

GOLIAD COUNTY GROUNDWATER CONSERVATION  
DISTRICT

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T W D B  
RECEIVED

MAR 13 2003

March 4, 2003  
South Central Texas Regional Water Planning Group  
c/o : Moorhouse Associates, Inc.  
5826 Bear Lane  
Corpus Christi, TX

ROUTE TO: \_\_\_\_\_  
CC TO: KW, BM, RB,  
ER, RP

Re: Transmittal of District Management Plan

Dear Sirs;

Attached is a copy of the Goliad County Groundwater Conservation District's adopted "Groundwater Management Plan" for Texas Water Development Board certification as mandated by Chapter 36.1072 (a) of the Texas Water Code. The plan was adopted by the Goliad County Groundwater Conservation District Board of Directors on February 6, 2003 and will take effect immediately. In addition, the resolution adopting the plan is attached.

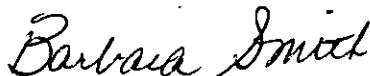
The Goliad County Groundwater Conservation District Plan was developed during open meetings of the Board of Directors in accordance with all notice and hearing requirements of the Texas Open Meetings Law. It will remain in effect until a revised Management plan is certified or February 2013, whichever is earlier. This Plan is fulfillment of requirements of SB1 and TWDB rules. The District Rules included with this document are attached as an addendum to support the Management Goals, Objectives and performance standards detailed in the Plan.

The District appreciates the continuing efforts TWDB staff has made during the production of this Plan. Several members of the TWDB team have contributed in many significant ways to help bring this Plan to its present level. We thank them very kindly.

Enclosed are copies of the resolution adopting this amended Plan, along with copies of the posted Agenda and additional information used in developing our Plan.

Please let me know if you need any additional information in the review of our Plan for administrative completeness.

Sincerely,



Barbara Smith  
Secretary  
GCGCD  
Cc: Evelyn Bonavita  
TWDB

**GOLIAD COUNTY GROUNDWATER**  
**CONSERVATION DISTRICT**  
**MANAGEMENT PLAN**

*Adopted 2-6-03*

**DISTRICT MISSION**

The Goliad County Groundwater Conservation District will provide for the protection, preservation, and conservation of groundwater, and to prevent waste of groundwater from the Gulf Coast Aquifer to the extent of which the district has jurisdiction. The District will implement water conservation strategies and management strategies to maintain groundwater availability from the Gulf Coast Aquifer on a sustainable basis and work with other groundwater Districts in the groundwater management area to make this a common goal.

**STATEMENT OF GUIDING PRINCIPLES**

Goliad County Groundwater Conservation District is dedicated to assure long-term availability of adequate good quality groundwater for Goliad and surrounding counties. Goliad and surrounding counties have a large agricultural based rural community, which relies heavily on groundwater. Therefore, groundwater resources are of vital importance to the continued vitality of the citizens, economy and environment within the District and area.

Goliad County is located over the recharge area of the Evangeline & Chicot segment of the Gulf Coast Aquifer. It is imperative that the Gulf Coast Aquifer be managed on a sustainable basis to protect the estimated 7000 shallow domestic wells in the District and many more in surrounding counties. The preservation of the groundwater resources can be managed in the most prudent and cost-effective manner through the regulation of large capacity wells as affected by the district's well production and well spacing rules.

**GENERAL DESCRIPTION**

The Goliad County Groundwater Conservation District was created in 2001 by authority of HB3651 of the 77<sup>th</sup> Texas legislature. Goliad County voters approved the District on November 6, 2001. The District has the same boundary as Goliad County, Texas containing 551,040 acres of land with 90 percent of this acreage being utilized as rangeland for livestock production. The District (county) is bounded on the north by DeWitt County, on the east by Victoria County, on the south by Refugio County, and on the west by Bee County and Karnes County.

## TIME PERIOD OF THIS PLAN

This District Management Plan becomes effective immediately following adoption by the Goliad County Groundwater Conservation District Board of Directors and certification as administratively complete by the Texas Water Development Board. This plan will remain in effect for a period of 10 years or until a revised or amended plan may be certified, whichever comes first.

## GROUNDWATER RESOURCES

The outcrop region of the Evangeline Aquifer and the Chicot Aquifer, both components of the Gulf Coast Aquifer, is the source of water for Goliad County

### Gulf Coast Aquifer

The Gulf Coast Aquifer forms a wide belt along the Gulf of Mexico from Florida to Mexico. In Texas, the aquifer provides water to all or parts of 54 counties and extends from the Rio Grande northeastward to the Louisiana-Texas border. Municipal and irrigation uses account for 90 percent of the total pumpage from the aquifer. The Greater Houston metropolitan area is the largest municipal user, where well yields average about 1,600 gal/min. The aquifer consists of complex inter bedded clays, silts, sands, and gravels of Cenozoic age, which are hydrologically connected to form a large, leaky artesian aquifer system. This system comprises four major components consisting of the following generally recognized water-producing formations. The deepest is the Catahoula, which contains groundwater near the outcrop in relatively restricted sand layers. Above the Catahoula is the Jasper Aquifer, primarily contained within the Oakville sandstone. The Burkeville confining layer separates the Jasper from the overlying Evangeline Aquifer, which is contained within the Fleming and Goliad sands. The Chicot Aquifer, or upper component of the Gulf Coast Aquifer system, consists of the Lissie, Willis, Bentley, Montgomery, and Beaumont Formation, and overlying alluvial deposits. Not all formations are present throughout the system, and nomenclature often differs from one end of the system to the other. Maximum total sand thickness ranges from 700 feet in the south to 1,300 feet in the northern extent.

Water quality is generally good in the shallower portion of the aquifer. Groundwater containing less than 500 mg/l dissolved solids is usually encountered to a maximum depth of 3,200 feet in the aquifer from the San Antonio River Basin northeastward to Louisiana. From the San Antonio River Basin southwestward to Mexico, quality deterioration is evident in the form of increased chloride concentration and saltwater encroachment along the coast. Little of this groundwater is suitable for prolonged irrigation due to either high salinity or alkalinity, or both. In several areas at or near the coast, including Galveston Island and the central and southern parts of Orange County, heavy municipal or industrial pumpage had previously caused an updip migration, or saltwater intrusion, or poor-quality water into the aquifer. Recent reductions in pumpage here have resulted in stabilization and, in some cases, even improvement of groundwater quality.

Years of heavy pumpage for municipal and manufacturing use in portions of the aquifer have resulted in areas of significant water-level decline. Declines of 200 feet or 300 feet have been measured in some areas of eastern and southeastern Harris and northern Galveston counties. Other areas of significant water-level declines include the Kingsville area in Kleberg County and portions of Jefferson, Orange, and Wharton counties. Some of these declines have resulted in *compaction of dewatered clays and significant land surface subsidence*. Subsidence is generally less than 0.5 foot over most of the Texas coast, but has been as much as nine feet in Harris and surrounding counties. As a result, structural damage and flooding have occurred in many low-lying areas along Galveston Bay in Baytown, Texas City, and Houston. Conversion to surface-water use in many of the problem areas has reversed the decline trend.

### References

- Baker, E.T. Jr., 1979, Stratigraphic and hydrogeologic framework of part of the Coastal Plain of Texas: TDWR Rept. 236, 43p. Guyton, W.F., and Associates, 1972, Groundwater conditions in Anderson, Cherokee, Freestone, and Henderson counties, Texas: TWDR Rept. 150, 90p.
- McCoy, T.W., 1990, Evaluation of groundwater resources in the Lower Rio Grande Valley, Texas: TWDB Rept. 316, 48p. Muller, D.A., and Price, R.D., 1979, Groundwater availability in Texas, Estimates and projections through 2030: TDWR Rept. 237, 77p.
- Sandeén, W.M., and Wesselman, J.B., Jr., 1973, Groundwater resources of Brazoria County, Texas: TWDB Rept. 163, 205p.
- Shafer, G.H., 1968, Groundwater resources of Nueces and San Patricio counties, Texas: TWEB Rept. 73, 137p.
- \_\_\_, 1970, Groundwater resources of Kleberg, Kenedy, and southern Jim Wells counties, Texas: TWDB Rept. 173, 69p.
- Thorkildsen D., 1990, Evaluation of water resources of Fort Bend County, Texas: TWDB Rept. 321, 21p.
- Torkildsen, D., and Quincy, R., 1990, Evaluation of water resources of Orange and eastern Jefferson counties, Texas: TWDB Rept. 320, 34p.
- Wesselman, J.B., 1967, Groundwater resources of Jasper and Newton counties, Texas TWDB Rept. 59, 167p.
- Wesselman, J.B., and Aronow, S., 1971, Groundwater resources of Chambers and Jefferson counties, Texas: TWDB Rept. 133, 183p.

The portion of the Gulf Coast Aquifer in the Goliad County area is the only portion of the Aquifer in Texas that has seen substantial utilization but still contains generally good quality water. However, sodium contamination from the Gulf (Southside) and possible contamination from past oil field practices is evident. Also, there are some recordings of high arsenic and nitrate-n levels.

### ESTIMATED USEABLE GROUNDWATER

The total amount of usable groundwater is estimated to be 12,810 acre-feet per year as per the following table from Region L 2001 Water Plan.

SOURCE	COUNTY	BAS IN	YR2000	YR2010	YR2020	YR2030	YR2040	YR2050
GULF COAST AQUIFER	088	18	2,913	2,913	2,913	2,913	2,913	2,913
GULF COAST AQUIFER	088	19	5,074	5,074	5,074	5,074	5,074	5,074
GULF COAST AQUIFER	088	20	4,823	4,823	4,823	4,823	4,823	4,823
TOTALS			12,810	12,810	12,810	12,810	12,810	12,810

Current consumption of groundwater in Goliad County is approximately 17% of the projected amount of useable groundwater.

The actual amount of groundwater available may need to be adjusted downward in the future to maintain the aquifer in a sustainable condition and to protect the large amount of shallow domestic wells serving the agriculture industry and rural households in the district.

## GROUNDWATER RECHARGE

The following data is from 2001 Texas Cooperative Extension for Goliad County. Goliad County yearly rainfall has been recorded since 1913. The lowest rainfall year was 1917 with 9.73 inches and the highest year was 1981 with 66.4 inches. The average annual rainfall from 1913 through 2001 was 35.28 inches. Sixty to seventy percent (60 - 70%) of the annual rainfall normally occurs in 4 - 5 % of the days. The remaining 30 - 40 % is in small amounts most of which will be utilized by vegetation or evaporated. Using the yearly average of 35.28 inches, 60% of rainfall equals 21 inches. Since most of this 21" inches occurs during large rainstorms, much of this rain fall is lost as surface water runoff to ditches, ravines, creeks, and rivers. The net result is that annually only a few net inches of rainfall actually can be applied as aquifer recharge. During drought periods, a significant negative recharge can occur.

### Recharge Rates for the Major Aquifers (from TWDB Website).

The following data contains recharge rates for 8 major aquifers including the Carrizo-Wilcox, Gulf Coast, High Plains, Edwards-Trinity, Trinity, Seymour, Cenozoic Pecos Alluvium, and Hueco-Mesilla Bolson Aquifers. Recharge rates for the Edwards Aquifer can be found in Slattery et al., 1998 and in annual reports published by the Edwards Aquifer Authority (e.g. EAA, 2000). Recharge data were compiled from reports published by the Texas Water Development board, U. S. Geological Survey, and other publications. The data lists the study areas (counties or general area); underlying aquifers, recharge rates (units of mm/yr, inches/yr, or total recharge in acre-feet/yr), data sources, and techniques used to estimate recharge. Additional notes are provided in some cases. The full reference citations are listed separately.

The main techniques for estimating recharge are Darcy's law, groundwater modeling, and base flow discharge. Darcy's Law is widely applied in the confined sections of the Carrizo-Wilcox and Gulf Coast Aquifers. Groundwater modeling is used in most aquifers. Base flow discharge is used primarily in the Trinity, Edwards-Trinity, Seymour, and Cenozoic Pecos Alluvium Aquifers. Environmental tracers so far have only been used to a limited (chloride mass balance, tritium, and carbon-14).

Estimates of recharge rates in the Carrizo-Wilcox Aquifer range from 0.1 to 5.8 in/yr. The higher recharge rates occur in the sandy portions of the aquifer (i.e. Simsboro and Carrizo units). Recharge rates are generally lower in the Gulf Coast Aquifer, ranging from 0.0004 to 2 in/yr. In both the Carrizo-Wilcox and Gulf Coast Aquifers, higher recharge rates are in upland areas with sandy soils. Regional recharge rates in the High Plains Aquifer, outside irrigated areas, are generally low (0.004 to 1.7 in/yr) whereas playa-focused recharge rates are much higher (0.5 to 8.6 in/yr). Irrigated areas also have fairly high recharge rates (0.6 to 11 in/yr). Recharge rates in the Trinity and Edwards-Trinity Aquifers generally range from 0.1 to 2 in/yr. The Seymour Aquifer has recharge rates that range from 1 to 2.5 in/yr. Recharge rates for the Hueco-Mesilla Bolson and the Cenozoic Pecos Alluvium are represented as total recharge along mountain fronts and valley floors.



POWER	088	18	CANYON LAKE/RESERVOIR	6,000	6,000	6,000	6,000	6,000	6,000
POWER	088	18	GULF COAST AQUIFER	2,719	2,722	2,726	2,729	2,731	2,731
MINING	088	18	GULF COAST AQUIFER	12	9	5	2	0	0
MINING	088	20	GULF COAST AQUIFER	5	3	1	1	0	0
IRRIGATION	088	19	IRRIGATION LOCAL SUPPLY	2,816	2,816	2,816	2,816	2,816	2,816
LIVESTOCK	088	18	LIVESTOCK LOCAL SUPPLY	267	267	267	267	267	267
LIVESTOCK	088	19	LIVESTOCK LOCAL SUPPLY	471	471	471	471	471	471
LIVESTOCK	088	20	LIVESTOCK LOCAL SUPPLY	470	470	470	470	470	470
TOTALS				29,462	29,460	29,458	29,458	29,457	29,457

### PROJECTED GROUNDWATER DEMAND

The following table is from the Region L year 2001 water plan.

USE	USER NAME	BASIN	COUNTY	YR 2000	YR 2010	YR 2020	YR 2030	YR 2040	YR 2040
MUN	GOLIAD	SAN ANTONIO	088	429	419	408	407	418	440
MUN	COUNTY-OTHER	GUADALUPE	088	182	172	164	164	165	174
MUN	COUNTY-OTHER	SAN ANTONIO	088	259	245	233	233	234	247
MUN	COUNTY-OTHER	SAN ANTONIO-MUECES	088	58	55	53	52	53	56
POWER	POWER	GUADALUPE	088	15,000	15,000	20,000	20,000	20,000	20,000
MINING	MINING	GUADALUPE	088	12	9	5	2	0	0

M I N	MINING	SAN ANTONIO- NUECES	088	5	3	1	1	0	0
I R R	IRRIGATION	SAN ANTONIO	088	592	511	442	382	330	285
S T K	LIVESTOCK	GUADALUPE	088	267	267	267	267	267	267
S T K	LIVESTOCK	SAN ANTONIO	088	471	471	471	471	471	471
S T K	LIVESTOCK	SAN ANTONIO- NUECES	088	470	470	470	470	470	470
	TOTALS			17,745	17,622	22,514	22,449	22,406	22,410

This water demand chart includes both surface water and groundwater. The Gulf Coast Aquifer is the total or partial source of water for all items.

### CURRENT & PROJECTED GROUNDWATER USE

The District projects the Groundwater use as follows in acre-feet per year.

USER	YR2000	YR2010	YR2020	YR2030	YR2040	YR2050
MUNICIPAL & RURAL DOMESTIC	823	1,118	1,481	1,876	2,214	2,526
LIVESTOCK	684	684	684	684	684	684
OIL & GAS EXPLORATION	387	387	271	194	129	65
INDUSTRIAL & COMMERCIAL (INCL IRRIGATION)	100	110	120	130	140	150
COLETO POWER PLANT	157	150	150	150	150	150
TOTALS	2,151	2,499	2,706	3,034	3,317	3,575

Over the next 50 years the District projects that use of Gulf Coast Aquifer Groundwater for livestock will remain relatively constant. Irrigation use may decline as cropland



continues to be converted to grassland. Domestic use of groundwater is projected to increase significantly due to increased rural population and a new significant use of groundwater is required for the industrial development of the airpark. (The old Chase Field landing strip). The projected population increases are due to the development of the airpark, development of urban sprawl subdivisions in rural areas, migration into the county by middle age and retirees and miscellaneous new business as noted in the Goliad County Commissioners resolution dated May 13, 2002 and Goliad County Judge Gleinser letter of draft population projections dated Dec. 3, 2002.

The population and water use projections prepared by Goliad County do not agree with those projections issued by Region L. The projections do not agree for the following primary reasons:

1. Population and water use projections made by Goliad County included the industrial development of the Berclair airpark, which was not considered by Region L.
2. Goliad County projects that there will be considerable growth slowing to a moderate growth over the next 50 years. Goliad County does not agree with the Region L projection that the County population will begin to decline after the year 2030.
3. Included in the water use projections is the implementation of six rural municipal type groundwater supply systems currently being developed in Goliad County.

### **MANAGEMENT of GROUNDWATER SUPPLIES**

The District will manage and conserve the supply of groundwater within the District in order to maintain the economic viability of the District, county, and region. To do this will require coordination with and cooperation from adjacent Groundwater Conservation Districts.

A monitor well observation network is being established and will be expanded to track any changes in water level or quality. The District will make a regular assessment of conditions and report those conditions to the public.

The District will adopt rules to regulate groundwater withdrawals by means of well spacing and production limits. The District may deny a well construction permit or limit groundwater withdrawals in accordance with district rules.

Goliad County Groundwater Conservation District will manage groundwater availability from the Gulf Coast Aquifer on a sustainable basis. Any permitted pumping will be subject to curtailment based on water levels recorded by multiple monitor wells throughout the District.

### **SURFACE WATER RESOURCES**

The San Antonio River runs through Goliad County. The only use of river water in the district is for irrigation.

There is one major surface water lake in the District. This constructed lake on Coletto

Creek is to provide water to a coal-fired power plant.

Because the predominant agriculture product is the raising of livestock, there are numerous stock tanks located within the District. These stock tanks provide surface water for livestock and wildlife consumption and provide some aquifer recharge. Many of these stock tanks go dry during drought periods.

### **DROUGHT CONTINGENCY PLAN**

A contingency plan to cope with the effects of water supply shortages due to climatic or other conditions may be developed by the District and will be adopted by the Board after notice and hearing. In developing the contingency plan, the District will consider the economic effect of conservation measures upon all water storage conditions, the unique hydrogeologic conditions of the aquifer and the appropriate conditions under which to implement the contingency plan.

The drought contingency plan will be considered after the District has done five years of water level monitoring across the District and compared this data with the rainfall trends during that period.

### **REGIONAL WATER PLAN**

As required by Chapter of the Texas Water Code 36.1071(b) this management plan and any amendments thereon shall be considered in the development of the regional water plan. Considering this local management plan will meet the intent of Senate Bill #1 and therefore, result in a regional management plan, which is consistent with this local management plan, resulting in the protection of the local control of groundwater management by the local people who elected the Board of Directors to operate the District.

### **ACTIONS, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION**

The District will implement the provisions of this plan and will utilize the provisions of this plan as a guidepost for determining the direction or priority for District activities. Operations of the District, agreements entered into by the District and planning efforts in which the District may participate will be consistent with the provisions of this plan.

The District will adopt rules relating to the permitting of wells and the production of groundwater. The rules adopted by the District shall be pursuant to the TWC Ch36 and the provisions of this plan. All rules will be adhered to and enforced. The promulgation and enforcement of the rules will be based on the best technical evidence available.

The District shall treat all citizens with equality. Citizens may apply to the District for discretion in enforcement of the rules on grounds of adverse economic effect or unique

local conditions. In granting of discretion to any rule, the Board shall consider the potential for adverse effect on adjacent landowners. The exercise of said discretion by the Board shall not be construed as limiting the power of the Board.

The District will seek the cooperation of all interested parties in the implementation of this plan.

### **METHODOLOGY FOR TRACKING DISTRICT PROGRESS IN ACHIEVING MANAGEMENT GOALS**

The District manager or Board President will prepare and present an annual report to the Board of Directors on District performance in regards to achieving management goals and objectives. The presentation of the report will occur during the last monthly Board meeting each fiscal year, beginning September 1, 2003. The report will include the number of instances in which each of the activities specified in the Districts management objectives was engaged in during the fiscal year. Each activity will be referenced to the estimated expenditure of staff time and budget in accomplishment of the activity. The notations of activity frequency, staff time and budget will be referenced to the appropriate performance standard for each management objective describing the activity, so that the effectiveness and efficiency of the Districts operations may be evaluated. The Board will maintain the report on file, for public inspection at the Districts offices upon adoption. This methodology will apply to all management goals contained within this plan.

### **GOAL 1.0 PROVIDING THE MOST EFFICIENT USE OF GROUNDWATER**

#### **Management Objective**

The District will maintain an aquifer water level metering network monitoring a minimum of 20 wells in the District annually.

#### **Performance Standard**

By February 15 of each year, the district will furnish a public report of the wells monitored the previous year.

### **GOAL 2.0 CONTROLLING AND PREVENTING WASTE OF GROUNDWATER**

#### **Management Objective**

Each year, the District will sample the water quality in at least 5 selected wells in order to monitor water quality trends and identify if contamination of groundwater is occurring. The District will also make available to well owners a sample service for well water quality analysis, to be paid for by the well owner.

#### **Performance Standard**

- a1) Annual report of wells sampled for water quality by the District.
- a2) Annual report of wells sampled by the District upon request.

### **GOAL 3.0 CONTROLLING AND PREVENTING SUBSIDENCE**

The management plan designates that water use from the Gulf Coast Aquifer is to be limited to maintain a sustainable aquifer. Therefore subsidence does not apply to Goliad County Groundwater Conservation District.

N/A

### **GOAL 4.0 ADDRESSING CONJUNCTIVE SURFACE WATER MANAGEMENT ISSUES**

#### **Management Objectives**

Each year the District will confer at least on one occasion with the San Antonio River Authority (SARA) on cooperative opportunities for conjunctive resource management.

#### **Performance Standard**

Report the number of conferences on the Subject held with SARA each year.

### **GOAL 5.0 ADDRESSING NATURAL RESOURCE ISSUES THAT IMPACT THE USE AND AVAILABILITY OF GROUNDWATER AND WHICH ARE IMPACTED BY THE USE OF GROUNDWATER**

#### **Management Objective**

Each year the District will inspect at least 5% of the wells drilled that year for compliance of well spacing including minimum distance from septic systems or other defined potential contamination.

#### **Performance Standard**

Annual inspection report.

### **GOAL 6.0 ADDRESSING DROUGHT CONDITIONS**

#### **Management Objectives**

Semi annually the District will update the rainfall for the District in the last six months. An analysis will be made to predict possible changes in aquifer level.

These predictions will be based on historic trends established by the water level monitoring program.

**Performance Standard**

Issuance of a semi annual report.

**GOAL 7.0 ADDRESSING CONSERVATION**

**Management Objectives**

The District will at least on two occasions each year provide public information on water conservation and waste prevention through presentations at public schools, and civic organizations or newspaper articles.

**Performance Standards**

- a) Report the number of speaking appearances made by the District each year.
- b) Report the number of newspaper articles published by the District each year.

RESOLUTION

**Goliad County Groundwater Conservation District**

A resolution by the Board of Directors of the Goliad County Groundwater Conservation District approving and adopting the "Goliad County Groundwater Conservation District Management Plan" Which was adopted on February 6, 2003 and will remain in force until amended or until February, 2013.


Whereas, in compliance with the Texas Open Meetings Act, the agenda for the Goliad County Groundwater Conservation District meeting of Thursday, February 6, 2003 was duly posted in the Goliad County Courthouse on Friday, January 31, 2003. And,

Whereas, all legal requirements, and all other applicable laws have been complied with and fulfilled. And,

Whereas, the official "Rules of the Goliad County Groundwater Conservation District" were duly adopted on February 6, 2003 after proper notice, posting and publishing of which is an official attachment to the Goliad County Groundwater Conservation District Management Plan.

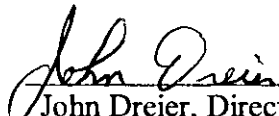
Now, Therefore Be It Resolved, that the Goliad County Groundwater Conservation District Management Plan in its final draft as presented to the Board of Directors on February 6, 2003 and to be effective until amended by the Board of Directors, with proper notice and posting, or until February, 2013 is hereby approved and adopted by a motion made by Director, V. K. Malone, followed by a second made by Director, Joe Kozielski. The vote was 6 - 0 (unanimous) in favor of adopting the Plan.

  
\_\_\_\_\_  
Art Dohmann, President

Attest:  
  
\_\_\_\_\_  
Arthur Bluntzer, Vice President

  
\_\_\_\_\_  
Barbara Smith, Secretary/Treas.

  
\_\_\_\_\_  
Joe Kozielski, Director

  
\_\_\_\_\_  
John Dreier, Director

  
\_\_\_\_\_  
V. K. Malone, Director

Goliad County Groundwater Conservation District  
Board of Directors

NOTICE OF MEETING

NOTICE IS GIVEN IN ACCORDANCE WITH CHAPTER 551, GOVERNMENT CODE (V.T.C.A.) TEXAS OPEN MEETING ACT, that the Goliad County Groundwater Conservation District Board of Directors will hold a meeting on Thursday, February 6, 2003 at 7:00 p. m. at the Depot, in Goliad, Texas

Agenda

1. Call to Order
2. Welcome guests
3. Public comment on GCGCD Rules
4. Adoption of Rules
5. Public Comment on GCGCD Management Plan
6. Adoption of Management Plan
7. Minutes of last meeting
8. Financial Report
9. Discussion of Director Election
10. Discuss office management and take appropriate action
11. Well monitoring
12. GAM Model Update
13. Discuss Welder lease
14. Correspondence and meetings
15. Set next meeting
16. Adjourn

**72 HOUR NOTICE**

(In accordance with Title III of the American with Disabilities Act, We invite All attendees to advise us of any special Accommodations due to disability. Please Submit your request as fat as possible in Advance of the program you wish to attend.)

CERTIFICATE OF POSTING

**POSTED**

1:05 o'clock P M  
30 day of JAN A.D. 2003  
Dail On Turley  
County Clerk, Goliad County, Texas

# CLASSIFIED ADS

## EMPLOYMENT

### JOB OPPORTUNITY

Anyone interested in applying for the position of Goliad County Librarian should pick up an application packet IN PERSON ONLY from 9 a.m. until 5 p.m. Monday through Friday at the Goliad County Library starting Tuesday, January 21, 2003. NO telephone calls. NO resumes without an application will be accepted. A county-approved application MUST be completed in order to be considered. The Library will BEGIN taking applications on TUESDAY, JANUARY 21, 2003. The DEADLINE for application is FRIDAY, JANUARY 31, 2003 at 5:00 p.m. APPLICATIONS MUST BE RETURNED IN A SEALED ENVELOPE MARKED CONFIDENTIAL AND DIRECTED TO THE ATTENTION OF THE COUNTY LIBRARIAN AND/OR LIBRARY BOARD.

This job is classified by Goliad County as Salary Level IV Management with a starting salary of \$9,52 per hours. There is a 90-day probationary period. Applicants MUST be able to be certified as a Grade III County Librarian by the Texas State Library. Some college is preferred, but not required. MUST have a minimum high school diploma or GED equivalent. Any candidate should have a working knowledge of standard library operating procedures. Good computer skills are essential. Must be able to learn the Follett automated circulation system.

Person should be highly motivated and a self-starter, have good people skills, enjoy working with the public, use good judgment, be willing to act in a supervisory capacity, make sound management decisions, accept a high degree of responsibility and be reliable and dependable. Good communication skills, including written and verbal, are important, since some grant writing is necessary. The individual chosen will be approved by, report to, and work with the Goliad County Library Board and Commissioners' Court.

Other duties include, but are not limited to: maintaining the Library's collection, planning and directing various adult and children's programs, administering public-use computers, record-keeping, preparing an annual budget, clerical duties associated with the Library Board, coordinating the Library Friends group, overseeing the Library's physical facility, writing newspaper articles, making public appearances on behalf of the Library, giving Library tours, attending seminars and meetings for continuing education hours (some out of county travel required), and otherwise performing those functions and duties associated with maintaining a full service public library. Although primarily a 40-hour work

Council Room of the Goliad City Hall, 152 W. End Street, Goliad, Texas. The City of Goliad reserves the right to reject any or all bids or to accept the bid or portion of bid that best suits the needs of the City. The City of Goliad is a fair housing, equal opportunity employer. x2J2

### PUBLIC HEARING NOTICE GOLIAD COUNTY GROUNDWATER CONSERVATION DISTRICT P. O. BOX 562 GOLIAD, TEXAS 77963-0562

The Goliad County Groundwater Conservation District will hold a public hearing at The Depot in Goliad, Texas, on Thursday, February 6, 2003 to hear public comment and adopt the Rules and Management Plan for the District. Persons wishing to comment but unable to attend this meeting should contact Art Dohmann at R/O of the Rules and Management Plan are available at The Goliad County Library, The Goliad County Farm Bureau, The County Judge's Office or at online at [www.goliad.org](http://www.goliad.org) to Goliad County Groundwater Conservation District. The agenda of this meeting is listed below.

- Agenda:
1. Call to Order
  2. Welcome guests
  3. Public comment on GCGCD Rules
  4. Adoption of Rules
  5. Public Comment on GCGCD Management Plan
  6. Adoption of Management Plan
  7. Minutes of last meeting
  8. Financial Report
  9. Discussion of Director Election
  10. Discuss office management and take appropriate action
  11. Well monitoring
  12. GAM Model Update
  13. Discuss Welder lease
  14. Correspondence and meetings
  15. Set next meeting
  16. Adjourn

Those with disabilities should contact Art Dohmann or Barbara Smith 2 days prior to the meeting for assistance. Contact telephone numbers: 645-8994 or 564-2026.

x1J22

## skin sense facts from the e

### Winter Skincare Guide

#### Tips To Get Through The Colder Month

(NAPS)—According to the Farmers' Almanac, which has been making weather predictions since the early 1800s, tough weather conditions are on the horizon for all regions across the country. Snow, dryness, high winds and extreme changes in temperature which greatly impact the condition of skin can be expected throughout the United States this winter.

Knowing the forecast in advance can help women prepare their skin for the colder months. Typically, skin tends to be drier in winter. However, women can have beautiful, healthy skin all season with a proper winter skincare routine.

According to Dr. Linda Stein Gold, Division Head at the Department of Dermatology, Henry Ford Hospital in Michigan, "Modifying your beauty routine based on seasonal skincare needs can be your best weapon against dry, dehydrated skin."

Here, Dr. Stein Gold shares some tips to keep skin looking its best, despite anticipated regional winter weather conditions.

- Falling temperatures and snow don't mean that sun protection isn't necessary. Snow reflects sunlight, intensifying UV projection onto the skin, even when the sun's rays don't feel so strong. According to Dr. Stein Gold, "To help prevent sun damage which can cause future lines and wrinkles, it is best to use a moisturizer which defends against the sun's harmful rays." For example, Olay Complete UV Defense Moisture Lotion with Vitamins C&E contains ingredients that provide broad spectrum protection from UVA and UVB rays while keeping skin soft and supple.

- Wind is a drying element that can leave facial skin dehydrated and flaky. According to Dr. Stein Gold, "Cleansing too often can worsen dry skin so it's impor-



tant to use a gentle facial that doesn't strip away its native moisture barrier."

- "Low humidity can moisture from the skin layer, leaving it parched, irritated. Therefore, moisture year-round is key to pre severe dryness in winter," Stein Gold. "While most always remember to mo their face, they often fo rest of their body." It's cr use a high performanc lotion that deeply mois skin. A body lotion such Total Effects Body Visib Aging Treatment contain Niacin, a breakthrough in that fights multiple signs by intensely hydrating help boost its natural r level. [www.oly.com](http://www.oly.com) is resource for more infor about skin health.

- Be prepared with th products to help you a changing weather conditi Stein Gold recommends night cream to replenish r lost during the day. While piate for sticky summer, using a toner or astringent too drying and may need t away for the winter seaso

Follow these skincare healthy and glowing skin out the winter months and no matter what the weathe

## WOMEN'S HEALTH

### Depression What Every Woman

(NAPS)—Everyone experiences periods of feeling sad, lonely, or unhappy. When such feelings linger for weeks or months or interfere with your ability to function, you may be suffering from depression. Depression affects 19 million Americans—and though it can occur in both men and women, some forms appear to be twice as likely in women.

The specific causes of depression in women remain unclear. Many factors are suspected to play a role in developing depression. Research is focused on understanding these factors, including



Medication can be



## CLASSIFIED ADS

### EMPLOYMENT

#### JOB OPPORTUNITY

Anyone interested in applying for the position of Goliad County Librarian should pickup an application packet **IN PERSON ONLY** from 9 a.m. until 5 p.m. Monday through Friday at the Goliad County Library starting Tuesday, January 21, 2003. NO telephone calls. NO resumes without an application will be accepted. A county-approved application **MUST** be completed in order to be considered. The Library will **BEGIN** taking applications on **TUESDAY, JANUARY 21, 2003**. The **DEADLINE** for application is **FRIDAY, JANUARY 31, 2003** at 5:00 p.m. **APPLICATIONS MUST BE RETURNED IN A SEALED ENVELOPE MARKED CONFIDENTIAL AND DIRECTED TO THE ATTENTION OF THE COUNTY LIBRARIAN AND/OR LIBRARY BOARD.**

This job is classified by Goliad County as Salary Level IV Management with a starting salary of \$9.52 per hours. There is a 90-day probationary period. Applicants **MUST** be able to be certified as a Grade III County Librarian by the Texas State Library. Some college is preferred, but not required. **MUST** have a minimum high school diploma or GED equivalent. Any candidate should have a working knowledge of standard library operating procedures. Good computer skills are essential. Must be able to learn the Follett automated circulation system.

Person should be highly motivated and a self-starter, have good people skills, enjoy working with the public, use good judgment, be willing to act in a supervisory capacity, make sound management decisions, accept a high degree of responsibility and be reliable and dependable. Good communication skills, including written and verbal, are important, since some grant writing is necessary. The individual chosen will be approved by, report to, and work with the Goliad County Library Board and Commissioners Court.

Other duties include, but are not limited to: maintaining the Library's collection, planning and directing various adult and children's programs, administering public-use computers, record-keeping, preparing an annual budget, clerical duties associated with the Library Board, coordinating the Library Friends group, overseeing the Library's physical facility, writing newspaper articles, making public appearances on behalf of the Library, giving Library tours, attending seminars and meetings for continuing education hours (some out of county travel required), and otherwise performing those functions and duties associated with maintaining a full

### GARAGE SALES

Thursday, Friday and Saturday, 8-1. 608 S. Temple St. Little bit of everything 1UJ29

Friday, Jan. 31, 8-?. 146 N. Market St. Glass showcase, antiques, furniture, clothes and household decor 1UJ29

Saturday, Feb. 1, 9 a.m. to 1 p.m. 1274 N. San Patricio. Coffee table, lamp, end tables, BBQ pit, clothes and much more. Cancelled if raining 1UJ29

### LEGAL NOTICES

#### PUBLIC HEARING NOTICE

#### GOLIAD COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. BOX 562

GOLIAD, TEXAS 77963-0562

The Goliad County Groundwater Conservation District will hold a public hearing at The Depot in Goliad, Texas, on Thursday, February 6, 2003 to hear public comment and adopt the Rules and Management Plan for the District. Persons wishing to comment but unable to attend this meeting should contact Art Dohmann at P. O. Box 561, Goliad, Texas 77963. Copies of the Rules and Management Plan are available at The Goliad County Library, The Goliad County Farm Bureau, The County Judge's Office or at online at [www.goliad.org](http://www.goliad.org) go to Goliad County Groundwater Conservation District. The agenda of this meeting is listed below.

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x1UJ22

**SENDER: COMPLETE THIS SECTION**

Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits.

Article Addressed to:  
*Mrs Evelyn Bonavita*  
*334 Royal Oaks*  
*San Antonio, TX 78209*

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  *Evelyn Bonavita*  Agent

B. Received by (Printed Name)  *Evelyn Bonavita*  Addressee

C. Date of Delivery *3/11/03*

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

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

Article Mail (Transit) 7002 24JD 0004 2254 6302  
PS Form 3811, August 2001 Domestic Return Receipt 10295-10-94-1035

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<b>Total Postage &amp; Fees</b>	<b>\$ 6.95</b>

Sent To *Evelyn Bonavita*  
 Street, Apt. No., or PO Box No. *334 Royal Oaks*  
 City, State, ZIP+4 *San Antonio, TX 78209*

*Item 2 on list*

**SENDER: COMPLETE THIS SECTION**

Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits.

Article Addressed to:  
*South Central Regional Water Planning Group*  
*910 Moorhouse Associates Drive*  
*5826 Bear Lane*  
*Circus Christ, TX 78405*

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  *Kim Webster*  Agent

B. Received by (Printed Name)  *Kim Webster*  Addressee

C. Date of Delivery *07/1/03*

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

3. Service Type  
 Certified Mail  
 Registered  
 Insured Mail  
 Express Mail  
 Return Receipt for Merchandise  
 C.O.D.  
 Restricted Delivery/Extra Fee

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PS Form 3811, August 2001 Domestic Return Receipt 10295-10-94-1035

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Sent To *Moorhouse Associates, Inc*  
 Street, Apt. No., or PO Box No. *5826 Bear Lane*  
 City, State, ZIP+4 *Circus Christ, TX 78405*

2029 4522 4000 0142 2002

6929 4522 4000 0142 2002

Item # / on list

Please Sign On  
2-6-03

Name

Phone #

- 1. Barbara Smith
- 2. Joe B. Kozubski
- 3. John DREIER
- 4. Al CALMO SA 788-5145 Colfax Ranch
- 5. Michael Fields 788-5100 - AEP
- 6. Margaret Phipps 645-3818 WDS Ranch
- 7. Dick Phipps 645-3818 WDS Ranch
- 8. Jim KREWERK 550-6642
- 9. ~~Jim KREWERK~~ 645-2802
- 10. Arthur R. Blumtzon 645-2850
- 11. Terry Guller 572-6539
- 12. Roy Keene 645-2725
- 13. Harold Blumier 645-8142
- SARA-14. Steve Roche 210/302-3614
- 15. Pat + Denise Lovett 645-8568
- 16. Floyd Karner 564-2727
- 17. James Cooper 645-2557
- 18. Linnæe Regga + Edna Mae Regga 645-3491
- 19. Ken G. Blumier 645-3188
- 20. Ralph W. Regga 645-3794
- 21. Barbara Regga 645-3794
- 22. E. J. Bammit 645-2277
- 23. Kelley + Debby Bromberg 645-1210
- 24. Ted + Pam Long 564-2214
- SARA-25. Greg Kotter 210 302 3600
- 26. Carl Robinson

Emmett Alford

- Fred Ace  
Rob Baramonte  
Terry Baramonte

More Sign On 2/13/03

Barbara Smith

Kirby Brumby

Verge in Lopper

Arthur P. D. Linger

VK M 2/10/03

Art Doherty

Joe Kozicki

Richard R. Phelps

Glen Bowen

JOHN DREIER

Steve Rustle - SARA

Bel McCurdy

Bruce Jones

Bob Jones

Jim Hancock

D. Brumby

Minutes of Meeting  
Goliad County Groundwater Conservation District  
February 6, 2003

President Art Dohmann called the meeting to order at 7:00 p. m. He welcomed all in attendance. All directors were in attendance. He recognized and introduced the Goliad County Groundwater District Board of Directors, Greg Rothe and Steve Raabe from San Antonio River Authority, Adair Sutherland, Leo Gleinser and Terry Baiamonte, from the Board of Directors of the San Antonio River Authority, County Judge Harold Gleinser, Commissioners Jim Krentek and Ted Long from Goliad County, Rob Baiamonte, Goliad County Attorney, and Michael Fields, Region I Director, representing CPL/AEP and Mr. Fred Arce from San Antonio Water System. He also announced that there are now 119 counties in Texas in a Groundwater District. The sign-in list is attached to these minutes.

He announced that this was a public hearing on the proposed Rules and Management Plan for comments from the public. He moved to item 5 on the agenda, which is public comment on the proposed Management Plan for the Goliad County Groundwater Conservation District. He stated that we would start there since the proposed Rules support the Management Plan. He opened the section by stating that the Management Plan lays out a number of criteria that are laid out by TWDB as to what it will consist of. He read the mission statement of the Goliad County Groundwater Conservation District.

Mr. Bahmmert asked why we have the statement that we will revisit the Plan in 10 years. It was explained that we are required to review every 10 years by law. Mr. Dohmann explained that the Management Plan is a dynamic document subject to change with hearing and adoption. Mr. Dohmann changed the grammar on page 3 of plan to read "the following data" instead of the "attached table".

Michael Fields stated that the most significant item in the document is the estimated recharge rate. He asked what plans we had to update recharge rates? The answer from Mr. Dohmann and the Board was that our well monitoring program would give us a better idea about recharge. He stated that the Coletto Lake and the San Antonio River might add to the recharge rate. He pointed out that the recharge rate might be different in different areas of the county because of these factors. Mr. Dohmann pointed out that our well monitoring program would tell us more about recharge. We need to get this program started as soon as possible. See attachment supplied by Mr. Fields.

Steve Raabe from SARA had comments about the management plan. See attached hard copy. He stated that SARA would assist the District in determining some of the issues in the plan. He suggested that we might want to wait to adopt until after looking at the comments of this meeting. Mr. Dohmann stated that we would certainly take into consideration everything said and our intention is to adopt if that is the pleasure of the Board. He stated that we want to establish quality as well as quantity. We may need to use SARA's lab for help in this program.

Fred Arce from the San Antonio Water System commended the Board for being so proactive and suggested that additional technical work on rejected recharge was needed. He stated that permitted pumping and curtailment based on water levels should be revisited. Mr. Dohmann responded to recharge rejection. He stated that another component in the

numbers is water used for agriculture and livestock. Our county agent compiled the numbers for us to use in our plan. Recharge reject, defined as water in creeks, is very important to agriculture use so we have to be careful calling it reject. Mr. Arce suggested that we work conjunctively with SARA and the power plant.

Mr. Rothe from SARA asked if conjunctive use is addressed in the Management Plan. Mr. Dohmann responded that this is Goal 4.0 in the plan. See attachment for Mr. Arce's comments.

Debbie Brumby, Goliad County resident, commented that as a resident of Goliad County she appreciated that the Board was starting with conservative estimates and that this is a benefit to Goliad County. She stated that we could change if needed at a later date. Mr. Dohmann stated that we have 9 wells monitored by TWDB in Goliad County. Eight of the nine wells have shown a decline in water level in the last 20 years. This is stated in page four of the Management Plan. This Board has a responsibility to provide water for the future growth of Goliad County. This Plan is part of the 50-year plan made by the State of Texas. Mr. Dreier stated that we are just getting started; therefore we will probably modify the Plan many times.

Mr. Heine asked about well decline. He asked how much they have declined? Mr. Dohmann answered that in 20 years of monitoring the decline has been from 3 to 15 feet on these 9 wells. He stated that we would work through in the permitting process to decide what are acceptable water level drops.

Mr. Bluntzer commented about a speaker in Victoria that stated that Victoria wells have dropped 100 feet in 100 years and that they expect a drop of 50 feet in the next 50 years even with using river water for their city water supply. He also stated that at the Farm Bureau Leadership Conference in Austin this week there was the recommendation that Water Districts not allow pumping beyond the normal recharge rate.

Mr. Heine asked if we have to allow export of water. According to legislation if excess water is available we must allow export. Mr. Dohmann stated that we cannot deny an export permit simply because we don't want to but we can limit the amount to protect historical users. Permits will be issued for certain time limits with a minimum of three years.

Ted Long asked what our recharge rate is and why they want our water. The answer to the recharge rate is that TWDB states that the recharge rate is between 0 - 2 inches per year. The question of why they want our water was not answered.

Adair Surherland commented on the difficulty of getting to this point and commended the Board for their hard work.

Director, V. K. Malone moved to adopt the Management Plan as stated with grammar modification. Mr. Kozielski seconded. The vote to accept was 6 - 0 by the Directors.

Under the agenda item concerning the Rules of the Goliad County Groundwater Conservation District, Steve Raabe from SARA suggested some changes and additional language. See hard copy attached.

Michael Fields challenged some of the Rules and suggested review and administrative changes. See attached hard copy.

Mr. Arce also submitted some suggestions. See attachment.

Mr. Dohmann tried to explain the 1/2 acre-foot per year limit on water. This applies

to every acre in Goliad County. If someone were to want to lease every acre and pump 1/2 acre-foot we would not be able to grant that permit because we would not have enough water to do this. The permit is the allocation applies to every acre in Goliad County.

Mr. Rothe asked if we were going to take changes suggested into consideration before adopting the rules? Mr. Dohmann recommended that since the public has heard the recommendation we need to meet at the earliest possible date to study these recommendations and then we can adopt them. Mr. Dohmann did comment on Rule 11.4 about registering wells. We are asking people to voluntarily register their wells. What is a reasonable length of time to get the wells registered? Consensus was that 1-year is sufficient. Mr. Heine asked about livestock or household wells. These are exempt wells. No permit required.

Mr. Bluntzer commented about legislative things this session. They are thinking of adjusting the 25,000-gallon capability downward. They are also thinking through some legislation requiring city people to plant native grasses in their yards instead of grasses that require so much water. Mr. Dohmann stated that in order for the 25,000-gallon limit to be changed in Goliad County, the Commissioner's Court would have to ask the legislature to amend our enabling act.

Mr. Bluntzer moved to postpone adoption of Rules to consider changes. Mr. Malone seconded. The vote was unanimous to postpone adoption of Rules.

Under agenda item 12, Mr. Dohmann stated that the GCGCD has made a request to TWDB for a model run considering the proposed well field in Refugio County. He explained to the attendees what this is and that this model run would not cost the District anything except director expenses. Any future runs will have a cost attached.

Item 13 - Welder Lease. Since Mr. Rothe and Mr. Raabe are here they have stated they will answer any questions. Michael Fields asked if Refugio County's Management Plan and Rules would differ from Goliad's? Mr. Rothe stated that Refugio does not have their Rules and Management Plan ready yet. Mr. Dohmann asked what would happen if Refugio doesn't have their Plan and Rules in place by the August 31, 2003 date that the lease is to be signed? Mr. Raabe stated they will continue to do studies and these contingencies would be written into the contract. Mr. Rothe stated that the Goliad County impact would be taken into account. He stated, *"The impacts in Goliad County would be taken into consideration relative to the water taken from that property. SARA will be, in the course of developing the project, looking very carefully at impacts the additional pumping from that area or any other area as proposed for development from monitoring wells more site specific more modeling more specific than GAM model which is a general model. By the time we get through this development period we'll know how the aquifer will react to proposed additional pumping."*

SARA has offered to share information from the beginning and share in processing and developing information. Mr. Rothe stated, *"We want to understand what is going to happen with additional pumping and those impacts. Final decisions about how that project would be developed very much will spin off of what we find in the more intensive study. We don't want project as developed in Refugio to cause any unacceptable problems in Goliad county. That is why SARA participated in the project. So that Goliad County can have a say in project. With SARA participation in the project we can look out for Goliad County interest."*



Mr. Dohmann explained how this lease could affect us in Goliad County.

The GAM Model should show how the aquifer would react. The impact from the pumping will be up dip from the well field not necessarily in Refugio County.

Many in attendance at the hearing asked who would be liable if our household and livestock wells go dry. Mr. Rothe answered that if they see water quality problems, etc. we would move away from those problems. E. J. Bamhert asked if we would have a clause in the contract to cover the contract if there were problems? Mr. Dohmann stated that we don't want to get to mitigation so we do have conservative numbers in our Plan and Rules. The question was asked if the Goliad Water District would have any control over the contract. The answer from Mr. Rothe was no; the District will not have a part in the contract.

Mr. Heine asked Mr. Arce what happened to the Applewhite Project? His statement was that it died a very bloody death.

Mr. Baiamonte asked for clarification on the impact of pumping from the Chicot. Mr. Dohmann stated that pumping from below the Chicot would not affect most wells in Refugio County. Recharge will come from up dip. Mr. Baiamonte asked if models show that water levels show that water has dropped 100 feet or so would that be adverse effect enough that the Project would not pump out of that area? He asked Mr. Rothe if they have thought about a threshold? Mr. Rothe's answer was no and that the Groundwater Districts will be the final decision on pumping limits. Mr. Rothe stated that they haven't talked about thresholds yet. Mr. Rothe stated that they would share the contract with Goliad District. That is several years down the road. Mr. Rothe stated that we don't want to stay fixed in a contract if its causing problems just because we signed the contract. We need some protection for that sort of contingency. Mr. Baiamonte stated that we haven't defined what a problem would be. He stated that if all of our wells dropped a 100 feet that may not be a problem for SARA. Mr. Rothe stated that he thought that would be a problem. Mr. Baiamonte asked if Mr. Rothe was on record that a drop of 100 feet would be a problem. No response.

Mr. Arce was asked about the Edwards pumping into the Carrizo. He stated that this is a multimillion-dollar project that is going on. When there is surplus as there is now, this is a way for San Antonio to have water for the dry times.

Item 9 of the Agenda - Mrs. Smith asked the public what they would consider a fair number of polling places. The consensus was 4 polling places - one for each Commissioner's Precinct. We have 3 director positions up in May. Mr. Dreier moved to have 4 polling places, subject to Justice Department preclearance. Mr. Bluntzer seconded. The motion carried unanimously. Mr. Bluntzer moved to pass resolution to hold joint election with school District subject to their approval and requirements of preclearance. Seconded by Mr. Malone. The motion carried.

Item 11 - Mr. Dreier moved to purchase eline from Powers Electric for \$350.40. Mr. Bluntzer seconded the motion. The motion carried unanimously.

Mr. Kozielski moved to purchase copier from Sam's for \$499 plus cost of paper. Mr. Bluntzer seconded. The motion carried unanimously.

Mr. Dohmann asked if we want to clear up deferred attorney's fee. The Board said no. We have received no further correspondence from attorney concerning this fee.

Mr. Dohmann announced that he has a potential candidate for the vacant directors

position and would like this be put on next agenda for executive session discussion.

The Board selected February 13 as the date of the next meeting. We will try to get the Commissioner's Courtroom for 9:00 a. m. Nelda Malone will check on availability tomorrow. Mrs. Smith will post agenda no later than 9:00 a. m. on Monday.

The Board changed the opening date of the office to February 18, 2003. We need to get notice in the paper explaining this.

Mrs. Smith recommended we use the Council Company for office supplies. Board agreed.

Mr. Dreier stated that we need to support Terry Baiamonte when she attends her first SARA Board meeting on February 19<sup>th</sup>.

The Board deferred items 7 and 8, minutes of last meeting and financial report, to February 13<sup>th</sup> meeting.

Mr. Kozielski moved to adjourn. John Dreier seconded. The meeting adjourned.

Respectfully submitted,

Barbara Smith, Secretary  
GCGCD

**Minutes of Board Meeting****GCGCD****February 13, 2003**

Mr. Dohmann called the meeting to order and welcomed our guests. All Board members were present.

Mr. Dohmann called for public comment. Mr. Bob Jones, owner of Aranama RV Park stated that he appreciates the pumping restrictions set by the Board in our management plan and would like to see lower permit lengths. Mr. Virgil Peppers stated that he moved here from Alabama and is concerned about wells selling water for San Antonio. He cited experiences in Alabama with the area in which he lived having the water sold out from under them. Mr. Dohmann thanked the people for their comments and input.

Mr. Kozielski moved to approve the minutes for the January meeting that was deferred from the February 6<sup>th</sup> meeting. Mr. Malone seconded. The motion carried.

Mr. Dohmann thanked Steve Raabe for the SARA grant. And explained that some of the money is being spent on a copier and eline and office expenses. Mr. Bluntzer moved to accept the financial statement and Mr. Kozielski seconded the motion. The motion carried.

Mr. Dohmann explained that we reserve the right to go into executive session and will do so later.

The Board discussed the Director Election to be held in May. Mr. Malone moved to let Mr. Dohmann and Mrs. Smith handle the election procedures. Mr. Bluntzer seconded. The motion carried.

Mr. Dreier stated that the eline left California on the previous Friday and should be here soon. TWDB called and said they would meet with Mr. Dreier on Feb. 17<sup>th</sup> at 10 a.m. and will take him to a well and show him how TWDB monitors wells. Mr. Kozielski and Malone will go with them. They want to get started as soon as possible on our monitoring program. By working with TWDB they will utilize our submitted data. Our goal is to look at wells throughout the county. Steve Raabe suggested that we talk with TWDB person to get criteria on how to select wells. We may need to do PH testing.

The Board then addressed item 8 on the agenda. Recommended rule corrections and changes from the public hearing on February 6<sup>th</sup>.

The first change was an addition to the Table of Contents, Rule 20 Appendix. The Board added A. Water well registration

B. Drilling Permit

C. Operating Permit

At the beginning of the document, the Board added the date of February 13, 2002, contingent upon adoption of rules today.

Under definitions the Board changed (aa) to read "adoption" instead of "approval" of the Goliad County Groundwater Conversation District Management Plan of February 6, 2003.

Under Rule 4 (b), the Board changed the word "possible" to "practicable". Under Rule 7.1, the Board added the word "adverse" in line three after the word "the" and before the word "draw down".

In Rule 8.2, the Board approved with a motion from Mr. Dreier and a second from Mr. Bluntzer to add, "All in county utilities meeting the following requirements may be exempt from the requirement for a groundwater transport permit:

- (1) 95% of the total monthly volume of the water utility must be supplied within the district boundaries;
- (2) The monthly volume of water transported out of the district shall not exceed 5% of the utility's corresponding monthly demand.

In Rule 8.4 c, the Board approved adding "of the Texas Water Code" at the end of the sentence.

In Rule 9 (a) 1, the Board approved removing ", or to be located" from the first sentence and add "but within District" in line 3. Mrs. Smith moved to remove section 2 of Rule 9 (a) from the rules. Mr. Kozielski seconded. The Board approved the motion. Therefore there is no fee for water used and sold within the county.

In Rule 11.1 (a) correction was made to item (b). This should read Rule 12.8.

Regarding the suggestion that we change the time period in Rules 11.2 and 11.3, the Board chose to let these stand as written.

In Rule 11.4 (b) the date was changed to February 6, 2004, giving well owners a full year to register existing wells.

In Rule 12.2 (b), The Board added the word "new" in line 2 after "all" and before "wells" and struck the sentence "Existing exempt wells shall be registered with the District within one year of the effective date of the District's Rules."

In 12.2 (7) the Board approved in a motion made by Mr. Dreier and seconded by Mr. Bluntzer, adding the following after Operating Permits. "On approval of an application, the District shall issue an Operating Permit to the applicant. The permittee's right to produce shall be limited to the extent and purpose stated in the permit. The permit shall be valid for a period of 3 years, at which time the permit may be renewed. A permit shall be considered for renewal if the permittee has been in compliance with the conditions of the permit and the District's Rules and regulations, has timely submitted a renewal application with the appropriate fee, agrees to comply with the District's current groundwater production allowance and district Rules and Regulations. A permit that has not been submitted for renewal before the expiration date shall be revoked. Operating permits are site specific and a permitted groundwater production allowance is restricted to production from the well that is permitted for. A permit shall not be transferable except as provided in Rule 12.4 (1). Operating permits may be renewed by the Board following application and hearing."

In Rule 12.3, the Board approved deleting "reworking, or re-equipping of an existing well"

In Rule 12.6 (1), on a motion by Mr. Kozielski and seconded by Mr. Bluntzer, the Board approved changing "domestic" to "all in county" and adding (5) to read "In county utilities that supply water to the public may use part of the acreage within their service area to meet the production acreage requirement if the well is located or to be located within their service area."

In Rule 12.8 (g), the Board approved changing "approval" to "adoption" and adding "approved February 6, 2003" after "plan" and before "shall". The Board also added (h) Water produced by an exempt well may not be sold. These changes were made

# GOLIAD COUNTY GROUNDWATER CONSERVATION DISTRICT

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P. O. Box 562  
Goliad, TX 77963-0562  
361-564-2026  
DLRANCH@tisd.net  
bsmith@awesomenet.net

February 22, 2003

This is supplemental information attached to the Goliad County Groundwater Conservation District submittal of the management plan to Texas Water Development Board for approval.

## **GROUNDWATER USE**

In reference to current and projected groundwater usage there are some differences between GCGCD and Region L numbers as follows:

1. GCGCD projects a larger population and subsequent higher water consumption due to the rapid rural development we call urban sprawl and due to the planned development of industry at the airpark. Data attached.
2. GCGCD projected groundwater consumption for livestock was prepared by the County Extension Service. Livestock water use is supplemented by surface water. Data attached.
3. GCGCD has included groundwater used for oil and gas exploration. This use is not under the jurisdiction of GCGCD but constitutes a large use in the District because of the continued high exploration activity in Goliad County.

## **RECHARGE**

On the subject of recharge GCGCD has used the net recharge method which excludes what is referred to as rejected recharge. GCGCD is concerned as to how rejected recharge is allocated. GCGCD recognizes that rejected recharge to local creeks and gullies plays a vital role in supplying drinking water to wildlife and livestock during dry periods.

GCGCD also recognizes the sensitivity of lack of recharge in the unconfined segments of the Gulf Coast Aquifer during dry periods. For example, during the drought of the 1950's and 1990's, a substantial drop in the water table occurred in many areas of the District. This required lowering of pumps and in many cases the drilling of deeper wells. While there are still some shallow wells in the District the overall long term trend has been a steady drop in water levels since 1980. See attached well data.

Goliad County rainfall rainless periods has been analyzed from 1978 to 2002 in the north, central and southern parts of the county (analysis attached). This analysis shows that several times annually the county goes 30 - 120 days without recharge producing rainfall, even though the annual rainfall may be high. These reoccurring dry periods must have a significant impact on recharge rates.



# Texas Agricultural Extension Service

THE TEXAS A&M UNIVERSITY SYSTEM

118 South Market, Goliad, Texas ★ 361.645.8204 ★ <http://goliad-tx.tamu.edu>

## Water For Agriculture

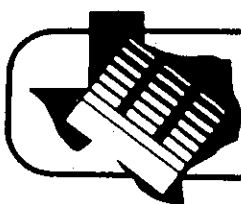
Year	Total Head of Cattle for Goliad Co.
2001	34,000
2000	37,500
1999	50,000
1998	30,000
1997	39,000
1996	37,000
1995	37,000
1994	28,000
1993	48,000
1992	58,000
1987	70,000
<b>AVERAGE<sup>1</sup></b>	<b>42,590</b>

42,590 avg cows	9 gallon average <sup>2</sup>	383,310 gallons average
80% calf crop	3 gallon average <sup>2</sup>	102,216 gallons average
6000 horses	10 gallon average <sup>2</sup>	60,000 gallons average
5,000 calves in feed lot	7 gallon average	35,000 gallons average
10,000 other livestock	3 gallon average	30,000 gallons average
<b>TOTAL</b>		<b>610,526 gallons of H<sub>2</sub>O used per <del>YEAR</del> DAY</b>

- ★ water is consumed by livestock from stock tanks, creeks, etc. which effects watersheds
- ★ water is supplemented through troughs, and stock tanks at times, from groundwater
- ★ there is only 600 acres of irrigated crops in the county but are not the typical irrigated farms: no estimates of water use can be given

<sup>1</sup> cattle numbers are taken from the yearly ag increment worksheets submitted by the CEA-Ag  
<sup>2</sup> see attached reference pages for documentation of averages

submitted by: Brian D. Yanta  
 Goliad County Extension Agent



## Livestock Water Quality

A successful livestock enterprise requires a good water supply, in terms both of quantity and quality. While shortage is obvious to the stockowner, he sometimes needs the help of a laboratory in evaluating the quality of a supply. The purpose of this report is to discuss what is involved in livestock water quality and how one goes about getting an analysis that will help in determining this quality, and to assist in the interpretation of such an analysis.

### Water Consumption

Before beginning the discussion of quality, it may be well to consider briefly how much water animals consume. This information might be of some assistance in planning livestock water systems. It should be recognized, however, that water consumption varies over a rather wide range, depending upon a number of physiological and environmental conditions, so that estimates of this type are subject to considerable error. These conditions include the kind and size of animal, whether or not it is lactating, how active it is, the kind and amount of diet it consumes, climatic conditions, and some other factors. The usual ranges for water consumption of adult animals has been summarized in Water Quality Criteria, published by the FWPCA in 1968, as follows:

	<i>Water Consumption (gallons per day)</i>
Beef Cattle	7-12 per head
Dairy Cattle	10-16 per head
Horses	8-12 per head
Swine	3-5 per head
Sheep and Goats	1-4 per head
Chickens	8-10 per 100 birds
Turkeys	10-15 per 100 birds

### Factors in Water Quality

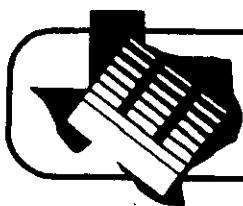
Most ground or surface waters are satisfactory for livestock. Some are not, however, resulting in poor performance or even death in animals confined to them.

What makes waters unsatisfactory for livestock?

Very often it is excessive salinity—too high a concentration of dissolved salts of various kinds. Of lesser importance is nitrate content, and on rare occasions alkalinity or other factors may become involved.

**Salinity.** Water is a very good solvent, and all natural waters contain dissolved substances. Most of these are inorganic salts, the calcium, magnesium and sodium chlorides, sulfates, and bicarbonates predominating. Occasionally these are present in such high concentrations that they cause harmful osmotic effects resulting in poor performance, illness or even death in animals confined to them. The various salts have slightly different effects, but these differences are of no practical significance. Thus, while sulfates are laxative and may cause some diarrhea, their damage to the animal seems no greater than that of chlorides, and magnesium salts seem no more of a problem than calcium or sodium salts. Further, the effects of the various salts seem additive, which means that a mixture of them seems to cause the same degree of harm that a single salt at the same total concentration does.

A number of observations have been made relative to saline livestock waters, some of them verified by experimental findings. At high salt concentrations that are somewhat less than toxic, increasing salinity may actually cause an increased water consumption, even when at first the animals refuse to drink for a short period of time. On the other hand, at very high salinities animals may refuse to drink for many days, followed by a period where they drink a large amount at one time and become suddenly sick or die. Older animals are more resistant to harm from salinity than are the young. Anything causing an increase in water consumption such as lactation, high air temperatures, or exertion also increases the danger of harm from saline waters. Animals do seem to have the ability to adapt to saline water quite well, but abrupt changes from waters of low to waters of high salts concentrations may cause harm while gradual changes do not. Whenever an alternate source is available to them,



# Texas Agricultural Extension Service

## Water Requirements for Beef Cattle

The water requirements of cattle are influenced by a number of physiological and environmental conditions. These include such things as the rate and composition of gain, pregnancy, lactation, physical activity, type of ration, salt and dry matter intake, and environmental temperature.

The minimum requirement of cattle for water is a reflection of that needed for body growth, for fetal growth or lactation, and of that lost by excretion in the urine, feces, or sweat or by evaporation from the lungs or skin. Anything influencing these needs or losses will influence the minimum requirement.

The amount of urine produced daily varies with such things as activity of the animal, air temperature, and water consumption, as well as with certain other factors. The antidiuretic hormone, vasopressin, controls reabsorption of water from the kidney tubules and ducts, and thus it affects urine excretion. Under conditions of restricted water intake, an animal may

concentrate its urine to some extent by reabsorbing a greater amount of water than usual. While this capacity for concentration of the urine solutes is limited, it can reduce water requirement some. When an animal consumes a diet high in protein or in salt or containing substances having a diuretic effect, the excretion of urine is increased and so is the water requirement.

The water lost in the feces depends largely on the diet and the species. For instance, substances in the diet which have a diarrhetic effect will increase water loss by this route, and cattle excrete feces of a high moisture content while sheep excrete relatively dry feces.

The amount of water lost through evaporation from the skin or lungs is not obvious to us, but it is important and in some cases it may even exceed that lost in the urine. If the environmental temperature and/or physical activity increase, water loss through

Estimated Daily Water Intake of Cattle

Month	Mean Temp.	Cows		Bulls	Growing Cattle <sup>2</sup>			Finishing Cattle			
		Nursing Calves <sup>1</sup>	Bred Dry Cows & Heifers		400lb.	600lb.	800lb.	600lb.	800lb.	1000lb.	1200lb.
	°F	GAL	GAL	GAL	GAL	GAL	GAL	GAL	GAL	GAL	GAL
Jan.	36	11.0	6.0	7.0	3.5	5.0	6.0	5.5	7.0	8.5	9.5
Feb.	40	11.5	6.0	8.0	4.0	5.5	6.5	6.0	7.5	9.0	10.0
Mar.	50	12.5	6.5	8.6	4.5	6.0	7.0	6.5	8.0	9.5	10.5
April	64	15.5	8.0	10.5	5.5	7.0	8.5	8.0	9.5	11.0	12.5
May	73	17.0	9.0	12.0	6.0	8.0	9.5	9.0	11.0	13.0	14.5
June	78	17.5	10.0	13.0	6.5	8.5	10.0	9.5	12.0	14.0	16.0
July	90	16.5	14.5	19.0	9.5	13.0	15.0	14.5	17.5	20.5	23.0
Aug.	88	16.5	14.0	18.0	9.0	12.0	14.0	14.0	17.0	20.0	22.5
Sept.	78	17.5	10.0	13.0	6.5	8.5	10.0	9.5	12.0	14.0	16.0
Oct.	68	16.5	8.5	11.5	5.5	7.5	9.0	8.5	10.0	12.0	14.0
Nov.	52	13.0	6.5	9.0	4.5	6.0	7.0	6.5	8.0	10.0	10.5
Dec.	38	11.0	6.0	7.5	4.0	5.0	6.0	6.0	7.0	8.5	9.5

<sup>1</sup> Cows nursing calves during first 3 to 4 months after parturition — peak milk production period.

<sup>2</sup> Requirement will be a little less for wintering on range.

Table prepared by Paul Q. Guyer, University of Nebraska



symptoms. If signs of toxicity occur, stock should immediately be provided with good quality water. Movement of livestock to other pasture areas may also be necessary.

### Consumption of Water

Required water consumption is an important factor when dealing with potentially harmful water supplies. Information on required consumption may be needed in situations where limited amounts of usable water are available, where available water may limit the number of livestock or where managers may need to haul water for entire herds. Realizing that there are many variables (animal size, ambient temperature etc.) which may alter water intake, Table 4 is suggested as a guide for consumption by farm animal species:

Animal	Body weight (lbs.)	Water consumption (gals.)
Cattle	150	1.5
	500	10-15
	1000	20
Horses	200	1.5
	1000	10-15
	1500-2000	15-20
Swine	10-15	1/2-3/4
	50	1/2-1
	100	1-1 1/2
Dairy cows		15-20
Chickens (per 100 mature birds)		1-3 1/2
Ducks (per 100 mature birds)		17

**Intake of Salt Water.** Saline water toxicity resembles simple dehydration. Electrolyte balances are upset. As water becomes more saline palatability decreases. This will cause a decrease in intake of feed that may lead to starvation. Salts in excess of 5,000 ppm make water unpalatable, and if consumed in large amounts will cause diarrhea and weight loss that reduces production. Under certain circumstances, death losses have occurred from cattle drinking highly mineralized water.

**Mineral Imbalances.** The relationship of excessive minerals upon the utilization or availability of other minerals in the diet is one of the most interesting facets of animal nutrition. For example, calcium influences zinc requirements by reducing the absorption of zinc. Iron utilization is dependent upon adequate copper. Copper requirements are dependent upon levels of sulfate and molybdenum in the diet. High calcium levels influence iron and copper absorption by reducing the acidity of the digestive system. Calcium levels influence the requirement for manganese. Water that contains

1,000 ppm calcium can contribute significant quantities of this mineral through normal intake of water. At an expected daily consumption of about 10 gallons per day for a mature cow, the animal would consume 37.9 grams of calcium per day, 150 percent of its maximum daily requirement and 400 percent of the daily calcium requirement of a dry cow. The recognized antagonism of calcium and phosphorus can only be compounded in this situation. Phosphorus availability may become decreased (because of excess calcium) to the point of causing reduced reproduction and growth of cattle consuming calcareous water.

When farm animals consume highly mineralized water, the reactions between the many minerals dissolved in the water can have significant effects on nutrition; therefore, the status of total dissolved solids in livestock water should be considered whenever mineral supplements are recommended.

**Water Pollution Problems.** Livestock owners sometimes raise questions concerning the use of water, containing municipal and industrial effluents as a livestock water source. Recommendations by the National Academy of Science as published by the Environmental Protection Agency are summarized in Table 5. According to Sweeten (1974) this summary should be especially helpful when a permit by the Texas Water Quality Board is required. If these water quality standards are incorporated into Federal and State water quality standards, maximum allowable pollutant levels in streams will be specifically defined; therefore, waste discharges into a stream will not be allowed to elevate total dissolved salt and other waste elements above the levels summarized in Table 5.

Inorganic constituent	Maximum concentration (ppm)
Aluminum	1.00
Arsenic	.02
Beryllium	no limit
Boron	5.00
Cadmium	.05
Chromium	1.00
Cobalt	1.00
Copper	.05
Fluorine	2.00
Iron	no limit
Lead	.10
Manganese	no limit
Mercury	.001
Molybdenum	no limit
Nitrates plus Nitrites	100.00
Nitrites	10.00
Selenium	.05
Vanadium	.10
Zinc	25.00
TOTAL DISSOLVED SALTS	1000.00

U.S. Environmental Protection Agency, Washington, D.C., October 1973.

## COUNTY SITUATION

Goliad County consists of 551,040 acres of land with 90 percent of this acreage being utilized as rangeland for livestock production. Vegetation growing on the range consists of many native and improved grasses as well as a wide variety of brush species. The county's average rainfall is 35.28 inches. The San Antonio River bisects the county in a north to southeastern pattern.

Goliad County has many soil types ranging from the heavy clays of the river bottom field to the light sands of the post oak region in the eastern parts of the county. The county's main agricultural enterprise is production of livestock, namely cattle. However, due to the increased interest of wildlife this could change in the years to come. Other agricultural products produced are goats, grain sorghum, corn, wheat, hay, grass seeds, peaches and pecans. The estimated gross agricultural income for Goliad County in 2001 was \$21,074,000.

The county has one countywide school system which is located in Goliad, the county seat. There are organized committees located throughout the county utilizing the former community school buildings as community centers. Goliad County, based on the 2000 census, has ~~8,425~~ <sup>6,928</sup> people residing in it with Goliad, a town of 1,975 people, the county's only incorporated town. This is an increase of ~~32%~~ <sup>14%</sup> from the 1990 census of 6,072. revised 6928 - 2000 ↑ 14%

The county is richly endowed with oil and gas reserves with its revenues producing the majority of the county's tax income. Revenues from oil and gas production are declining at this time. The county also has a colorful and rich historical background dating back to the days of Texas Independence and the earlier influence of the Spanish empire. Located near Goliad is the restored mission of Espiritu Santo, the Presidio La Bahia Fort, and the Fannin Battleground and many other historical points of interest. Many historic old homes are to be found in the town of Goliad and a modern State Park with complete camping and trailer facilities is also located on the southern outskirts of the town.

Construction of Central Power and Light Company's coal-fired electric generating plant valued at over \$250 million began in 1977 and is presently in operation.

A 3,000 <sup>acre</sup> surface area lake owned by Guadalupe-Blanco River Authority built adjoining the electric generating plant has camping and recreational facilities open to the public.

U.S. Department of Agriculture  
 Farm Service Agency  
 2001 Total Farm Acreage Report  
 (PF-3R)  
 Total

Item	No. Farm	Intend/Rpt + Determined	Failed/ Destroyed	After **	Total	Prevented Planted
	(No.)	(Acres)	(Acres)	(Acres)	(Acres)	(Acres)
1. Wheat Grain	1	271.7	0.0	0.0	271.7	0.0
2. Corn-Total	32	7,208.2	0.0	0.0	7,208.2	0.0
3. Corn-Grain	32	7,208.2	0.0	0.0	7,208.2	0.0
4. Corn-Silage	0	0.0	0.0	0.0	0.0	0.0
5. Corn-Seed	0	0.0	0.0	0.0	0.0	0.0
6. Corn-Other	0	0.0	0.0	0.0	0.0	0.0
7. Sorghum-Total	11	1,172.2	0.0	0.0	1,172.2	0.0
8. Sorghum-Grain	11	1,172.2	0.0	0.0	1,172.2	0.0
9. Sorghum-Silage	0	0.0	0.0	0.0	0.0	0.0
10. Sorghum-Other	0	0.0	0.0	0.0	0.0	0.0
11. Barley Grain	0	0.0	0.0	0.0	0.0	0.0
12. Oats Grain	0	0.0	0.0	0.0	0.0	0.0
13. Upland Cotton	6	1,418.5	0.0	0.0	1,418.5	0.0
14. Rice-Total	0	0.0	0.0	0.0	0.0	0.0
15. Rice-Long	0	0.0	0.0	0.0	0.0	0.0
16. Rice-Medium	0	0.0	0.0	0.0	0.0	0.0
17. Rice-Short	0	0.0	0.0	0.0	0.0	0.0
18. ELS Cotton Program	0	0.0	0.0	0.0	0.0	0.0
19. Total Program Crop	40	10,070.6	0.0	0.0	10,070.6	0.0
20. ELS Cotton Non Program	0	0.0	0.0	0.0	0.0	0.0
21. CRP Acres	3	278.5	0.0	0.0	278.5	0.0
22. Waterbank	0	0.0	0.0	0.0	0.0	0.0
23. Water Impound	0	0.0	0.0	0.0	0.0	0.0
24. Soybeans	1	41.0	0.0	0.0	41.0	0.0
25. Total Minor Oilseeds	0	0.0	0.0	0.0	0.0	0.0
26. Sunflowers-Total	0	0.0	0.0	0.0	0.0	0.0
27. Sunflowers-Oil	0	0.0	0.0	0.0	0.0	0.0
28. Sunflowers-Non-Oil	0	0.0	0.0	0.0	0.0	0.0
29. Safflower	0	0.0	0.0	0.0	0.0	0.0
30. Rapeseed	0	0.0	0.0	0.0	0.0	0.0
31. Canola	0	0.0	0.0	0.0	0.0	0.0
32. Flax	0	0.0	0.0	0.0	0.0	0.0
33. Mustard seed	0	0.0	0.0	0.0	0.0	0.0
34. Crambe	0	0.0	0.0	0.0	0.0	0.0
35. Sesame	0	0.0	0.0	0.0	0.0	0.0
36. Rye-Grain	0	0.0	0.0	0.0	0.0	0.0
37. Sugar Beets	0	0.0	0.0	0.0	0.0	0.0
38. Sugar Cane	0	0.0	0.0	0.0	0.0	0.0

**TEXAS CATTLE: Inventory and Milk Production**

District and county	January 1 Inventory						Milk production	
	All cattle and calves <sup>1</sup>		Beef cows		Milk cows		1999	2000
	2000	2001	2000	2001	2000	2001		
	1,000 head				Million pounds			
Pecos	40	37	19	11	*	*		
Presidio	33	31	14	17				
Reeves	40	47	7	2	*	*		
Terrell	11	9	5	4				
Ward	5	6	3	3				
Winkler	9	8	6	3				
Other Counties					2.2	2.6	36.2	43.6
<b>DISTRICT 6</b>	<b>300</b>	<b>293</b>	<b>120</b>	<b>106</b>	<b>19.2</b>	<b>17.9</b>	<b>309.0</b>	<b>298.0</b>
Bandera	13	12	9	9				
Blanco	22	21	16	15				
Burnet	44	43	29	29	*			
Coke	17	15	10	10				
Concho	25	23	19	17				
Crockett	25	22	18	14				
Edwards	18	17	11	12				
Gillespie	47	48	32	35	*	*		
Irion	16	14	10	10				
Kendall	18	18	11	12	*	*		
Kerr	21	20	14	16				
Kimble	20	19	15	14				
Kinney	14	16	11	8				
Lampasas	38	37	25	23	*	*		
Llano	38	40	26	27				
McCulloch	38	35	28	24	*	*		
Mason	46	44	30	30				
Menard	17	15	14	11				
Reagan	11	10	8	6				
Real	7	8	5	6				
San Saba	58	65	29	27				
Schleicher	22	20	17	15				
Sterling	16	13	13	11				
Sutton	21	20	15	14				
Tom Green	61	62	24	12	5.5	7.1	89.6	119.1
Upton	7	8	6	5				
Uvalde	64	64	15	20				
Val Verde	21	18	5	6				
Other Counties					0.7	0.6	10.4	8.9
<b>DISTRICT 7</b>	<b>764</b>	<b>747</b>	<b>465</b>	<b>438</b>	<b>6.2</b>	<b>7.7</b>	<b>100.0</b>	<b>128.0</b>
Austin	79	86	53	58	*			
Bastrop	84	80	48	53				
Bee	49	51	22	33				
Bexar	57	56	25	37	*	*		
Burleson	75	78	47	47	*	*		
Caldwell	48	44	25	29				
Colorado	84	79	55	57	*			
Comal	14	14	8	10				
De Witt	92	93	54	57	0.5	0.5	7.5	7.6
Fayette	123	124	70	89	1.1	1.3	19.3	20.2
Goliad	52	50	33	32				
Gonzales	162	159	79	66	*	*		
Guadalupe	51	50	30	32	0.9	0.8	14.9	13.5
Hays	26	23	8	15				
Karnes	65	65	39	43	*	*		
Lavaca	117	112	77	76	0.8	0.7	12.8	11.8
Lee	89	86	57	62				
Medina	66	70	32	24	*	*		
Travis	34	33	18	20	*	*		



118 South Market, Goliad, Texas 77963 \* 361.645.8204

May 9, 2003

Goliad Groundwater Conservation District  
c/o Art Dohmann

In regards to the inquiry of the number of irrigated farms in Goliad County;  
and after consulting with our Farm Service Agency director,  
we are estimating that there are a total of six irrigated farms in Goliad County.\*

Of the six irrigated farms, three farms irrigate with the source of the water being the San Antonio River. Thus leaving three farms being irrigated from groundwater.

Irrigation is not a common practice in Goliad County, and is not done on a consistent basis, in any given year. This is due to our average rainfall totals being adequate for production agriculture and simply the additional costs associated with irrigation.

If you have any questions or concerns please feel free to contact me at the above number.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian D. Yanta".

Brian D. Yanta  
County Extension Agent - Agriculture  
Goliad County

\*these figures are best guess estimates and are not exact figures by any means

**From:** "GCGCD" <GCGCD@usawide.net>  
**To:** <Randy.Williams@TWDB.STATE.TX.US>  
**Date:** 5/9/03 11:48AM  
**Subject:** Groundwater use - municipal - 823 Acre Feet

The estimated municipal use of 823 Acre Feet is a composite of the following:

City of Goliad records 123,000,000 Gallons pumped	=	378 Acre Feet
Berclair Colonia Project SARA Estimate	=	31 Acre Feet
Fannin Colonia Project SARA Estimate	=	11 Acre Feet
Remainder of County Domestic	=	403 Acre Feet
		823 Acre Feet

Fax being sent of city of Goliad Goundwater Pumping and other data

**From:** "GCGCD" <GCGCD@usawide.net>  
**To:** <MEWOLFSCHLAG@AEP.COM>  
**Date:** 5/9/03 10:53AM  
**Subject:** NUMERS VERIFICATION

Mr. Wolfschlag, Operations Superintendent, Coletto Power Plant

On December 13, 2002 I spoke with you by telephone on the subject of groundwater use in your operation. The following is the use that you said was reported.

Year 1999 - 53,000,000 Gallons = 162.65 Acre Feet

Year 2000 - 51,000,000 Gallons = 156.51 Acre Feet

Year 2001 - 46,000,000 Gallons = 141.17 Acre Feet

TWDB requires verification of this data, which is used in our management plan. Please reply no later than May 12 to TWDB and GCGCD.

Thanks for your help,

Art Dohmann, President,

Goliad County Groundwater Conservation District

**CC:** <Randy.Williams@TWDB.STATE.TX.US>

**From:** "GCGCD" <GCGCD@usawide.net>  
**To:** <Randy.Williams@TWDB.STATE.TX.US>  
**Date:** 5/9/03 11:03AM  
**Subject:** Groundwater Use Oil and Gas Exploration

There has been extensive oil and gas exploration in Goliad county for many years. This extensive activity is still occurring. The normal procedure is to Drill a wter well that is jetted to support the oil and gas drilling process. This jetted froundwater is not metered, so use is estimated. Water is used in the drilling process until switching to oil based mud at depths mnormal below 10,000 feet.

From oil and gas company owner, daily use for drilling is 600 - 1000 barrels ( 42 gallon barrels  
Groundwater use estimate: For drilling use - 850 barrels per day = 25 GRM

For wash down, crew quarters, filling pits, misc = 15 GPM

Per Rig consumption = 40 GPM

Yearly consumption estimating 6 drilling rigs in opertion = 6 X 40GPM X 60 minutes X 24 hours X 365  
Days

325,851 Gallons/ Acre Foot =

387.12 Acre Feet Per Year



**From:** "Art & Jean Dohmann" <dlranch@tisd.net>  
**To:** "Randy Williams" <Randy.Williams@twdb.state.tx.us>  
**Date:** 5/9/03 9:32PM  
**Subject:** GCGCD groundwater used

Randy,  
User: industrial & commercial including irrigation

This category of groundwater use is of unmeasured water. Much of the use is occasional and having no specific pattern. The major uses include irrigation, a 9 hole golf course and the four county maintenance precincts.

Use of groundwater for irrigation and for the golf course vary depending on the amount and seasonal timing of rainfall. As noted in the letter faxed to you dated May 9 from Brian Yanta, County Extension Agent, installed irrigation capacity is not necessarily used.

The 100 acre feet per year allocation should be a reasonable average yearly use.  
Art Dohmann, president, GCGCD

**CC:** "Goliad" <gcgcd@usawide.net>

# GOLIAD COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. Box 562  
Goliad, TX 77963-0562  
361-564-2026  
DLRANCH@tisd.net  
bsmith@awesomenet.net

February 22, 2003

This is supplemental information attached to the Goliad County Groundwater Conservation District submittal of the management plan to Texas Water Development Board for approval.

## **GROUNDWATER USE**

In reference to current and projected groundwater usage there are some differences between GCGCD and Region L numbers as follows:

1. GCGCD projects a larger population and subsequent higher water consumption due to the rapid rural development we call urban sprawl and due to the planned development of industry at the airpark. Data attached.
2. GCGCD projected groundwater consumption for livestock was prepared by the County Extension Service. Livestock water use is supplemented by surface water. Data attached.
3. GCGCD has included groundwater used for oil and gas exploration. This use is not under the jurisdiction of GCGCD but constitutes a large use in the District because of the continued high exploration activity in Goliad County.

## **RECHARGE**

On the subject of recharge GCGCD has used the net recharge method which excludes what is referred to as rejected recharge. GCGCD is concerned as to how rejected recharge is allocated. GCGCD recognizes that rejected recharge to local creeks and gullies plays a vital role in supplying drinking water to wildlife and livestock during dry periods.

GCGCD also recognizes the sensitivity of lack of recharge in the unconfined segments of the Gulf Coast Aquifer during dry periods. For example, during the drought of the 1950's and 1990's, a substantial drop in the water table occurred in many areas of the District. This required lowering of pumps and in many cases the drilling of deeper wells. While there are still some shallow wells in the District the overall long term trend has been a steady drop in water levels since 1980. See attached well data.

Goliad County rainfall rainless periods has been analyzed from 1978 to 2002 in the north, central and southern parts of the county (analysis attached). This analysis shows that several times annually the county goes 30 - 120 days without recharge producing rainfall, even though the annual rainfall may be high. These reoccurring dry periods must have a significant impact on recharge rates.

GOLIAD COUNTY RAINFALL ANALYSIS

YEAR	ANNUAL RAINFALL "	RECHARGE RAINLESS PERIODS OVER 30 DA		
		WEESATCHE (N)	GOLIAD (C)	SARCO (C)
1978	29.48	74, 52, 32, 38	65, 52, 38	N.A.
1979	27.85	30, 67	37, 40, 55	N.A.
1980	32.96	92, 62, 48	65, 46, 34	32, 38, 62, 48
1981	66.4	34, 38, 34	36, 35	34, 47
1982	27.4	74, 79	73, 53, 76, 51	58, 70
1983	38.5	42	43, 36	61
1984	31.7	48, 34	58, 32	91, 34
1985	43.8	70	50	76
1986	35.7	36, 58, 40	67, 48	86, 41
1987	29.5	49, 45, 32	69, 55	71
1988	17.4	43, 41, 38	74	41, 38, 42
1989	19.15	38, 70, 120	58, 38, 42	39, 60, 40, 51, 41
1990	32.95	35, 33, 51, 47	38, 51	41, 51, 46
1991	44.65	-	37, 35	34
1992	41.15	34	31, 39	-
1993	40.0	99, 46	60, 45	37, 55, 44
1994	46.9	40, 48	50	41, 49
1995	35.2	43, 32, 36	-	63, 32, 40, 36
1996	21.15	128, 32, 57, 58	151, 48	184, 44, 50
1997	68.55	50, 39, 33, 55	47	49, 45, 41
1998	51.35	57, 133	75, 65	121, 40
1999	25.15	42, 80	42	58
2000	38.52	39, 88, 45	49	39, 53, 38
2001	45.86	41, 65,	41, 36, 46, 41	41, 36, 57
2002	2.74	116, ?	92, 34, ?	155, ?

THRU 5-31