through percolation of rainfall countywide and more localized recharge, along with potentially higher rates of recharge, occurring in the bed of Cibolo Creek and its tributaries. The District is currently unaware of any significant recharge feature in North Bexar County that may be providing a major avenue for recharge other than unnamed sinkholes within Cibolo Creek and some cave/sinkhole structures within the district.

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The District is unaware of any scientific study on recharge rates or aquifer capabilities specific to North Bexar County as a whole, other than the Draft Cibolo Creek Study, which helps define recharge through the Cibolo Creek area. However, a calculated annual recharge coefficient of approximately 4% of annual rainfall was developed in the September 2000 TWDB report on "Groundwater Availability of the Trinity Group of Aquifers, Hill Country Area, Texas, it seems reasonable for the District to assume a 4% average for North Bexar County Trinity Group Of Aquifers recharge, (Mace, et. al. has done this for the Trinity Group of Aquifers as a whole). John Ashworth also developed a similar annual effective recharge coefficient (also 4% of average annual rainfall of about 29.5 inches) for the Trinity Group of Aquifers in the Texas Department of Water Resources Report 273, Ground-Water Availability of the Lower Cretaceous Formations in the Hill Country of South-Central Texas, January 1983.

The estimated annual recharge for the North Bexar County aquifers is shown in Table 1. The District will review future and/or updated calculations being investigated and prepared that assist in defining recharge. The District will consider new data as it becomes available and will amend this plan as appropriate. (See Appendix A for details on the recharge calculations)

These recharge potentials are not to be confused with "recoverable" groundwater. Not all groundwater is recoverable. Some is lost to spring flow and seeps, some is used by plant life while the water is still near the surface, while some is almost permanently retained within the rock itself. However, water retained within the rock itself is a one-time recharge and should not affect available water from further recharge events. For instance, some areas of the Trinity Group of Aquifers may be a rather "tight" formation, particularly in the vertical direction. The Trinity Group of Aquifers in some areas is known to have low porosity and permeability, limited

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fracturing and faulting, and a complicated stratigraphy that includes layers of rock that reduce transmissivity and retard downward-moving recharge water. In other areas, dissolution of the limestone, cave/sinkhole formation, faulting, fracturing, higher porosity and permeability increase water movement and transmissivities as well as vertical movement. As a result, individual well yields can be very low to very high. Though large quantities of water may be present in the subsurface, much of the groundwater may be unrecoverable in some areas due to these hydrogeologic conditions while in other areas a large portion of the water is recoverable.

As previously mentioned, some water recharging the Trinity Group of Aquifers will be lost, some through biologic uptake and some through discharge at springs and seeps that provide some base flow to local creeks and tributaries. This is water that the aquifer rejects on an average annual basis and is potentially available and can theoretically be retrieved (at least on a short-term basis) without diminishing the average volume of groundwater being recharged to storage or, in other words, without creating a water losing situation within the aquifer. Extensive pumping will also reduce the pressure head and may result in a significantly larger quantity of recharge water actually percolating downward into the aquifer providing recharge that would not be normally available thus providing more reliable, long-term well production. Once pumping exceeds average annual recharge, then the aquifer(s) will be providing water from storage (thought to be a relative large amount) and the groundwater level will decline over time.

Recharge Enhancement Potential

The District is just beginning operations and has yet to assess potential recharge projects in North Bexar County. The District will solicit ideas and information and will investigate any potential recharge enhancement opportunity, natural or artificial, that is brought to the District's attention. Such projects may include, but are not limited to: cleanup or site protection projects at any identified significant recharge feature, encouragement of prudent brush control practices, non-point source pollution mitigation projects, aquifer storage and recovery projects, development of recharge ponds or small reservoirs, and the encouragement of appropriate and practical erosion and sedimentation control at construction projects located near surface streams. One project being studied in the area is the Cibolo Creek Enhancement Project under the direction of the U. S. Army Corps of Engineers in conjunction with SARA, GBRA and SAWS. Studies are currently on going with Phase I, data collection completed and Phase II underway. These studies are to determine if flood damage reduction, ecosystem restoration, aquifer recharge and brush clearing activities may be useful and beneficial in the North Bexar County area.

Projected Population and Trinity Group of Aquifers Water Demands in North Bexar County

Population and water demand projections are given for Bexar County in the Region L Plan. However, the 2000 Census has provided new population data. This data has been incorporated by the TWDB for an upcoming revision. The following table incorporates those revisions and provides updated North Bexar County populations and Trinity Group of Aquifers annual water demand projections for every ten years beginning in 2000 and ending with 2030. Updated annual municipal/rural water demands in Table 3 are based on the new population data multiplied by a Per Capita Rate (calculated from the estimated populations and municipal/rural demands in the original Region L Plan). Estimated demands on Trinity Group of Aquifers groundwater by irrigation, mining, and livestock users have been left unchanged except for estimating the 2030 demands.

Table 3

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North Bexar County Population Projections and Trinity Water Demands (acre-feet)

North Bexar County Population Projections ¹ (based on 2000 Census)		2000	2010	2020	2030
North Bexar County Trinity Aquifer		23,242	42,946	63,185	105,087
North Bexar County Non-Trinity Aquifer		33,124	80,580	129,903	225,050
Total		56,366	123,526	193,088	330,137

North Bexar County Trinity-Water Demands		2000	2010	2020	2030
(Per Capita Rate) ²	(gpd)	240	208	201	205
Municipal/Rural (Pop. x Per Capita Rate)	(ac-ft/yr)	6,400	10,163	14,384	24,288
Irrigation ³		1350	1650	1950	2250
Mining ³		150	162	177	177
Livestock ³		13	13	13	13
Manufacturing ³		500	550	600	600
Steam Electric ³		0	0	0	0
Total Trinity Water Demand	(ac-ft/yr)	8,413	12,538	17,124	27,328

1. Based on 2000 census

2. TWDB Area GPCD in gallons/day

3. Based on Region L Water Plan in ac-ft/year & 2003-2004 pumping reported to District

Up to the year 2030, total district wide Trinity Group of Aquifers annual water demand is estimated to increase approximately 325%, from 8,413 ac-ft to 27,328 ac-ft. The estimated amount of Trinity Group of Aquifers groundwater currently available within the county is approximately 32,767 ac-ft per year excluding imported water and estimated to remain such through 2030. As a result, there will be an estimated Trinity Group of Aquifer water surplus of 5,439 ac-ft per year in the year 2030. However, there could be areas of the district where demand will be such that some of the aquifers with lower production capability will be in a stressed condition and may not be able to meet higher demand. These areas should be identified as conditions manifest themselves and alternative water supplies investigated.

Much of the growth now occurring in North Bexar County is focused on the major thoroughfares north of Loop 1604 such as Highway 281 North, Interstate 10 West, and Highway 16 to Bandera as well as along the 1604 North corridor. These areas are generally served by private water wells producing from the Upper Glen Rose and Lower Glen Rose stratigraphic units of the Trinity Group of Aquifers, some production from the Cow Creek Geologic unit and by growth of municipal water systems and the influx of non-Trinity based water that will reduce the dependence on the Trinity Group of Aquifers. It is conceivable that with continued growth, the Trinity Group of Aquifers could be overextended sometime in the future. Growth and water

production will require monitoring to assure that water is available for the citizens and businesses of the area.

GROUNDWATER MANAGEMENT POLICIES

The District will manage the supply of groundwater within the District based on the District's best available data and its assessment of water availability and groundwater storage conditions. The Groundwater Availability Model (GAM 2000 and any subsequent updates) developed by the TWDB for the Trinity Group of Aquifers or other groundwater models, as well as other studies performed by other entities, will also aid in the decision making process by this District in the management of North Bexar County Trinity groundwater.

The District has promulgated Rules that require the permitting of wells for non-exempt wells within the District consistent with the provisions of Chapter 36.113 and other pertinent sections of Chapter 36.

The District is in agreement with the opposition to mining of groundwater. Therefore, it shall be the policy of the District to limit withdrawal of groundwater from permitted wells producing from North Bexar County aquifers to no more than the current groundwater availability volumes indicated for the Trinity Group of Aquifers in this Management Plan unless sufficient data is provided to indicate that water can be removed without causing regional reductions to the aquifer. These volumes are listed in Table 1 of this Groundwater Management Plan. Development or analysis of new or existing groundwater or aquifer data may result in changes to the groundwater availability volumes, with a corresponding change in production limits from the affected aquifers.

The District has promulgated Rules that will regulate the production of groundwater consistent with the provisions Chapter 36.116. The District wishes to emphasize that in regulating or limiting groundwater production, it shall be the policy of the District to recognize good scientific data in the development of groundwater usage.

ACTIONS, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION

The District will implement and utilize the provisions of this groundwater management plan for all District activities. The District's current and future Rules have and will be promulgated pursuant to the provisions of Texas Water Code Chapter 36 and shall address, implement, and be consistent with the provisions and policies of this plan. These rules will be enforced based on the best technical evidence available.

All citizens will be treated equally and may apply to the District for discretion in enforcement of rules on grounds of adverse economic effects or unique local aquifer characteristics. In granting of discretion or a variance to any rule, the Board shall consider the potential adverse effect on adjacent landowners.

The District shall review and re-adopt this plan, with or without revisions, at least once every five years in accordance with Chapter 36.1072(e).

Any amendment to this plan shall be in accordance with Chapter 36.1073.

The District will seek cooperation and coordination in the development and implementation of this plan with the appropriate state, regional or local water management or planning entities.

The District will monitor groundwater conditions through its water level and water quality monitoring programs. If necessary, the District may, through the rule-making process, identify areas within the District which, based on results from District aquifer monitoring, are identified as Critical Groundwater Depletion Areas (CGDA). These areas, when identified by the District in accordance with District Rules, may require specific pumping limits or reduction measures to ensure that groundwater supply is maintained and protected.

The District will encourage cooperative and voluntary Rule compliance, but if Rule enforcement becomes necessary, the enforcement will be legal, fair, and impartial.

METHODOLOGY FOR TRACKING PROGRESS IN ACHIEVING MANAGEMENT GOALS

The District will use the following methodology to track its progress toward achieving its management goals:

An annual report will be presented to the Board of Directors on District performance and progress in achieving management goals and objectives at the last regular Board meeting of the fiscal year beginning in Fiscal Year 2005.

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GROUNDWATER MANAGEMENT GOALS

1.0 Implement management strategies that will provide for the most efficient use of groundwater.

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1.1 Management Objective

Each year, the District will require all new wells that are constructed within the boundaries of the District to be permitted with the District in accordance with the District Rules.

Performance Standards

The number of wells registered by the District for the year will be included in the Annual Report submitted to the Board of Directors of the District.

1.2 Management Objective

Develop database of monthly well pumping for non-exempt wells within the District which report pumping in accordance with the District Rules.

Performance Standards

The number of monthly records entered for non-exempt well pumping data.

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2.0 Implement strategies that will control and prevent waste of groundwater.

2.1 Management Objective

Each year the District will provide to local newspapers at least one-article describing water efficient practices available for implementation by groundwater users.

Performance Standards

Number of articles describing water efficient practices submitted to local newspapers each year.

2.2 Management Objective

Each year, the District will provide information to the public on eliminating or reducing wasteful practices in the use of groundwater by including information on groundwater waste reduction on the District's website, www.trinityglenrose.org.

Performance Standards

Each year include groundwater waste reduction information posted on the District's website in the Annual Report submitted to the Board of Directors of the District.

2.3 Management Objective

Make a speaker available to local clubs and organizations or a display booth at public events twice each year.

Performance Standards

Number of speaking engagements or booth displays offered each year.

2.4 Management Objective

The District will make an annual evaluation of the District Rules and determine if any amendments to the District Rules are recommended to prevent or reduce the waste of groundwater in the District.

Performance Standards

The District will include a discussion of the annual evaluation of the District Rules on at least one meeting agenda during the fiscal year.

3.0 Implement strategies that will control and prevent subsidence.

The rigid geologic framework of the region precludes significant subsidence from occurring. Therefore, this goal is not applicable to the operations of this District.

4.0 Implement management strategies that will address conjunctive surface water management issues.

4.1 Management Objective

Assist Bexar County Commissioners Court in the evaluation of water availability reports submitted in accordance with County subdivision requirements.

Performance Standard

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Make annual report available to the Bexar County Commissioners Court on groundwater availability.

4.2 **Management Objective**

Evaluate if studies may be warranted regarding the possible need to develop correlations between spring flow, surface stream elevations/flows, rainfall, and groundwater levels.

Performance Standard

Evaluation of warranted studies submitted, if any, in the Annual Report to the Board of Directors of the District.

4.3 Management Objective

Evaluate potential opportunities for recharge enhancement projects, either natural or artificial.

Performance Standard

Evaluation of potential recharge enhancement opportunities, if any, submitted in the Annual Report to the Board of Directors of the District.

5.0 Implement strategies that will address natural resource issues which impact the use and availability of groundwater, or which are impacted by the use of groundwater.

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The District is not aware of any such natural resource issues that affect the use and availability of groundwater, or which are impacted by the use of groundwater. Therefore, this goal is not applicable to the operations of the District at this time.

6.0 Implement strategies that will address drought conditions.

6.1 Management Objective

Review Palmer Drought Severity Index (PDSI) and check for the periodic updates to the Drought Preparedness Council Situation Report (Situation Report) posted on the Texas Water Information Network website www.txwin.net monthly.

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Performance Standards

Quarterly, an assessment of the status of drought in the District will be determined and make a report to the District Board of Directors.

6.2 Management Objective

Provide and post drought-orientated literature on the District's developed website www.trinityglenrose.org.

Performance Standards

Each year, include drought-orientated literature posted on the District's website in the Annual Report to the District Board of Directors.

6.3 Management Objective

To evaluate groundwater availability each year, the District will collect water levels available to the District on selected wells representative of the major aquifer within the District in accordance with the water level monitoring plan developed by the District Board of Directors.

Performance Standard

Number of water level records collected annually.

6.4 **Management Objective**

Identification and designation of trigger conditions, within the Districts group of aquifers, which indicate drought conditions, to be used to develop an Emergency Drought Management Plan by the end of the calendar year 2006.

Performance Standard

Emergency Drought Management Plan prepared by the end of year 2006.

7.0 Implement strategies that will address groundwater conservation.

7.1 **Management Objective**

Each year the District will provide to local newspapers of general circulation in the District at least one article identifying the importance of water conservation and various water conservation methods available for implementation by groundwater users.

Performance Standards

A copy of the article(s) regarding water conservation submitted each year will be included in the Annual Report to the District Board of Directors.

7.2 **Management Objective**

Provide conservation literature on the District's website www.trinityglenrose.org.

Performance Standards

Each year, include conservation literature posted on the District's website in the Annual Report to the District Board of Directors.

Management Objective

Each year, the District will contact neighboring Groundwater Conservation Districts to focus on sharing information regarding groundwater conservation.

Performance Standards

Each year, a summary of the information gathered from neighboring Groundwater Conservation Districts will be included in the Annual Report to the District Board of Directors.

7.3 **Management Objective**

Provide to the public, upon request, conservation literature handouts.

Performance Standards

Each year provide conservation literature handouts on at least one occasion.

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Trinity Glen Rose Groundwater Conservation District

7550 W IH 10 Ste 800, San Antonio, TX 78229 Fax: (210) 349-0041 Phone: (210) 349-6484

www.trinityglenrose.org

Appendix A**Trinity Aquifer Recharge Estimates**

Trinity Aquifer Recharge Estimate ¹ Acreage of the Cibolo Creek Subshed							
North of Cibolo Creek Polygon ID ⁶	Acres	South of Cibolo Creek ² Polygon ID ⁶	Acres	Total Cibolo Creek Acres ³	Total Recharge ⁴	% South of Cibolo Creek	Trinity Bexar Recharge ⁵
1	5,724.55	1	5,596.10	11,320.65	4,010.3	0.494	1,982.4
2	718.90	2	443.52	1,162.42	411.8	0.382	157.1
3	2,606.38	3	2,673.29	5,279.67	1,870.3	0.506	947.0
4	1,343.42	4	2,054.01	3,397.43	1,203.5	0.605	727.6
5	0.00	5	10,927.60	10,927.60	3,871.1	1.000	3,871.1
6	6,208.21	6	5,281.61	11,489.82	4,070.2	0.460	1,871.0
7	3,104.03	7	2,358.82	5,462.84	1,935.2	0.432	835.6
8	0.00	8	15,437.53	15,437.53	5,468.6	1.000	5,468.6
9	13,882.11	9	5,396.74	19,278.85	6,829.4	0.280	1,911.8
10	12,194.31	10	0.00	12,194.31	4,319.7	0.000	-
11	8,248.94	11	10,295.50	18,544.44	6,569.2	0.555	3,647.1
12	7,811.17	12	0.00	7,811.17	2,767.0	0.000	-
13	4,763.00	13	4,457.53	9,220.53	3,266.3	0.483	1,579.0
14	14,295.58	14	0.00	14,295.58	5,064.1	0.000	-
15	2,840.24	15	4,824.27	7,664.51	2,715.1	0.629	1,709.0
16	2,388.96	16 ⁶	3,648.56	6,037.52	2,138.7	0.604	-
17	3,615.02	17 ⁶	1,091.45	4,706.47	1,667.2	0.232	-
18	1,974.49	18 ⁶	2,419.91	4,394.40	1,556.7	0.551	-
19	3,495.38	19 ⁶	2,900.24	6,395.62	2,265.6	0.453	-
Total	95,214.69	Total	79,806.68	175,021.37	62,000.0		24,707.3
	Acres in						
	N. Bexar Co						
Rainfall	201,481						8,059.2
Total Recharge							32,766.5

¹ Estimate from USGS/NRCS/COE Cibolo Creek Watershed Phase I - Existing Conditions - DRAFT.

² The portion of the Cibolo Creek Polygons from the Cibolo Creek Watershed Phase 1 report that lies on the South Side of Cibolo Creek therefore assumed to be recharging North Bexar County.

³ From the Cibolo Creek Watershed Phase I report that influence drainage to Cibolo Creek.

⁴ Total Recharge estimate is for all the acreage that runs off to Cibolo Creek based on USGS personnel Darwin Ockerman communication using a 44-year average rainfall data set

⁵ Trinity Bexar Recharge incorporates the total recharge to Bexar County from Cibolo Creek and applies 44-year average rainfall factors for South of Cibolo Creek only

⁶ Polygon ID's 16 through 19 recharge to the Edwards Aquifer and are not calculated in the Trinity Recharge estimate

Notes and Assumptions:

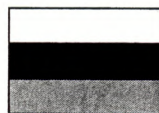
1. Data is from the USGS Cibolo Creek Draft Report to the COE and was utilized
2. The USGS claims no authorship over this Table
3. The 44-year average recharge over the entire area is 62,000 acre-feet (e-mail, D. Ockerman to D. Thompson 12/3/03)
4. Recharge to the aquifers is assumed to be homogeneous to all polygons
5. Cibolo Creek is assumed to be a groundwater high and any recharged water splits north to Comal County and south to Bexar County under the Creek
6. Based on Assumption 5, only Polygon area south of Cibolo Creek recharge to North Bexar County

Appendix B

**North Bexar Population Projections
2000-2030**

Trinity-Glen Rose Groundwater District

Census Tract	2000	2005	2010	2015	2020	2025	2030
1219.01	2,333	4,585	10,725	16,821	18,986	24,454	35,448
1219.02	8,621	13,021	13,534	14,836	14,689	16,150	20,975
1817.01	1,822	4,506	13,823	19,901	22,726	29,187	32,116
1819.00	4,858	7,440	12,008	15,553	17,311	22,732	26,945
1820.00	3,868	6,614	9,735	13,195	15,878	22,699	25,941
1821.01	4,215	5,010	5,795	8,269	11,143	15,280	20,038
1821.02	3,297	4,336	5,783	8,671	12,480	17,892	23,005
1821.03	1,693	2,742	3,845	8,083	11,467	16,790	22,268
1821.04	3,177	4,617	7,345	11,623	13,854	19,177	24,295
1916.00	130	130	130	130	130	130	130
1918.02	4,197	8,892	10,165	11,669	11,492	13,831	20,620
1918.03	4,418	7,048	8,567	12,780	14,499	17,380	26,545
1918.04	3,486	4,482	5,659	6,618	8,641	12,133	18,062
1918.05	10,251	14,387	16,412	18,588	19,792	22,751	33,749
Total Population	56,366	87,810	123,526	166,737	193,088	250,586	330,137



Census Tracts are provided water from multiple sources (Including Trinity)
 Census Tracts are supplied by the Trinity Aquifer
 Census Tracts are supplied water from multiple sources (Excluding Trinity)

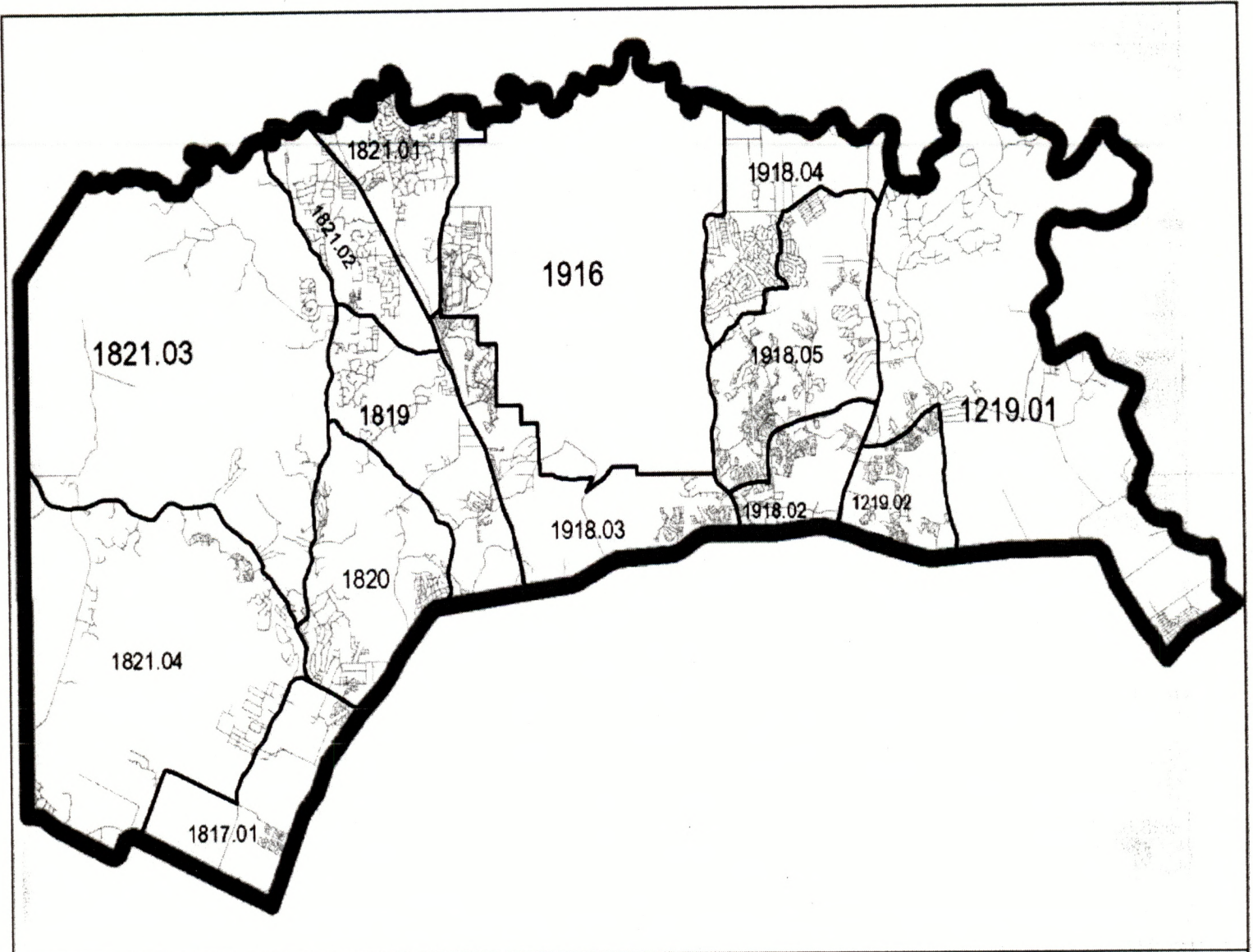
	2000	2005	2010	2015	2020	2025	2030
Non-Trinity Source Population	14,640	26,419	37,522	46,406	48,907	59,168	73,711
Non-Trinity Population from Multiple Source Tracts	18,484	28,416	43,058	69,044	80,996	115,183	151,339
Total Non-Trinity Population	33,124	54,835	80,580	115,450	129,903	174,351	225,050

	2000	2005	2010	2015	2020	2025	2030
Trinity Source Population	3,616	4,612	5,789	6,748	8,771	12,263	18,192
Trinity Population from Multiple Source Tracts	19,626	28,363	37,157	44,540	54,414	63,973	86,895
Total Trinity Population	23,242	32,975	42,946	51,288	63,185	76,236	105,087

Approved Final Population Projections 6-24-04

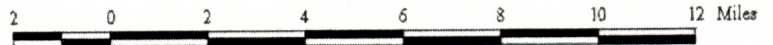
Appendix C

Census Tract Map



Trinity-Glen Rose Groundwater District
Census Tracts

Map Prepared by: San Antonio Water System, Water Resources Department 10/15/2004



Affidavit of Publisher

STATE OF TEXAS
COUNTY OF BEXAR
DAVIDSON & TROILO

The board of directors of the Trinity/Glen Rose Groundwater Conservation District will meet in Room A-206 on the second floor in the Main Worship Hall on the following dates. The contents of the spaces of the property being sold includes the space or by space in batches or by space. Property in each lot may be sold item-by-item and to withdraw property from sale. Seller reserves the right to not accept any bid and to temporarily require a cleaning deposit may be temporarily required. Seller reserves the right to not accept any bid and to temporarily require a cleaning deposit may be temporarily required.

Before me, the undersigned authority, on this day personally appeared Helen I. Lutz, who being duly sworn, says on oath that she is Publisher of the Commercial Recorder, a newspaper of general circulation in the City of San Antonio, in the State and County aforesaid, and that the Trinity Glen Rose Groundwater Conservation District No. 1 hereto attached has been published in every issue of said newspaper on the following days, to wit:

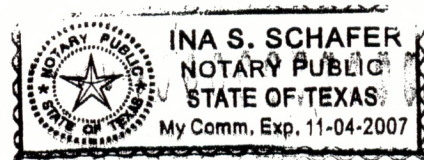
05/31/2005, 06/07/2005.

Helen I. Lutz

Sworn to and subscribed before me this 7th day of June, 2005.

Ina S. Schaffer

Notary Public in and for Bexar County, Texas.



**TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT
PLEASE TAKE NOTICE THAT A PUBLIC HEARING AND A MEETING OF THE
DIRECTORS OF THE TRINITY
GLEN ROSE GROUNDWATER CONSERVATION DISTRICT WILL TAKE PLACE AT
Concordia Lutheran Church
16801 Huebner Rd (north of 1604)
Church Tel 479-1477**

**Note: We are meeting in a different Building at the Church
Both the regular monthly meeting and the Public Hearing will be held at
Modular Building "G" located on the west side of the facility (past the ball
fields and behind the gym)**

**San Antonio, TX BEGINNING AT 9:30 AM ON June 10th, 2005, WHERE THE
FOLLOWING AGENDA ITEMS WILL BE ADDRESSED:**

1. Call to order
2. Declare a Quorum
3. Presentation of Mr. George Ozuna – USGS – San Antonio regarding possible joint projects, initiatives, and investigations within the District - followed by discussion and action regarding same.
4. Recess regular meeting for the Public Hearing
5. Reconvene regular monthly meeting
6. Public comments
7. Adopt and approve minutes from May 12th meeting
8. Discussion and Action regarding notices of intent and San Antonio Water System inspection of well drilling, modification, plugging & capping.
9. Discussion and Action regarding commercial well records and collection of well production fees. Discussion of clerical assistance services from SAWS
10. Discussion and Action regarding approval of expenses to be paid, and review of financial statements.
11. Discussion and Action regarding the submitted HB 3478 to revise enabling legislation regarding the "50% exemption rule" for collection of production fees.
12. Discussion and Action regarding amending the Management Plan, based on TWDB comments, revised infiltration figures from USGS study, and addressing comments from the public hearing regarding the modifications.

Doc# 5044 Fees: \$2.00
06/03/2005 3:54PM # Pages 2
Filed & Recorded in the Official Public
Records of BEXAR COUNTY
GERRY RICKHOFF COUNTY CLERK

13. Discussion and action regarding monitoring requirements for commercial wells to include water level recording and metering of pumping to assist in Aquifer modeling.
14. Discussion and Action regarding the preparation of a drought contingency plan for the district.
15. Discussion and Action regarding establishing an office for the District activities
16. Discussion and action regarding agenda items for next meeting
17. Adjourn.

Trinity Glen Rose Groundwater Conservation District
Minutes of Regular Meeting and Public Hearing on June 9, 2005

Regular Meeting of Trinity Glen Rose Groundwater Conservation District ("TGR") and the Public Hearing was duly noticed and was held on Thursday, June 9 2005, beginning at 9:30 a.m. in Modular Building "G" located on the west side of the Concordia Lutheran Church, 16801 Huebner Rd., San Antonio, Texas 78258.

1.& 2. Call to Order and Declare a Quorum.

President Brad Groves called the meeting to order. TGR Directors present at the meeting were Brad Groves, Bill Pittman, John Friesenhahn, and Roy Horn, so a quorum was present. Gary Gibbons was absent.

3. Presentation of Mr. George Ozuna-USGS-San Antonio regarding possible joint projects, initiatives, and investigations within the District-followed by discussion and action regarding same.

Mr. Ozuna was not present at the meeting and the item is deferred until next meeting.

4. Recess regular meeting for Public Hearing.

J. Friesenhahn read all changes that were made to the Management Plan in response to TWDB comments. Brad Groves also suggested changes to the Management Plan. Brad Groves opened up floor for any public hearing. They were no public comments and the public hearing was closed.

5. Reconvene regular monthly meeting.

Brad Groves reconvened the regular monthly meeting.

6. Public comments.

Presentation by Darrell Brownlow, the Governor's appointee to the Evergreen Groundwater District. Darrell Brownlow made presentation regarding the research performed with WECO regarding studying WECO wells for differences in Trinity Glen Rose and Balcones Fault Zone. WECO will be working with TWDB on how the middle trinity North of the Balcones Fault Zone and the effects on the recharge zone.

7. Adopt and approve minutes from May 12th meeting.

The directors reviewed the minutes of the regular meeting held on May 12, 2005. Motion by Roy Horn to approve the minutes with changes; seconded by John Friesenhahn; passed by unanimous vote.

8. Discussion and Action regarding notice of intent and San Antonio Watery System inspection of well drilling, modification, plugging & capping.

George from SAWS was not present so no discussion.

9. Discussion and Action regarding commercial well records and collection of well production fees. Discussion of clerical assistance service from SAWS.

Marshall Reeder submitted a written summary showing production fees paid and provided a verbal report regarding payments. Marshall has not been able to contact BSR regarding their payment. The Club at Sonterra has changed owners and Marshall has not been able to contact the new owners yet. Marshall is still in the process of contacting someone at Thomas Enterprises regarding their payment. The contact that Marshall usually worked with at Thomas Enterprises is gone.

10. Discussion and Action regarding approval of expense to be paid, and review of financial statements.

Ross Johns presented the financial statement for the prior month.

11. Discussion and Action regarding the submitted HB 3478 to revise enabling legislation regarding the "50% exemption rule" for collection of production fees.

Renee Hollander stated that HB 3478 was presented to the Governor for his signature and the Governor's signature is expected.

12. Discussion and Action regarding amending the Management Plan, based on TWDB comments, revised infiltration figures from USGS study, and addressing comments from the public hearing regarding the modifications.

Bill Pittman made motion to accept and approve the Management Plan; Seconded by Roy Horn; passed by unanimous vote.

13. Discussion and action regarding monitoring requirements for commercial wells to include water level recording and metering of pumping to assist in Aquifer modeling.

Marshall Reeder made presentation and passed out report. Discussion regarding intermittent or static pumping level monitoring. Bexar Met has an air line and can test both levels at any point in time.

Marshall asked if TGR could make arrangement with to study capped wells owned/operated by Bexar Met and possibly coordinate activities between the wells TGR is currently monitoring and WECO wells within the Balcones Fault Zone.

Gary Guy stated that SAWS has recording devices they pump but SAWS does not own any wells in Bexar County so it is not SAWS' information.

Brad Groves questioned whether it is in TGR interest to have monitoring as part of this permitting process in the larger wells.

Roy Horn stated that a pressure transducer could be set to record the information at a set time. Gary suggests getting external batteries. Discussion on how to obtain the information. Roy Horn will pursue more information and present at the next meeting.

14. Discussion and Action regarding the preparation of a drought contingency plan for the district.

No data to present.

15. Discussion and Action regarding establishing an office for the District activities.

Marshall Reeder presented a hand out regarding possible office space available within the area. The areas are mostly available along IH-10. Bill Pittman requests that the Board appoint John Friesenhahn to research office space and next month have a firm recommendation to approve at the next meeting.

John Friesenhahn recommends the AAA Extra Space. Bill Pittman makes motion for John Friesenhahn to negotiate the AAA space for a month-to-month lease; seconded by Roy Horn, passed by a unanimous vote.

Bill Pittman makes a motion for Marshall Reeder to look into obtaining a phone line and take this information to John Friesenhahn for authorization; Seconded by Roy Horn, passed by unanimous vote.

Bill Pittman requests that Renee Hollander inquire whether TGR needs to purchase additional insurance for the office space.

13. Discussion and action regarding agenda items for next meeting.

No discussion.

Minutes from June 9, 2005 Meeting of Trinity Glen Rose
Groundwater Conservation District (cont.)

14. Adjourn.

Meeting adjourned at 11:10 a.m.

Minutes approved: _____
Brad Groves, President

Minutes approved: _____
Gary Gibbons, Secretary

TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT
RESOLUTION BY THE BOARD OF DIRECTORS OF THE TRINITY GLEN
ROSE GROUNDWATER CONSERVATION DISTRICT ADOPTING
GROUNDWATER MANAGEMENT PLAN

Whereas, state law requires the Trinity Glen Rose Groundwater Conservation District to adopt a groundwater management plan;

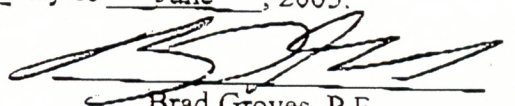
Whereas, the directors of the Trinity Glen Rose Groundwater Conservation District have completed the process for adoption of the groundwater management plan and must now approve the plan and submit it to the Texas Water Development Board and others for review and approval;

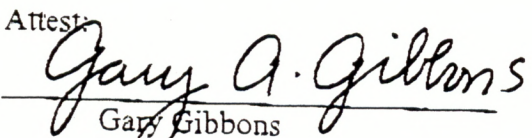
Therefore, be it resolved by the board of directors of the Trinity Glen Rose Groundwater Conservation District, that:

1. The Groundwater Management Plan as prepared by the board of directors and presented to the public during the public hearing is approved; that the approved Groundwater Management Plan be submitted to the Texas Water Development Board for review and certification; and that the approved Groundwater Management Plan be submitted to the Region L Water Planning Group for review and comment.
2. The public officials and general counsel of the Trinity Glen Rose Groundwater Conservation District are authorized and directed to perform the acts required to implement the will of the board of directors as reflected by this resolution.

10

Passed, adopted and resolved this 9th day of June, 2005.


 Brad Groves, P.E.
 President, board of directors

Attest:

 Gary Gibbons
 Secretary

**CERTIFICATE OF RESOLUTION
APPROVING MANAGEMENT PLAN**

I, the undersigned Secretary of the Board of Directors of the Trinity Glen Rose Groundwater Conservation District (the "District")) hereby certify as follows:

10

1. The Board of Directors (the "Board") of the District convened in Regular Meeting on the 9th day of June, 2005, at the designated meeting place, and the roll was called of the duly constituted officers and members of said Board, to wit:

Brad Groves, President
William Pittman, Vice President
Gary Gibbons, Secretary

Roy Horn III, Treasurer
John Friesenhahn, Deputy Secretary-Treasurer

And all of said persons were present, except the following absentees: Gary Gibbons, thus constituting a quorum. Whereupon, among other business, the following was transacted at said Meeting:

William Pittman moved that the Board of Directors adopt the attached resolution approving the Groundwater Management Plan. Roy Horn seconded the motion. After discussion, the motion prevailed and carried by the following vote:

Ayes: 4 Noes: 0 Absentions: 0

2. The foregoing motion is a true, full, and correct excerpt from the minutes of the meeting; the persons named in the above and foregoing paragraph are the duly chosen, qualified, and acting officers and members of the Board as indicated therein, and the meeting was open to the public and public notice of the time, place, and purpose of the Meeting was given, all as required by Texas Government Code, chapter 551.

EXECUTED the 10th day of August, 2005.

Gary A. Gibbons

Gary Gibbons, Secretary
Trinity-Glen Rose Groundwater Conservation District

TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT

C/o Davidson & Troilo, P.C.
Northwest Center, Ste. 800
7550 West IH-10
San Antonio, Texas 78229-5815
210-349-6484

www.trinityglenrose.org



July 27, 2005

13
(a)

Certified mail, return receipt requested:

Board Members

A. Brad Groves
President
District 2

Region L Water Planning Group
C/o Steve Raabe
San Antonio River Authority
100 E. Guenther St.
San Antonio, Texas 78283-0027

Certified Article Number

7160 3901 9848 6926 1110

SENDERS RECORD

Re: Required management plan

William Pitman
Vice President
District 5

Dear Mr. Raabe:

Gary Gibbons
Secretary
District 3

The board of directors of the Trinity Glen Rose Groundwater Conservation District conducted a public hearing on the required management plan on June 9, 2005. Following the public hearing, the board approved the plan and authorized the plan to be submitted to the Texas Water Development Board.

Roy Horn III
Treasurer
District 1

As required by state law, the board of directors formally asks the regional planning group to review the groundwater management plan and specify any areas of conflict with the Texas Water Development Board approved regional water plan.

John Friesenhahn
Secretary/Treasurer
District 4

Your prompt review and comment is requested.

Sincerely,

Brad Groves, P.E.
President, Board of Directors



7160 3901 9848 6926 1110

3. Service Type **CERTIFIED MAIL**

4. Restricted Delivery? (Extra Fee) Yes

1. Article Addressed to:

Region L. Water Planning Group
/o Steve Raabe
San Antonio River Authority
00 E. Guenther St.
San Antonio, Texas 78283-0027

File #: 4470/1
Atty/Sec.: PWL/md
Description

TO:
Recipient Region L. Water Planning Group
c/o Steve Raabe
San Antonio River Authority
100 E. Guenther St.
San Antonio, Texas 78283-0027

SENDER: Atty/Sec: PWL/md
Date: 10/26/04

REFERENCE: File # 4470/1
PCD # 143389

PS Form 3800, June 2000

RETURN RECEIPT SERVICE	Postage	1.29
	Certified Fee	
	Return Receipt Fee	
	Restricted Delivery	
	Total Postage & Fees	5.34

US Postal Service Receipt for Certified Mail No Insurance Coverage Provided Do Not Use for International Mail	POSTMARK OR DATE
---	------------------

A. Received by (Please Print Clearly) STEVE RAABE	B. Date of Delivery 10/28/04
C. Signature <i>[Signature]</i>	<input type="checkbox"/> Agent <input type="checkbox"/> Addressee
D. Is delivery address different from item 1? <input checked="" type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No	

PS Form 3811, July 2001

Domestic Return Receipt

(a) 13

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

● PRINT YOUR NAME, ADDRESS AND ZIP CODE BELOW ●



DAVIDSON & TROILO PC
7550 W IH-10 SUITE 800
SAN ANTONIO TX 78229-5815



AFFIX POSTAGE TO MAIL PIECE TO COVER FIRST CLASS POSTAGE, CERTIFIED FEE, RETURN RECEIPT FEE AND CHARGES FOR ANY SELECTED OPTIONAL SERVICES.

1. Detach the form 3811, Domestic return receipt by tearing left to right across perf. Attach to mailpiece by peeling back the adhesive strips and affixing to front of mailpiece if space permits. Otherwise affix to back of mailpiece.
2. If you do not want the receipt postmarked, stick the article # label to the right of the return address, date receipt and retain the receipt.
3. If you want this receipt postmarked, slip the 3800 receipt between the return receipt, and the mailpiece, and slide the edge of the receipt to the gummed edge of adhesive. This will hold the receipt in place to present to your mailcenter, or post office service window. (SEE ILLUSTRATION)

(Form 3800)

Your Firm Name 123 Main Street, #1254 City, State 12345	TO: 981 041 789 David D. Doe Legal Segment Marketing Manager Walz Postal Solutions, Inc. 1588 South Mission Rd. Suite 110 Fallbrook, CA 92028-4112
RETURN RECEIPT REQUESTED	David D. Doe Legal Segment Marketing Manager Walz Postal Solutions, Inc. 1588 South Mission Rd. Suite 110 Fallbrook, CA 92028-4112

4. Enter fees for the services requested in the appropriate spaces on the front of this receipt.

TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT

C/o Davidson & Troilo, P.C.
Northwest Center, Ste. 800
7550 West IH-10
San Antonio, Texas 78229-5815
210-349-6484
www.trinityglenrose.org



July 27, 2005

Bill West
Guadalupe Blanco River Authority
933 East Court St.
Seguin, Texas 78155

Board Members

A. Brad Groves
President
District 2

Re: Management plan

Dear Mr. West:

John Friesenhahn
Vice President
District 4

The board of directors of the Trinity Glen Rose Groundwater Conservation District conducted a public hearing on the required management plan on June 9, 2005. Following the public hearing, the board approved the plan and authorized the plan to be submitted to the Texas Water Development Board.

Gary Gibbons
Secretary
District 3

As required by state law, the board of directors has formally asked the regional planning group to review the groundwater management plan and specify any areas of conflict with the Texas Water Development Board approved regional water plan.

Roy Horn III
Treasurer
District 1

William Pitman
Assistant
Secretary/Treasurer
District 5

Attached is a copy of the plan that was submitted to the Texas Water Development Board and the Region L Water Planning Group.

Sincerely,

Brad Groves, P.E.
President, Board of Directors

TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT

C/o Davidson & Troilo, P.C.
Northwest Center, Ste. 800
7550 West IH-10
San Antonio, Texas 78229-5815
210-349-6484
www.trinityglenrose.org



July 27, 2005

Greg Rothe
San Antonio River Authority
100 East Guenther St.
San Antonio, Texas 78283

Board Members

A. Brad Groves
President
District 2

Re: Management plan

12

Dear Mr. Rothe:

John Friesenhahn
Vice President
District 4

The board of directors of the Trinity Glen Rose Groundwater Conservation District conducted a public hearing on the required management plan on June 9, 2005. Following the public hearing, the board approved the plan and authorized the plan to be submitted to the Texas Water Development Board.

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Secretary
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Secretary/Treasurer

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District 5

Sincerely,

Brad Groves, P.E.
President, Board of Directors

TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT

C/o Davidson & Troilo, P.C.
Northwest Center, Ste. 800
7550 West IH-10
San Antonio, Texas 78229-5815
210-349-6484
www.trinityglenrose.org



July 27, 2005

Gary Guy
San Antonio Water System
P.O. Box 2449
San Antonio, Texas 78298

Board Members

A. Brad Groves
President
District 2

Re: Management plan

Dear Mr. Guy:

John Friesenhahn
Vice President
District 4

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Secretary
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Treasurer
District 1

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William Pitman
Assistant
Secretary/Treasurer
District 5

Sincerely,

Brad Groves, P.E.
President, Board of Directors

12

TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT

C/o Davidson & Troilo, P.C.
Northwest Center, Ste. 800
7550 West IH-10
San Antonio, Texas 78229-5815
210-349-6484
www.trinityglenrose.org



July 27, 2005

Rick Illgner
Edwards Aquifer Authority
1615 N. St. Mary's St.
San Antonio, Texas 78215

Board Members

A. Brad Groves
President
District 2

Re: Management plan

12

Dear Mr. Illgner:

John Friesenhahn
Vice President
District 4

The board of directors of the Trinity Glen Rose Groundwater Conservation District conducted a public hearing on the required management plan on June 9, 2005. Following the public hearing, the board approved the plan and authorized the plan to be submitted to the Texas Water Development Board.

Gary Gibbons
Secretary
District 3

As required by state law, the board of directors has formally asked the regional planning group to review the groundwater management plan and specify any areas of conflict with the Texas Water Development Board approved regional water plan.

Roy Horn III
Treasurer
District 1

William Pitman
Assistant
Secretary/Treasurer
District 5

Attached is a copy of the plan that was submitted to the Texas Water Development Board and the Region L Water Planning Group.

Sincerely,

Brad Groves, P.E.
President, Board of Directors

TRINITY GLEN ROSE GROUNDWATER CONSERVATION DISTRICT

C/o Davidson & Troilo, P.C.
Northwest Center, Ste. 800
7550 West IH-10
San Antonio, Texas 78229-5815
210-349-6484
www.trinityglenrose.org



July 27, 2005

Mike Albach
Bexar Metropolitan Water District
2047 W. Malone
San Antonio, Texas 78225

Board Members

A. Brad Groves
President
District 2

Re: Management plan

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TGR District Rules

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Section 4. Definitions

A. "**Agricultural Well**" means a well used for agricultural activities listed under section 36.001 (19) of the Texas Water Code.

B. "**Board**" means the Board of Directors of the District.

C. "**District**" means the Trinity Glen Rose Groundwater Conservation District.

D. "**District Act**" means HB 2005, 77th Legislature and the non-conflicting provisions of Chapter 36, Texas Water Code.

E. "**District Office**" means the office of the District as established by the Board

F. "**Groundwater**" means water located beneath the earth's surface within the District but does not include water produced with oil in the production of oil and gas.

G. "**Landowner**" means the person who holds title to the land surface or if the title to percolating groundwater has been severed from the title to the land surface, then the person who holds title to the percolating groundwater.

I. "**Person**" includes corporation, individual, organization, government or governmental subdivision or agency, business trust, estate, partnership, association, or any other legal entity.

J. "**Registration**" means providing information to the District on forms approved by the Board of Directors.

K. "**Rules**" means the rules and regulations of the District as stated herein and as may be supplemented or amended from time to time.

L. The "**Trinity Aquifer**" means the Trinity Group aquifer of Cretaceous age that overlies rocks of Paleozoic age and is overlain by younger rocks of the Fredericksburg Group (Cretaceous age). The Trinity Group is divided into the following formations in order from the oldest to youngest: Travis Peak and Glen Rose. The Travis Peak Formation is subdivided into the following members in order from oldest to youngest: Hosston Sand, Sligo Limestone, Hammett Shale, Cow Creek Limestone, and Bexar Shale and Hensell Sand. The Bexar Shale is a finer grain, gradational marine shale that was deposited at the same time as the Hensell Sand.

M. "**Well**" means any facility, device, or method used to withdraw groundwater from the groundwater supply within the District.

N. "**Well owner**" means the person who owns the land upon which a well is located or is to be located or the person who owns a lease which permits the drilling of a well.

O. "**Well Operator**" means the person who operates a well or a water distribution system supplied by a well.

P. "**Withdraw**" means the act of extracting groundwater by pumping or some other method.

Section 5. Well Registration and Permitting

5.1 Well Registration

5.1.1 As of the effective date of these rules, all wells within the District are required to be registered with the District on District forms. Information on the form shall include the owner's name, mailing address, well location, well size, use and any other information the District may determine to be needed. The District well registration form is attached to these rules as Form #1.

5.1.2 No person shall construct, drill, modify, complete, change type of use, plug, abandon or alter the size of a well in the District without District authorization. Prior to conducting any of the above activities on any well or aquifer penetration in the District, the owner must complete and submit to the District a notice of intent to drill or modify a well form and pay the applicable fee. Information on the form shall include the owner's name, mailing address, phone number, well location, well size, use, production rates, distance from nearest property line, building, road, stream, existing well, or septic tank, and any other information the District may determine to be of need. The District's notice of intent to drill or modify a well form is attached to these rules as Form #2. District authorization to drill or modify a well is evidenced by the issuance a certificate of authorization to drill or modify a well in the form attached to these rules as Form #3. District personnel shall be given access to the property to inspect the well and complete the well inventory.

- a) The following activities are not considered to be well modifications that require the filing of a notice of intent:
- i) replacing a pump or pump motor of equal size;
 - ii) repair or replacing pipe and fittings;
 - iii) normal maintenance and repairs that do not increase the productive capacity of the well.
- b) In an emergency situation in which immediate action is required to bring a well back into service, such as replacing a pump or pump motor (even if the replacement motor has a greater horsepower), the lowering of a pump, the deepening of a well, or other activity required to bring a well that is in service back into service, the notice of intent shall be filed as soon as reasonably possible after the emergency activities are completed.

5.1.3 All wells registered with the District shall be classified by the District according to use. The well will be identified by the State numbering system along with longitude and latitude and identified on a USGS quadrangle map.

5.1.4 The District reserves the right, to the extent allowed by law, to adopt, revise, and supercede rules applicable to registered wells and to require the owner of a registered well to obtain a permit if the well is not exempt from the District's permitting requirements. The receipt of the well registration by the District or the issuance of authority to drill or modify a well shall not limit the District's authority to regulate a well or the production of water from a well, unless the well is otherwise exempt from such authority.

Section 6. Well Completion and Construction Standards

Section 6.1 Definitions

The following words and terms, when used in this section, shall have the following meanings, unless the context clearly indicates otherwise:

- (1) **Abandoned well** - A well that has not been in use for six (6) consecutive months. A well is considered to be in use if:

(A) the well is not a deteriorated well, contains the casing, pump, and pump column in good condition and, where required, is properly registered with the District; or

(B) the well is not a deteriorated well, has been capped and, where required, is properly registered with the District.

- (2) **Annular space** - The space between the casing and

borehole wall.

(3) **Artesian well** – A well where the groundwater level or potentiometric surface is above the top of the geologic unit containing the aquifer.

(4) **Atmospheric barrier** - A section of cement placed from two feet below land surface to the land surface when using granular sodium bentonite as a casing sealant or plugging sealant in lieu of cement.

(5) **Bentonite** - A sodium hydrous aluminum silicate clay mineral (montmorillonite) commercially available in powdered, granular, or pellet form that is mixed with potable water and used for a variety of purposes including the stabilization of borehole walls during drilling, the control of potential or existing high fluid pressures encountered during drilling below a water table, and to provide a seal in the annular space between the well casing and borehole wall.

(6) **Capped well** - A well that is closed or capped with a covering capable of preventing surface pollutants from entering the well. The cap must be able to sustain weight of at least 400 pounds per square inch and constructed in such a way that it cannot be easily removed by hand.

(7) **Casing** - A watertight pipe installed in an excavated or drilled hole, temporarily or permanently, to maintain the hole sidewalls against caving, and in conjunction with grouting, to confine the groundwaters to their respective zones of origin, and to prevent surface contaminant infiltration.

(A) Plastic casing - shall be National Sanitation Foundation (NSF); or American Society of Testing Material (ASTM) F-480 minimum SDR 26 approved water well casing.

(B) Steel casing - shall be ASTM A-53 Grade B or better and have a minimum weight and thickness of American National Standards Institute (ANSI) schedule 40.

(C) Monitoring wells may use other materials, such as fluoropolymer, glassfiber-reinforced epoxy, or various stainless steel alloys.

(8) **Chemigation** - A process whereby pesticides, fertilizers or other chemicals, or effluent from animal wastes are added to irrigation water applied to land or crops, or both, through an irrigation distribution system.

(9) **Closed system geothermal well** - A well used to circulate water, other fluids, or gases through the earth as a heat source or heat sink.

(10) **Completed monitoring well** - A monitoring well that allows water from a single water-producing zone to enter the well bore, but isolates the single water-producing zone from the surface and from all other water-bearing zones by proper casing or grouting procedures. The single water-producing zone shall not include more than one continuous water-producing unit unless a qualified geologist or groundwater hydrologist has determined that all the units screened or sampled by the well are interconnected naturally.

(11) **Completed to produce undesirable water** - A completed well designed to extract water from a zone that contains undesirable water.

(12) **Completed water well** - A water well that has sealed off access of undesirable water to the well bore by proper casing or grouting procedures.

(13) **Constituents** - Elements, ions, compounds, or substances that may cause the degradation of the soil or ground water.

(14) **Continuous injection method** - A grout placement method whereby grout is placed by float shoe continuous injection method, after water or other drilling fluid has been circulated in the annular space sufficient to clear obstructions. The bottom of the casing shall be fitted with a suitable drillable float shoe equipped with a backpressure valve. Tubing or pipe shall be run to the float shoe to which it shall be connected by a bayonet fitting, left hand thread coupling, or similar release mechanism. Water or other drilling fluid shall be circulated through the tubing and up through the annular space surrounding the casing. When the annular space surrounding the casing is clean and open, grout shall be pumped down the pipe or tubing and forced by continual pumping out into the annular space surrounding the casing. Pumping shall continue until the entire annular space surrounding the casing is filled. The grouting pipe shall then be detached from the float shoe

and raised to the surface for flushing. After the grout has set, the float shoe, backpressure valve, and any plug remaining in the bottom of the casing shall be drilled out.

(15) **Department** - The Texas Department of Licensing & Regulation.

(16) **Deteriorated well** - A well that, because of its condition, will cause, or is likely to cause, pollution of any water in the state, including any groundwater, or cause a public nuisance.

(17) **Dewatering well** - An artificial excavation constructed to produce groundwater to cause a lowering of the water table or potentiometric surface. The term shall not include any dewatering well used for the production of, or to facilitate the production of, any mineral under a state regulatory program.

(18) **Dewatering well driller** - A person who drills, bores, cores, or constructs a dewatering well. The term includes the owner or operator of a well or the contractor or drilling supervisor. The term does not include a person who acts under the direct supervision of a dewatering well driller and is not primarily responsible for the drilling operation.

(19) **Driller** - A water well driller, injection well driller, dewatering well driller, or monitoring well driller.

(20) **Dry litter poultry facility** - Fully enclosed poultry operation where wood shavings or similar material is used as litter.

(21) **Edwards Aquifer well** - Any water well, injection well, dewatering well, or monitoring well located within the boundaries of the District that:

(A) is constructed for the purpose of exploring for or producing groundwater from the Edwards Aquifer; or

(B) passes through the Edwards Aquifer and is constructed for the purpose of exploring for or producing groundwater from an aquifer other than the Edwards Aquifer.

(22) **Environmental soil borings** - An artificial excavation constructed to measure or monitor the quality and quantity or movement of substances, elements, chemicals, or fluids

beneath the surface of the ground. The term shall not include any well used in conjunction with the production of oil, gas, or any other minerals.

(23) **Flapper** - The clapper, closing or checking device within the body of a check valve.

(24) **Foreign substance** - Constituents that may include recirculated tailwater and open ditch water when a pump discharge pipe is submerged in the ditch.

(25) **Freshwater** - Water whose bacteriological, physical, and chemical properties are such that it is suitable and feasible for beneficial use.

(26) **Granular sodium bentonite** - Sized, coarse ground, untreated, sodium based bentonite (montmorillonite) that has the specific characteristic of swelling in freshwater.

(27) **Grout** - A fluid mixture of the following types of materials of a consistency that can be forced through a pipe and placed in the annular space between the borehole and the casing to form an impermeable seal:

(A) Cement grout - A neat portland or construction cement mixture of not more than seven gallons of water per 94-pound sack of dry cement, or a cement that contains cement along with bentonite, gypsum or other additives.

(B) Bentonite grout - A fluid mixture of sodium bentonite and potable water mixed at manufacturer's specifications to a slurry consistency that can be pumped through a pipe directly into the annular space between the casing and the borehole wall. Its primary function is to seal the annular space in order to prevent the vertical subsurface migration or communication of fluids in the annular space.

(C) Cement-bentonite grout - A mixture of one (1) 94-pound sack of dry cement to 7 ½ gallons of clean water and 2% to 6% bentonite (by weight 2 to 6 pounds) to increase fluidity and to control shrinkage.

(28) **Injection well** - Includes:

- (A) An air conditioning return flow well used to return water used for heating or cooling in a heat pump to the aquifer that supplied the water;
 - (B) A cooling water return flow well used to inject water previously used for cooling;
 - (C) A drainage well used to drain surface fluid into a subsurface formation;
 - (D) A recharge well used to replenish the water in an aquifer;
 - (E) A saltwater intrusion barrier well used to inject water into a freshwater aquifer to prevent the intrusion of salt water into the freshwater;
 - (F) A sand backfill well used to inject a mixture of water and sand, mill tailings, or other solids into subsurface mines;
 - (G) A subsidence control well used to inject fluids into a non-oil producing or non-gas producing zone to reduce or eliminate subsidence associated with the overdraft of freshwater; and
 - (H) A closed system geothermal well used to circulate water, other fluids, or gases through the earth as a heat source or heat sink.
- (29) **Injection well driller** - A person who drills, bores, cores, or constructs an injection well. The term includes the owner or operator of a well or the contractor or drilling supervisor. The term does not include a person who acts under the direct supervision of an injection well driller and is not primarily responsible for the drilling operation.
- (30) **Installer** - A person who installs or repairs well pumps and equipment. The term does not include a person who:
- (A) installs or repairs well pumps and equipment on the person's own property for the person's own use; or
 - (B) assists in pump installation under the direct supervision of an installer and is not primarily

responsible for the installation.

(31) **Irrigation distribution system** - A device or combination of devices having a hose, pipe, or other conduit that connects directly to any water well or reservoir connected to the well, through which water or a mixture of water and chemicals is drawn and applied to land. The term does not include any hand held hose sprayer or other similar device constructed so that an interruption in water flow automatically prevents any backflow to the water source.

(32) **Licensed driller** - Any person who holds a license issued pursuant to the provisions of Chapter 32, TEXAS WATER CODE or Chapter 1901, TEXAS OCCUPATIONS CODE.

(33) **Licensed installer** - A person who holds a license issued under Chapter 33, TEXAS WATER CODE or Chapter 1902, TEXAS OCCUPATIONS CODE.

(34) **Monitoring well** - An artificial excavation constructed to measure or monitor the quality, quantity or movement of substances, elements, chemicals, or fluids beneath the surface of the ground. Included within this definition are environmental soil borings, piezometer wells, observation wells, and recovery wells. The term shall not include any well used in conjunction with the production of oil, gas, coal, lignite, or any other minerals.

(35) **Monitoring well driller** - A person who drills, bores, cores, or constructs a monitoring well. The term includes the owner or operator of a well or the contractor or drilling supervisor.

(36) **Mud** - A relatively homogenous, viscous fluid produced by the suspension of clay-size particles in water or the additives of bentonite or polymers.

(37) **Packer** - A short expandable-retractable device deliberately set in a well bore to prevent upward or downward fluid movement. The device may be either permanent or removable.

(38) **Plugging** - An absolute sealing of the well bore.

(39) **Pollution** - The alteration of the physical, thermal, chemical, or biological quality of any water in the state, or the

contamination of any water in the state, that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, property, or public health, safety, or welfare or that impairs the usefulness of the public enjoyment of the water for any lawful or reasonable purpose.

(40) **Positive displacement exterior method** - A grout placement method whereby grout is placed by a positive displacement method such as pumping or forced injection after water or other drilling fluid has been circulated in the annular space sufficient to clear obstructions. A grout placement pipe shall be lowered to the bottom of the annular space or zone being grouted and raised slowly as the grout is introduced. The pipe shall be kept full continuously from start to finish of the grouting procedure, with the discharge end of the pipe being continuously submerged in the grout until the annular space is completely filled. In the event of interruption in the grouting operations, the bottom of the pipe shall be raised above the grout level and shall not be re-submerged until all air or water has been displaced from the pipe and the pipe flushed clean with clear water.

(41) **Positive displacement interior method** - A grout placement method whereby a measured quantity of grout, sufficient to fill the annular space shall be pumped into the casing, after water or other drilling fluid has been circulated in the annular space sufficient to clear obstructions. A drillable plug constructed of plastic or other suitable material shall be inserted on top of the grout. The plug will be forced down the casing using either water or drilling rods and therefore forcing the plug to the bottom of the casing. Pressure shall be maintained for a minimum of 24 hours or until such time as the sample of the grout indicates a satisfactory set.

(42) **Public water system** - A system supplying water to a number of connections or individuals, as defined by current rules and regulations of the commission in chapter 290, 30 TEX. ADMIN. CODE.

(43) **Pump installation** - The procedures employed in the placement, and preparation for operation, of equipment and materials used to obtain water from a well, including construction involved in establishing seals and safeguards as necessary to protect the water from contamination. The term includes repairs to an existing pump.

(44) **Recovery well** - A well constructed for the purpose of recovering undesirable groundwater for treatment or removal of contamination.

(45) **Sanitary well seal** - A watertight device to maintain a junction between the casing and the piping used for the delivery of water.

(46) **State Well Report** - A well log recorded on forms prescribed by the Department, at the time of drilling showing the depth, thickness, character of the different strata penetrated, location of water-bearing strata, depth, size, and character of casing installed, and well grouting/sealing information, together with any other data or information required by the Department.

(47) **Steel or PVC Sleeve** - A protective covering, generally a pipe, that is placed over the casing of a well.

(48) **Tremie method** - A grout placement method whereby a tremie pipe is lowered to the bottom of the annular space or zone being grouted and raised slowly as the grout is introduced. The tremie pipe shall be kept full continuously from start to finish of the grouting procedure, with the discharge end of the tremie pipe being continuously submerged in the grout until the annular space is completely filled.

(49) **Tremie pipe** - A string of pipe that is lowered into the annular space to place a filter pack or grouting material.

(50) **Undesirable water** - Water that is injurious to human health and the environment or water that can cause pollution to land or the waters in the state.

(51) **Water table well** - A well where the groundwater level or potentiometric surface is below the top of the geologic unit containing the aquifer.

(52) **Water well** - Any artificial excavation constructed for the purpose of exploring for or producing groundwater. The term, however, shall not include any test or blast holes in quarries or mines, or any well or excavation constructed for the purpose of exploring for, or producing oil, gas, or any other minerals unless the holes are also used to produce groundwater. The term shall not include any injection water source well regulated by the Railroad Commission of Texas.

(53) **Water well driller** - A person who drills, bores, cores, or constructs a water well. The term includes the owner or operator of a well or the contractor or drilling supervisor. The term does not include a person who:

(A) drills, bores, cores, or constructs a water well on the person's own property for the person's own use;
or

(B) assists in constructing a water well under the direct supervision of a driller and is not primarily responsible for the drilling operation.

(54) **Well** - A water well, injection well, dewatering well, monitoring well, open or closed loop geothermal well, recovery well, or a well completed to produce undesirable water.

(55) **Well pit** - An excavation near the well head used for the installation of buried pump discharge or suction lines from the well below grade construction.

(56) **Well pumps and equipment** - Pumps, equipment and associated materials used to obtain water from a well, including the seals and safeguards necessary to protect the water from contamination.

(57) **Natural Gamma-Ray Log** - Natural Gamma-Ray log recording the naturally occurring radiation emitted from sediments in the well bore.

Section 6.2 Well Construction and Completion Process

6.2.1. Powers and duties of the District relating to well construction and completion.

The District, its employees and agents shall have the following powers:

1. to make or have made examinations of all wells, privately owned or otherwise, within the limits of the District;
2. to make or have made at any time the necessary analyses or tests of water there from;
3. to go upon the land and property of the owner of a

well for any purpose allowed in this section;

4. to require the owner to furnish all information requested concerning a well, including, in the case of new wells, complete logs of the well showing depth to and depth through all geologic formations encountered;

5. to supervise the construction, repair, and plugging of wells and the operation of such wells. The District or its duly authorized agent shall keep a register of all wells within the limits of the District. This register shall show for each well the name of the owner, exact location, date of construction, depth and diameter, the purpose for which the well was constructed, and, if applicable, date of plugging.

It shall be a violation for any person to refuse or otherwise fail to comply with any requirement of this section, or with any order of the District in conformity with and under the authority of this section.

6.2.2. Inspection.

It shall be the duty of the District to inspect the property where any well will be drilled, sunk, dug, or bored.

6.2.3 Nuisance of defective or contaminating wells, abatement.

(a) Any defective or contaminating well, as described herein, is hereby found to be a threat to the water supply of the District, a potential source of disease, injurious to the public health, and is hereby declared a nuisance.

(b) For the purpose of this section a contaminating well is considered to be any well or other opening which penetrates the underground water supply and which in any way pollutes or contaminates any other well or the District water supply.

(c) For the purpose of this section a defective well is considered to be: any well, whether dug or drilled, which for any reason does not completely prevent, or which has the potential to allow, the mixing of water

or other liquid from above and below the groundwater aquifers, or any water well that was constructed without a permit and associated inspections.

(d) District on its own initiative or upon information or complaint from any source, make an examination of any well suspected of being defective. If such examination indicates in the opinion of the District that the well is a contaminating or defective well or that the water from such well is unsafe for human consumption, then the director, or his authorized representative shall issue an order or written instructions to the owner of his agent in charge of such well or the property upon which it is situated to plug this well in such a manner as prescribed by the District and in compliance with TCEQ regulations and District Permitting Procedures.

6.2.4 Abandoned Wells.

(a) For the purpose of this section a well is considered to be an abandoned well if it has not been used for a period of six (6) consecutive months or longer. A well is considered to be in use in the following cases:

(i) A non-deteriorated, non-defective or non-contaminating well which contains the casing, pump and pump column in good condition, and which is connected to an active electrical or other power source; or

(ii) A non-deteriorated, non-defective or non-contaminating well which has been properly capped.

(b) It is hereby declared that an abandoned well, as defined in subsection (a) above, has the potential to pollute the water supply or be otherwise injurious to the public health, and, pursuant to Tex. Loc. Govt. Code Ann. §§ 217.042 and 401.002 (Vernon's 1994), is hereby declared a nuisance, for which the District, acting through the District Board, pursuant to the Code, may require the abatement of such nuisance.

(c) The Owner, operator, or agent in charge of an abandoned well shall notify the District of that

condition. Every abandoned well shall be filled and plugged in accordance with all applicable TCEQ regulations and District Permitting Procedures and with such materials and in such manner as in the judgment of the District will prevent the pollution and contamination of the District water supply or of any other well within the limits of the District.

(d) Whenever the District shall receive notice from any source of the existence of an abandoned well which has not been plugged and filled in accordance with the provisions of this section, the District shall notify the owner, operator, or agent in charge of such well or of the property upon which it is situated that such well is abandoned and shall order such person to fill and plug the well in accordance with this section of the Code.

(e) The District may require any owner of a capped well to take any action necessary or to provide any information or materials necessary to establish that such a capped well is not defective, contaminating, or deteriorated.

6.2.5 Failure to abate nuisance, remedies.

Should the owner, operator, or agent in charge responsible for the contaminating, defective, or abandoned well which has been declared a nuisance, or for the property on which it is situated, fail to abate such nuisance within the prescribed time from the date of issuance of notice of nuisance or order issued pursuant to the District rules, or if, after exercising reasonable diligence, the District is unable to locate the owner, operator, or agent in charge, the District, shall have the right to go on the property upon which the well is situated and abate such nuisance in the manner provided, and the owner thereof shall be liable to the District for the cost of such work and shall pay such cost upon demand, and the District, shall have the right to file a lien on the property to secure payment of the costs of such work.

6.2.6 Variance and appeal

(a) All requests for variances shall be made in writing to the District and shall include:

- (i) The subject of the requested variance,
and
- (ii) The justification for granting a variance.

(b) The party requesting a variance has the burden of demonstrating that sufficient evidence exists for the granting of a variance of these rules, and the District shall consider and provide a written response to all such variance requests.

Section 6.3 Well Construction and Completion Standards

6.3.1 Purpose:

A completed TGR notice of intent to drill or modify a well is required to drill, modify (including the capping or plugging of a well), or otherwise construct any new water well, or any other artificial excavation to explore for or produce groundwater, or injection wells for the purpose of earth coupled heat exchange. All procedures set forth by TGR shall meet or exceed standards set by the TGR, State and local regulatory agencies.

All wells shall be drilled, equipped, and completed so as to comply with the standards set by the Texas Department of Health, Texas Commission on Environmental Quality, Texas Department of Licensing and Regulation, and additional rules established by this District.

6.3.2 Responsibility:

The TGR is given the responsibility to oversee the construction, modification and plugging of wells within the TGR District Boundaries, except as provided by the District's Enabling Act. The board or its duly authorized agent shall also maintain a register of all wells with the TGRGCD. The register shall include but not be limited to the name of the owner, location of the well, its depth and diameter and other pertinent data. The owner of a well is required to furnish all information available concerning such well, including but not limited to, in the case of a new well, complete logs of the well showing depths to each consecutive geological formation encountered.

6.3.3 PROCEDURES:

6.3.3.1 Notification of Intent to Drill or Modify a Well:

Notices / Inspection Fees are established under TGR Rules. All notifications shall be executed in triplicate, one copy to be issued to the applicant and two copies to be retained in the office of the TGR. Applications shall be completed and fees paid prior to drilling, plugging or modifying a well.

6.3.3.2 Notification Process:

Notification forms for well activities are available through the TGR. Once a notification is received the assigned inspector will contact the owner or representative to schedule an inspection of the proposed well location. Upon completion of the inspection the field file is forwarded to the TGR agent. The field file must contain the following: The original completed application; survey and or plat with the proposed location of the well, Edwards Aquifer Authority approval letter if applicable and all required variances. Approved well applications are valid for a period of no longer than six (6) months. It shall be the duty of the TGR to inspect the property where any water well is to be drilled, and to observe if the operations to drill or modify a well meet with all the applicable codes.

6.3.4 Drilling Guidelines

6.3.4.1 Drilling guidelines within the Edwards Aquifer Formation:

Drilling operations which involve drilling or plugging operations in the Edwards Aquifer formations shall comply with the Edwards Aquifer Authority rules.

6.3.4.2 Drilling Guidelines for Non-Edwards Wells:

Each proposed well application is evaluated individually in order to determine the applicable method(s) required to satisfactorily drill the well.

A 1 1/2" annulus must be provided between the borehole and the casing: diameter of the borehole must be a minimum of 3" larger than the outside of the casing.

a. The diameter of the drilled hole shall be a minimum of three (3") inches larger than the outside diameter of the casing to be used down to a minimum depth of forty feet (40').

b. Either steel pipe or polyvinyl chloride (PVC) casing may be used. PVC casing shall meet minimum specifications as defined by the Department of Licensing and Regulations Water Well Drillers and Pump Installers. Wells completed with steel casing must meet all specifications set forth by the Water Well Driller and Pump Installers Rules. Completed at the surface with the annular space filled with cement slurry or bentonite. If more than forty feet (40') of casing is set, it shall be grouted using the interior or exterior positive displacement method.

c. The borehole casing annulus shall be filled with cement slurry or bentonite from ground level to a depth of not less than forty feet (40') below the land surface. All wells must satisfy all State and local water well completion and annular space sealing requirements.

d. The casing shall extend at least eighteen inches (18") above land surface at a site not generally subject to flooding; provided however, that if a well must be placed in a flood prone area, it shall be completed with a water tight sanitary well seal and steel casing extending a minimum of thirty six inches (36") above known flood levels.

e. All wells completed with PVC casing shall be completed according to one of the three surface completion methods as described by the following:

1. Slab – The slab or block shall extend at least two feet (2') from the well in all directions and have a minimum thickness of four inches (4"), and should be separated from the well casing by a plastic or mastic coating or sleeve to prevent bonding of the slab to the casing. The surface of the slab shall be sloped to drain away from the well. The top of the casing shall extend a minimum of one foot (1') above the top of the slab.

2. Steel and PVC Sleeve – The steel sleeve shall be a minimum of 3/16" in thickness and/or the plastic sleeve shall be a minimum of schedule 80 sun resistant and twenty four inches (24") in length and shall extend twelve inches (12") into the cement, except when steel casing or a pitless adapter is used. The casing shall extend a minimum of one and one half foot (1.5') above the original ground surface, and the steel sleeve shall be two inches (2"), larger in diameter than the plastic casing being used.

3. Pitless Adapters – In wells with Steel or Plastic Casings completed with pitless adapters, the adapters shall be welded to the casing or fitted with another suitably effective seal, and the borehole-casing annulus filled with cement slurry or bentonite to a depth of not less than forty feet (40') below land surface, or to the top of the first potable water bearing strata above forty feet (40'). All

wells completed with pitless adapters must satisfy all State Water well completion and annular space sealing requirements that pertain to pitless adapters.

f. All wells shall be completed so that aquifers or zones containing waters that differ significantly in chemical quality are not allowed to commingle through the borehole and cause quality degradation of any aquifer or zone. At no time shall the Upper and Lower Glen Rose be allowed to commingle. In all cases where penetrating into the Lower Glen Rose, the well casing and cementing shall extend a minimum of twenty-five feet (25') into the Lower Glen Rose.

A Natural Gamma-ray Log to determine the location of the Lower Glen Rose/Upper Glen Rose contact shall be required. A copy of the log shall be provided to the TGR and/or their agent. The TGR copy of the Natural Gamma-Ray Log shall be printed at a scale of 1" every 20 feet. The Well Driller shall identify the Formation contact(s) and determine the proper length of casing needed.

g. All wells shall be equipped with a water tight sanitary well seal with a $\frac{3}{4}$ " diameter id inspection port, located on top of the well seal which allows for free access to the water table for the purpose of water level measurement and disinfection. Any well presently not equipped in the future shall be so equipped when that well is serviced. On those wells with odd sized casing, which cannot be fitted with a factory made water tight sanitary well seal, the completion must

be done in a manner that will prevent any pollutants (waste, insects, chemicals, etc.) from entering the well.

A minimum of forty feet (40') of casing shall be required unless any undesirable waters are encountered. (1) When undesirable water or constituents are encountered in a water well, the undesirable water or constituents shall be sealed off and confined to the zone(s) of origin. (2) When undesirable water or constituents are encountered in a zone overlying fresh water, the driller shall case the water well from an adequate depth below the undesirable water or constituent zone to the land surface to ensure the protection of water quality. (3) The annular space between the casing and the wall of the bore hole shall be grouted with a state approved grouting material an adequate depth below the undesirable water or constituent zone to the land surface to ensure the protection of groundwater, by the interior or exterior positive displacement method or tremie method.

6.3.5 Plugging of Non-Edwards Aquifer Wells:

Any plugging of wells, casing, liner, or bore hole will require notification, completion of the application form, and payment of fees to the TGR.

All removable casing shall be removed. The contractor, after pulling the pump and pump column from the well, must ensure the well is free of any obstructions to the bottom of the borehole. The well will be logged or tagged by the TGR agent to determine necessary information such as total depth, casing depth and formations depths to properly complete the plugging. The well must be plugged by filling the uncased borehole to the water level with washed and disinfected pea gravel. Then the entire casing from the top of the gravel to the surface shall be filled with cement slurry.

6.3.6 Modifications:

Any modification of well depth, casing, liner, depth or diameter of bore hole will require notification, completion of the application form, and payment of fees to the TGR.

6.3.7 Well Reports:

Every well driller who drills, deepens, or otherwise alters a Trinity Aquifer well, shall be properly licensed and shall make and keep a legible and accurate State Well Report.

Every well driller shall deliver or transmit by first-class mail a photocopy of the State Well Report, and any other forms required by the District, to the TGR Agent and a copy to the owner or person for whom the well was drilled, deepened, or otherwise altered within 60 days from the completion or cessation of drilling, deepening, or otherwise altering a well.

6.3.8 Reporting Undesirable Water or Constituents:

Each well driller shall inform, within 24 hours, the landowner or person having a Trinity Aquifer well drilled, deepened, or otherwise altered or their agent when undesirable water or constituents have been encountered.

The well driller shall, within thirty (30) days of encountering undesirable water or constituents, submit to the District, and the landowner or person having the well drilled, deepened, or otherwise altered, on forms authorized by the District:

1. A statement signed by the well driller indicating that the landowner or person having the well drilled, deepened, or otherwise altered, has been informed that undesirable water or constituents have been encountered; and
2. A copy of the Undesirable Water or Constituents Report required pursuant to 16 TEX. ADMIN. CODE § 76.701, as may be amended.

Section 14. Fees**14.1 Fee Schedule**

14.1.1 Administrative Fees

a) "New Well Fee" or "Well Capping/Plugging Fee". The District shall charge an administrative fee of \$350 to process a notice of intent to drill a well or to plug or cap a well; provided, however, if the well is located within the well inspection jurisdiction of the San Antonio Water System, the District's fee shall be \$150 instead of \$350. The "Notice of Intent" Fee is waived and does not apply to public water supply wells.

b) Returned Check Fee. The District will assess the person writing the returned check a \$25.00 fee for each check returned by the District Depository due to non-sufficient funds, account closed, signature missing or any other problem causing such a return. This fee will be charged every time a check is returned.

c) Late fee. A late fee of 10% of the amount due will be assessed if payments are not received within 15 days following the due date. The fee payment and the late payment fee must be made within 30 days following the date of the assessment of the late payment fee.

c) Trip Fee. If the District is required to have an employee or agent observe a well or meter or review documents not located within the district's office due to the actions or inaction of a Landowner, the District may charge a trip fee in the amount of Ten Dollars (\$10).

d) Enforcement Fee. If the District is required to incur expenses to enforce the District's rules, including the payment of the District's production fee, the person responsible for causing the District to incur the expense shall reimburse the District for such expenses within ten days after receipt of a demand for payment from the District.

14.1.2 Production Fees.

- a) Agricultural use: \$1 per acre-foot per year; or
- b) All other uses: \$10 per acre-foot per year.

14.2 Assessment and Payment of "Notice of Intent" Fee: The "Notice of Intent" fee is assessed and due and payable, at the time the "Notice of Intent" is filed.

14.3 Assessment and payment of Production Fee:

14.3.1 Assessment. Production Fees shall be assessed effective May 1 of each year on all wells within the District; provided, however, the following types of wells are exempt from the District's Production Fee:

a) Domestic and livestock use. Any well used solely to supply water for domestic use within a home or residence or for livestock use, or both domestic use within a home or residence and livestock use is exempt from the District's Production Fee, unless the well either (i) serves more than five households or (ii) actually produces more than 10,000 gallons per day as determined by the District based upon information available to the District. The District deems that the well produces more than 10,000 gallons per day if (i) the well is connected to an irrigation system that irrigates more than two and one half (2.5) acres; or (ii) water from the well is discharged into any river, creek, natural watercourse, depression, lake, or reservoir (the filling and refilling of swimming pools is allowed).

b) District Enabling Act. Any well that is exempt from payment of production fees assessed by the District under the Districts Enabling Act, as follows:

- i) Section 14: The production capacity of the well is 10,000 gallons per day or less.

ii) Section 15: The water produced from the well is not from the Trinity Aquifer.

iii) Section 17:

(1) a person who provides water to a municipality, at least 50 percent of which annually is obtained from a source other than the Trinity Aquifer; or

(2) a resident of or other water user within a municipality that obtains its water from a person described by Subdivision (1), whose source of water is the municipality.

c) Water Code, section 36.117. Any person or well exempt from payment of production fees assessed by the District under Texas Water Code, section 36.117, as modified by the Enabling Act.

(1) a water well used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas well permitted by the Railroad Commission of Texas provided that the person holding the permit is responsible for drilling and operating the water well and the well is located on the same lease or field associated with the drilling rig; or

(2) a water well authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, Natural Resources Code, for production from such a well to the extent the withdrawals are required for mining activities regardless of any subsequent use of the water.

14.3.2 Calculation of Annual Fee.

a) Wells equipped with a meter. If the well is equipped with a meter, the annual production fee will be based upon actual production. The Landowner, or other person responsible for the well and payment of the production fee shall self-report the metered production during the prior calendar month; calculate the monthly installment; and submit payment to the District on or before the tenth day of each calendar month. The amount of the monthly installment payment shall be calculated as follows:

Agricultural:

Number of gallons produced times \$0.0000030689 per gallon.

All other uses:

Number of gallons produced time \$0.000030689 per gallon

Supporting documentation showing the amount of water produced, such as reports filed with any state regulatory agency, should be submitted with the payment. The District reserves the power to confirm the accuracy of the meter. Fees a retail public utility pays to the District shall be collected directly from the customers of the utility as a regulatory fee and shown as a separate line item on the customer's bill.

b) All other Non-metered Wells subject to the District's Production Fee.

i) Pumps with motors not exceeding two (2) horsepower. The annual production fee will be \$110.00 based upon an assumed annual production of eleven (11) acre-feet per year, but the fee may be based upon actual production if the Landowner submits records to the District which the District determines accurately show actual usage.

ii) Pumps with motors exceeding two (2) horsepower. If the well does not have a meter and is equipped with a pump motor in excess of two (2) horsepower, the annual production fee will be based upon the production capacity of the well as determined by the District from information readily available to the District.

14.3.3 Payment

Production Fees shall be due and payable as follows:

a) Wells not equipped with meters. The annual fee for the twelve months beginning May

- a) 1, 2003 is due and payable May 1, 2003. The annual fee for each subsequent year shall be due and payable prior to May 1 of that year.

b) Wells equipped with a meter: The annual fee for the twelve months beginning May 1, 2003, and for each successive twelve months, is due and payable in twelve monthly installments based upon actual usage during the prior month with each installment due ten (10) days after the end of the month.

c) The District waives payment of the production fee if the well is either (i) not equipped with a meter and is not equipped to produce more than 10,000 gallons per day or (ii) equipped with a meter and does not produce 10,000 gallons per day. The determination of whether a metered well produces more than 10,000 gallons per day will be made by the District on either the daily production records of the well if available or if not available, the monthly production records of the well divided by the number of days in the monthly record.

14.3.4 Recharge Credits

In accordance with the District's Enabling Act, section 13(c), a person who pays production fees to the District shall receive recharge credits if the District determines that the person enhances, supplements, improves, or prevents pollution of recharge of the Trinity Aquifer. A person who claims a recharge credit shall file an application with the District demonstrating that the person enhances, supplements, improves, or prevents pollution of recharge of the Trinity Aquifer and providing any additional information required by the District. The amount of the recharge credit shall be determined by the District's board of directors on a case by case basis. A person is not entitled to a credit if the activities that enhance, supplement, improve, or prevent pollution of recharge of the Trinity Aquifer are required by law or federal, state, or local regulatory requirement.

14.3.5 Enforcement

Upon failure to make payment of fees, all enforcement mechanisms provided by law shall be available to the District and may be initiated by the District.

a) The late fee will be waived for the initial payment of the annual production fee due the District for wells existing on May 1, 2003, unless payment is late after District sends notice of the amount due to the Landowner.

b) In accordance with the District's Enabling Act, section 13(e), to secure payment of a production fee imposed by the District, a lien attaches to the property on which the well is located or if title to the surface and the percolating groundwater has been severed, then the lien will be upon the percolating groundwater. The lien has the same priority and characteristics as a lien for taxes. The District may use the lien to collect the payment of the fee.

Section 15. Forms

**All Forms are available in PDF format at
<http://www.trinityglenrose.com/forms.htm>.**

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