Lone Star Groundwater Conservation District

Annual Report 2009

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Lone Star Groundwater Conservation District Annual Report 2009

April 2010

Prepared by Marjie Risk

District Information:

Creation:

In 2001, the creation of the District was authorized by the 77th Texas Legislature through House Bill 2362. The creation of the District was confirmed by the voters of Montgomery County on November 6, 2001, with 73.85 percent of the voters casting favorable ballots.

Location and Extent:

The District is located within Montgomery County in southeastern Texas. The boundaries of the District are coterminous with the boundaries of Montgomery County, Texas. The District is bordered by Walker County on the north, San Jacinto and Liberty Counties on the east, Harris County on the South, and Caller and Grimes Counties on the west.

Peach Creek is the boundary with San Jacinto County, and Spring Creek forms most of the boundary with Harris County. The District comprises an area of approximately 1,090 square miles.

District Mission:

The Lone Star Groundwater Conservation District (District) is committed to managing and protecting the groundwater resources of Montgomery County and to working with others to ensure a sustainable, adequate, high quality and cost effective supply of water.

The District will strive to develop, promote, and implement water conservation, augmentation, and management strategies to protect water resources for the benefit of the citizens, economy, and environment of Montgomery County. The preservation of this most valuable resource can be managed in a prudent and cost-effective manner through conservation, education, management, and permitting.

District Offices:

207 W. Phillips, Suite 300

Conroe, Texas 77305

Phone: 936-494-3436

FAX: 936-494-3438

Visit us at:
www.lonestargcd.org

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District Staff

Kathy Turner Jones, General Manager

In 2002, Kathy was named General Manager of the newly formed Lone Star Groundwater Conservation District serving Montgomery County bringing 13 years of groundwater experience and knowledge with her. Under her direction, the District has established its offices in Conroe, built a core staff and office operation, established a well permitting and registration system, and approved District Rules. In addition, Kathy has led the District through the process of compiling hydrologic information on the characteristics of the Upper Gulf Coast Aquifer, engineering planning, information on water usage and water supply in Montgomery County, and implementing regulatory procedures associated with the District's Groundwater Regulatory Plan.

Debbie Dixon, Receptionist/Staff Assistant

Ms. Dixon is the first point of contact for the District and can direct your call as needed. She serves as the liaison between the public and the District staff. Ms. Dixon prepares and compiles information for each monthly Board Meeting. Ms. Dixon also oversees the exempt well registration program.

Cori Stallings, Permitting Director

Ms. Stallings is the Permitting Director for the District and oversees all permitting activities for the Lone Star Groundwater Conservation District. Ms. Stallings has worked for the District for several years and also oversees the District web site to ensure that information is current and available to the public.

District Staff

Darlene Milstead, Permitting/Technical Support

Ms. Milstead is responsible for processing incoming well permits and application amendments. Legal notices are also prepared within the permitting section.

Dawn Havran, Permitting/Technical Support

Ms. Havran has various responsibilities dealing with incoming well permits and permit renewals.

Mel Lonon, Field Operations Coordinator

Mr. Lonon is responsible for inspecting wells to ensure that each well is in compliance with District rules and regulations. Mr. Lonon is out in the community conducting these inspections and speaking with permittees.

District Staff

Daphne Walker, Bookkeeper

Ms. Walker has been with the Lone Star Groundwater Conservation District for 3 years and oversees the financial aspects of the District under the supervision of the General Manager and the Board of Directors.

Marjie Risk, Education/Public Awareness Coordinator

Ms. Risk is new with the District and has over 20 years of experience in water rights, water conservation/efficiency and water education. Ms. Risk oversees the various educational programs and outreach events supported by the District and assists communities in developing water conservation programs.

The Lone Star Groundwater Conservation District promoted the water conservation opportunities that all residents of Montgomery County have on an everyday basis.

Board of Directors

The Lone Star Groundwater Conservation District was created to develop, promote, and implement water conservation, augmentation and management strategies to protect water resources for the benefit of the citizens, economy and environment of Montgomery County, Texas. To fulfill this directive, the Board of Directors adopted rules on August 26, 2002, to regulate the drilling and operation of water wells in Montgomery County and to set fees for the production of groundwater.

- Richard J. Tramm-President/Represents Montgomery County, Term Expires 1/31/13
- Orval R. Love, PE-Vice President/Represents MUD's East of I-45, Term Expires 1/31/11
- Sam W. Baker-Secretary/Represents Montgomery County, Term Expires 1/31/11
- Jim Stinson, PE-Treasurer/Represents Woodlands Joint Power Authority, Term Expires 1/31/11
- Reed Eichelberger, PE/Represents San Jacinto River Authority, Term Expires 1/31/13
- Roy McCoy, Jr/Represents MUD's West of I-45, Term Expires 1/31/11
- M. Scott Weisinger, PG/Represents all cities except Conroe, Term Expires 1/31/13
- James B. Wesley, Represents City of Conroe, Term Expires 1/31/13
- W.B. Wood/Represents Soil and Water Conservation District, Term Expires 1/31/11

The Board of Directors of the Lone Star Groundwater Conservation District represent the various water interests of Montgomery County. The Board meets every month at the District Offices to dispense with District business to include the approval of well permits, decisions on rules an by-laws and provide reports on progress of District Water Committees.

General Manager's Statement

By Kathy Turner Jones

Stewardship

In 2009, the District continued to promote the adoption of water conserving lifestyles and the use and development of renewable resources as alternatives to groundwater. Reuse and brackish water were issues in 2009 that will need future consideration.

Leadership

In 2009 the District passed another milestone with the adoption of the District Regulatory Plan (DRP), Phase II(B). The Board had previously published rules that required all entities pumping more than 10 million gallons per year, known as **Large Volume Groundwater Users (LVGUs),** to provide information on their future demands and a conceptual plan for how each of these entities intended to meet a proposed reduction in groundwater usage to a level of 70 percent or less of their total water demand by 2015.

DRP Phase II(B) requires each LVGU in the District to **reduce its groundwater production by 2016 to a volume that does not exceed 70 percent of its Total Qualifying Demand.**

The newly adopted rules established 2009 as the benchmark year for determining the amount of groundwater available to each LVGU.

To ensure that adequate progress is made in appropriately planning for the Initial Conversion Obligation, and to assist the District in its water planning efforts, each LVGU must prepare, and submit to the District a **Groundwater Reduction Plan** (GRP) by no later than January 1, 2011.

In addition, the Board took action to limit the water use for new developments by creating a temporary moratorium on amenity ponds for new construction. This stand, in addition to the DRP is evidence that the District is leading the way to establish more responsible use of groundwater resources.

Addressing Challenges

Great strides were made in 2009 to protect groundwater resources. Managing and protecting the groundwater resources of Montgomery County is a serious mission and has brought the District various challenges.

The Lone Star Groundwater Conservation District consistently meets with stakeholders throughout Montgomery County to discuss various water issues and the critical dependence on groundwater resources.

Promoting effective water conservation planning and program implementation was a focus in 2009 and the District was asked by various Councils and water providers to lead this charge and provide wise guidance in this regard.

The District remains committed to actively engaging in tough discussions regarding the water supply challenges faced by Montgomery County.

Outlook

The District will strive to fulfill its overall mission while looking to form effective partnerships with entities that have the same goal of preserving and protecting the groundwater resources of Montgomery County. We know that successful partnerships are the key to securing our water supply and are encouraging water conservation as a part of the solution for the future.

Evidence of the District's Progress in Achieving Management Goals

The 75th Texas Legislature in 1997 enacted Senate Bill 1 ("SB1") to establish a comprehensive statewide water planning process. In particular, SB1 contained provisions that required groundwater conservation districts to prepare management plans to identify the water supply resources and water demands that will shape the decisions of each district. SB1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries.

Each year the District is charged with providing the evidence of the District's progress in achieving the Management Goals set forth in the District's Groundwater Management Plan. The evidence of the District's Progress toward each goal is included in the Annual Report to the District Board of Directors. The Annual Report is made available to the public after adoption by the Board of Directors. This report is intended to fulfill the requirement of the District Groundwater Management Plan of complying with the achievement of management goals as outlined herein.

Photo of groundwater storage tank for the City of Conroe. Storage tanks provide a means of storing supplies of groundwater pumped from local wells.

A. Providing the Most Effective Use of Groundwater 2009

A.1. Objective—Each year, the District will require all new exempt permitted wells that are constructed within the boundaries of the District to be registered or permitted in accordance with the District Rules.

A.1. Performance Standard—The number of exempt wells registered or permitted by the District for the year will be incorporated into the Annual report submitted to the Board of Directors of the District.

To demonstrate completion of Performance Standard A.1, the number of exempt and permitted (non-exempt) wells registered or permitted by the District for the year is given in Table

Table 1, Number of Exempt and Permitted Wells registered or permitted by the District for the year, 2009

Number of Exempt Wells registered	407
Number of Non-Exempt Wells Permitted	114
TOTAL	521

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

A. 2. Performance Standard– Each year, the District will accept and process applications for the permitted use of groundwater in the District in accordance with the permitting process established by the District Rules. The number and type of applications made for the permitted use of groundwater in the District, and the number and type of permits issued by the District, will be included in the Annual Report given to the Board of Directors.

Water is often used in settings to provide a measure of cooling or sometimes as a feature within landscapes to create an aesthetically pleasing effect. Low impact features such as this created stream can be integral to landscapes but have limited evaporation rates due to the lack of height and chance of overspray due to wind.

Table 2 provides the number and types of applications made to the Director for the permitted use of groundwater in 2009. Table 3 provides the number of applications for Operating Permits or Permit Amendments issued or other administrative disposition of applications made by the District in 2009. Table 4 provides the primary use of water listed on the permit applications approved by the District in 2009.

Table 2, the Number and Type of Applications for the Permitted use of Groundwater Received in 2009

Application Type	Number Submitted
Amendment to an Existing Operating Permit or Historical Use Permit Application*	98
New Operating Permits**	108
TOTAL	206

* Applications for Permit Amendments may not reference a specific well

**Applications for new operating permits may include more than one well

The Lone Star Groundwater District issues groundwater permits which provides water for a variety of uses and water users.

Table 3, the Number of Operating Permits or Permit Amendments Issued and Administrative Disposition of Applications/ Permits made by the District in 2009

Application or Permit Disposition	**Number**
Applications Approved as Submitted	67
Applications Approved as Amended	89
Applications or Permits Expired due to inaction by Applicant or Permittee	2
Applications Approved w/Conditions	28
Applications Denied	1
Applications Pending at end of 2009	9
Applications Voided or Merged	4
Applications Withdrawn by Applicant	6
***TOTAL**	206

* Reflects Board Action on Applications in 2009. This total includes applications submitted in late 2008 but with Board action on the application occurring in 2009. The total excludes applications submitted in late 2009 which could not be set for Board action until 2010.

Excess water from an amenity pond flows into this catchment which flows into this spillway when water levels are high.

Table 4, Primary Use of Water on Permits Approved in 2009

Water Use	Number of Applications
Industrial	10
Irrigation	30
Irrigation (Agriculture)	3
Public Supply/Commercial	163
Other	0
TOTAL	**206**

B. Controlling and Preventing Waste of Groundwater 2009

B.1. Objective – Each year, the District will make an evaluation of the District Rules to determine whether any amendments are recommended to decrease the amount of waste of groundwater within the District.

B.1. Performance Standard – The District will include a discussion of the annual evaluation of the District Rules and the determination of whether any amendments to the rules are recommended to prevent the waste of groundwater in the Annual Report of the District provided to the Board of Directors.

About 60% of the water we use is used on landscaping but as much as 50% of that amount is wasted through runoff due to improper design or in-efficient watering schedules, or in some cases because of leaks. There is great potential for saving water outdoors by conducting irrigation system audits every season.

The Board of Directors of the Lone Star Groundwater Conservation District adopted Phase II (B) of the District Regulatory Plan on November 10, 2009. The DRP Phase II(B) contains the District's primary regulatory requirements for achieving sustainability of the Gulf Coast Aquifer by reducing groundwater dependency within Montgomery County. DRP Phase II(B) requires each **Large Volume Groundwater User** (LVGU) in the District to reduce its groundwater production by 2016 to a volume that does not exceed 70 percent of its **Total Qualifying Demand**. An LVGU is any person that actually produced, or was authorized to produce, 10 million gallons or more of groundwater from within the District in calendar year 2009.

Additionally, the Board of Director passed **Order No. 09-009** which instituted a temporary moratorium on the issuance of permits for the production of groundwater that authorizes the discharge of produced groundwater into a surface impoundment, as that term is defined by the District Rules. A copy of this resolution is provided in the appendices.

B. 2. Objective – Each year, the District will apply a water use fee structure to the permitted use of groundwater in the District to encourage the elimination and reduction of waste of groundwater.

B. 2. Performance Standard – Each year, with the exception of wells exempt from permitting, the District will apply a water use fee to the permitted use of groundwater in the District pursuant to District rules. The amount of fees generated by the water use fee structure and the amount of water used for each type of permitted use of groundwater will be included in a section of the Annual Report given to the Board of Directors of the District. The amount and type of fees generated by the LSGCD water use fee structure in 2009 is given in Table 5. The amounts of water used for each type of groundwater use permitted by the District are outlined in Table 6.

The District sets a rate each year that will allow for the wise use of groundwater but also give users some monetary consideration for the quantities of water that they are using. The goal is to establish a water use fee that is reasonable for the type of use and is based on a set fee per 1,000 gallons of usage.

The year 2009 brought water use restrictions during the extended period of drought and visible reminders along roadways to curb discretionary uses. There was also much discussion by water providers of creating new water use rates that would serve as conservation incentives.

Table 5, The Amount of Water Use Fees Generated by the District in 2009.

Water Use Type	Permitted Amount	Fee Rate	Fee Amount
HUP Applications/ operating Permits*	27,696,950,632	.07/1000 gallons	$1,877,233.64
Water subject to Transportation Fee	793,681,529	.105/1,000 gallons	$80,824.87
AG Permits/ Applications	491,762,757	$1.00 per acre foot	$1,579.36
TOTAL	**28,982,394,918**		$2,023,632.26

* May include water transported out of the District but not subject to Transportation

Table 6, The Amount of Water Reported to the District as Pumped for Each Type of Permitted Groundwater Use

Type of Use	**Gallons**
Commercial	36,493,040
Industrial	496,304,050
Irrigation	1,005,019,636
Irrigation (Agriculture)	133,557,544
Public Supply	1,529,118,000
Public Supply (Commercial)	138,735,909
Public Supply (PWS)	20,378,390,510
* **GRAND TOTAL**	**23,717,618,689**

*The reported pumping for 2009 is incomplete due to incomplete reporting by a small number of permittees. The District is currently pushing enforcement action to ensure compliance with reporting requirements.

B.3. Objective – Each year, the District will provide information to the public on eliminating and reducing wasteful practices in the use of groundwater by including information on groundwater waste reduction on the District's website.

B.3. Performance Standard – Each year, a copy of the information provided on the groundwater waste reduction page of District's website will be included in the District's Annual Report to be given to the District's Board of Directors. A copy of the information provided on the groundwater waste reduction page of District's website is presented in Appendix A of this report.

For compliance with this standard, the District provided information on landscape water waste and the importance of leak detection.

C. Controlling and Preventing Subsidence 2009

C.1. Objective – Each year, the District will hold a joint conference with the Harris-Galveston Coastal Subsidence District and the Fort Bend Subsidence District focused on sharing information regarding subsidence and the control and prevention of subsidence through the regulation of groundwater.

C.1. Performance Standard – Each year, a summary of the joint conference on subsidence issues will be included in the Annual Report submitted to the Board of Directors of the District. A summary of the joint conference on subsidence issues follows:

On July 1st, A Water Summit Conference was held to discuss groundwater use, regulation, and the need for conservation, which is part of a Water Conservation Workshop Series sponsored by a entities involved in the region, including the North Harris County Regional Water Authority, West Harris County Regional Water Authority, Harris-Galveston Coastal Subsidence District, San Jacinto River Authority, North Fort Bend Water Authority, The Woodlands Joint Powers Agency, Lone Star Groundwater Conservation District, Houston Gulf Coast Irrigation Association and Water Lily Press. This Conference was a venue for discussion of regional water issues and solutions to groundwater reliance.

On September 22, 2009 a meeting on Groundwater Availability modeling was held between the Subsidence Districts and the Lone Star GCD. Key topics are the prevention of subsidence by the regulation and monitoring of groundwater use, sharing of subsidence data between Districts.

This dramatic photograph shows the effects of over pumping of the groundwater stored in underground aquifers. This damage, one done, cannot be reversed and can jeopardize roads, housing developments and various types of infrastructure.

Ground fissures are quite common in areas that are prone to the effects of subsidence due to groundwater overdraft.

C.2 .Objective – Each year, the District will provide one article annually on the District's website to educate the public on the subject of subsidence.

C.2. Performance Standard – The Annual Report submitted to the Board of Directors will include a copy of the article posted on the District's website. A copy of the article, "Land Subsidence" was posted for 2009 is listed in Appendix D of this report.

D. Conjunctive Surface Water Management Issues 2009

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

D.1. Performance Standard – The attendance of a District representative at each Region H Regional Water Planning Group will be noted in the Annual Report presented to the District Board of Directors and included in the Appendices.

A record of attendance of a District Representatives at each Region H Regional Water Planning Group is noted in Table 7:

Table 7, Record District representative attendance at Region H Regional Water Planning Meetings Performance Standard D.1. Note: Attendance can be verified by meeting attendance lists available on file at the District Offices.

2009 Meeting Dates	**(Total of 6 Meetings were held with 100% attendance)**
February 4, 2009	Reed Eichelberger, Kathy Turner Jones, Mel Lonon
May 6, 2009	Kathy Turner Jones
July 1, 2009	Reed Eichelberger, Kathy Turner Jones
September 2, 2009	Kathy Turner Jones
November 4, 2009	Kathy Turner Jones
December 2, 2009	Mel Lonon, Marjie Risk

E. Drought Conditions

E.1. Objective – Each month, the District will download the updated Palmer Drought Severity Index (PDSI) map and check for the periodic updates to the Drought Preparedness Council Situation Report (Situation Report) posted on the Texas Water Information Network website www.txwin.net.

E.1. Performance Standard – Quarterly, the District will make an assessment of the status of drought in the District and prepare a quarterly briefing to the Board of Directors. The downloaded PDSI maps and Situation Reports will be included with copies of the quarterly briefing in the District Annual Report to the Board of Directors.

Quarterly Drought Briefings for 2009:

Quarterly Drought Briefing– 1st Quarter 2009: The first quarter of the year the State of Texas saw increased precipitation during the Month of March but this was enough to mitigate the extended drought. South Central Texas to the middle Texas coast was deemed to be in exceptional drought.. The drought is expected to persist in most areas of the state.

Quarterly Report Briefing– 2nd Quarter of 2009: While April rains helped drought conditions in both Southeast Texas, some flooding was experienced due to the amount received in a short period of time. The drought indices reveled that second quarter rains did help to alleviate drought conditions, the improvement of theses conditions is expected to be slower in southeastern Texas than in other parts of the state.

Quarterly Drought Briefings for 3rd Quarter of 2009: Hot summer temperatures during the third quarter of 2009 did not provide relief from the extended drought conditions. 16.8% of Texas was categorized as experiencing exceptional drought conditions and many areas have implemented watering restrictions. Some short term relief was provided by September rains. September rains help agricultural conditions and soil moisture more than reservoirs or overall hydrologic conditions.

Quarterly Drought Briefings for 4th Quarter of 2009: The month of October brought several inches of rain to Montgomery County which prompted local drought related watering restrictions to be lifted. Long term deficits were not remedied by these fall rain storms. Residents were still encouraged in November and December to reduce water use due to lawns going into dormancy for the winter months.

F. Addressing Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, or Brush Control Where Appropriate and Cost Effective

The Lone Star Groundwater Conservation District remains committed to educating the residents of Montgomery County about the need for water conservation as an alternative to groundwater pumping. The cost for recharge enhancement is high due to the need for land acquisition for the use of spreading basins or through injection wells which is also cost prohibitive. To promote the use of alternative sources of water, the Lone Star Groundwater Conservation District continues to encourage the use of rainwater harvesting collection systems. Water conservation messaging specifically tied to the water resources of Montgomery County is being conducted through the Water IQ Campaign.

Altering precipitation patterns through artificial means is not a cost effective or feasible program for the District at this point in time. Brush control is not being considered as a viable program for the District at this time due to the lack of cost effectiveness for this type of program.

F.1 Objective— The District will annually submit an article regarding water conservation for publication to at least one newspaper of general circulation in Montgomery County.

F.1 Performance Standard— A copy of the article submitted by the District for publication to a newspaper of general circulation in Montgomery County regarding water conservation will be included in the Annual Report to the Board of Directors.

The Lone Star Groundwater Conservation District has provided articles and press releases to general circulation publications in 2009 to keep the citizens of Montgomery County better informed about their water resources and the rates of groundwater decline. The Conroe Courier is one such newspaper that is distributed throughout Montgomery County. Another vehicle used to disseminate information to the public is through the Dock Line magazine which is published monthly and has a circulation of 18,000. Examples of these efforts are with some articles specifically targeting water conservation practices are provided n Appendix B of this report

F.2. Objective— The District will develop or implement a pre-existing educational program for use in public or private schools will be included in the Annual Report to the Board of Directors for the year 2009.

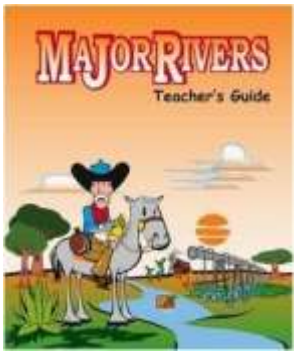
F.2. Performance Standard—A description of the educational program developed or implemented by the District for use in Montgomery County public or private schools will be included in the Annual Report to the Board of Directors for the year 2009.

Major Rivers: A Texas Water Education Program

In compliance with Objective F.2., the District sponsors the Major Rivers curriculum in conjunction with SJRA. The classroom curriculum is geared towards educating 4th and 5th graders about conservation of water resources, how water is treated for distribution for home use and the source of the resources in Texas, both surface and groundwater.

Through this joint partnership with SJRA, we have been able to provide over 300 teacher kits to schools in Montgomery County. Major Rivers' lesson objectives not only define important knowledge and skills related to water, but they also support many of the Texas Education Agency's TEKS and TAKS objectives for social studies, science, language arts and math. Each year we cost share with SJRA to replenish the individual student pamphlets.

2009 we spent **$4,328.43** (our part):



48 Educational Packages

50 Electronic Educational Packages

205 Replacement Packages – English

27 Replacement Packages – Spanish

Major River Teacher Educational Workshop(s):

In addition to providing the curriculum to the schools, the District participated with SJRA and sponsored two (2) Major River Teacher Workshops during the summer to educate the teaching facility. During the workshop, the District staff presents information on groundwater and LSGCD's role in regulatory plan development. SJRA has received great response from Conroe and Klein last year and the workshops were well attended. Conroe ISD has notified TWDB that every 5th grade teacher has been trained on Major Rivers. The District co-sponsored breaks, meals, and door prizes for the workshop.

Walraven – Book Cover Program

In 2004, the District jointly with SJRA initiated a program providing book covers with water conservation messages to Montgomery County Schools. In 2009, over 52,000 book covers were distributed in six (6) school districts within the county to assist in meeting the Texas Education Agency's requirement that all text books be covered.

2009 we spent **$4,106.00** (Lone Star contribution)

School Districts Included:

Conroe ISD	Splendora ISD
Montgomery ISD	Willis ISD
New Caney ISD	Magnolia ISD

State Youth Water Camp, July 12-16, 2009

The District annually sponsors three students to attend the Texas State Youth Water Camp in Monahans. The objective of the week-long event is to help older youth throughout the state to become aware of the water issues and appreciate the implications of agricultural, industrial, municipal, and hone water use on water quality and supply. Cost to attend is $150/student. The three students who attended in were **Marion Hammett, Katie Johnson** both 8th graders from the Woodlands **and Ethan Schenk**, a 9th grader from Montgomery.

Montgomery County Fair & Rodeo:

The 2009 Montgomery County Fair and Rodeo was held March 27th through April 5th. As in past years, the District provided the aquifer display provided on loan from the San Antonio Water System for public exhibit during the fair and rodeo. Staffers Mel Lonon and Cori Stallings helped set up and monitored the District's exhibit during the fair. The exhibit illustrates the dynamics of a typical aquifer which remained on display throughout the fair. Along with the exhibit, the District provides a visual display of information regarding Rainwater Harvesting with handout brochures for the public.

The Woodlands Earth Day:

The Woodlands Earth Day Festival was rained out for 2009. The theme for 2009 was "It's All Connected" as was scheduled for Saturday, April 18th. This event is held annually to celebrate the environment with new booths, entertainment and children's activities. A community tradition since 1990, The Woodlands' Festival is the longest running Earth Day event in the greater Houston area.

With the Earth Day event rained out in 2009, the District sought other opportunities for outreach to the citizenry of Montgomery County.

The Water IQ booth was set up at the July 4th Red, Hot and Blue Festival at the Woodlands Town Center. The event was estimated to draw between 10 and 15,000 people to a series of informational booths prior to the main event which was a series of concerts and fireworks display. The Water IQ booth had hundreds of visitors, some of whom were willing to pledge to save water in and around their homes.

Southwest Grounds Maintenance Fair:

The 16th Annual Southeast Texas Grounds Maintenance Conference was held in Conroe on October 22nd, 2009. There was a total of 280 registered participants for this conference along with several industry specific product vendors in attendance at the conference. Attendees were individuals associated with maintenance of golf courses, schools, landscape, parks & recreation. Lone Star Groundwater Conservation District sponsored a booth an educational display booth. Many visitors come by for information on harvesting rainwater. Rainwater harvesting manuals and other conservation educational information were made available.

Other Activities:

The District accepts every opportunity to educate the public on water conservation. Outside the many efforts already highlighted above, in 2009 the District participated in many meetings and numerous events. Speaking engagements may include planning meetings for various start-up groups (Green Up Magnolia,) and other community outreach efforts that include work with Master Gardeners, Keep Texas Beautiful, Montgomery County Beautification, etc. The Districts goal at these meetings is to provide water conservation planning assistance and at to present water conservation concepts in an entertaining and educational format. The events include:

- Spring Fling at Montgomery County College
- Classroom presentations
- Community Association presentations

- Rotary, Kiwanis, and Lions Club presentations
- Lake Conroe Community Network (LCCN)
- Chamber of Commerce Presentations
- Presentation to South Texas Golf Course Superintendents Association (6/15/09)
- Presentation to various City Councils as requested (Conroe, Panorama, etc.)
- Presentation to Academy of Science Students (4/04/09)
- Presentation to Texas Rural Water Association (3/05/09)

Water Conservation Kits:

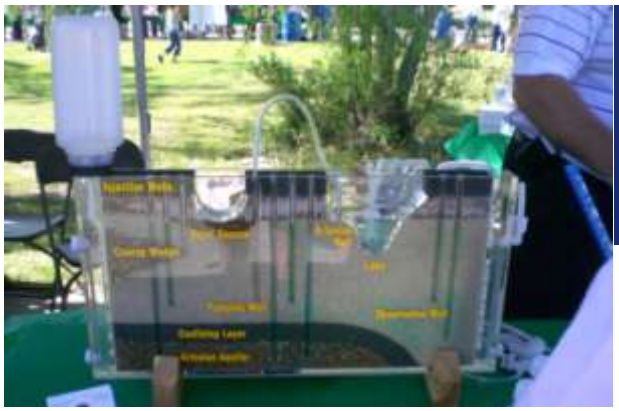
The District provides complimentary water conservation kits. Each conservation kit contains the following items with a detailed description of the water benefit saving of each:

Toilet Tummy	5 Spray Water Saving Hose Nozzle
Aerator	Leak Detection Dye Tablets
Rain Gauge	Shower Flow Meter Bag
Moisture Meter	

District staff maintains of stock of these items for various presentations, meetings and outreach events. The District may provide individual items to groups based on the topic of the presentation and the target audience. In addition, the conservation kits are available to the walk-in public on request.

District Library:

The District has created and established an in-house reference library of educational information available for all ages. Books, games, coloring books, videos, and other factual information is included in the library to be checked out for a period of time or depending on the specific resource, to be kept. The District offers and encourages educators to take advantage of the District's water resource information material. A new item added in 2008 was a desktop Groundwater Flow Model which serves as an interactive classroom tool designed to show the flow of water and pollutants through differing gradients. It can be used in front of the classroom and is easily used by students themselves. It may demonstrate flowage through confined and unconfined aquifers as well as the effects of pumping on these aquifers. The District maintains this teaching tool as a means to teach the community about the hydrologic characteristics of aquifers and the impacts of groundwater pumping.



Groundwater Flow Model Classroom Tool maintained by the District as part of the materials available for events and school presentations.

Camp Strake Boy Scout Winter Camp

The District participating in an educational opportunity on December 29, 2009 at Camp Strake. Staff developed a hands-on watershed model and used it to teach the scouts about the water cycle, runoff, erosion, non-point source pollution, water quality impacts to wildlife and fisheries.

The watershed model in this photograph was used to discuss the components of the water cycle, the impacts of various uses on water quality and the environmental impacts of construction activities on our water resources.

Articles/Publications/Press Releases:

Throughout 2009 the District has strived to keep the citizens of Montgomery County updated with the latest news and information concerning groundwater. The District submitted many articles through many sources during the year in hopes to keep the communication lines open with the public. Below is a summary list of press releases distributed to area newspapers, including The Houston Chronicle, Montgomery County News, and Conroe Courier, as well as being distributed electronically by District staff via an email distribution list:

Press Release: April 13, 2009

April 13, 2009 Conroe, Texas – The Lone Star Groundwater Conservation District launches Water IQ education campaign at Woodlands Earth Festival. Lack of rainfall, greater demand on water supply reinforce the need for conservation. .

Press Release: May 18, 2009
May 18, 2009, Conroe, Texas – The Lone Star Groundwater Conservation District is challenging Montgomery County residents to save water through the state's official water conservation Water IQ campaign.

Press Release: May 20, 2009
May 20, 2009, Conroe, Texas – Injection well protestants, applicant strike accord on allowing for additional well testing.

Press Release: July 7, 2009
July 7, 2009, Conroe, Texas—The Lone Star Groundwater Conservation District hires Education/Public Awareness Coordinator.

Press Release: July 7, 2009—Much needed rain for Montgomery County is received but does not end the drought.

Press Release: July 15, 2009-LSGCD to reduce groundwater regulatory water use fee

Press Release: November 13, 2009 –LSGCD adopts groundwater reduction plan for Montgomery County

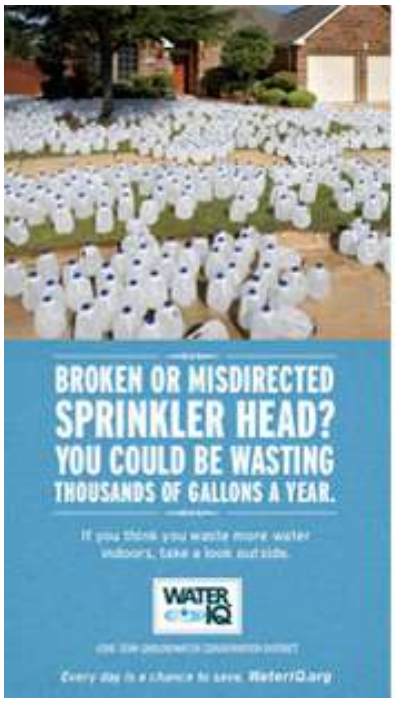
The Dock Line Magazine

The "Dock Line" Magazine is published monthly and the District authors an article for each issue which is printed at no cost to the District. In 2009, 9 articles were published with a circulation distribution of 65,000. Copies of each published article are included in Appendix B.

Water IQ Campaign.

The Water IQ campaign was developed by the Texas Water Development Board to educate the citizens throughout Texas about the water resources within the state. The Lone Star Groundwater Conservation District developed its own specific program in 2008 and evaluated the best means to get a conservation message out to the residents of Montgomery County. Two outreach events were conducted in 2009, one at the July 4th Red, Hot and Blue (in lieu of the rained out Earth Day event) and the second was held at the Woodlands Mall at the tax free back to school event.

The Water IQ campaign for 2009 included print ads, and a total of 7 billboards located throughout Montgomery County. Samples of the promotional materials are included in this document as a measure of the Performance Standard. A total of 59 ads were placed in 2009. The following are copies of the print ads produced for the District are seen below:



Every year, the District evaluates the need for water conservation messaging taking into account the target audience, the message needed based on the highest conservation potential of each water use sector (commercial, residential, indoors/outdoors) and the reach of each advertising medium.

The availability of low cost or no cost advertising is considered before placing paid advertisements for water conservation. In 2009, the District looked to establish new water conservation partners for the Water IQ Program and hosted a potential partnership meeting at the District Offices. The goal of this meeting was to inform water providers about the Program and to encourage both financial and educational partnerships throughout Montgomery County.

Woodlands Mall banner in Food Court

Billboard ads were also utilized for the 2009 campaign:

F. 3. Objective: Each year, the District will include an informative flier on water conservation within at least one mail out to groundwater use permit holders distributed in the normal course of business for the District.

F. 3. Performance Standard— The District's Annual Report will include a copy of the informative flier distributed to groundwater use permit holders regarding water conservation and the number of fliers distributed.

Informational/Educational Brochures:

Annually the District is required to include an informative flier on water conservation within at least one mail out to groundwater use permit holders to be distributed in the normal course of business for the District.

In 2009, the District joined the EPA WaterSense Program and as a new partner received access to promotional water efficiency brochures that were mailed to every permit holding in September of 2009. In addition to the District's mail out – the brochures is made available to all public water systems and/or organizations in the County for inclusion in their mailings upon request at no cost. Outside the District mailings, this brochure and others purchased from the TWDB are made available as display offers at board meetings and other public events the District participates in. A total of 15,000 brochures were ordered and printed in 2009.

In addition to this effort, the Lone Star Groundwater Conservation District purchased an informational brochure from the Culver company which is shown on the following page. This brochure is comprehensive in that it not only promotes the need and benefits of water conservation but also suggests easy ways to conserve water indoor and outdoors. The brochure provides a mention of repairing leaks and reusing water. This brochure also highlights the EPA Water Sense Program and the water efficient products labeling program. The District is a participating partner with the EPA in the Water Sense Program.

Save Water Indoors

Toilets

If your toilet is not a low-flow model, you can install a water-saving displacement device in the tank to reduce the amount of water needed to flush. Flush only when necessary.

Washing Clothes

Match your washer's water level to your load size. Repair any leaks from faucets, hose connections, or pipes. Look for water-efficient models when purchasing a new machine.

Shower and Sinks

Try a faucet aerator on your sink to reduce water use while maintaining flow. Take shallow baths. Keep showers short and use a low-flow showerhead. A flow restrictor lets you maintain the faucet setting and shut off water at the showerhead while soaping or shampooing.

Doing Dishes

When you wash dishes by hand, use basins rather than running water. Soak pots and pans before washing. If you use a dish washer, run only full loads and avoid extra cycles.

Preparing Food

Thaw frozen food in your refrigerator. Wash foods in a basin, not under the tap.

Save Water Outdoors

Driveways, Sidewalks, and Walkways

Instead of the hose, use a broom or leaf blower to remove dead leaves and other debris.

Hoses and Faucets

Repair all leaks and install a water-saving shutoff nozzle that can be adjusted to fit the task at hand.

Landscaping

Minimize lawn space and plant drought-tolerant natives. Water during the morning or evening to avoid excess evaporation.

The Pool

Watch the water level to avoid unnecessary spillage and use a cover to prevent excess evaporation.

Washing Your Car

Wash your car at a car wash so the soapy water can be properly recycled. If you do it yourself, use a shutoff nozzle on your hose to limit water waste.

WATER Conservation

A publication of

Lone Star Groundwater CONSERVATION DISTRICT

www.lonestargcd.org

WHY CONSERVATION?

With population and industry growth comes a greater thirst for water. Water is a limited resource that can quickly become scarce if we do not take measures to conserve and protect it.

Everyone's Responsibility

Working to protect our precious water supplies is critical. Everyone needs to play a part and do the right thing for our planet.

Protect a Limited Resource

Although we are surrounded by water, most is not drinkable. In fact, only 3% of the world's water is fresh water and of this, 2/3 is stored in ice caps and glaciers. That leaves only 1% of the world's water available for drinking.

Keep Water Clean

To ensure that our water needs will always be met, we must protect our water supplies against the constant threat of pollution. This includes proper disposal of household hazardous waste and pharmaceuticals.

Save Energy

Conserving water helps reduce the energy used for water conveyance, treatment, and storage. Reducing hot water usage saves energy as well.

Save the Environment

Conserving water also saves a precious natural resource, avoids overdraft of reservoirs and groundwater, maintains future water supplies, and leaves more water for wildlife.

Save Money

By conserving, you can save on your water and utility bills, and sewer and septic costs.

Look for the WaterSense Label

look for WaterSense

The WaterSense label identifies water-efficient products and programs. Look for this label when you shop for toilets and bathroom sink faucets. Look for other products with this label in the future.

EASY WAYS TO CONSERVE

1. When waiting for cold tap water to warm up, capture wasted water in a pitcher or watering can to water plants.

2. Fix leaks. A faucet that drips can waste up to 3,280 gallons of water per year. Most leaks are easy to repair.

3. Reuse water when you can. A bucket in the shower can catch water for plants and clean-up jobs.

4. Watch how much water you use when doing dishes, brushing teeth, and showering. Follow the easy tips in this brochure to use less.

F. 4. Objective– Each year, the District will promote rainwater harvesting by posting at least one informative article on rainwater harvesting on the District website. The District will also consider sponsoring rainwater harvesting activities when the project offers opportunities to advertise and promote the technology.

F. 4. Performance Standard– Each year, the annual report will include a copy of the article that has been provided on the District web site in rainwater harvesting.

The following information was placed on the newly designed District's website in 2009 to educate the residents of Montgomery County about rainwater harvesting:

What is Rainfall Harvesting and Why is it Important?

Water is our most precious natural resource and something that most of us take for granted. We are now increasingly becoming aware of the importance of water to our survival and its limited supply.

The harvesting of rainwater simply involves the collection of water from surfaces on which rain falls, and subsequently storing this water for later use. Normally water is collected from the roofs of buildings and stored in rainwater tanks. Water can also be collected in dams from rain falling on the ground and producing runoff. Either way, the water collected can be considered to be precious.

The collection of rainwater from the roofs of buildings can easily take place within our cities and towns, not just in rural areas. All that is necessary to capture this water is to direct the flow of rainwater from roof gutters to a rainwater storage tank. By doing this, water can be collected and used for various uses. If you are from the city, it is possible to replace a substantial portion of your fresh water requirements by the capture and storage of rainwater from your roof.

It should be noted that in 2009, the rainwater harvesting display created by the District was used at outreach events including being showcased at the Southwest Grounds Maintenance Fair. The District has participated in several rainwater harvesting projects and displays and continues to promote this practice as a means of supplemental water for residential home gardens and commercial use.

The District fields calls from residents asking about the benefits of water harvesting and the local availability of storage containers.

The Rainwater HOG is a new and innovative modular rainwater harvesting catchment system that was developed in Australia in response to periods of extended drought and the need for water storage on a residential and commercial basis.

Water storage is critical in all arid climates and can play a role in wetter climates as well to ensure water availability.

The District supports rainwater harvesting and consistently speaks to the benefits of this water conserving practice. The District promoted new innovative water harvesting techniques developed in Australia but now available to consumers in the United States. These new modular systems can be used horizontally or vertically and give the consumer many more design options and a greater capacity for water harvesting.

In 2009, the District spoke to the benefits of using rain sensors for both residential and commercial application. It is unlikely that most irrigation schedules are manually adjusted for changes in the weather. Rain sensors take the guess work out of changing an automatic controllers that are not controlled by satellite and will shut off the system when a rain event occurs.

Appendix A:

Groundwater Waste Reduction

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Conservation Tips

Earth Fissury and Land Subsidence 10/26/09
Water Waste 10/26/09
Land Subsidence From Groundwater 12/2008
Proper Landscape Irrigation Practices 12/27/07
That Sinking Feeling 8/30/07
Water Conservation 12/27/06
Subsidence in the Greater Houston Area: Past, Present and Future 12/28/04
Facts About Land Subsidence 12/28/04
Healthier Lawns With Less Water 12/8/04
Water Saving Tips 12/08/04
Top Water Smart Tips 5/02/06
Landscape Water Conservation 4/18/05

Geological Society of America Reviews in Engineering Geology, Volume XVI 2005 - Impacts of land subsidence caused by withdrawal of underground fluids in the United States 02/07/06

PO Box 2467 - Conroe, TX 77305 - Tel: (936) 494-3436 - Fax (936) 494-3438 - Metro: (936) 441-3437

Web Site Design by Apache Advertising & Design

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Article posted to LSGCD website in compliance with Objective B3.

LONE STAR GROUNDWATER CONSERVATION DISTRICT

Reducing wasteful practices

October 2009

District Offices:

207 W. Phillips, Suite 300

Conroe, TX 77305

936-494-3436

VISIT US AT:

Lonestargcd.org

Helpful Resources:

EPA Water Sense Program

Alliance for Water Efficiency

American Water Works Association

Cooperative Extension Offices

Texas Water Development Board

The Lone Star Groundwater Conservation District asks residents of Montgomery County to reduce outdoor discretionary uses of water:

- Don't allow sprinklers to water the pavement. Reset your irrigation schedule to reduce runoff
- Use a nozzle with a shut off valve with your hose
- Shut off your irrigation system when it rains, or install rain sensors

S A V E H 2 O

Have a leak?

- Check your water meter. If no water use is occurring in the business or your house and your dial is moving, you have a leak!
- Leaks can waste a great deal of water, repair leaks as soon as possible.

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Appendix B:

Articles Submitted by the District in 2009

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For Immediate Release: April 13, 2009

Media Contact:
Kelli Johnson
EnviroMedia Social Marketing
512-476-4368, ext. 310
kjohnson@enviromedia.com

Lack of Rainfall, Greater Demand on Water Supply Reinforce Need for Conservation

Lone Star Groundwater Conservation District launches Water IQ education campaign at Woodlands Earth Day Festival

CONROE, Texas—An abnormally dry year and a growing population are straining Montgomery County's water supply.

The Lone Star Groundwater Conservation District (LSGCD) is asking residents to save water to help protect the Gulf Coast Aquifer, the region's primary water source.

LSGCD is kicking off its consumer water conservation campaign — Water IQ — at the Woodlands Earth Day Festival April 18.

LSGCD serves Montgomery County, where the U.S. Census Bureau estimates the area has grown by more than 130,000 people since 2000.

"Our community is experiencing booming growth, but our water supply is limited so we're asking everyone to take simple steps to conserve," said Kathy Turner Jones, general manager of the Lone Star GCD. "Water IQ helps consumers get quick, simple water-saving tips and learn about our supply. We are committed to educating the community while we ensure Montgomery County's water needs are met."

"Water IQ: Know Your Water" is a statewide public awareness water conservation program. LSGCD was the first in East Texas to adopt Water IQ. In Montgomery County, the campaign includes print and outdoor educational advertising, information via the WaterIQ.org Web site and free public education outreach events. Water IQ is based on research by the Texas Water Development Board, which revealed the more people know about their water source, the more willing they are to save it.

The U.S. Drought Monitor Map lists Montgomery County as abnormally dry. With summer approaching and most water waste occurring outdoors, LSGCD will kick off Water IQ at the Woodlands Earth Day celebration. Staffers will offer a fun atmosphere to educate the public about how to extend the water supply:

Woodlands Earth Day Festival
April 18, 2009, from 10 a.m. to 3 p.m.
Woodlands High School, located at 6101 Research Forest Dr.
Event-goers can play water trivia games, and winners of the game will receive a free Water IQ reusable sports water bottle. There will also be a drawing for a Home Makeover Kit — a wagon filled with a variety of water-

saving products, including soaker hoses, low-flow showerheads, mulch, gardening supplies, push brooms and more.

The *Real* Montgomery County Water Supply
Last year, Lone Star GCD conducted quantitative research and learned that 49 percent of people in Montgomery County believe their water comes from lakes and reservoirs. Instead, their actual water source is the Gulf Coast Aquifer — an underground water supply.

Groundwater is the water found below the land surface. It flows to the surface naturally in springs or seeps, or can be tapped artificially by digging wells. When too much water is taken from the aquifer, subsidence, or sinking of the ground, can occur. Subsidence can also make areas more susceptible to flooding.

"It is critical for residents to know that their everyday actions of not addressing leaks, watering at the wrong time of day and wasting water in other ways can lead to over-tapping or over-extending of the water supply," said Jones. "The theme of Water IQ this year will continue to be 'Every Day is a Chance to Save.' The Gulf Coast Aquifer cannot last without concerted efforts to conserve."

Water-Saving Tips

• When you water during the heat of the day, most of the water is lost to evaporation, so water early or late and save 25 gallons a day.

• Repair broken or missing sprinkler heads, a main cause of wasteful water runoff. Operate your sprinkler system manually, so you water only when your landscape needs it.

• Raise your lawnmower blade to a height of at least 3 inches so your grass will grow taller, its roots will grow deeper and your lawn will be healthier.

• Choose "water-wise" plants like Texas sage, Winecups and Red Yucca. Experts also recommend that you use 3 inches of mulch in your beds to prevent evaporation and keep soil moist.

About Lone Star Groundwater Conservation District
Lone Star GCD is one of nearly 94 groundwater conservation districts statewide, created by the state legislature to conserve, protect and enhance groundwater resources. In 2008, Lone Star GCD became the first water provider in East Texas to utilize Water IQ.

Other entities that have used Water IQ to educate their citizens include the City of Austin, Cedar Park, High Plains Underground Water Conservation District No. 1, Lower Colorado River Authority, Lubbock, North Texas Municipal Water District, Panhandle Groundwater Conservation District, San Angelo and Tyler.

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For Immediate Release: May 18, 2009

Media Contact:
Kelli Johnson
EnviroMedia Social Marketing
512-476-4368, ext. 310
kjohnson@enviromedia.com

As Montgomery County's Population Increases, Residents Challenged to Cut Water Use

Landscaping and water-saving efforts heat up before summer

CONROE, Texas—With hot summer months around the corner, the Lone Star Groundwater Conservation District is showing people how to save water.

Lone Star GCD was the first groundwater conservation district in East Texas to launch Water IQ, an official state of Texas water education campaign, and they're continuing the public education effort this year with informational tips for Montgomery County residents.

"The U.S. Census Bureau estimates that our area has grown by more than 130,000 people since 2000, and that places a greater demand on our water supply," said Kathy Turner Jones, general manager of the Lone Star GCD. "We must ensure our county's water needs are met, and the Water IQ water conservation campaign is a fun and easy way that residents can get tips and learn about our precious water source."

Currently Montgomery County relies on one water source: the Gulf Coast Aquifer, which is an underground water supply.

"Our goal is to continue education through Water IQ because our research from last year revealed that 49 percent of people in Montgomery County believed their water came from lakes and reservoirs, but our actual water source is the underground aquifer," said Jones. "And it's a limited supply, so we need everyone to help us make it last for our kids and grandkids."

Tips: Saving Water, Landscaping and Aquifer Information

• Read your latest utility bill and note how many gallons you consumed. Multiply that number by .10 to determine how much you should reduce your use next month.

• Repair broken or missing sprinkler heads, a main cause of wasteful water runoff. Operate your sprinkler system manually, so you water only when your landscape needs it.

• Raise your lawnmower blade to a height of at least 3 inches so your grass will grow taller, its roots will grow deeper and your lawn will be healthier.

• Choose "water-wise" plants like Texas Sage, Winecups and Red Yucca. Experts also recommend that you use 3 inches of mulch in your beds to prevent evaporation and keep soil moist.

(more)

• When you water during the heat of the day, most of the water is lost to evaporation, so water early or late and save 25 gallons a day.

• Address and fix leaks. Wasting water can lead to over-tapping or over-extending of Montgomery County's water supply — the Gulf Coast Aquifer.

• Groundwater is the water found below the land surface. It flows to the surface naturally in springs or seeps, or can be tapped artificially by digging wells. When too much water is taken from the aquifer, subsidence, or sinking of the ground, can occur. Subsidence can also make areas more susceptible to flooding.

Water IQ Visits Montgomery County
Residents can visit www.WaterIQ.org (scroll to Lone Star GCD) for updates about upcoming events throughout the summer. The theme of Water IQ this year is "Every Day is a Chance to Save." At events, people can play water trivia games, and winners of the game will receive a free Water IQ reusable sports water bottle. There will also be drawings for Home Makeover Kits — a wagon filled with a variety of water-saving products, including soaker hoses, low-flow showerheads, mulch, gardening supplies, push brooms and more.

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About Water IQ
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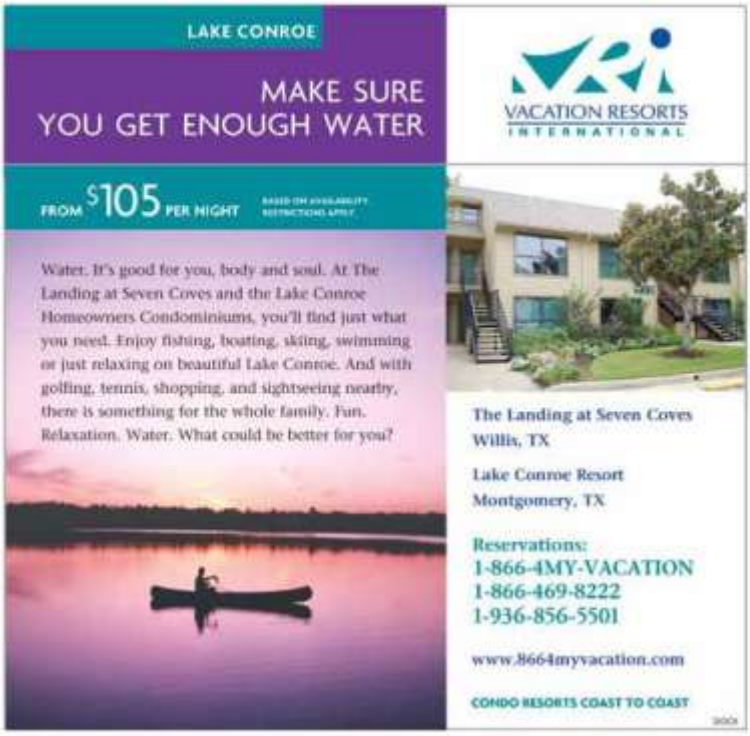

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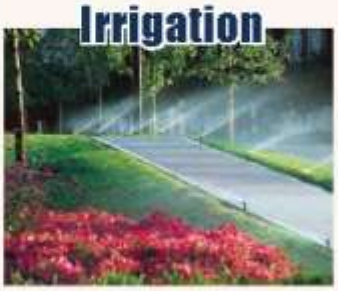
Automatic vs. Manual Lawn Irrigation



By: Kathy Turner Jones

Almost every homeowner in North America spends some amount of time and money providing water to outdoor plants. There are two basic ways to accomplish this task:

- Manual irrigation with hoses, nozzles, and sprinklers
- Clock driven in-ground automatic irrigation

In addition, there are hybrids of these two such as an in-ground sprinkler system that is manual operated or an above ground hose system that is clock driven, but these systems are uncommon.

Many new homes come equipped with some form of clock driven automatic irrigation because this is a popular amenity that buyers have come to expect. Manual irrigation is more time and labor intensive and requires regular attention and vigilance. An automatic irrigation system can be simply programmed turned on and left to run. Such a "hands off" approach is not recommended as it almost always results in over-watering and water waste, but there is no denying the convenience of an automatic irrigation system.

Convenience aside, there are a number of issues that should be considered when choosing an irrigation method:

- Budget – can I afford the system, maintenance costs, and the increased cost of water associated with an automatic system?
- Landscape – does my landscape justify an automatic system? Can I effectively irrigate my landscape manually?
- Physical condition – am I physically capable of manually irrigating my landscape?

Budget

An automatic irrigation system costs more to purchase, operate, and maintain than just about any manual system that can be dreamed up. Hiring an irrigation contractor to design and

Dock Line article from February of 2009

install an automatic system will cost a minimum of $1,000 for a very small system and will likely cost between $2,500 and $8,000 for a moderate to larger sized system. Maintenance of the system will cost several hundred dollars per year or more. The cost of the additional water consumed will vary from place to place, but as a rule of thumb outdoor water use is likely to double after installing an automatic system. Automatic systems when installed and operated optimally can be efficient, but this requires proper programming of the controller and regular maintenance of the system (Vickers 2001).

Landscape

Not all landscapes will benefit from an automatic system. With a small yard, an automatic system may simply be overkill. For a low water use landscape (or a landscape that isn't watered much) there is probably little point in paying for an automatic sprinkler system. On the other hand, for a moderate or large sized landscape that would take significant time and effort to irrigate with a hose and sprinklers, an automatic system may be an excellent addition.

Physical Condition

For those unable to physically drag hoses and sprinklers and those just plain tired of manually irrigating then an automatic system could be just the ticket. Some people chose to have and automatic system installed as a way of maintaining a high quality landscape with reduced effort.

You can make the biggest difference saving water by reducing your use outdoors. Little things make a big difference.

- Water yards wisely. Landscaping benefits most form slow, thorough, infrequent watering, which will promote a strong root system. Slowly cut back watering your lawn to about 1 inch every seven days. Overwatering is bad for landscapes and can cause wasteful (and harmful) run-off. Minimize evaporation by watering in early morning or evening. Aerate lawns.
- Check sprinkler systems frequently for directional aim and broken heads to prevent watering driveways, sidewalks and streets.
- Stress is natural, even for our lawns. It's okay for our lawns to experience stress and brown spots in the hottest months. Don't worry because it will all come back in the spring. Avoid watering more than 2 times per week in the hottest months, and only 1 time per week in the spring and fall. If you have one dry spot on your lawn, you don't need to water the entire lawn. A little water goes a long way.
- SAVE WATER OUTDOORS

Did you realize that 70 percent of the water you use in your home is used outdoors? You can save a lot by picking the right plants and watering smartly.

- Use soaker hoses instead of sprinklers to water trees, shrubs and beds more efficiently.
- If you have an automatic sprinkler system, you'll really impress your neighbors by

Continued on page 38

Are WATER SHORTAGES on the Horizon for Texas?

By: Kathy Turner-Jones

Bill Rohret, golf course superintendent for Angel Park in Las Vegas, Nevada, resets a sign that states the water pond feature is made from recycled water February 10, 2009. The Angel Park Golf Club has torn out 65 acres (26 hectares) of off-course grass in the last five years, and 15 (6 hectares) more will be removed by 2011, to help conserve local supplies of one of the most precious commodities in the parched American West -- fresh water. REUTERS/David Becker (Reuters).

Texas Comptroller Susan Combs, widely recognized as one of the state's most savvy leaders, has issued a "must read" report for municipal officials. "Liquid Assets: The State of Texas' Water Resources," examines the state's current and future water resources, practical and policy barriers facing local and state water planners, and possible funding mechanisms that could be tapped to develop essential water resources. "By 2060, more than 46 million people could be living in Texas, and demand for water will increase by an estimated 237 percent," Combs says.

"According to the Texas Water Development Board, failing to meet this demand could cost businesses and workers in the state approximately $9.1 billion per year by 2010 and $98.4 billion per year by 2060." Those are big numbers. Potential consequences are even bigger if the comptroller's warning is ignored.

Groundwater provides 59 percent of Texas' available fresh water. Surface water accounts for approximately 40 percent and the remaining 1 percent is made up of reused ground and surface water. Both sources are dwindling -- groundwater due to over-pumping and surface water due to sediment accumulation in reservoirs.

Combs' warning is direct. Texas currently does not have enough water to fulfill its future needs.

Without new management and conservation measures, in the event of a drought, water needs could increase from 3.7 million acre feet in 2010 to 8.8 million acre feet in 2060.

Even more dire is Combs' warning that if Texas falls victim to a drought of record, up to 85 percent of the population in 2060 could experience water shortages. The current State Water Plan, adopted in 2007 by the Water Development Board, includes $30.7 billion in proposed projects. Funding has not followed to develop any of those projects.

Will Comptroller Combs' warning be heeded?

We hope so.... We don't have to look far to see how water shortages are impacting other areas of the country.

The following article, written by Tim Gaynor and Steve Gorman, depicts the water crisis facing fast-growing Western U.S. cities.

Desert golf course superintendent Bill Rohret is doing something that 20 years ago would have seemed unthinkable -- ripping up bright, green turf by the acre and replacing it with rocks.

Back then "they came in with bulldozers and dynamite, and they took the desert and turned it into a green oasis," Rohret said, surveying a rock-lined fairway within sight of the Las Vegas strip. "Now ... it's just the reverse."

The Angel Park Golf Club has torn out 65 acres of off-course grass in the last five years, and 15 more will be removed by 2011, to help conserve local supplies of one of the most precious commodities in the parched American West -- fresh water.

But Rohret's efforts have their limits. His and many other golf courses still pride themselves on their pristine greens and fairways and sparkling fountains, requiring huge daily expenditures of water.

Aiming to cut per capita use by about a third in the face of withering drought expected to worsen with global warming, water authorities in the United States' driest major city are paying customers $1.50 per square foot to replace grass lawns with desert landscaping.

Built in the Mojave Desert, Las Vegas leads Western U.S. cities scrambling to slash water consumption, increase recycling and squeeze more from underground aquifers as long-reliable surface water sources dry up.

From handing out fines for leaky sprinklers to charging homeowners high rates for high use, water officials in the U.S. West are chasing down squandered water one gallon at a time.

Nowhere is the sense of crisis more visible than on the outskirts of Las Vegas at Lake Mead, the nation's largest manmade reservoir, fed by the once-mighty Colorado River. A principal source of water for Nevada and Southern California, the lake has dipped to below half its capacity, leaving an ominous, white "bathtub ring" that grows thicker each year.

"We are in the eye of the storm," said Pat Mulroy, general manager of the Southern Nevada Water Authority. "As the realities of climate change began to manifest themselves at the beginning of this century, we had to get serious about it."

For now, policymakers have emphasized the need to curb water use rather than urban growth,

Dock Line article from April of 2009

though the U.S. recession has put the brakes on commercial and housing development that otherwise would be at odds with the West's water scarcity.

GETTING TOUGH

Warm, dry weather has long made the American West attractive to visitors, but piped-in water has created artificial oases, luring millions to settle in the region. Las Vegas has ranked as one of the fastest-growing major cities.

But scientists say climate change is shriveling the snow pack in California's Sierra Nevada, the state's main source of fresh surface water, and in the Rocky Mountains that feed the Colorado River, whose waters sustain seven states.

Further pressure from farming and urban sprawl is straining underground aquifers, placing a question mark over the future growth of cities from Los Angeles to Tucson, Arizona.

"There is going to have to be a big adjustment in the American Southwest and in California as we come to grips with limits in this century -- not just limited water, but also limited water supply," said James Powell, author of the book "Dead Pool," exploring challenges facing planners in the West.

Reactions among local water authorities differ.

In Phoenix, the United States' fifth-largest city, authorities say sustainable groundwater and ample surface water allocations from the Colorado and Salt rivers meet the city's needs, even factoring in growth through a moderate drought. The city is also recycling waste water and plans to pump some back into the aquifer as a cushion.

Tucson will require new businesses to start collecting rainwater for irrigation in 2010.

California requires developers of large housing projects to prove they have sufficient water.

In Las Vegas, where rain is so infrequent that some residents can remember the days it fell in a given year, front-yard turf has been banned for new homes.

The Southern Nevada Water Authority also has hired "water cops" to fan out into the suburbs to identify violations of mandatory lawn irrigation schedules and wasteful run-off. Repeat offenders get $90 fines.

Major hotel-casinos such as the MGM Mirage and Harrah's Entertainment have adopted "green" building codes, including modifications designed to slash water use by 40 percent.

Those measures are starting to pay off, with daily water use down 15 percent per person in the greater Las Vegas area.

BUYING TIME

In a wake-up call to California, water officials there recently announced that prolonged drought was forcing them to cut Sierra-fed supplies pumped to cities and irrigation districts by 85 percent.

That has led many California cities, topped by Los Angeles, the nation's second-largest, to plan for rationing, including price-enforced household conservation and tough new lawn watering restrictions.

"The level of severity of this drought is something we haven't seen since the early 1970s," Los

Continued on page 34

Angeles Mayor Antonio Villaraigosa said in unveiling his city's drought plan, which also would put more water cops on the beat.

California Gov. Arnold Schwarzenegger last month called on the state's urban users to cut water consumption 20 percent or face mandatory conservation measures.

The California drought, now in its third year, is the state's costliest ever. Complicating matters are sharp restrictions on how much water can be pumped from the Sacramento-San Joaquin Delta in northern California, which furnishes much of the state's irrigation and drinking supplies, to protect endangered fish species.

Moreover, the severe dry spell is leaving the state more vulnerable to wildfires, which last year consumed some several Los Angeles suburbs. The previous year, fires forced a record 500,000 Southern Californians to flee their homes.

PLANNING FOR THE WORST

Conservation will buy time, experts say. But bolder steps are needed in anticipation of longer droughts and renewed urban expansion once the recession ends.

Cities like Los Angeles and San Diego are revisiting an idea once abandoned in the face of staunch political opposition -- recycling purified sewer water for drinking supplies.

Disparaged by critics as "toilet-to-tap," such recycling plans have gained new currency from the success of the year-old Groundwater Replenishing System in Orange County near Los Angeles.

That system distills wastewater through advanced treatment and pumps it into the ground to recharge the area's aquifer, providing drinking supplies for 500,000 people, including residents of Anaheim, home of Disneyland.

Water specialists also see a need to capture more rainfall runoff that otherwise flows out to sea and to change the operation of dams originally built for flood control to maximize their storage capacity.

The situation in Las Vegas has grown so dire that water authorities plan to build a $3 billion pipeline to tap aquifers lying beneath a remote part of Nevada, a project critics call the greatest urban water grab in decades.

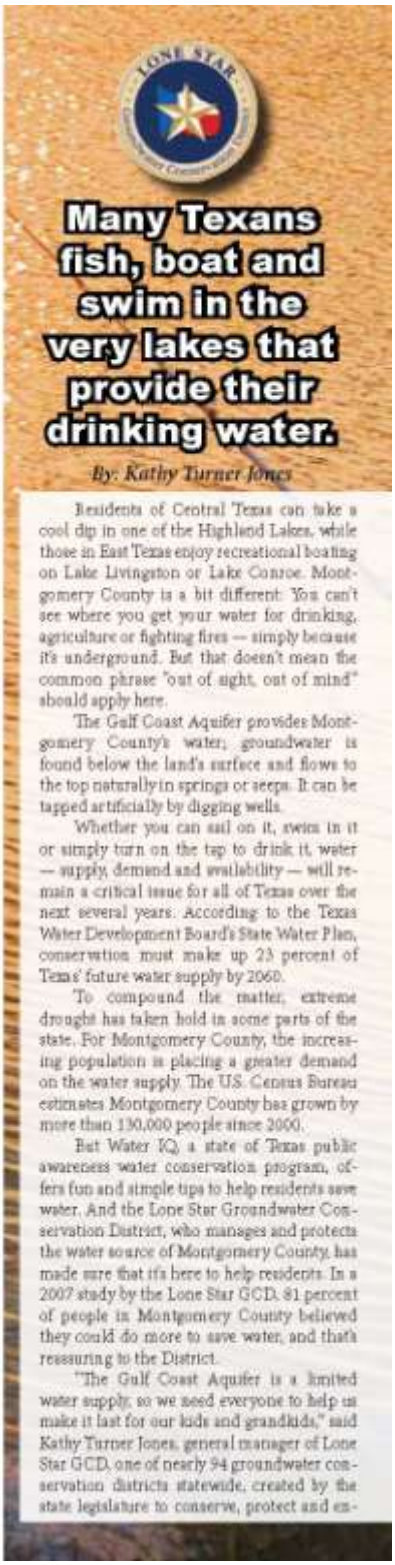
Southern Nevada water czar Mulroy says a broader national conversation about water is needed -- but not happening.

"We are talking about investing in public infrastructure, we are looking at building projects, but I get frustrated because we are doing it in complete denial of the climate change conditions that we are facing," she said.

"We are not looking at where the oceans are rising, where the floods are going to occur, where things are going to go from that normal state to something extraordinary."

For more information please contact the Lone Star Groundwater Conservation District (936.494.3436), or visit our website, www.lonestargcd.org.

Lower Your Water Use. Raise Your Water IQ. You can do it! Visit www.wateriq.org/tips.php for more water saving tips. ◆



Many Texans fish, boat and swim in the very lakes that provide their drinking water.

By: Kathy Turner Jones

Residents of Central Texas can take a cool dip in one of the Highland Lakes, while those in East Texas enjoy recreational boating on Lake Livingston or Lake Conroe. Montgomery County is a bit different. You can't see where you get your water for drinking, agriculture or fighting fires — simply because it's underground. But that doesn't mean the common phrase "out of sight, out of mind" should apply here.

The Gulf Coast Aquifer provides Montgomery County's water; groundwater is found below the land's surface and flows to the top naturally in springs or seeps. It can be tapped artificially by digging wells.

Whether you can sail on it, swim in it or simply turn on the tap to drink it, water — supply, demand and availability — will remain a critical issue for all of Texas over the next several years. According to the Texas Water Development Board's State Water Plan, conservation must make up 23 percent of Texas' future water supply by 2060.

To compound the matter, extreme drought has taken hold in some parts of the state. For Montgomery County, the increasing population is placing a greater demand on the water supply. The U.S. Census Bureau estimates Montgomery County has grown by more than 130,000 people since 2000.

But Water IQ, a state of Texas public awareness water conservation program, offers fun and simple tips to help residents save water. And the Lone Star Groundwater Conservation District, who manages and protects the water source of Montgomery County, has made sure that it's here to help residents. In a 2007 study by the Lone Star GCD, 81 percent of people in Montgomery County believed they could do more to save water, and that's reassuring to the District.

"The Gulf Coast Aquifer is a limited water supply, so we need everyone to help us make it last for our kids and grandkids," said Kathy Turner Jones, general manager of Lone Star GCD, one of nearly 94 groundwater conservation districts statewide, created by the state legislature to conserve, protect and en-

Dock Line article from July of 2009

hance groundwater resources.

With hot summer months around the corner, the Lone Star GCD is using Water IQ to show people how to save water with the tips below. Used in other parts of the state, Lone Star GCD was the first groundwater conservation district in East Texas to incorporate Water IQ.

Tips: Saving Water, Landscaping and Aquifer Information

- Repair broken or missing sprinkler heads, a main cause of wasteful water runoff. Operate your sprinkler system manually, so you can water only when your landscape needs it.
- Raise your lawnmower blade to a height of at least 3 inches so your grass will grow taller, its roots will grow deeper and your lawn will be healthier.
- Choose "water-wise" plants like Texas Sage, Winecups and Red Yucca. Experts also recommend that you use 3 inches of mulch in your beds to prevent evaporation and keep soil moist.
- When you water during the heat of the day, most of the water is lost to evaporation, so water early or late and save 25 gallons a day.
- Address and fix leaks. Wasting water can lead to over-tapping or over-extending of Montgomery County's water supply — the Gulf Coast Aquifer.
- When too much water is taken from the aquifer, subsidence, or sinking of the ground, can occur. Subsidence can also make areas more susceptible to flooding.

Residents can visit www.WaterIQ.org (scroll to Lone Star GCD) for more tips and for updates about upcoming events this summer. At events, people can play water trivia games and receive a brochure with tips and information. ◆

The Need for Water Efficient Products, EPA Product Testing and Labeling

By: Marjie Risk, Education/Public Awareness Coordinator

Water and Energy Nexus

Water is making national headlines as states, counties, communities and water providers across the United States strive to have enough water of acceptable quality to meet the needs of consumers. There is a cost to pumping, treating and delivering water from where it is located to where it is needed. Some of these costs are tied directly to energy requirements. Water and energy experts are now more than ever acknowledging the relationship between these two vital resources. The thought is that more efficient water use will result in substantial reductions in energy costs tied to water usage. Many water efficient products now on the market that are (tied to hot water usage) will also save energy. Put simply, the lesser amount of hot water used means the lesser amount of energy needed to heat the water.

Water Education and Water Use Habits

We can't live without water. Water of the right quantity and quality is vital to sustain our communities. Many times when speaking about water conservation, we encourage customers to change their water use habits: take shorter showers, only wash full loads of laundry, reduce outdoor discretionary water uses, etc. We use education and outreach efforts to convey these tried and true messages. Educational efforts are often hard to evaluate unless you can tie the efforts to savings resulting from a change in water use behavior. Education and outreach should be the cornerstone of any water conservation/efficiency program; however another essential program facet involves technology transfer which does not require a change in behavior. The water savings success derived from new water efficient technologies merely involves their installation and use.

The EPA's Role in Water Efficiency - EPA WaterSense Program

The United States Environmental Protection Agency (EPA) has long been a pioneer in raising the awareness of energy consumption for products that we use in our everyday lives. Consumers are most likely familiar with the Energy Star Program and the corresponding bright yellow product label which was developed many years ago by the EPA and the United States Department of Energy. The Energy Star Program sought to identify and label energy efficient products in an effort to help consumers make "energy smart" product purchases.

In recent years, the EPA has focused more specifically on water use and efficiency. Municipalities and other water providers often look to the EPA for guidance on water conservation/efficiency and program implementation. Water providers who may have discarded water conservation as a "feel good" type of program are now viewing these efforts and the possible savings as a means to delay buying that next block of water or expanding water infrastructure.

The EPA launched the WaterSense Program in 2006 after conducting a national stakeholder process which began in 2004. The long awaited water efficient product label is a great addition to the industry and will become better known and more recognizable over time. The EPA WaterSense Program through its product testing, certification and labeling program aims to inform the consumer and to encourage the use of water efficient products. Products bearing the WaterSense label are certified to meet water efficiency and specific performance criteria.

To receive the WaterSense label, the EPA states that products must:

- Perform as well or better than their less efficient counterparts.
- Be about 20 percent more water-efficient than average products in that category.
- Realize water savings on a national level.
- Provide measurable results.
- Achieve water efficiency through several technology options.
- Be effectively differentiated by the WaterSense label.
- Be independently certified. (source: EPA WaterSense)

Why is product labeling important?

It helps consumers make informed decisions about their purchases and it helps consumers do their part in adopting a water efficient lifestyle. The EPA states that if "one out of 10 homes in the United States upgraded to WaterSense Labeled fixtures, we could save more than 120 billion gallons of water".

Purchasing water efficient products for the home is a voluntary way of reducing your water use "footprint" without a change in behavior. Some product choices are made for the consumer through low flow plumbing codes at a national and local level, but you can make a conscious decision to retrofit your older fixtures with new water efficient ones.

Consumers have been skeptical over the years about "low flow" fixtures after the first low flow toilets (1.6 gallons per flush) did not meet customer satisfaction and many were sent back to the drawing board. Problems with early fixture design were remedied by the manufacturers. New high efficiency toilets (1.28 gallons per flush) are both stylish and work well. Now both dual flush (users select the amount of water needed depending on waste material) and high efficiency toilets are becoming more readily available.

(Caroma Dual Flush Toilet)

There are several products categories that

Dock Line article from August of 2009

have already received the WaterSense label. These are as follows:

- Bathroom sink faucets
- Flushing urinals
- Landscape irrigation services
- New homes
- Showerheads
- Toilets
- Weather or sensor based controllers

A notice of intent has been filed to evaluate pre-rinse spray vales which are used by commercial food service facilities to remove food particles from dishes before they are placed into commercial dishwashers (see below).

To do your part for water efficiency, look for products bearing the WaterSense label next time you replace water using fixtures around your home. With the WaterSense label, you have the certainty that the product is nearly 20% more efficient than non-WaterSense products.

Fisher Pre-rinse Spray Valve, Model #2949, 1.6 gallons per minute

Promoting Water Efficiency

The Lone Star Groundwater Conservation District is leading the way in Montgomery County to promote water efficiency. The District is a new WaterSense Promotional Partner and has also recently joined the Alliance for Water Efficiency. The Lone Star Groundwater Conservation District asks you to do your part to adopt a water efficient lifestyle. Stewardship of this precious resource is of paramount importance.

For more information on water efficient products, the EPA WaterSense Program or water saving choices you can make, please contact Marjie Risk at the Lone Star Groundwater Conservation District (936-494-3436), or visit our website, www.lonestargcd.org.

Please remember that Every day is a chance to save. Visit www.waterIq.org/tips.php for water saving tips. ◆

Innovations in Rainwater Harvesting

By: Marjie Risk, Education/Public Awareness Coordinator

There are many types of catchments for collecting rainwater that can meet a homeowner's space limitations, color palette, and need for something aesthetically pleasing. Consumers like choices and who can blame them. Some manufacturers historically have only provided white or blue containers which might have discouraged some would be "harvesters" due to the fact that the barrels did not blend well into the landscape. Some homeowners may have felt that available models did not have enough "functionality" to justify the cost. Concerns about aesthetics have prompted some homeowners to give up on rain barrels/cisterns. Some consumers have opted for the more decorative rain chains which take the place of a roof line down spout. Rain chains are available in several designs but merely direct the water from the eaves without any storage capacity. There has been much written on how to design landscapes around water harvesting collection systems to include berms, swales and channeling water to where it is needed. This article hopes to leave the design aspects to the professionals for now but looks to reveal new water harvesting technologies for both home residential and commercial use.

As a consumer, you may have wanted more from your rainwater catchment, more functionality. Size and shape of the catchment may not be a good fit with the location in your landscape where the water could best be utilized. New modular catchments have been designed in Australia and are now available through distributors here in the United States. Australia has survived extreme and prolonged droughts and some areas remain stricken by the effects of these severe conditions. These climatic challenges have prompted the Australians to be leaders in water conservation innovation. The Rainwater HOG is a promising example of technology from Australia that is easily applied here in the United States. The Rainwater HOG is not round or barrel shaped, it is a flat modular collection unit. These systems can provide that missing functionality in that the modular systems can be wall mounted, fitted together as a fence/barrier or even used under a deck.

Rainwater HOG

The Rainwater HOG works horizontally under decks or vertically along walls and fence.

Essentially a water-filled building block, the Rainwater HOG slim line modular tank is:

Environmentally sensitive

- designed for reuse, of 100% recyclable food grade plastic, worth up to 9 LEED points and is locally made in the USA.

Dock Line article from September of 2009

The Rainwater HOG is architecturally designed.

- fits neatly and sleekly where traditional rain barrels or cisterns cannot fit.

The Rainwater HOG works horizontally under decks or vertically along walls and fence

- affords a structure better thermal mass than concrete (http://rainwaterhog.com/products/groundhog/)
- decentralizes water storage for a neater, less expensive and more practical rainwater rescue solution

Other design benefits:

- Use HOG for space saving potable water storage: plastic is food grade, UV stabilized and screened for secure, clean storage
- Use HOG for economy: a single person carry, easily transportable and includes all components needed for DIY installation.

Need a branding tool for your agency or environmental effort?

- Use HOG to brand your building as environmentally savvy: If you so choose, the HOG is available in company colors for branded water storage.

Continued on page 36

Check out this link to see the background and application of this new technology:

YouTube - Rain Water Hog install NJ Water Harvesting

The Rainwater HOG is the recipient of many environmental awards:

- Awarded a SPARK international design award and was named one of GreenSpec's Top 10 Green Building Products for 2008. Check out the following link:

http://www.buildinggreen.com/auth/article.cfm/2008/11/24/BuildingGreen-Announces-2008-Top-10-Green-Products/

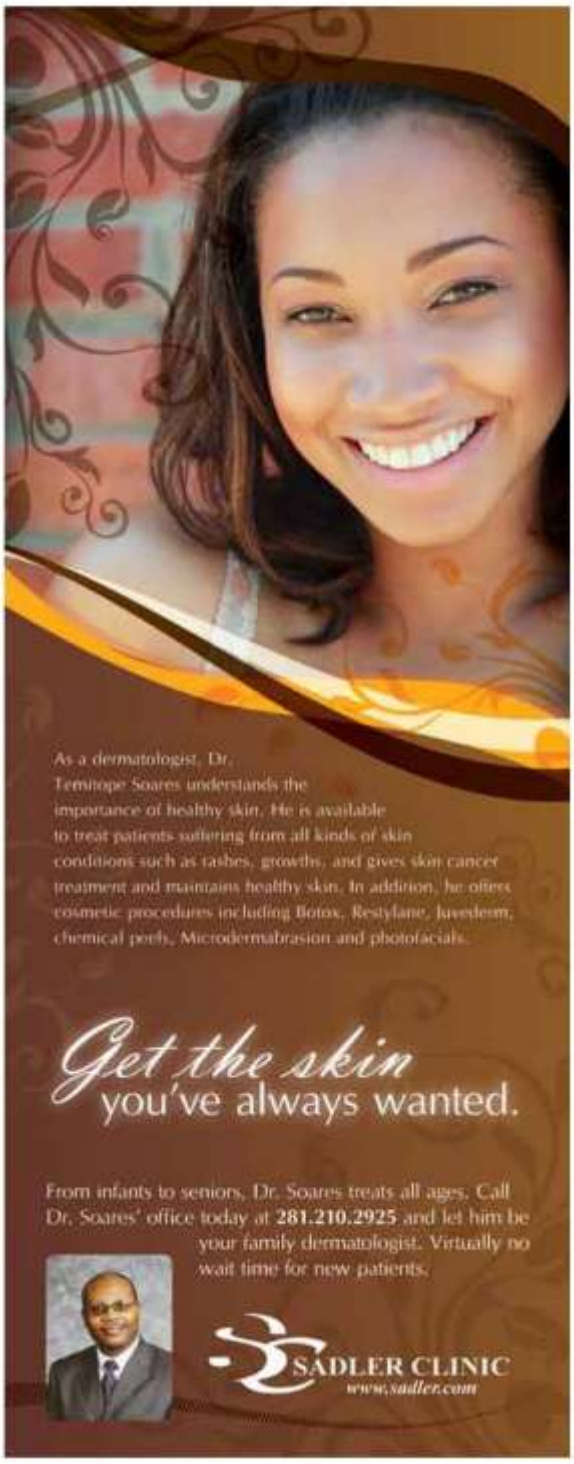
- Awarded California Home & Design Magazine's Eco Product Award Winner for 2009. Read more about the award using this link:

http://chdmag.com/2009-chd-awards

- Awarded the Best Water Conservation Solution 2009! in the Green Log Awards. See more info at:

http://www.greenlogawards.com/winners-2009/ ◆

For more information about the Rainwater HOG, check out the website at www.rainwaterhog.com. Whatever your rainwater harvesting needs, the choices available these days provide the residential and commercial consumer with many viable options. Check out your options and good luck with all of your water harvesting efforts!



Reducing Outdoor Discretionary Water Uses

By Marjie Risk, Education/Public Awareness Coordinator

In September we saw numerous rain showers throughout Montgomery County. With every rain event, it is commonplace to forget that we are in a period of extended drought. Some watering restrictions have been lifted locally due to requirements to do so within drought contingency plans. If conditions improve, restrictions are lifted. What does this mean to you? As a good steward of our groundwater resources you should continue to practice efficient water use, with or without watering restrictions in place.

When it rains, shut it off

On rainy days, we still see irrigation systems running on schedule and water running carelessly into the streets and off of the surfaces the water was intended to reach. As a homeowner or business owner, please do your part and shut off your irrigation system when it rains. When you do operate your irrigation system, make certain that water does not run off of your property into the street. This may require you to re-program your system for shorter irrigation sets or run times.

If you want a more high tech solution, you might consider having a rain sensor installed which can shut off your system automatically when it rains. You can research this type of product on line before you buy or ask about this product at your local home center. Another product now available on line is a device to cure those landscape geysers when a sprinkler head or riser is damaged. The device called "vertical stop" can be used in existing or new landscapes and contains a ball bearing that shuts off the flow of water during an irrigation cycle if the riser or sprinkler head is damaged.

Dock Line article from October of 2009

Resist the temptation to clean sidewalks or other "hardscapes" with a hose

Admittedly, water use for some cleaning needs can be unavoidable. If possible, use a broom to remove dirt and debris from sidewalks and driveways. If you must use a hose, use a nozzle with a shut off valve to not waste water between uses. If you have a commercial facility with large surfaces to clean, you might consider purchasing a high efficiency, high pressure water broom. These devices use water efficiently under high pressure and can be very effective at cleaning sport courts, driveways and other types of hardscapes.

Let your car go unwashed for a month or two

Rain puddles and road construction can quickly throw unwanted dirt and water spots onto your vehicle. Keeping your vehicle clean at all times during our storms and construction can use a fair amount of water. Altering your washing schedule and skipping a few weeks between each wash can save several gallons of water. It may not seem like much but every choice you make to save water, if multiplied by all of the residents of Montgomery County, can make a difference.

Current Drought Conditions

During Hurricane Season 2009, the State of Texas has been in the national news for its dry conditions amidst regional rain showers. Our neighboring states in the U.S. Drought Monitor's Southern Region have areas experiencing abnormally dry to moderately dry conditions. Conditions here in Texas are dramatically different than neighboring states and are much more severe.

Take the challenge

Reduce your outdoor water use at your home and challenge your neighbor to do the same. If you own a business or know a school or city administrator, challenge them to save water outdoors. If you make a pledge to save water, chart your progress by looking at each monthly water bill to see how well you are doing. Share your successes with your family and your neighbors. Remember: "Every day is a chance to save".

Conservation can play a legitimate role in the ability to reduce current and future water demand for Montgomery County. The Lone Star Groundwater Conservation District has clearly identified groundwater declines in the Gulf Coast Aquifer and has mandated a 30% reduction in groundwater pumping by the year 2015. The District's role in protecting the groundwater resources of Montgomery County will require a united and cohesive effort. ◆

The Alliance for *Water Efficiency*

By Marjie Risk, Education/Public Awareness Coordinator

The National Water Industry Scene

Much is happening at the national level with issues of importance to the entire country with the debates on health care and the economy. There is also much going on with the water industry that if you are not predisposed to watching for it may not be aware of. Several pieces of Legislation tied to the water industry are currently pending and may go unnoticed with all of the pressing issues facing our country. Nationally the topic of water has gained more prominence as the realization sinks in that we need a clean and reliable source of water and the energy to deliver it to where it is needed.

The Alliance for Water Efficiency- A Strong Voice and Advocate for the Water Industry

There was a need in Washington to have a strong voice for the water industry as a whole and representation for the country on a wide variety of water topics. The United States Environmental Protection Agency created the Alliance for Water Efficiency in 2005. Since its inception, the Alliance for Water Efficiency has been a strong advocate on national water issues to include the sustainable supply and use of our water resources. The Alliance on occasion has provided testimony on critical water issues to the United States Congress. They have participated in discussions on plumbing codes and standards and promote water efficiency throughout the water industry including the Green Building efforts.

The Alliance for Water Efficiency is a stakeholder-based 501(c)(3) non-profit organization dedicated to the efficient and sustainable use of water. Located in Chicago, the Alliance serves as a North American advocate for water efficient products and programs, and provides information and assistance on water conservation efforts. A diverse Board of Directors governs the organization and has adopted a set of guiding principles and strategic plan. (www.a4we.org)

Water Management and Resource Planning

The Alliance is excellent at providing technical assistance to all professionals within the water industry. The Alliance website provides a resource library for water conservation managers and has a great deal of information on topics like rate structures, landscape/irrigation practices, water loss control, etc.

Need help developing a conservation program? Need to know what works, what doesn't? What about cost effectiveness? Members in good standing of the Alliance for Water Efficiency have access to a great water conservation planning tool.

AWE Water Conservation Tracking Tool (used with permission from the Alliance for Water Efficiency, www.a4we.org)

Need help in planning your water conservation programs? The Alliance for Water Efficiency now has a solution for you. Many months in development, the AWE Water Conservation Tracking Tool was finished after a successful beta testing period with a number of water utilities. The Tool -- complete with a detailed User Guide -- is available free of charge to all AWE members in good standing.

What the Tracking Tool Is

The Tool is an Excel-based model that can evaluate the water savings, costs, and benefits of conservation programs for a specific water utility, using either English or Metric units. Using information entered into the Tool from the utility's system, it provides a standardized methodology

Dock Line article from November of 2009

for water savings and benefit-cost accounting, and includes a library of pre-defined conservation activities from which users can build conservation programs.

Water utility managers can use the Tool in a variety of ways to aid their water resource planning and operations:

- Quickly compare alternative conservation measures in terms of their water savings potential, impact on system costs, and potential benefits to utility customers.
- Develop long-range conservation plans. Construct conservation portfolios containing up to 50 separate conservation program activities.
- Track the implementation, water savings, costs, and benefits of actual conservation activities over time.
- Evaluate a utility's changing revenue requirement with conservation.

The Tool counts the savings achieved from national plumbing code and appliance standards. For California and Texas, states that have stricter requirements for toilets by 2014, a separate version of the Tool is available for those that incorporate these new legislative changes.

Need Information on Funding for Water Efficiency Projects?

Water Efficiency Projects Eligible for Qualified Energy Conservation Bonds (used with permission from the Alliance for Water Efficiency, www.a4we.org)

The American Recovery and Reinvestment Act of 2009 (ARRA) provides bond authority in the amount of $3.2 billion for the Qualified Energy Conservation Bond (QECB) Program, and water efficiency projects qualify for these bonds. To learn more about the QECB program click here.

Not a Member? Check Out:

http://www.allianceforwaterefficiency.org/AWE_Membership_Application_Form.aspx

(Information from the website and pertaining to the Alliance for Water Efficiency is used in this article with their expressed permission.)

CONTACT US: Alliance for Water Efficiency
P.O. Box 804127, Chicago, IL 60680
PH: 773-360-5100, FAX: 773-345-3636
www.a4we.org

Mary Ann Dickinson
Executive Director
The Future of Water Efficiency

The future of water efficiency in this country is bright due to the national advocacy of the Alliance for Water Efficiency. The U. S. EPA's foresight to create and help develop such an agency has brought more prominence to water issues across the country. The Lone Star Groundwater Conservation District has joined the Alliance for Water Efficiency in an effort to receive timely information about national water issues that could have impacts to the state of Texas as well as Montgomery County. The leadership shown by the Lone Star District in this regard is an investment in water efficiency and provides unprecedented access to knowledge, tools and resources that can benefit all water users. ◆

Don't Over Water!

By: Marjie Risk

Lawn Watering Requirements and Recent Rains

Montgomery County experienced a great deal of rain during the month of October. Some areas in the county reported over 8 inches in one month which is more than semi-arid cities like Phoenix receive in an entire year. The next times it rains, take notice of how many sprinkler systems continue to run. It may be hard to believe, but a standard lawn in Montgomery County only needs an inch of water per week. Over the next few months, you will not have the same concerns about lawn watering that you did during the summer months and early fall. Your lawns will be going into dormancy from approximately October until March and will not need to be watered. Dormancy means that your grass is not dead but is really in a growth holding pattern and will not receive the normal benefit from either water or fertilizer applications. Your maintenance needs for mowing will also be less during the dormancy period.

Lawn Watering...Use Just Enough!

Next spring, when your lawn comes out of dormancy, please adopt a water conserving lifestyle for your landscape. Do your part to make sure that your irrigation system is either properly scheduled to not apply too much water or that it is designed properly for your yard to avoid overspray onto the pavement. Easily 60-80% of the water we use here is used through our irrigation systems and much runs off the landscape as waste. Preventing this runoff can save hundreds of gallons of water.

If your landscaped is sloped, it may be harder to irrigate without runoff but if you shorten the length of time for each application, water will have a better chance of soaking in. If it is raining, turn off your system entirely.

Satellite or Smart Controllers and Rain Sensors

There is much debate about the benefits of satellite or "Smart" irrigation controllers for residential and commercial use. These controllers are designed and commonly used to change the irrigation scheduling of your system according to atmospheric changes in your area. Your irrigation schedule is changed based on current conditions so that the system applies the amount of water needed to meet the water requirements of your lawn. These controllers can also be programmed to use historic water use data but current weather patterns and climatic conditions can be downloaded from a satellite for a small monthly fee. If you are already using less water than is required for your lawn, you most likely would use more with a satellite controller. If you are watering every day of the week, you might actually use less if you installed one of these controllers. Don't want to install a new controller? What about a rain sensor?

There are several irrigation manufacturers that sell this type of product and you might try your local home center's irrigation supply section. Rain sensors are designed to shut off your irrigation system when it rains. What a great concept! This product has a great deal of potential for saving water in areas that get as much rain as Montgomery County does throughout the year.

Lone Star Groundwater Conservation District Efforts

The Lone Star Groundwater Conservation District efforts over the last couple of years have focused on rainwater harvesting through the promotion of rain barrels and assisting with the design of catchment systems. In 2009, more emphasis has been placed on well defined watering schedules and the overall reduction of outdoor discretionary water uses. Allowing irrigation systems to run during our rain showers is clearly a waste of water. Changing your landscape watering habits will save precious groundwater for Montgomery County. For water conserving tips and information on the benefits of rainwater harvesting, visit us at www.lonestargcd.org.◆

Dock Line article from December of 2009

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Appendix C:

Book Covers Distribution Lists for 2009

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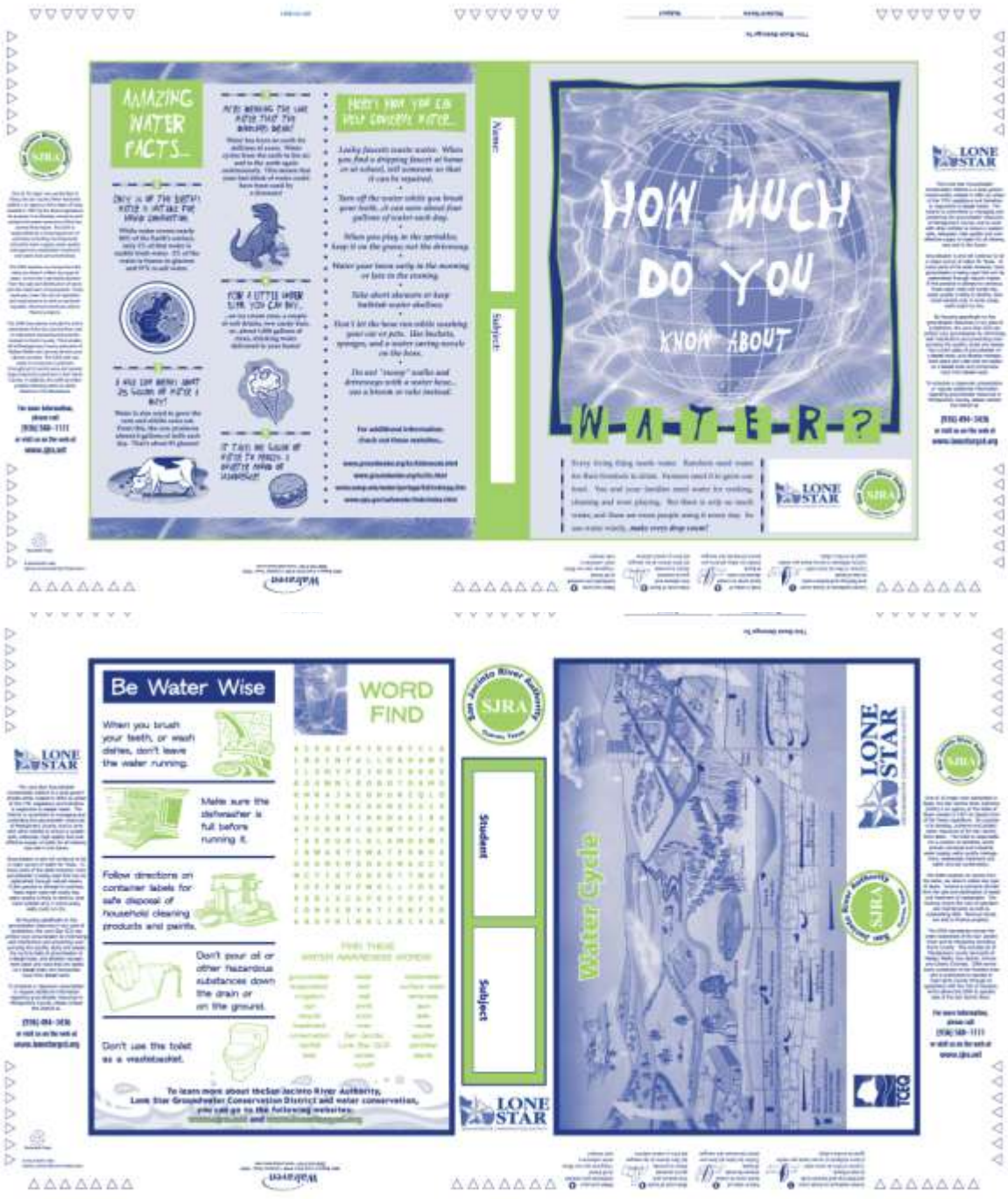
The following school districts received book covers in 2009 as a joint effort between the Lone Star Groundwater Conservation District and the San Jacinto River Authority:

- Conroe ISD
- Montgomery ISD
- Magnolia ISD
- New Caney ISD
- Splendora ISD
- Willis ISD

Book Cover Artwork:



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Appendix D:

Article on Subsidence

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October 2009

LAND SUBSIDENCE

The Lone Star Groundwater Conservation District was created in 2001 and manages the groundwater resources of Montgomery County. The groundwater source for Montgomery County is the Gulf Coast aquifer and the County uses about 4.5 billion gallons too much each year than is replenished to the aquifer. Half of Montgomery County residents don't know the source of their water and 83% of Montgomery County residents don't believe that subsidence is a problem in their area.

Earth fissuring due to severe groundwater depletion and overdraft can occur. Subsidence is a silent but dangerous result of pumping groundwater at a higher rate that is retuned to the aquifer. Once the damage is done, it cannot be reversed.

USGS Photo

Earth fissuring due to groundwater over pumping in an area prone to subsidence

ADWR Photo

Consequences of Over Pumping the Gulf Coast Aquifer:

- **Speeds up subsidence, which causes flooding and destroys land, roads, neighborhoods and ultimately the aquifer itself.**
- **Decreases pump efficiency which may lead to producing less water and higher costs**
- **Decreases water quality in the aquifer**

The expectation is that pumping rates will exceed the Gulf Coast Aquifer's recharge rate by 20 percent by the year 2010 and 140 percent by the year 2040. Conservation now through reduced usage and pumping is the only way to meet our water needs for this and future generation living in Montgomery County.

The District is working to ensure a sustainable, adequate, high quality and cost efficient water supply.

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Appendix E:

Region H Regional Water Planning Group Attendance Sheets for 2009

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REGION H MEMBER ATTENDANCE February 4, 2009

NAME	SIGNATURE	PLEASE PRINT NAME ALTERNATE	SIGNATURE
ROOSEVELT ALEXANDER			
JOHN BAKER			
JOHN R. BARTOS			
JOHN BLOUNT		Reeves Gilmore	
ROBERT BRUNER			
REED EICHELBERGER			
MARK EVANS			
TED LONG			
JACK HARRIS			
BOB HEBERT			
JOHN HOWARD			
ROBERT ISTRE			
GLYNNA LEIPER			
MARVIN MARCELL		Tom Michel	
JAMES MORRISON			
RONALD J. NEIGHBORS			
JIMMIE SCHINDEWOLF			
JUN CHANG			
WILLIAM TEER			
STEVE TYLER			
MIKE UHL			
DANNY VANCE			
C. HAROLD WALLACE			
PUDGE WILLCOX			
NONE VOTING			
WAYNE AHRENS			
DAVID ALDERS			
JENNIFER BAILEY			
RICK GANGLUFF			
LARRY JACOBS			
TEMPLE MCKINNON			
ROBERT STRODER			
WAYNE WILSON			
REBECCA HENSLEY			
MELINDA SILVA			

Attendance Sheets from Region H Meeting held on February 4, 2009

PUBLIC OFFICIALS

REGION H REGIONAL WATER PLANNING GROUP

MEETING ATTENDANCE PUBLIC MEETING

February 4, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
Jackie Chance	MCWCID#1	P.O. Box 7690	The Woodlands	[illegible]	77387	281367 0969	281 298 1609
Kay Wilkox	Grant		Anahuac				
Jim R Sims	TRA		Huntsville	TX		936/295-5485	936/295-9116
[illegible]	BGCD	PO Box 269	NAVASOTA	TX	77868	936 825-7303	936 825-7331
Dan Davis	MUD 8					936 448-1899	
Mike Personett	KBR					512/350-7961	
David Bradley	KBR	4100 Clinton	Houston			713-753-3615	
John Seifert	LBG-Guyton		Houston, TX			713 4088600	713 [illegible]6
Art Henson	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	936 [illegible]	
Dave Schoeller	Brown & Gay						
Paul E. Nelson	NHCRWA						
Jason Pierce	Co Huntsville						
Glenn Isbell	City of Huntsville	1212 Ave M	Huntsville	Tx	77340	936-294-5760	9
Chris [illegible]	BRA		Waco	Tx	76743	254-761-3152	
Mel Lovell	LSGCD						
Kathy Jones	LSGCD	Box 2467	Conroe	TX			
Kent Burkett	BCGCD	Brazoria County		TX	281	782-3953	
Justin Bower	City of Sugar Land	111 Gillingham Lane	Sugar Land	TX	77487	281 275 2449	281 275 2465

Attendance Sheets from Region H Meeting held on February 4, 2009

add as Hebert alternate

REGION H REGIONAL WATER PLANNING GROUP

MEETING ATTENDANCE PUBLIC MEETING

February 4, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
GLENDA CALLAWAY	EXOTICS	✓	✓	✓	✓	✓	✓
Tom Michel	HGSD/FBSD						
John Hoffmann	BRA						
Lisa Lattu	City of Houston		Houston				
RALPH COX	KLOTZ ASSOCIATES						
Trent Sivak	Malcolm Pirnie	1700 W Loop S. Ste 1450 77027	Houston				
Lucia Lee	Freese and Nichols	3100 Wilcrest Ste. 200	Houston	TX			
Ann Sheridan	City of Houston	[illegible]	Houston	TX	77002	713837914[illegible]	7138370460
Brandt Mannchen		5431 Carew	Houston	TX	77096	7136645962	
Jeff Harris	Madison County	P.O. Box 1742	Madisonville	TX	77864	936-348-4049	
MARC BLACKMORE	MADISON COUNTY		MADISONVILLE	TX			
Carol Reed	City of Huntsville	448 Hwy 75 N	HUNTSVILLE	TX	77320	936-294-5[illegible]	
Mike O'Connell	South West Water	12535 Reed Rd	Sugar Land	TX	77478	281-207-5886	moconnell@swwc.com
Patrick Walters	City of West University Place	3800 University Blvd	Houston	TX	77005	713 662 5858	713 662 5304
KEN KRAMER	SIERRA CLUB	P.O. BOX 1931	AUSTIN	TX	78767	512 476 6962	512/477-8526
Karim El Kheiashy	KBR	4100 Clinton Dr.	Houston	TX	77020	713 753 3160	

Attendance Sheets from Region H Meeting held on February 4, 2009

REGION H MEMBER ATTENDANCE May 6, 2009

PLEASE PRINT NAME

NAME	SIGNATURE	ALTERNATE	SIGNATURE
ROOSEVELT ALEXANDER			
JOHN HOFMANN			
JOHN R. BARTOS			
JOHN BLOUNT			
ROBERT BRUNER			
REED EICHELBERGER			
MARK EVANS			
TED LONG			
BOB HEBERT		Mike O'Connell	
JOHN HOWARD			
ROBERT ISTRE			
GLYNNA LEIPER			
MARVIN MARCELL			
JAMES MORRISON			
RONALD J. NEIGHBORS			
JIMMIE SCHINDEWOLF			
JUN CHANG			
WILLIAM TEER			
STEVE TYLER			
MIKE UHL			
DANNY VANCE			
C. HAROLD WALLACE			
PUDGE WILLCOX			
NON-VOTING			
WAYNE AHRENS			
DAVID ALDERS			
JENNIFER BAILEY			
RICK GANGLUFF			
LARRY JACOBS			
TEMPLE MCKINNON			
ROBERT STRODER			
WAYNE WILSON			
REBECCA HENSLEY			
MELINDA SILVA			

Attendance sheets from Region H meeting held on May 6, 2009

REGION H MEMBER ATTENDANCE May 6, 2009

PLEASE PRINT NAME

NAME	SIGNATURE	ALTERNATE	SIGNATURE
ROOSEVELT ALEXANDER			
JOHN HOFMANN			
JOHN R. BARTOS			
JOHN BLOUNT			
ROBERT BRUNER			
REED EICHELBERGER			
MARK EVANS			
TED LONG			
BOB HEBERT			
JOHN HOWARD			
ROBERT ISTRE			
GLYNNA LEIPER			
MARVIN MARCELL		Tom Mitchell	
JAMES MORRISON			
RONALD J. NEIGHBORS			
JIMMIE SCHINDEWOLF			
JUN CHANG			
WILLIAM TEER			
STEVE TYLER			
MIKE UHL			
DANNY VANCE			
C. HAROLD WALLACE			
PUDGE WILLCOX			
NON-VOTING			
WAYNE AHRENS			
DAVID ALDERS			
JENNIFER BAILEY			
RICK GANGLUFF			
LARRY JACOBS			
TEMPLE MCKINNON			
ROBERT STRODER			
WAYNE WILSON			
REBECCA HENSLEY			
MELINDA SILVA			

Attendance sheets from Region H meeting held on May 6, 2009

REGION H REGIONAL WATER PLANNING GROUP
MEETING ATTENDANCE PUBLIC MEETING
May 6, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
KAY Willcox			Anahuac	TX	77514		
John Bowie	City of Sugar Land	111 Gillingham Ln	Sugar Land	TX	77478	281 275 2499	– 2465
Kathy Jones	LSGCD	Box 3067	Conroe	TX			
Sarah Pierce	City of Huntsville	448 (?) st Hwy 75 N	Huntsville	TX	77340	936) 294-5762	
CAROL REED	CITY OF HUNTSVILLE	"	"	"	"	5768	
John Bates	FPWD						
WAYNE AHRENS	WHCRWA	3100 W. ALABAMA	Houston	TX	77095	713-527-6378	713-527-6338
Cindy Loeffler	TPWD	4200 Smith School	Austin	TX	78704		
Ken Kramer	SIERRA CLUB	P.O. BOX 1931	AUSTIN	TX	78767	512-476-6462	512-477-8526
Kent BURKETT	BCGCD					281-782-3953	
[illegible] Nunez	City of Conroe	300 W. Davis	Conroe	TX	77301	936 522-3098	

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REGION H REGIONAL WATER PLANNING GROUP

MEETING ATTENDANCE PUBLIC MEETING

May 6, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
Glenn Clingenpeel	TRA		Arlington			817 493-5117	
Michael Reedy	AECOM		Houston			713-267-3127	
Karim El Khelasty	KBR		Houston			713-753-3631	
Chris Kreuger	KBR		Houston			713-753-3694	
LLOYD A. BEHM	BLUEBONNET GCD	PO Box 269	Navasota	TX	77868	936-825-7303	
Jackie W. Chancey	Montgomery Co [illegible]	P.O. Box 7690	The Woodlands	TX	77387	713 553 5466	
Brandt Mannchen	Houston Sierra Club	5431 Carew	Houston	TX	77096	713 664 5962	
DAVID SPELL	NFBWA	Sugarland				281 277 3958	
[illegible]	TRA					817 493 5776	
Chris Kreuger	KBR	—	—	—		713 753 3694	
CARL MASTERSON	H-GAC	3555 Timmons Ln Ste 120 Hou TX 77027	Houston	TX	77027	713 993 4561	
Lisa Lattu	City of Houston	611 Walker St 18th Fl	Houston	TX	77098	(713) 837-0539	
John Seifert	LB Livingston Assoc						
MARK LOWRY	Consultant	P.O. Box 31	East Bernard	TX	77435	214 558 9226	
GLENDA CALLAWAY	ERITICS	✓	✓	✓	✓	✓	
DAVE SCHOLLER	BROWN & GAY						
Phil Griffin	Montgomery Mud 9	←					
Jim R. Sims	TRA		Huntsville	TX		936/295-5485	
Dan Davis	MUD 8						
DAVID Bailey	Mid East Texas GCD	P.O. Box 477	Madisonville	TX	77864	936 348-3212	936-348-392[illegible]
Brad Brunett	BRA	4600 Cobbs Dr.	Waco	TX	76492	254-761-3171	
Phil Weeks	HARC	4800 Research Forest	Woodlands		77381	281 364 6029	

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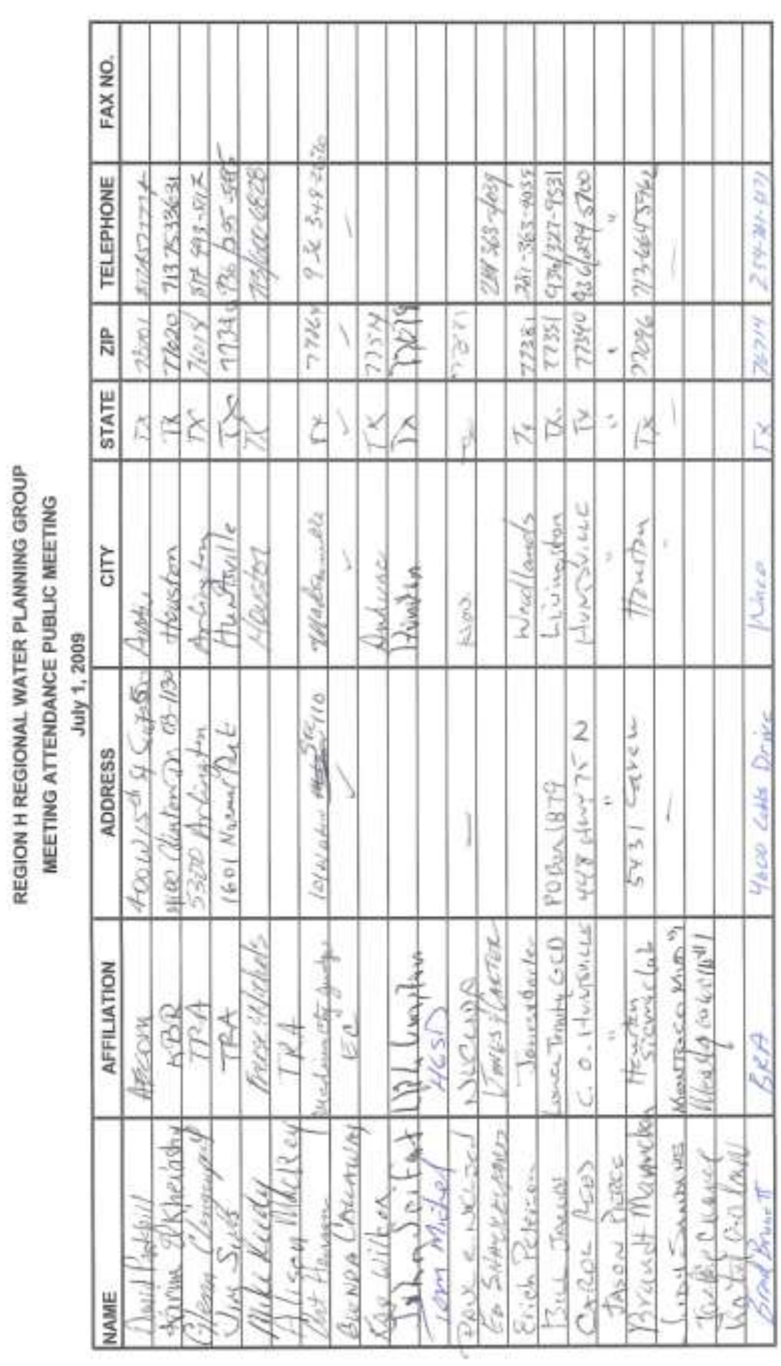
Attendance sheets from Region H meeting held on May 6, 2009

REGION H **MEMBER ATTENDANCE** July 1, 2009

NAME	SIGNATURE	PLEASE PRINT NAME ALTERNATE	SIGNATURE
ROOSEVELT ALEXANDER			
JOHN HOFMANN			
JOHN R. BARTOS			
JOHN BLOUNT			
ROBERT BRUNER			
REED EICHELBERGER			
MARK EVANS			
TED LONG			
BOB HEBERT			
JOHN HOWARD			
ROBERT ISTRE			
GLYNNA LEIPER			
MARVIN MARCELL			
JAMES MORRISON			
RONALD J. NEIGHBORS			
JIMMIE SCHINDEWOLF			
JUN CHANG			
WILLIAM TEER			
STEVE TYLER			
MIKE UHL			
DANNY VANCE			
C. HAROLD WALLACE			
PUDGE WILLCOX			
NON-VOTING			
WAYNE AHRENS			
DAVID ALDERS			
JENNIFER BAILEY			
RICK GANGLUFF			
LARRY JACOBS			
TEMPLE MCKINNON			
ROBERT STRODER			
WAYNE WILSON			
REBECCA HENSLEY			
MELINDA SILVA			

Attendance sheets from Region H meeting held on July 1, 2009



REGION H REGIONAL WATER PLANNING GROUP

MEETING ATTENDANCE PUBLIC MEETING

July 1, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
David Porter	AECOM	400 W 15th St Suite	Austin	TX	78701	[illegible]	
Karim Al-Khoury	KBR	4100 Clinton Dr. 03-1130	Houston	TX	77020	713 753 3631	
Glenn Clingenpeel	TRA	5300 Arlington	Arlington	TX	76018	817 493-5112	
Jim Sims	TRA	1601 Normal Park	Huntsville	TX	7734[illegible]	936 295-5485	
Mike Reedy	Freese Nichols		Houston	TX		713/600-6828	
Alison MacKey	TRA						
Art Henson	[illegible] County Judge	101 W Abbey Ste 110	[illegible]	TX	7736[illegible]	936 348-2[illegible]	
BRENDA CALLAWAY	EC	✓	✓	✓	✓	—	
Kay Wilkes			Anahuac	TX	7751[illegible]		
John Seifert	[illegible]		Houston	TX	77019		
Tom Michel	HGSD						
PAUL E. NELSON	NUCLDA	—	[illegible]	—	77[illegible]		
ED SHACKELFORD	JAMES & CARTER					281 363-4039	
Erich Peterson	[illegible]		Woodlands	TX	77381	281-363-4035	
BILL JACKSON	Lower Trinity GCD	PO Box 1879	Livingston	TX	77351	936/327-9531	
CAROL REED	C. O. HUNTSVILLE	448 Hwy 75 N	HUNTSVILLE	TX	77340	936/294-5700	
JASON PIERCE	"	"	"	"	"	"	
Brandt Mannchen	Houston Sierra Club	5431 Carew	Houston	TX	77096	713-664-5962	
LINDY SANDERS	MONTGOMERY MUD 9	—	—	—		—	
Jackie Chance	[illegible]						
Kathy Cochran							
Brad Brunett	BRA	4600 Cobbs Drive	Waco	TX	76714	254-761-[illegible]	

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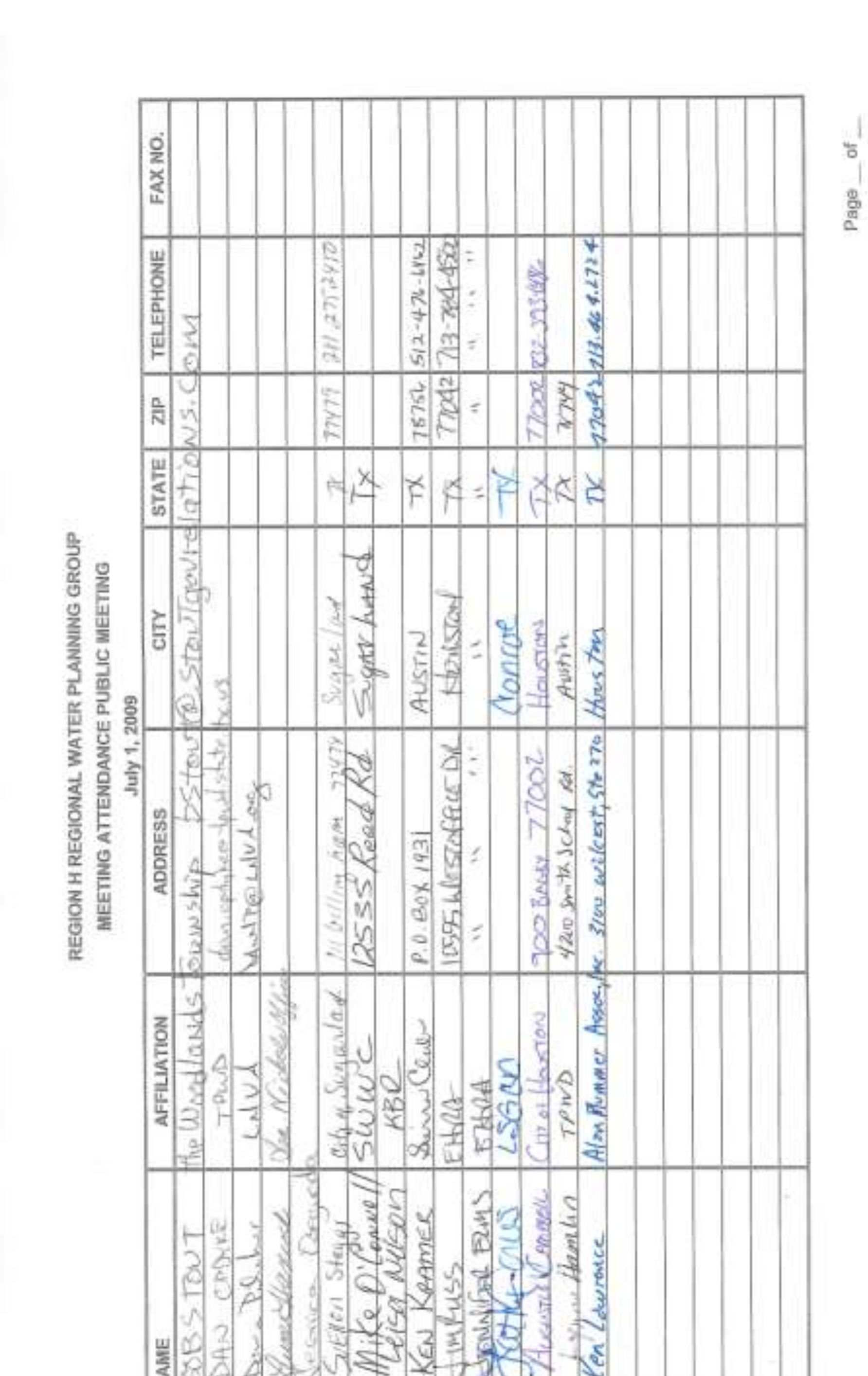
Attendance sheets from Region H meeting held on July 1, 2009



REGION H REGIONAL WATER PLANNING GROUP

MEETING ATTENDANCE PUBLIC MEETING

July 1, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
BOB STOUT	The Woodlands Township	bstout@stoutgovrelations.com					
DAN CROKE	TPWD	dan.croke@tpwd.state.tx.us					
[illegible]	LNVA	[illegible]@lnva.org					
[illegible]	[illegible]						
Jessica [illegible]							
Steven Steggs	City of Sugar Land	111 Gillingham Lane 77479	Sugar Land	TX	77479	281.275.2470	
Mike O'Connell	SWWC	12535 Reed Rd	Sugar Land	TX			
Leisa Nelson	KBR						
KEN KRAMER	Sierra Club	P.O. BOX 1931	AUSTIN	TX	78756	512-476-6962	
JIM RUSS	EHRA	10555 WESTOFFICE DR	HOUSTON	TX	77042	713-784-4500	
JENNIFER [illegible]	EHRA	" " "	"	"	"	" " "	
Kathy [illegible]	LSGCD		Conroe	TX			
Augustus Campbell	City of Houston	900 Bagby 77002	Houston	TX	77002	832-393-[illegible]	
[illegible] Hamlin	TPWD	4200 Smith School Rd.	Austin	TX	78744		
Ken Lawrence	Alan Plummer Assoc., Inc.	3100 Wilcrest, Ste 270	Houston	TX	77042	713.464.2724	

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PUBLIC OFFICIALS

REGION H REGIONAL WATER PLANNING GROUP

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July 1, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
Trent Slovak	Malcolm Pirnie	1700 W Loop South	Hou	TX	77027	713 9607434	
FRED BLUMBERG	"	100 CONGRESS STE 1485	AUSTIN	TX	78701	512 584-4242	

Attendance sheets from Region H meeting held on July 1, 2009

REGION H MEMBER ATTENDANCE September 2, 2009

NAME	SIGNATURE	PLEASE PRINT NAME ALTERNATE	SIGNATURE
ROOSEVELT ALEXANDER			
JOHN R. BARTOS			
JOHN BLOUNT			
ROBERT BRUNER			
JUN CHANG			
REED EICHELBERGER			
MARK EVANS			
BOB HEBERT		✓	
JOHN HOFMANN			
JOHN HOWARD			
ROBERT ISTRE			
GLYNNA LEIPER			
TED LONG			
MARVIN MARCELL			
JAMES MORRISON			
RONALD J. NEIGHBORS			
JIMMIE SCHINDEWOLF			
WILLIAM TEER			
STEVE TYLER			
MIKE UHL			
DANNY VANCE			
C. HAROLD WALLACE			
PUDGE WILLCOX			
NON-VOTING			
WAYNE AHRENS			
DAVID ALDERS			
JENNIFER BAILEY			
RICK GANGLUFF			
REBECCA HENSLEY			
LARRY JACOBS			
TEMPLE MCKINNON			
MELINDA SILVA			
ROBERT STRODER			
WAYNE WILSON			

Attendance sheets from Region H meeting held on September 2, 2009

REGION H REGIONAL WATER PLANNING GROUP
MEETING ATTENDANCE PUBLIC MEETING
September 2, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
David Parkhill	AECOM	400 W 15th St	Austin	TX	78750	5129727774	
Jason Afinowicz	AECOM	575 N Dairy Ashford [illegible]	Houston	TX	77079	713 167 [illegible]	
Cory Shill	AECOM	5757 Woodway	Houston	TX	77057	713 267 3253	
Tom Michel	HGSD						
Peter [illegible]	MUD 9						
Mike Reedy	FNI	3100 Wilcrest	Houston	TX		713-600 6828	
LLOYD A BEHM	BGCD	PO BOX 269	NAVASOTA	TX	77868	936-825730[illegible]	
[illegible]	[illegible]	[illegible]	Madisonville	TX	77864	[illegible]	
Darin Bailey	METGCD	Box 477	Madisonville	TX	77864	936 348 3712	
[illegible]	TRA	5300 S. Collins	Arlington	TX	76018	817 493-5117	
Alison Mackey	TRA	5300 S. Collins	Arlington	TX	76018	8174935118	
Bob Stout	Stout Gov. Rel.	bstout@stoutgovrelations.com					
Cheryl Wallace							
Kay Willis			Dripping [illegible]				
[illegible]	TWDB	1700 N Congress Ave.	Austin	TX	78701		
Jennifer Elms	EHRA	10555 W [illegible] Dr	Houston	TX	77042		
Steffen Skaggs	C.O. Sugarland	111 Gillingham	Sugar Land	TX	77479	281 275 2432	
Paul E. Nelson	NHCRWA	[illegible]	The [illegible]	TX		713 [illegible]	
Karim El Kheiashy	KBR	4100 Clinton Dr 03-[illegible]	Houston	Tx	77020	713-753 963[illegible]	
Brad Brunett	BRA	4600 Cobbs Dr., Waco TX 76714	Waco	TX	76714	254-761-3171	
Cindy Loeffler	TPWD	4200 Smith School	Austin	TX	78704	5123898715	
DAN OPDYKE	TPWD					5123898734	

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Attendance sheets from Region H meeting held on September 2, 2009

REGION H REGIONAL WATER PLANNING GROUP
MEETING ATTENDANCE PUBLIC MEETING
September 2, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
Glen C[illegible]	[illegible]	✓	✓	✓	✓	✓	✓
Mike Turco	USGS						
Kathy Jones	LSGCD		Conroe				
Richard [illegible]	TRA						
Carole Lamont	Harris County [illegible]	1001 Preston #924	Houston	Tx	77002	713-755-6306	-8928
Lisa Latty	City of Houston	611 Walker St	Houston	TX	77098	(7)837-0521	
KEN KRAMER	SIERRA CLUB	P.O. BOX 1931	AUSTIN	TX	78767	512-476-6962	512-477-8526
CARL MASTERSON	H-GAC						
MIKE PERSONETTI						512/350-7961	
Trent Slovak	Malcolm Pirnie					832 526 8557	
Ruthanne Haut	CoH		Houston	TX	77002	713.837.7466	
Jed Greenfield	COH		Houston	TX	77002	713-837-7363	

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Attendance sheets from Region H meeting held on September 2, 2009

PUBLIC OFFICIALS

REGION H REGIONAL WATER PLANNING GROUP
MEETING ATTENDANCE PUBLIC MEETING
September 2, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
Jim R. Sims	TRA	Box 1554	Huntsville	TX	77340	936/295-5485	936/295-9116
WAYNE AHRENS	WHCRWA	2100 W. ALABAMA	HOUSTON	TX	77098	713/527-6378	713-527-6338

Attendance sheets from Region H meeting held on September 2, 2009

REGION H MEMBER ATTENDANCE November 4, 2009

		PLEASE PRINT NAME	
NAME	SIGNATURE	ALTERNATE	SIGNATURE
ROOSEVELT ALEXANDER			
JOHN R. BARTOS			
JOHN BLOUNT		Reeves Gilmore	
ROBERT BRUNER			
JUN CHANG		Lisa Lattu	
REED EICHELBERGER			
MARK EVANS			
BOB HEBERT			
JOHN HOFMANN			
JOHN HOWARD			
ROBERT ISTRE			
GENA LEATHERS			
GLYNNA LEIPER			
TED LONG			
MARVIN MARCELL			
JAMES MORRISON			
RONALD J. NEIGHBORS			
JIMMIE SCHINDEWOLF		PAUL NELSON	
WILLIAM TEER			
STEVE TYLER			
DANNY VANCE			
C. HAROLD WALLACE			
PUDGE WILLCOX			
NON-VOTING			
WAYNE AHRENS			
DAVID ALDERS			
JENNIFER BAILEY			
RICK GANGLUFF			
REBECCA HENSLEY			
LARRY JACOBS			
TEMPLE MCKINNON			
MELINDA SILVA			
ROBERT STRODER			
WAYNE WILSON			

Attendance sheets from Region H meeting held on November 4, 2009

REGION H REGIONAL WATER PLANNING GROUP

MEETING ATTENDANCE PUBLIC MEETING

November 4, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
Glenda Callaway	Existing	✓	✓	–	–	✓	✓
Lloyd Behm	BGCD						
[illegible]	[illegible] County						
Glenn [illegible]	TRA						
Jim Sims	TRA						
Darin Bailey	Mid-East Texas GCD	Box 477	Madisonville	TX	77864	936 348-3242	936 348 3512
[illegible]	[illegible]						
Nicholas Smith	KBR					713 753 4095	
Karim El Kheiashy	KBR						
Brad Brunett	BRA					713 753 3639	
Tom Michel	HCSD/FBSD						
Jennifer Elms	EHRA						
Arch Payne	MUD 8						
Dan Dowse	MUD 8						
Michael Reedy	FNI		Houston	TX		7136006828	
[illegible]	LSGCD		Conroe				
Wayne Ahrens	WHCRWA						
David Parkhill	AECOM		Austin	tx		5129157774	
Kay Wilcox	Guest						
Carolyn Ahrens	Booth, Ahrens	Carolyn@baw.com				512 472-3263	
[illegible]	Houston Sierra Club					713-664-596[illegible]	
Ken Kramer	Sierra Club	P.O. Box 1431	Austin	TX	78767	512-476-6962	

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Attendance sheets from Region H meeting held on November 4, 2009

REGION H MEMBER ATTENDANCE December 2, 2009

NAME	SIGNATURE	PLEASE PRINT NAME ALTERNATE	SIGNATURE
ROOSEVELT ALEXANDER			
JOHN R. BARTOS			
JOHN BLOUNT			
ROBERT BRUNER			
JUN CHANG		Lisa Latty	
REED EICHELBERGER			
MARK EVANS			
BOB HEBERT			
JUDGE ART HENSON			
JOHN HOFMANN			
JOHN HOWARD			
ROBERT ISTRE			
GENA LEATHERS			
GLYNNA LEIPER			
TED LONG			
MARVIN MARCELL		Tom Michel	
JAMES MORRISON			
RONALD J. NEIGHBORS			
JIMMIE SCHINDEWOLF		PAUL R. NELSON	
WILLIAM TEER			
STEVE TYLER			
DANNY VANCE		Robert Stevens	
C. HAROLD WALLACE			
PUDGE WILLCOX			
NON-VOTING			
WAYNE AHRENS			
DAVID ALDERS			
JENNIFER BAILEY			
RICK GANGLUFF			
REBECCA HENSLEY			
LARRY JACOBS			
TEMPLE MCKINNON			
MELINDA SILVA			
ROBERT STRODER			
WAYNE WILSON			

Attendance sheets from Region H meeting held on December 2, 2009

REGION H REGIONAL WATER PLANNING GROUP

MEETING ATTENDANCE PUBLIC MEETING

December 2, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
David Parkhill	AECOM		Austin	TX			
Brandt Mannchen	Houston Sierra Club	——	Houston	TX		713-664-5962	
LLOYD BEHM	BGCD		NAVASOTA	TX		936-825-7303	
Joe CONSTANTINO	MUD 18		BENTWATER			936 597-3027	
Mike Reedy	FNI		Houston	TX		713-600-6828	
David Dunn	HDR - Brazos G		Austin			512-912-5136	
CHRIS UZELMEIER	LCCN		Montgomery	TX		936-449-5188	
JIM HAYMAN	LCCN FAR HILLS UD		WILLIS	TX		936-228-0101	
Don Davis	MUD 8		Montgomery				
Beryl Richardson	LCA		Willis	TY		936-537-0766	
BILL LACKEY	FAR HILLS UD		WILLIS	TX		936 856-8468	
BOB STOUT	Stout Gov. Relations	bstout@stoutgovrelations.com					
Jennifer Elms	EHRA		Houston	TX		713 784 4500	
[illegible]	[illegible]		Houston	TX		713 753 [illegible]	
Karim El-Kheiashy	KBR		"	"		713 7533631	
Nichola Smiles	-		-	"		713 7534[illegible]	
Kay Wallace							
MARIE RISK	LSGCD		CONROE	TY		936-494 3436	
Carole Lamont	Harris Co. PCA 3	1001 Preston #924	Houston	TX	77002	713-755 6506	
Carolyn Ahrens	BAW		AUSTIN	TX		512 480 3763	
Mike Bleier	Lake Conroe Assoc		Montgomery	TX		936 449 6819	
[illegible]	KCI						

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Attendance sheets from Region H meeting held on December 2, 2009

REGION H REGIONAL WATER PLANNING GROUP
MEETING ATTENDANCE PUBLIC MEETING
December 2, 2009

NAME	AFFILIATION	ADDRESS	CITY	STATE	ZIP	TELEPHONE	FAX NO.
[illegible] Kolecki	[illegible]	192 [illegible] North	Montgomery	Tx	77357	713-259-4601	936-[illegible]
[illegible]			Houston				
Bill Kotlan	Bayle Assoc.	160 Nugent	Conroe	TX	77301	936 271-4816	936-760-3833
Michael Turco	USGS		The Woodlands	TX			
Mike O'Connell			Sugar Land				
Wayne Ahrens	WHCRWA	3100 W. Alabama	Houston	Tx			
[illegible]	WCIA	13301 Walden Rd	Montgomery	TX	77356	582-1632	582-4292
[illegible] Scott	WCIA	"	"	"	" "	"	"
[illegible]	BRA	P.O. Box 7555	Waco	TX	76714	254-761-3165	[illegible]
Matt [illegible]	LSGCD						
DAVID SPELL	NFBWA	ABHR	Sugarland	TX		281-3983162	—

Page 2 of 2

Attendance sheets from Region H meeting held on December 2, 2009

Appendix F:

2009 Drought Situation Reports

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DROUGHT PREPAREDNESS COUNCIL

RICK PERRY
Governor

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JACK COLLEY
Council Chairman

January 8, 2009

TO: The Honorable Rick Perry, Governor, State of Texas
The Honorable David Dewhurst, Leiutenant Governor, State of Texas
Ms. Esperanza Andrade, Secretary of State, State of Texas
The Honorable Mario Gallegos, Jr., President Pro-Tempore of the Senate, State of Texas
The Honorable Tom Craddick, Speaker of the House, State of Texas
The Honorable Steve Ogden, Chairman, Senate Finance Committee, State of Texas
The Honorable Kip Averitt, Chairman, Senate Natural Resources Committee, State of Texas
The Honorable John Carona, Chairman, Senate Committee on Transportation & Homeland Security, State of Texas
The Honorable Warren Chisum, Chairman, House Appropriations Committee, State of Texas
The Honorable Mike Hamilton, Vice-Chairman, House Natural Resources Committee, State of Texas
The Honorable Sid Miller, Chairman, House Agriculture & Livestock Committee, State of Texas
The Honorable Aaron Peña, Chairman, House Criminal Jurisprudence Committee, State of Texas
Mr. Jay Kimbrough, Chief of Staff, Office of the Governor
Mr. Steven McGraw, Director, Texas Governor's Office of Homeland Security

FROM: Chief Jack Colley, Chairman, Drought Preparedness Council

SUBJECT: Statewide Drought Situation Report

1. NEXT COUNCIL MEETING

February 12, 2009, 2:00 p.m., Governor's Conference Room of the Governor's Division of Emergency Management, State Operations Center, Texas Department of Public Safety Headquarters, 5805 N. Lamar Blvd., Austin, Texas.

At this time, the Council will continue to meet on a monthly basis.

2. GENERAL CONDITIONS

According to radar estimates from the Advanced Hydrologic Predictions Service, precipitation in Texas during December was below normal for 99% of the State. Despite several frontal boundaries passing through the State, the western two-thirds of Texas received less than an inch of precipitation in December. The Edwards Plateau, Trans-Pecos, and Low Rolling Plains regions of Texas were the driest regions in the entire United States based on the percent of normal precipitation for December.

December was characterized by a number of fronts passing through the eastern half of Texas, but most brought only very cold air and precipitation was confined to East Texas and the Upper Texas coast. Some areas in the eastern third of Texas received over an inch of precipitation from the 9th through the 10th. A trailing upper level disturbance brought 2" inches of snow to College Station and 5" of snow to areas in Beaumont/Port Arthur on December 10th through the 11th. A strong cold front pushing from east to west across the State on the 27th through the 28th brought much needed precipitation to South Central Texas and produced a weak tornado in Franklin County.

South Central Texas, the area of greatest concern for long-term drought, received less than half of its climatologically expected precipitation for the fourth consecutive month. Most areas in South Central Texas climate division 7 received between 0.25" to 0.50" of precipitation. San Antonio received 0.25" of precipitation and Austin/Mabry received 0.40" of precipitation.

As a result of this dryness, the United States Drought Monitor named an "Exceptional Drought" classification (D4) for 14 counties in the Austin/San Antonio region. The percent of Texas with this status rose from 1.25% at the beginning of December to 4.15% by the end of the month. The percentage of Texas with at least "Moderate Drought" conditions (D1) is 24.5%, up from 11.6% from the beginning of 2008.

The USGS stream flow maps indicated several stations along the Brazos, Colorado, and Red Rivers had discharges below the 10th percentile. This represents conditions relative to those that have historically occurred at this time of year. On January 4, the number of stations in the driest two of seven classes was at 23, the largest number of stations since November 2006.

The El Niño-Southern Oscillation (ENSO) cycle is forecast to be in a negative phase through the early part of 2009. According to the Climate Prediction Center (CPC), current atmospheric and oceanic conditions reflect La Niña. The current one-month forecast from the CPC calls for an equal chance of below normal, near normal, and above normal precipitation across the State.

The three-month outlook calls for a 33-40% chance of below normal precipitation for most of the southwestern half of the State, the exception being a greater than 40% chance of below normal precipitation in the Trans Pecos region. The rest of the State has an equal chance of below normal, near normal, and above normal precipitation. The area of "Exceptional Drought" in Central Texas is expected to persist and perhaps expand during the next few months. The small area of "Moderate Drought" north of Dallas/Fort Worth along the Red River is expected to improve.

3. OVERALL STATEWIDE DROUGHT CONDITIONS

According to the Palmer Drought Severity Index (PDSI), the North Central region is under "Mild Drought" conditions. The Edwards Plateau region is under "Moderate Drought" conditions, and the South Central region is under "Severe Drought" conditions. The remainder of the State is under either near "Normal" or "Wet Spell" conditions. The Lower Valley region is under "Extremely Wet" conditions. The PDSI varies from extremely wet, very wet, moderately wet, slightly wet, incipient wet spell, near normal, incipient dry spell, mild drought, moderate drought, severe drought, and extreme drought in order of increasing severity.

The Crop Moisture Index (CMI) indicates all regions are near normal.

An update of the Six-Month Standardized Precipitation Index (SPI) is not available.

The Keetch-Byram Drought Index (KBDI) indicates the fire risk is above average in the Low Rolling Plains region, high in the North central, Trans-Pecos, Upper Coast, and Lower Valley regions, and very high in the Edwards Plateau, South Central, and Southern regions. The KBDI is a drought index specifically used to describe potential or expected fire behavior. The index is classified as Low, Moderate, High or Extreme fire danger, in order of increasing severity.

4. WATER UTILITY STATUS

January 2009 began with 100 public water systems requiring customers to conserve water by following water use restrictions. Of those systems, 70 asked customers to follow a mandatory watering schedule and 30 asked for voluntary reductions in usage.

The Central region of the State is in a "Severe Drought". Springs flows and well levels continued to fall resulting in more restrictive watering plans. Significant rain is needed to enable public water systems to review water restrictions in place.

5. WATER RIGHTS – STATEWIDE

New temporary water use permit applications are reviewed on a site-specific basis and are issued if there is sufficient surplus water at the requested source. Applications for new water use permits and amendments to existing permits remained normal during the month. The water rights owners in the Brazos River Basin, whose permits contain the Hale Clause restrictions, observed less severe stream flow conditions during the winter months. The availability of unappropriated water for new water use permits continued to decrease in all river basins in the State and the search for long-term, dependable alternate sources of water remained a high priority issue.

6. WATER RIGHTS – LOWER RIO GRANDE / RIO GRANDE WATERMASTER (RGWM)

Current Overall Conditions: As of December 27, 2008, the U.S. combined ownership at Amistad/Falcon stood at 96.56% of conservation capacity or 3,520,914 acre-feet of new temporary conservation capacity. This is up from 103.04% or 3,494,971 acre-feet from a year ago at this time. Overall, the system is holding 97.86% or 6,228,685 acre-feet of conservation capacity with Amistad at 97.09% or 3,371,743 acre-feet and Falcon at 98.79% or 2,856,942 acre-feet. Mexico has 99.61% or 2,707,771 acre-feet of the water it could store at Amistad/Falcon.

Allocations: As of the printing of the December ownership report, the U.S. allocated in excess of 785,038 acre-feet for irrigation and mining. The U.S. continued to have an amount in excess of 717,274 acre-feet for future allocations in 2008.

Storage & Loss Amistad vs. Falcon: The U.S. is currently storing approximately 1.85 million acre-feet or 95.4% at Amistad, and approximately 1.66 million acre-feet or 97.9% at Falcon.

Evaporation and seepage losses at Amistad YTD were 46,554 acre-feet. During the same period, the U.S. lost 49,789 acre-feet at Falcon. The ratio of loss between Amistad and Falcon continued to be 1:2, consistent with Amistad being twice as efficient in overall storage and loss.

Releases to Meet Demands: Mexico released 901,538 acre-feet from Amistad and 861,801 acre-feet from Falcon for Mexico needs. The U.S. released 1,693,138 acre-feet from Amistad and 1,116,340 acre-feet from Falcon for U.S. needs. Combined with gains between Amistad and Falcon, U.S. inflows to Falcon totaled 1,988,702 acre-feet. So far, the U.S. met 65% of overall needs in the middle and Lower Rio Grande directly from middle Rio Grande and Amistad inflows this year.

Upper Rio Grande (New Mexico): Currently, Elephant Butte in New Mexico is storing 623,435 acre-feet or 30.81% and Caballo Dam, downstream of Elephant Butte, is storing 21,889 acre-feet or 9.64%. This water storage, in part, was used to meet water needs in the El Paso area.

Outlook: All active accounts began 2008 with 100% usable balances. The reservoirs increased in elevation due to the rainfall here and in the upper Rio Grande Regions. To alleviate losses in Falcon, the U.S. continued to monitor ownership and elevation levels in both Falcon and Amistad for more efficient U.S. transfers of water from Amistad to Falcon. It appeared that 2009 will start with all active accounts at full capacity. Both U.S. reservoirs are considered full as are the majority of the Mexican reservoirs in the Rio Grande Basin. "No Charge Pumping" was declared effective October 26, 2008 from Amistad down to the Gulf for all diversion requests.

7. SOUTH TEXAS WATERMASTER – GUADALUPE / LAVACA / SAN ANTONIO / NUECES REGION

The South Central region of the State continued to be impacted by worsening drought conditions in December. This region of Texas was listed under "Exceptional" drought. This indicator is the worst stage of drought as defined by the U.S. Drought Monitor. Little rain fell on this region of the State in December. Major rivers and tributaries continued to show steady declines in flows.

Area Counties: Bandera, Blanco, Comal, Kendall and Kerr Counties

Rainfall and Area Conditions: This area received varying amounts of precipitation, ranging from 0.20 to 0.50 inches during December. With that rainfall, the Texas Crop Moisture Index in this area of the Hill Country was classified as "Mildly" to "Abnormally Dry". Most surface water diversions in this area are for municipal and industrial uses, with a few surface water permit holders irrigating hay and sod fields. The U.S. Drought Monitor indicated this area is currently in "Extreme" to "Exceptional" drought conditions.

Stream Flow Conditions: None of the major streams or their tributaries flowed at normal capacities. Most of the major streams showed a slight increase in flow during December, which may be contributed to the trees along the water courses being in their dormant stages. Most of the smaller secondary tributaries lost surface flow.

Site	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Kerrville	50	122
Guadalupe River near Comfort	56	339
Medina River at Bandera	25	269

Drought Restrictions: All temporary surface water permits in the Guadalupe River Basin above Canyon Lake and the San Antonio River Basin above Lake Medina were suspended. Because of the low stream flows, some State permit holders reached their flow restrictions and were curtailed from pumping. River flows are monitored on a daily basis.

Area Counties: Bee, Goliad, Victoria, Calhoun, Jackson, Refugio, Aransas, San Patricio, Nueces, Kleberg, Jim Wells, Duval, Live Oak, Kenedy, Willacy, Brooks, and Jim Hogg.

Rainfall and Area Conditions: This area received little rainfall during December. Some localized rainfall events occurred throughout the month, ranging from a trace to one inch. The rainfall did not provide much soil moisture or runoff into local area streams. The U.S. Drought Monitor indicated the area is experiencing "Abnormally Dry" to "Moderate Drought" to "Severe Drought" conditions. The Corpus Christi Reservoir System received little inflows during this time. Therefore, the reservoir level continued to drop. Most of the surface water diversions continued to be for municipal and industrial uses, little irrigation was noted.

Stream Flow Conditions:

Site (Years of Record)	Beginning Flows CFS	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Guadalupe River near Victoria (74)	400	479	380	1,820
San Antonio River near Goliad (74)	240	253	214	508
San Antonio River at McFaddin below Goliad (2)	270	267	269	427
Guadalupe River near Tivoli (2)	400	659	822	2,720
Mission River near Refugio (69)	2	4.5	4.8	59
Nueces River at Calallen Dam (8)	15	10	4.7	154
Aransas River near Skidmore (44)	3.3	3.2	3.5	6

Corpus Christi Reservoir System: The Corpus Christi Reservoir System did not receive much inflow during December and the level of the reservoir system continued to drop slightly. The Corpus Christi Reservoir System is currently at 77.1% of capacity or 734,167 acre-feet, compared to 98.3% of capacity or 930,117 acre-feet, during this same time last year. Choke Canyon is currently at 81.2% of capacity or 564,761 acre-feet, compared to 97.4 capacity or 677,227 acre-feet, during this same time last year. Lake Corpus Christi is currently at 65.9% of capacity or 169,406 acre-feet, compared to 98.3% of capacity or 252,890 acre-feet, last year. Corpus Christi continues to divert much of their monthly water supply needs from Lake Texana.

Drought Restrictions: No additional drought restrictions of water rights in this area.

Area Counties: Atascosa, Karnes, Gonzales, Wilson, McMullen, Dewitt, Guadalupe, Lavaca, Fayette, Colorado, Wharton, and Jackson.

Rainfall and Area Conditions: This area received 0.00 to 0.5 inches of rainfall during December. The northeastern region received 1 to 3 inches. Soil moisture conditions were very poor. Hay season ended and oat and rye crops suffered without supplemental irrigation. There was very little irrigation activity. Lake Texana is at 78% of capacity, which is 39.7 feet above mean sea level.

According to the U.S. Drought Monitoring System, this area experienced "Abnormally Dry" "Exceptional" drought conditions.

Stream Flow conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
San Antonio River near Falls City	177	Unk	302
Cibolo Creek near Falls City	32	33	32
Guadalupe River near Gonzalez	564	515	1,140
Lavaca River at Edna	65	13	59
Navidad River near Halletsville	3.7	1.6	30
Atascosa River near Whitsett	6.6	1.9	12
Frio River near Tilden	13	13	32
Nueces River near Tilden	0.12	0.16	2.6

Drought Restrictions: There were no additional restrictions on diversions.

Area Counties: Edwards, Real, Kinney, Uvalde, Zavala, Dimmit, La Salle and Webb.

Rainfall and Area Conditions: The Southwest Texas area received no relief from the drought conditions during December. There were small amounts of precipitation reported for the beginning and middle of the month, with a range of 0.10 to 0.45 inches. Most diversions of surface water were for irrigational use and small amounts for municipal and industrial uses. Crops irrigated in the area were: wheat, sesame seeds, winter rye, hay grazers, and pecans. The U.S. Drought Report indicated this area is experiencing "Abnormally Dry" to "Extreme" drought conditions.

Stream Flow Conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Nueces River at Laguna	57	50	127
Nueces River at Brackettville	0.14	0.14	5.4
Nueces River below Uvalde	17	17	111
Frio River at Concan	38	28	99
Sabinal River at Sabinal	1.6	0.80	20
Leona River near Uvalde	26	24	51

Stream flows of intermittent and tributary streams in the area were flowing well below average for this time of year.

Drought Restrictions: Permits with stream flow restrictions are being regulated. The Zavala/Dimmit Water District had a rotational diversion schedule on the Nueces River to ensure adequate water for domestic and livestock use.

Area Counties: Bastrop, Bexar, Blanco, Caldwell, Comal, Fayette, Frio, Guadalupe, Hays, and Medina.

Rainfall and Area Conditions: Well below average monthly rainfall fell across the San Antonio Regional Area during December. Month to date rainfall at the San Antonio International Airport was 0.27 inches. The average for December is 1.96 inches. Total annual rainfall to date is 13.73 inches; normal year to date is 32.79 inches, a departure from

normal of 19.06 inches. On December 24, 2008, the U. S. Drought Monitor indicated the San Antonio Regional Area was experiencing "Severe" to "Exceptional" Drought Conditions. This impacted crops, pastures and grasslands, stream flows, and reservoir capacities. Ground moisture was relatively poor due to the lack of rain and cloud cover. Winter oats, mustard greens, turnips, beets, carrots, Swiss chard, collard greens, and spinach were planted.

Stream Flow Conditions: The Guadalupe and Blanco Rivers showed the impact of the worsening drought. Small creeks dried and most major streams are beginning to quickly pool or dry up entirely. Municipal use decreased with the shorter days and residential lawns required less irrigation. Industrial use remained constant.

All major tributaries in the San Antonio Regional Area were well below their historical monthly averages for December

The Canyon Lake Reservoir was at 898.01 feet elevation, impounding 296,014 acre-feet, and was at 79.13% of capacity. On December 29, 2008, the Edwards Aquifer level at the J17 well in Bexar County was 669.9 feet. The historical average for December is 669.1 feet, which is 1.0 feet below the monthly historical average.

Site	Ending Flows CFS	Historical Mean CFS
Blanco River at Wimberley	15	127
San Marcos River at Luling	107	404
Guadalupe River at Spring Branch	63	314
San Marcos Springs	99	174
Comal Springs	292	302

Drought Restrictions: Most Temporary Permits were not allowed to divert surface water. Surface water permits are closely monitored in regards to "real time" stream flows as to whether or not they are allowed to divert.

Area Counties: Sterling, Tom Green, Irion, Concho, Coke, Glasscock, Runnels, Reagan, and Schleicher.

Rainfall was scarce in the Concho River Valley during December, falling well below the monthly average for the third consecutive month. According to information provided by the USDA, the State Drought Monitor Index of the Concho Valley was at "Abnormally Dry" drought conditions.

Rainfall and Area Conditions: Rainfall in San Angelo during December was 0.04 inches. The average rainfall amount in the area was 1.20 inches. Areas surrounding San Angelo received slightly higher rainfall amounts. The total yearly amount of rainfall is 20.60 inches. In 2007, there were 32.05 inches of rain. Average annual rainfall, based on 100 years of record, is 19 inches. Area reservoirs were showing slight decreases in the amount of storage from the previous month. Irrigation demand by appropriated surface water rights in the Concho Valley was at a reduced volume, due to timely rains. The Texas Crop Moisture Index indicated soil moisture content was "Abnormally Dry". Cotton was stripped and picked and winter wheat was planted.

Stream Flow Conditions:

Area lakes indicate Lake Nasworthy is at 81% of capacity or 8,444 acre-feet, O. C. Fisher was at 5% of capacity or 6,173 acre-feet, and Twin Buttes Lake was at 32% of capacity or 59,173 acre-feet.

Site	Ending Flows CFS	Historical Mean CFS	Years of Record
USGS Gaging System at Spring Creek/Twin Buttes	9.7	15	4
USGS Gaging System at Concho River/San Angelo	13	32	77
USGS Gaging System at South Concho/Christoval	8.1	23	73

Drought Restrictions: There were no additional restrictions on diversions in the Concho Valley.

8. UPPER COLORADO (Concho River watershed not included)

The upper Colorado River area received less than normal precipitation during December. The National Weather Service in San Angelo reported monthly precipitation of 0.04 inches, which was 0.90 inches below normal. The annual total to date was 19 inches, which was 1.91 inches below normal. According to the U.S. Drought Monitor, the drought conditions in the area ranged from "Abnormal" to "Moderate", and the upper reaches of the Llano River watershed are in an area of "Severe" drought. Most tributaries in the upper Colorado watershed had diminished flows. However, there were isolated areas that flowed at or above the USGS long-term median. The pool levels of EV Spence and OH Ivie Reservoir decreased during November, reaching levels of 10% and 55% of capacity, respectively.

9. TEXAS PANHANDLE AND SOUTHERN HIGH PLAINS

Amarillo Area: The Amarillo Region reported the following summary for the Northern panhandle area:

Lake Meredith was at 53.20 feet and decreasing. Lake Greenbelt ended December at 55.19 feet. The Canadian River upstream of the lake flowed at 25 CFS. Lake MacKenzie was at 70.76 feet. The National Weather Service in Amarillo reported a total rainfall in December of 0.05 inches, which was 0.56 inches above the yearly average.

Lubbock Area: Lubbock received only 0.01 inches for the month. The average rainfall for December was 0.67 inches. Similar amounts were recorded throughout the Region 2 area. Total precipitation for 2008 stood at 28.00 inches; which was 9.31 inches above normal for this point in the year. The long term drought situation was not changed. All of the communities previously noted as being on mandatory water restrictions remained on those restrictions. No new communities were added to the water restrictions list during November, and none were removed.

Lubbock and Amherst remained on mandatory drought restriction status. Ralls, Crosbyton, Spur, Post, White River WCS, and Valley WSC in the South Plains area remained on voluntary drought restriction status.

2. GENERAL CONDITIONS

Precipitation was more plentiful in March 2009 than during the last few months, providing some temporary relief to drought stricken areas. However, it was not enough to break the drought across most of the State, aside from East Texas. A large area of exceptional drought, approximately 7.1% of the State, existed from South Central Texas to the middle Texas coast. A dry March in the panhandle, the southern Rio Grande Valley, and far West Texas was not beneficial to developed drought conditions during the past few months.

An active weather pattern, typical of March weather in Texas, brought numerous cold fronts through the State, with two main periods that brought most of the March precipitation. After a nondescript first ten days of March, a storm system pushed southeastward through the State from March 11-14, bringing much needed precipitation to a large area. Central Texas received 2-5 inches of precipitation on March 12. East Texas was the beneficiary of a cold front that stalled and brought ample rainfall from the 25th through the 28th, though severe weather reports were numerous during the period.

About 75% of the State was drier than normal according to radar-estimated precipitation from the Advanced Hydrologic Prediction Service (AHPS), though the percentage of the State that received less than 25% of normal precipitation was much smaller than the previous four months. Austin received 3.04 inches of rain and San Antonio received 2.51 inches. However, several more months of at least normal, preferably above normal, precipitation is needed to alleviate the exceptional drought in the area. Also, the historical lack of March precipitation in the Middle Texas coast only served to worsen the exceptional drought.

With the above normal March precipitation in the Edwards Plateau region, the percentage of Texas with D4 drought classification fell from 9.6% to 7.1% during the past month, though this percentage is still higher than at the end of January 2009. The lack of March precipitation in extreme Southern and far West Texas accelerated developing drought conditions. The percentage of Texas with at least severe drought covered 48.3%, unfortunately the highest in the current drought cycle, with 80.6% of the State in at least a moderate drought.

The El Nino-Southern Oscillation (ENSO) cycle is currently in a weak negative phase according to the Climate Prediction Center (CPC), and is expected to weaken further during the upcoming spring. The current one-month forecast from the CPC calls for an equal chance of below normal, near normal, and above normal precipitation across the northeastern half of Texas and a 33-40% chance of below normal April precipitation across the panhandle and South Central Texas. The lower Rio Grande Valley and Trans-Pecos regions that were dry in March have a 40-50% chance of below normal April precipitation. The three-month outlook calls for an equal chance of below normal, near normal, and above normal precipitation across Texas. Persistence of the current drought is expected in most areas, though the next few months could possibly bring some improvement to the situation in Central and North Central Texas.

3. OVERALL STATEWIDE DROUGHT CONDITIONS

According to drought indices, the State received slight relief in 6 climate regions due to rainfall in late March. However, drought conditions worsened in the Low Rolling Plains.

According to the Palmer Drought Severity Index (PDSI), by the end of March, all regions with the exception of East Texas, were under "Mild to Moderate Drought" or "Dry Spell" conditions. The South Central region remained under an "Extreme Drought" condition. The Edwards Plateau region reduced from a "Severe Drought" to a "Mild Drought". The PDSI varies from extremely wet, very wet, moderately wet, slightly wet, incipient wet spell, near normal, incipient dry spell, mild drought, moderate drought, severe drought, and extreme drought in order of increasing severity.

According to the Crop Moisture Index (CMI), by the end of March, the Southern and Lower Valley regions were under an "Abnormally Dry" condition. The remaining regions were under "Slightly Dry / Favorably Moist" or "Wet" conditions. By the Texas Water Development Board (TWDB) scale, the CMI varies from flooding, standing water, fields too wet, moisture adequate, mildly dry, abnormally dry, excessively dry, severely dry, and extremely dry in order of increasing severity.

No update is available for the Six-Month Standardized Precipitation Index at the time of report.

The Keetch-Byram Drought Index (KBDI) indicates an extreme fire danger in the Southern Region, a very high fire risk in the South Central and Lower Valley Regions, high in the Lower Rolling Plains, Trans-Pecos, Upper Coast, and the Edwards Plateau Regions, and above average in the North Central and High Plains Regions. The KBDI is a drought index specifically used to describe potential or expected fire behavior. The index is classified as Low, Moderate, High, or Extreme fire danger, in order of increasing severity.

4. WATER UTILITY STATUS

April 2009 began with 106 public water systems requiring customers to conserve water by following water use restrictions. Of those systems, 74 asked customers to follow a mandatory watering schedule and 32 asked for voluntary reductions in usage.

Rain and cooler temperatures in the central portion of the State helped lower outdoor water usage. Weather forecasts; however, continue to call for little or no significant rain, which has been the pattern for the past several months. The outdoor growing season began, which will result in the increase of outside water usage. With the increase in usage and the continued lack of significant rain, it is expected that additional public water systems will reach the triggers of Drought Contingency Plans and place watering restrictions on customers.

5. WATER RIGHTS – STATEWIDE

During March, a letter was sent to the surface water right holders of record to provide information of the drought conditions. New temporary water use permit applications are being reviewed on a site-specific basis and issued if there is sufficient surplus water at the requested source. Applications for new water use permits and amendments to existing permits remained normal during the month. The water rights owners in the Brazos River Basin, whose permits contain the Hale Clause restrictions, observed less severe stream flow conditions during the winter months. The availability of unappropriated water for new water use permits continued to decrease in all river basins in the State and the search for long-term, dependable alternate sources of water remained a high priority issue.

White River Lake: The lake's pool elevation was at 2351.74 acre-feet, or 18.5 feet below full. This is an decrease of 0.35 feet from the level at the end of November 2008. White River WSD has groundwater wells on standby to supply water to its customers if the lake level drops below usable levels.

Lake Alan Henry: The lake is full. It is not used for public drinking water supplies at present, but will be utilized for this purpose in the near future.

10. AGRICULTURAL CONCERNS

No information available at this time.

11. DROUGHT IMPACTS TO WILDLIFE

No information available at this time.

12. WILDFIRE CONCERNS

The Keetch-Byram Drought Index (KBDI) is used to help determine potential for fire risk. It is a numerical index where each number is an estimate of the amount of precipitation, in 100ths of an inch, needed to bring the soil back to saturation. The index ranges from 0 to 800, with 0 representing a saturated soil, and 800 a completely dry soil. The relationship of the KBDI to fire danger is, as the index increases, the vegetation is subjected to increased moisture stress. KBDI levels and its relationship to expected fire potential are reflected in the following:

KBDI = 0 – 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. This is typical of spring dormant season following winter precipitation.

KBDI = 201 – 400: Typical of late spring; early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 401 – 600: Typical of late summer, early fall. Lower litter and duff layers contribute to fire intensity and will burn actively.

KBDI = 601 – 800: Often associated with more severe drought and increased wildfire occurrence. Intense, deep-burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

There are currently 142 counties, illustrated in Attachment 2, with KBDI values in excess of 400, indicating areas within these counties are beginning to experience dry conditions which could result in an increased fire risk potential.

The Council, which is chaired by Jack Colley, Chief, Governor's Division of Emergency Management, is composed of state agencies concerned with the effects of drought and fire on the citizens of the State of Texas. The attached information was compiled and provided by representatives listed below. Points of contact, telephone numbers, and web site addresses are also provided.

Jack Colley, Chief, Governor's Division of Emergency Management, (512) 424-2443, fax (512) 424-2444, web site: http://www.txdps.state.tx.us/dem

John Sutton, Texas Water Development Board, (512) 463-7988, fax (512) 463-9893, web site: http://www.twdb.state.tx.us

Chris Loft, Texas Commission on Environmental Quality, (512) 239-4715, fax (512) 239-4770, web site: http://www.tceq.state.tx.us

Richard Egg, Texas State Soil & Water Conservation Board, (254) 773-2250, fax (254) 773-3311, web site: http://www.tsswcb.state.tx.us

Lance Williams, Texas Department of Agriculture, (512) 463-3285, fax (800) 835-2981, web site: http://agr.state.tx.us

Dr. Travis Miller, Texas AgriLife Extension Service, (979) 845-4808, fax (979) 845-0456, web site: http://texasextension .tamu.edu

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cc:

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Steven Schar, Committee Clerk, House Agriculture and Livestock Committee
Anne Creixell, Committee Clerk, House Criminal Jurisprudence Committee
Zak Covar, Policy Advisor for TCEQ Issues, Governor's Policy Office
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Rob Johnson, Lt. Governor's Chief of Staff
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Allan B. Polunsky, Chairman, Public Safety Commission
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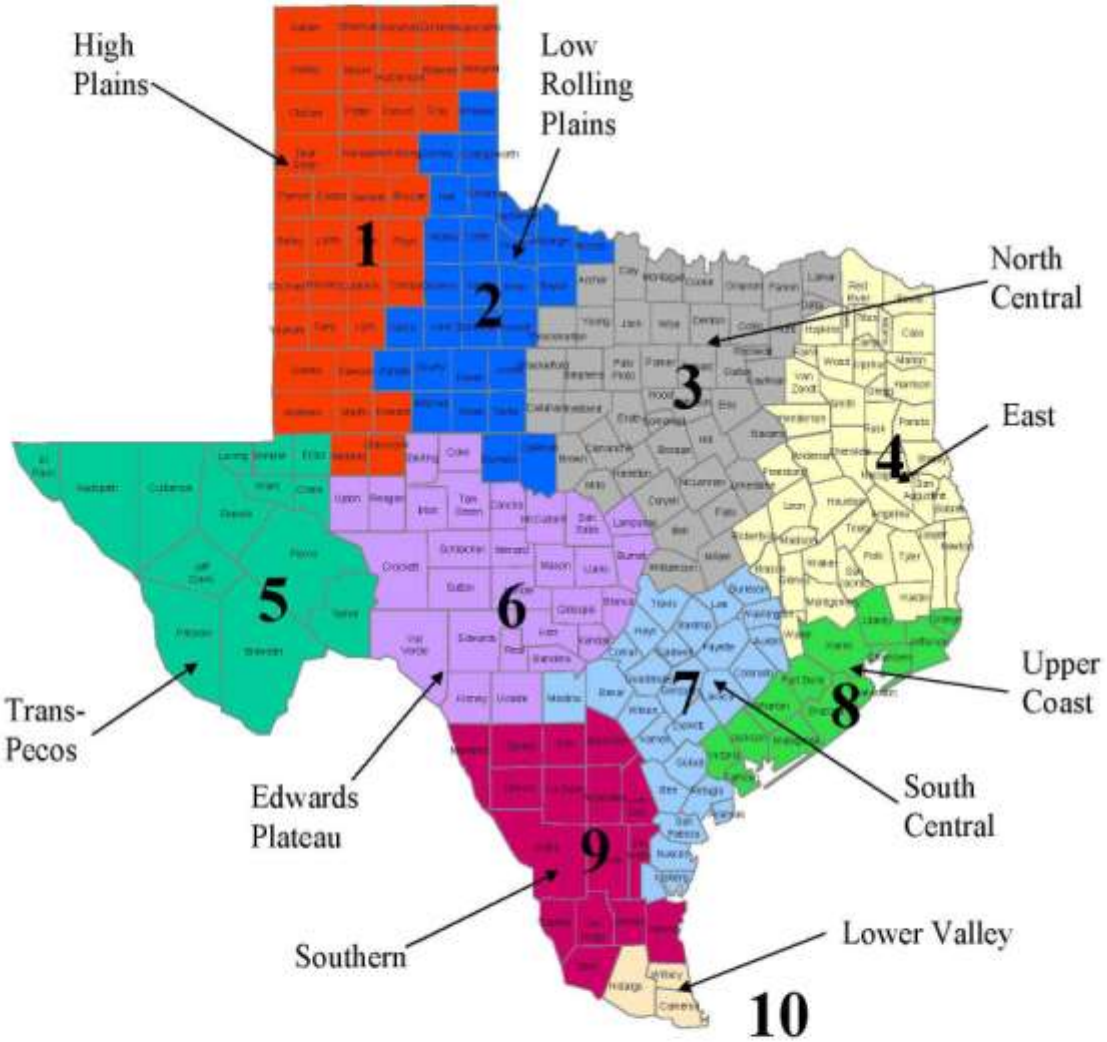
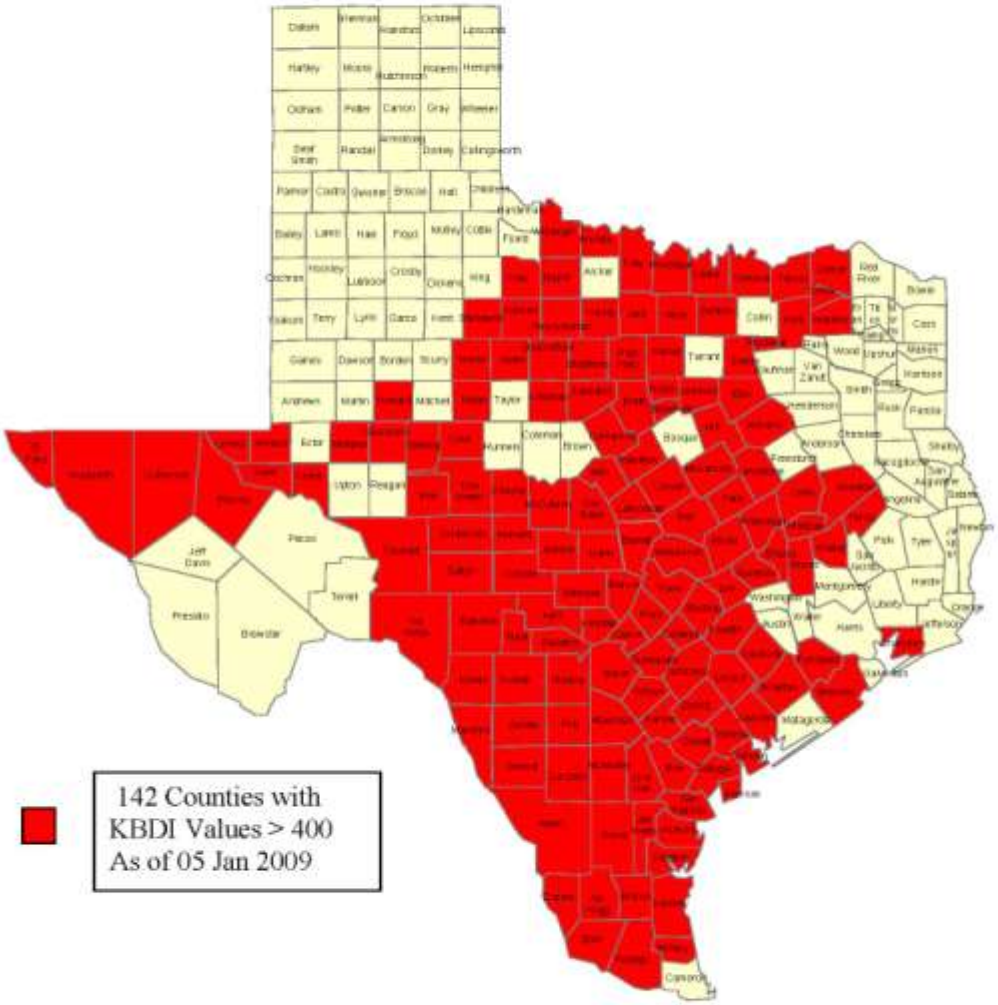
Colonel Stanley Clark, Interim Director, Department of Public Safety
Lieutenant Colonel Lamar Beckworth, Interim Assistant Director, Department of Public Safety
Lori Gabbert, Budget Analyst, Legislative Budget Board (LBB-DPS)
Tom Lambert, Budget Analyst, Legislative Budget Board (LBB-TCEQ)
Ed Perez, Executive Director, Texas Office of State-Federal Relations, Washington, DC
Brandon Steinmann, Director, Texas Office of State-Federal Relations, Austin, Texas

Attachment 1
Climatic Regions



Attachment 2
Counties with High to Extreme Fire Danger



DROUGHT PREPAREDNESS COUNCIL

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JACK COLLEY
Council Chairman

February 12, 2009

TO: The Honorable Rick Perry, Governor, State of Texas
The Honorable David Dewhurst, Lieutenant Governor, State of Texas
Ms. Esperanza Andrade, Secretary of State, State of Texas
The Honorable Robert Duncan, President Pro-Tempore of the Senate, State of Texas
The Honorable Joe Straus, Speaker of the House, State of Texas
The Honorable Steve Ogden, Chairman, Senate Finance Committee, State of Texas
The Honorable Kip Averitt, Chairman, Senate Natural Resources Committee, State of Texas
The Honorable John Carona, Chairman, Senate Committee on Transportation & Homeland Security, State of Texas
The Honorable Jim Pitts, Chairman, House Appropriations Committee, State of Texas
The Honorable Allan Ritter, Chairman, House Natural Resources Committee, State of Texas
The Honorable Yvonne Gonzalez-Toureilles, Chairman, House Agriculture & Livestock Committee, State of Texas
The Honorable Pete Gallego, Chairman, House Criminal Jurisprudence Committee, State of Texas
Mr. Jay Kimbrough, Chief of Staff, Office of the Governor
Mr. Steven McGraw, Director, Texas Governor's Office of Homeland Security

FROM: Chief Jack Colley, Chairman, Drought Preparedness Council

SUBJECT: Statewide Drought Situation Report

1. NEXT COUNCIL MEETING

March 12, 2:00 p.m., Governor's Conference Room of the Governor's Division of Emergency Management, State Operations Center, Texas Department of Public Safety Headquarters, 5805 N. Lamar Blvd., Austin, Texas. At this time, the Council will continue to meet on a monthly basis.

February 12, 2009 Drought Situation Report

2. GENERAL CONDITIONS

January 2009 continued with below normal precipitation across all of Texas, worsening a drought that continues to expand in size and magnitude. According to the Advanced Hydrologic Prediction Center, less than 10% of the State received at least one inch of rainfall. As of February 3, 2009, 95.4% of Texas was classified as being at least "Abnormally Dry" according to the United States Drought Monitor (USDM). The current La Niña phase of the El Niño-Southern Oscillation (ENSO) is firmly entrenched and continued to provide Texas with the abnormally dry weather characteristic of this ENSO pattern.

The majority of January precipitation was on January 6th and 7th as a cold front swept across the eastern half of the State. Parts of drought stricken Central Texas received 0.05" of precipitation and areas of Northeast Texas received over an inch. There was little measurable precipitation across the entire State the following three weeks. A very strong front pushed from north to south across Texas on the 27th and 28th, bringing a significant and deadly ice storm to North Texas.

West Texas was very dry, which was reflected by the climate division averages. The Trans Pecos region received no precipitation, the High Plains region received 0.01", and the Low Rolling Plains region received 0.02". The South Central Texas total rainfall of 0.31" was only 14% of normal January precipitation. This lack of precipitation intensified an already "Exceptional Drought". The past four to five months in South Central Texas were historically dry and rank only behind the same months from 1917-1918 in terms of dryness.

The percentage of Texas with the "Exceptional Drought" classification expanded from 4.2% to 6.7% during January. The Low Rolling Plains were classified as "Abnormally Dry" at the beginning of the month, but a lack of January precipitation left this region in a "Severe Drought" by the end of the month. "Severe Drought" covered 42.6% and "Moderate Drought" covered 66.8% of Texas by the end of January, compared to 15.0% and 24.5%, respectively, at the beginning of the month.

The ENSO cycle is forecast to be in a negative phase through early spring according to the Climate Prediction Center (CPC), which issued its first ever La Niña advisory on February 5 under its new ENSO Alert System. The current one-month forecast from the CPC calls for an equal chance of below normal, near normal, and above normal precipitation across the northern half of Texas, and a 33-40% chance of below normal February precipitation across the southern half of the State.

The three-month outlook calls for a 33-40% chance of below normal precipitation for most of West Texas and a greater than 40% chance of below normal precipitation in the Trans Pecos region. The remainder of the State has an equal chance of below normal, near normal, and above normal precipitation. The area of "Moderate" to "Exceptional Drought" is expected to persist in areas already affected and develop in the Trans Pecos region as a result of the dry conditions expected in the next few months.

3. OVERALL STATEWIDE DROUGHT CONDITIONS

According to the Palmer Drought Severity Index (PDSI), seven regions were in a dry spell/drought. The South Central region was in a "Severe Drought" condition and the North Central and Edwards Plateau regions were in a "Moderate Drought". The Upper Coast and Southern regions were under "Mild Drought" conditions and the Lower Rolling Plains and Trans-Pecos regions were under "Incipient Dry" conditions. The remainder of the State was

under either "Near Normal" or "Wet Spell" conditions, including the Lower Valley region which is under "Moderate Wet" conditions. The PDSI varies from extremely wet, very wet, moderately wet, slightly wet, incipient wet spell, near normal, incipient dry spell, mild drought, moderate drought, severe drought, and extreme drought in order of increasing severity.

As of January 31, the Crop Moisture Index (CMI) indicated all regions were near normal.

According to the Six-Month Standardized Precipitation Index, the South Central region was classified as "Severely Dry" and the North Central region as "Moderately Dry". All other regions were "Near Normal". The SPI varies in categories of extremely wet conditions, very wet, moderately wet, near normal, moderately dry and, severely dry, extremely dry in order of increasing severity.

The Keetch-Byram Drought Index (KBDI) indicates an extreme fire danger in the South Central region, a very high fire risk in the Edwards Plateau and Southern regions, high in the North Central, Trans-Pecos, Upper Coast, and Lower Valley regions, and above average in the Low Rolling Plains region. The KBDI is a drought index specifically used to describe potential or expected fire behavior. The index is classified as Low, Moderate, High or Extreme fire danger, in order of increasing severity.

4. WATER UTILITY STATUS

February began with 102 public water systems requiring customers to conserve water by following water use restrictions. Of those systems, 72 asked customers to follow a mandatory watering schedule and 30 asked for voluntary reductions in usage.

Since the first of the year, very little rain has fallen in the State. Central Texas is in the grip of a "Severe Drought" resulting in lower available water in lakes, rivers, springs, and water wells. If this pattern continues, additional public water supplies will reach the triggers of their Drought Contingency Plans which institute water restrictions to customers.

5. WATER RIGHTS – STATEWIDE

New temporary water use permit applications are reviewed on a site-specific basis and are issued if there is sufficient surplus water at the requested source. Applications for new water use permits and amendments to existing permits remained normal during the month. The water rights owners in the Brazos River Basin, whose permits contain the Hale Clause restrictions, observed less severe stream flow conditions during the winter months. The availability of unappropriated water for new water use permits continued to decrease in all river basins in the State and the search for long-term, dependable alternate sources of water remained a high priority issue.

6. WATER RIGHTS – LOWER RIO GRANDE / RIO GRANDE WATERMASTER (RGWM)

Current Overall Conditions: As of January 27, 2009, the U.S. combined ownership at Amistad/Falcon stood at 96.20% of conservation capacity or 3,507,942 acre-feet of new temporary conservation capacity. This is up from 102.44% or 3,474,703 acre-feet from a year ago at this time. Overall, the system is holding 97.45% or 6,202,742 acre-feet of conservation capacity with Amistad at 97.70% or 3,472,929 acre-feet and Falcon at 98.29% or 2,892,065 acre-feet. Mexico has 98.56% or 2,679,397 acre-feet of the water it could store at Amistad/Falcon.

Allocations: As of the printing of the January ownership report, the U.S. allocated in excess of 795,527 acre-feet for irrigation and mining. The U.S. continued to have an amount in excess of 722,940 acre-feet for future allocations in 2009.

Storage & Loss Amistad vs. Falcon: The U.S. is currently storing approximately 1.87 million acre-feet or 96.2% at Amistad, and approximately 1.62 million acre-feet or 96.2% at Falcon.

Evaporation and seepage losses at Amistad YTD were 57,536 acre-feet. During the same period, the U.S. lost 61,923 acre-feet at Falcon. The ratio of loss between Amistad and Falcon continued to be 1:2, consistent with Amistad being twice as efficient in overall storage and loss.

Releases to Meet Demands: Mexico released 9,647 acre-feet from Amistad and 112,668 acre-feet from Falcon for Mexico needs. The U.S. released 37,367 acre-feet from Amistad and 96,563 acre-feet from Falcon for U.S. needs. Combined with gains between Amistad and Falcon, U.S. inflows to Falcon totaled 79,141 acre-feet. So far, the U.S. met 90% of overall needs in the middle and Lower Rio Grande directly from middle Rio Grande and Amistad inflows this year. The movement of water from Amistad was primarily driven by the excess amount in storage and the need to keep it below conservation capacity, particularly when U.S. is occupying Mexico's space in Amistad.

Upper Rio Grande (New Mexico): Currently, Elephant Butte in New Mexico is storing 659,106 acre-feet or 32.57% and Caballo Dam, downstream of Elephant Butte, is storing 23,511 acre-feet or 10.36%. This water storage, in part, was used to meet water needs in the El Paso area.

Outlook: All active accounts began 2009 with 100% usable balances. The U.S. is operating under temporary conservation levels until level returns to the normal conservation. To help alleviate losses in Falcon, the U.S. continues to monitor ownership and elevation levels in both Falcon and Amistad so that U.S. transfers of water from Amistad to Falcon can be most efficient. Both U.S. reservoirs are considered full as are the majority of the Mexican reservoirs in the Rio Grande Basin. "No Charge Pumping" was declared effective October 26, 2008 from Amistad down to the Gulf for all diversion requests.

7. SOUTH TEXAS WATERMASTER – GUADALUPE / LAVACA / SAN ANTONIO / NUECES REGION

The month of January brought very little relief from the current drought conditions. Some light scattered rain fell over South Central Texas but it was not enough to impact the ongoing drought. River flows continue to slowly decline.

Area Counties: Bandera, Blanco, Comal, Kendall and Kerr Counties

Rainfall and Area Conditions: The region received varying amounts of precipitation, ranging from 0.33 to 0.50 inches during January. With that rainfall, the Texas Crop Moisture Index in the area of the Hill Country was classified as "Abnormally Dry". Most surface water diversions in the area are for municipal and industrial uses, with a few surface water permit holders irrigating hay and sod fields. The U.S. Drought Monitor indicated the area is currently in "Exceptional" drought conditions.

Stream Flow Conditions: The major streams and their tributaries are flowing below average. Most of the major streams showed a slight decrease in flow during January, and the smaller secondary tributaries lost their surface flows.

Site	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Kerrville	50	119
Guadalupe River near Comfort	56	179
Medina River at Bandera	15	116

Drought Restrictions: All temporary surface water permits in the Guadalupe River Basin above Canyon Lake and the San Antonio River Basin above Lake Medina were suspended. Because of the low stream flows, some State permit holders reached their flow restrictions and were curtailed from pumping. River flows are monitored on a daily basis.

Area Counties: Bee, Goliad, Victoria, Calhoun, Jackson, Refugio, Aransas, San Patricio, Nueces, Kleberg, Jim Wells, Duval, Live Oak, Kenedy, Willacy, Brooks, and Jim Hogg.

Rainfall and Area Conditions: This area received little rainfall during the month of January. Some counties in the area didn't receive any rainfall during the month while others experienced scattered rainfall events, mostly ranging from a trace to under an inch. The rainfall events were insufficient to make any impact in the ongoing drought. The rainfall did not provide much soil moisture or runoff into local area streams. The U.S. Drought Monitor indicates that this area ranges from "Abnormally Dry" to "Severe Drought" conditions although some areas are now experiencing "Extreme Drought" conditions. Most of the surface water diversions in the area continued to be for municipal and industrial uses; little irrigational use was noted.

Stream Flow Conditions:

Site (Years of Record)	Beginning Flows CFS	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Guadalupe River near Victoria (74)	500	474	479	1,680
San Antonio River near Goliad (73)	250	309	253	684
San Antonio River at McFaddin below Goliad (2)	270	376	267	546
Guadalupe River near Tivoli (2)	700	566*	659	2,450
Mission River near Refugio (69)	4.5	3.4	4.5	94
Nueces River at Calallen Dam (9)	3	0.72	10	79
Aransas River near Skidmore (44)	3.2	3.3	3.2	13

*USGS Gage value for 01/27/09

Corpus Christi Reservoir System: The Corpus Christi Reservoir System did not receive much inflow during January and the level of the reservoir system continued to drop slightly.

The Corpus Christi Reservoir System is currently at 75.9% of capacity or 722,575 acre-feet, compared to 97.6% of capacity or 929,533 acre-feet, during this same time last year. Choke Canyon is currently at 80.4% of capacity or 558,769 acre-feet, compared to 97.1 capacity or 675,189 acre-feet, during this same time last year. Lake Corpus Christi is currently at 63.7% of capacity or 163,806 acre-feet, compared to 98.9% of capacity or 254,344 acre-feet, last year. Corpus Christi continues to divert much of their monthly water supply needs from Lake Texana.

Drought Restrictions: No additional drought restrictions of water rights in this area.

Area Counties: Atascosa, Karnes, Gonzales, Wilson, McMullen, Dewitt, Guadalupe, Lavaca, Fayette, Colorado, Wharton, and Jackson.

Rainfall and Area Conditions: The southwestern portions of the area received 0.0 to 0.5 inches of rainfall during January, whereas the northeastern portions received 0.5 to 1.5 inches. Soil moisture conditions ranged from fair in the eastern counties of this area to very poor in the central and southern counties of the area. Oat and rye crops are not doing well and farmers are hesitant to begin spring planting due to the extremely dry conditions. Currently, there is very little irrigational activity. Lake Texana is at 70% of capacity which is 38.22 ft. above mean sea level.

According to the U.S. Drought Monitoring System, this area experienced "Abnormally Dry" to "Exceptional" drought conditions.

Stream Flow conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
San Antonio River near Falls City	255	177	307
Cibolo Creek near Falls City	23	32	33
Guadalupe River near Gonzalez	587	564	1,330
Lavaca River at Edna	1.8	13	72
Navidad River near Halletsville	3.3	3.7	34
Atascosa River near Whitsett	2.3	6.6	13
Frio River near Tilden	14	13	40
Nueces River near Tilden	0.07	0.12	1.9

Drought Restrictions: There were no additional restrictions on diversions.

Area Counties: Edwards, Real, Kinney, Uvalde, Zavala, Dimmit, La Salle and Webb.

Rainfall and Area Conditions: The Southwest Texas area received no relief from the drought conditions during January. There were rain showers reported in the beginning of the month but no precipitation reported in the middle or the end of the month. The range of rainfall in the area was 0.10 to 0.60 inches. Most diversions of surface water were for irrigational use with small amounts for municipal and industrial uses. Crops irrigated in the area were: wheat, sesame seeds, winter rye, hay grazers, and pecans. The U.S. Drought Report indicated this area is experiencing "Abnormally Dry" to "Extreme" drought conditions.

Stream Flow Conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Nueces River at Laguna	48	57	102
Nueces River at Brackettville	0.05	0.14	1.2
Nueces River below Uvalde	13	17	60
Frio River at Concan	32	38	89
Sabinal River at Sabinal	0.46	1.6	16
Leona River near Uvalde	19	26	49

Stream flows of intermittent and tributary streams in the area were flowing well below average for this time of year.

Drought Restrictions: Permits with stream flow restrictions are being regulated. The Zavala/Dimmit Water District had a rotational diversion schedule on the Nueces River to ensure adequate water for domestic and livestock use.

Area Counties: Bastrop, Bexar, Blanco, Caldwell, Comal, Fayette, Frio, Guadalupe, Hays, and Medina.

Rainfall and Area Conditions: Well below average monthly rainfall fell across the San Antonio Regional Area during January. Month to date rainfall at the San Antonio International Airport was 0.28 inches. The average for January is 1.66 inches. The U.S. Drought Monitor indicated the San Antonio Regional Area was experiencing "Severe" to "Exceptional" Drought Conditions. This impacted crops, pastures and grasslands, stream flows, and reservoir capacities. Ground moisture was relatively poor due to the lack of rain and cloud cover. Harvests of beets, turnips, cabbage, spinach, garlic, mustard greens, carrots, and Swiss chard were reported with supplemental irrigation.

Stream Flow Conditions: The Guadalupe and Blanco Rivers showed the impact of the worsening drought. Small creeks dried and most major streams are beginning to quickly pool or dry up entirely. Municipal use decreased with the shorter days and residential lawns required less irrigation. Industrial use remained constant.

The Canyon Lake Reservoir was at 897.56 feet elevation, impounding 291,845 acre-feet, and was at 77.03% of capacity. On January 30, 2009, the Edwards Aquifer level at the J17 well in Bexar County was 668.8 feet. The historical average for January is 669.7 feet, which is 0.9 feet below the monthly historical average.

Site	Ending Flows CFS	Historical Mean CFS
Blanco River at Wimberley	13	127
San Marcos River at Luling	104	385
Guadalupe River at Spring Branch	55	294
San Marcos Springs	97	175
Comal Springs	291	307

Drought Restrictions: Most Temporary Permits were not allowed to divert surface water. Surface water permits are closely monitored to determine if "real time" stream flows are allowed to divert.

Area Counties: Sterling, Tom Green, Irion, Concho, Coke, Glasscock, Runnels, Reagan, and Schleicher.

Rainfall was scarce in the Concho River Valley during January, falling well below the monthly average for the fourth consecutive month. According to information provided by the USDA, the State Drought Monitor Index of the Concho Valley was at "Severe Drought" to "Extreme Drought" conditions.

Rainfall and Area Conditions: Rainfall in San Angelo during January was 0.07 inches. Areas surrounding San Angelo received slightly higher rainfall amounts. The historical mean for January is 0.78 inches. Area reservoirs showed slight decreases in the amount of storage from the previous month. Irrigation demand by appropriated surface water rights in the Concho Valley was at a reduced volume, due to timely rains. The Texas Crop Moisture Index indicated soil moisture content was "Abnormally Dry". Winter wheat was planted and established. Irrigational demand by appropriated surface water rights in the Concho Valley was at normal volume to irrigation of wheat crops.

Stream Flow Conditions:

Lake Nasworthy is at 82% of capacity or 8,324 acre-feet, O. C. Fisher was at 5% of capacity or 5,904 acre-feet, and Twin Buttes Lake was at 32% of capacity or 58,961 acre-feet.

Site (Years of Record)	Ending Flows CFS	Historical Mean CFS
USGS Gaging System at Spring Creek/Twin Buttes (4)	9.7	15
USGS Gaging System at Concho River/San Angelo (77)	11	54
USGS Gaging System at South Concho/Christoval (73)	6.4	29

Drought Restrictions: There were no additional restrictions on diversions in the Concho Valley.

8. **UPPER COLORADO** (Concho River watershed not included)

The upper Colorado River area received less than normal precipitation during January. The National Weather Service in San Angelo reported monthly precipitation of 0.06 inches, which was 0.76 inches below normal. According to the U.S. Drought Monitor, the drought conditions in the area ranged from "Severe" to "Extreme". Most tributaries in the upper Colorado watershed had diminished flows. However, there were isolated areas that flowed at or above the USGS long-term median. The pool levels of EV Spence and OH Ivie Reservoir decreased during January, reaching levels of 10% and 55% of capacity, respectively.

9. TEXAS PANHANDLE AND SOUTHERN HIGH PLAINS

Amarillo Area: The Amarillo Region reported the following summary for the Northern panhandle area:

Lake Meredith was at 52.8 feet, down 0.44 feet. Lake Greenbelt ended January at 55.21 feet, down 0.09 feet. The Canadian River upstream of the lake flowed at 25 CFS. Lake MacKenzie was at 70.40 feet, down 0.39 feet. The National Weather Service in Amarillo reported a total rainfall in January of 0.03 inches, which was 0.60 inches below normal.

Lubbock Area: Lubbock received only 0.13 inches for the month. The average rainfall for January is 0.50 inches. Similar amounts were recorded throughout the area. The long term drought situation was not changed. All of the communities previously noted as being on mandatory water restrictions remained on those restrictions. No new communities were added to the water restrictions list during January, and none were removed.

Lubbock and Amherst remained on mandatory drought restriction status. Ralls, Crosbyton, Spur, Post, White River WCS, and Valley WSC in the South Plains area remained on voluntary drought restriction status.

White River Lake: The Lake's pool elevation was at 2351.7 acre-feet, or 18.5 feet below full. This is a decrease of 0.35 feet from the level at the end of December 2008. White River WSD has groundwater wells on standby to supply water to its customers if the lake level drops below usable levels.

Lake Alan Henry: The lake is one foot below full. It is not used for public drinking water supplies at present, but will be utilized for this purpose in the near future.

10. AGRICULTURAL CONCERNS

Agricultural conditions continued to decline as the drought spread across the State. No summer annual crops were planted, and dry weather conditions over most of the Rio Grande Valley, the Gulf Coast, Central and North Texas will severely limit progress towards planting. Wheat and oat conditions continued to decline. The conditions of the wheat and oat crops were reported at 38% and 18%, respectively. Top soil moisture ranges from 67% to 99% short to very short in all Texas climate zones. Availability of grazing and/or stock water for livestock was problematic across most of the State, with particularly dire conditions in Central Texas. Livestock producers are utilizing hay and supplemental feed due to lack of grass and winter pasture. Many livestock operators are facing declining availability of water as stock ponds dry out. Some forage remains in parts of East and North Texas, but conditions are poor or very poor over the remainder of the State.

The following agricultural conditions summaries were compiled by Texas AgriLife Extension district reporters this week:

Central: Conditions remained very dry and moisture was desperately needed. Warmer temperatures and high winds continued to dry out the pastures. Little farming activity occurred. Hay and feeding programs continued. Most counties were under burn bans. Stock tanks were critically low.

Coastal Bend: Drought continued with near normal temperatures. As planting time approached, there was no soil moisture to germinate seed. Corn growers were at a

crossroads whether to plant in dry ground and pre-water or change crop intentions. Livestock were still being supplemented with hay and protein due to lack of forage. Hay was in short supply and cattle were beginning to lose weight. Some cattle were being sold.

East: Dry conditions continued. Winter forage was poor due to lack of moisture. Wildfires were still a major concern. Field preparations continued for spring planting. Many producers were waiting for moisture to establish forage varieties. Livestock were in fair to good condition with some supplemental feeding.

Far West: No precipitation, and range and pasture conditions were very dry. Several counties put burn bans into effect. Dry land wheat was not sufficient; some stands were dying.

North: Soil moisture ranged from adequate to very short in some areas despite the ice storm melt of last week. Some areas saw moderate rain but soils dried very quickly. Small grain crops were mostly in poor condition. Wheat looked better due to a small amount of moisture from the ice melt. Winter greens and lettuce were doing well. Due to lower fertilizer prices, producers were gearing up for corn planting. The pecan harvest was 100% complete. Livestock were in fair to good condition. Supplemental feeding continued, and ponds were getting very low. Feral hogs continued to be a problem, rooting up wheat fields. Range and pasture conditions were fair to poor.

Panhandle: Warm weather was followed by much needed rain. Soil moisture was very short across most of the area before the rain. Extremely windy conditions created a high wildfire danger. Cattle were moved off dry land wheat because there was little to nothing to eat in most fields. Some land preparation was taking place for spring crops. Range cattle were being fed supplements.

Rolling Plains: As the local dry conditions persisted, area farmers and livestock producers were anxious. The district has not received measurable rainfall since mid-October. The cotton harvest finished up with better than expected yields. Livestock producers were feeling pressure to ship cattle to feed yards, as wheat pastures have not received rain. Most counties remained under a burn ban and pastures have played out. Producers were constantly supplying supplemental feed or shipping cattle due to lack of grazing. Livestock water was nearly depleted. Greenbugs as well as various other aphid species were still present, but in decreased numbers. Wheat curl mites were increasing, especially in lower areas and near rivers and creeks.

South: Hot, dry weather and very short soil moisture conditions continued throughout the region. Most field work in the eastern parts of the region halted until conditions improve. In the western parts of the region, crop producers were reporting long-term expenses for irrigation costs. Irrigation was needed for pre-planting and will constantly be needed until crops mature if conditions do not improve. Spinach and cabbage harvesting in the northern parts of the region continued. Potato planting in the northern parts of the region was completed. Harvesting of sugarcane, citrus and vegetables continued in the southern parts of the region. Corn planting was under way, and onions were progressing well. Forage supplies were becoming depleted due to extremely dry range and pasture conditions. Producers were increasing supplemental feeding of their livestock. Rain was desperately needed not only for crop production but also to fill stock tanks for livestock. Ranchers were resorting to using windmills or wells, though the water was of poor quality.

South Plains: The region saw above-normal temperatures and windy conditions. A passing front brought from a trace to 0.75 inches of rain. Soil moisture was very short to short. Field activities included shredding of stalks and application of pre-emergence herbicides. Winter wheat was in very poor to poor condition and irrigation continued. Pastures and ranges were in very poor to poor condition. Livestock were in mostly fair to good condition with supplemental feeding continuing.

Southeast: The region was extremely dry. It is time for corn planting to begin soon, but soil moisture was too short. The Chambers/Liberty Counties Navigation District will most likely not be able to pump water this spring to crops or livestock due to Hurricane Ike. Lake Anahuac, which supplies the water district, remains salty and needs to be flushed by rain. The Trinity River is another source of water for the water district, but needs several heavy rains to supply sufficient fresh water as well. Hay feeding and land preparation for spring crops continued.

Southwest: The region remained completely dry. The last heavy rain was July 2007. The current drought appears more severe than the record drought of 1952-1956. Forage availability was nearly non-existent. Several roadside and field wildfires were reported. High, dry, winds and very dry grass along roadways were increasing the wildfire risk. Ranchers were providing heavy supplemental nutrition to their remaining livestock. Many stock tanks were dry. The soil profile was very dry. Planting spring crops under dry land conditions will be very limited. The cabbage and spinach harvests continued. Potatoes, spring onions, cabbage and spinach made positive progress under heavy irrigation. Planting of irrigated corn and sorghum planting should start soon.

West Central: Extremely dry, windy conditions continued. Only irrigated crops were surviving the drought. Rangeland and pastures remained in very poor condition. Stock tanks were dry and supplemental feeding of livestock continued.

11. WILDFIRE CONCERNS

The Keetch-Byram Drought Index (KBDI) is used to help determine potential for fire risk. It is a numerical index where each number is an estimate of the amount of precipitation, in 100ths of an inch, needed to bring the soil back to saturation. The index ranges from 0 to 800, with 0 representing a saturated soil, and 800 a completely dry soil. The relationship of the KBDI to fire danger is, as the index increases, the vegetation is subjected to increased moisture stress. KBDI levels and its relationship to expected fire potential are reflected in the following:

KBDI = 0 – 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. This is typical of spring dormant season following winter precipitation.

KBDI = 201 – 400: Typical of late spring; early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 401 – 600: Typical of late summer, early fall. Lower litter and duff layers contribute to fire intensity and will burn actively.

KBDI = 601 – 800: Often associated with more severe drought and increased wildfire occurrence. Intense, deep-burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

There are currently 139 counties, illustrated in Attachment 2, with KBDI values in excess of 400, indicating areas within these counties are beginning to experience dry conditions which could result in an increased fire risk potential.

The Council, which is chaired by Jack Colley, Chief, Governor's Division of Emergency Management, is composed of state agencies concerned with the effects of drought and fire on the citizens of the State of Texas. The attached information was compiled and provided by representatives listed below. Points of contact, telephone numbers, and web site addresses are also provided.

Jack Colley, Chief, Governor's Division of Emergency Management, (512) 424-2443, fax (512) 424-2444, web site: http://www.txdps.state.tx.us/dem

John Sutton, Texas Water Development Board, (512) 463-7988, fax (512) 463-9893, web site: http://www.twdb.state.tx.us

Chris Loft, Texas Commission on Environmental Quality, (512) 239-4715, fax (512) 239-4770, web site: http://www.tceq.state.tx.us

Richard Egg, Texas State Soil & Water Conservation Board, (254) 773-2250, fax (254) 773-3311, web site: http://www.tsswcb.state.tx.us

Lance Williams, Texas Department of Agriculture, (512) 463-3285, fax (800) 835-2981, web site: http://agr.state.tx.us

Dr. Travis Miller, Texas AgriLife Extension Service, (979) 845-4808, fax (979) 845-0456, web site: http://texasextension .tamu.edu

Cindy Loeffler, Texas Parks & Wildlife Department, (512) 912-7015, fax (512) 707-1358, web site: http://www.tpwd.state.tx.us

Edward T. Morris, Department of Housing and Community Affairs, (512) 475-3329, fax (512) 475-7498, web site: http://www.tdhca.state.tx.us

Carla Baze, Texas Department of Transportation, (512) 416-3270, fax (512)416-2941, web site: http:www.txdot.state.tx.us

Michael Dunivan, Texas Forest Service, (830) 997-5426, web site: http://txforestservice.tamu.edu

Paul Tabor, Texas Department of State Health Services, (512) 458-7126, fax (512) 458-7472, web site: http://www.dshs.state.tx.us/

Thomas Walker, Office of the Governor, Economic Development & Tourism, (512) 936-0169, fax (512) 936-0141, web site: http://www.governor.state.tx.us/divisions/ecodev

David A. Van Dresar, Texas Alliance of Groundwater Districts, (979) 968-3135, fax (979) 968-3194, web site: http://www.texasgroundwater.org/

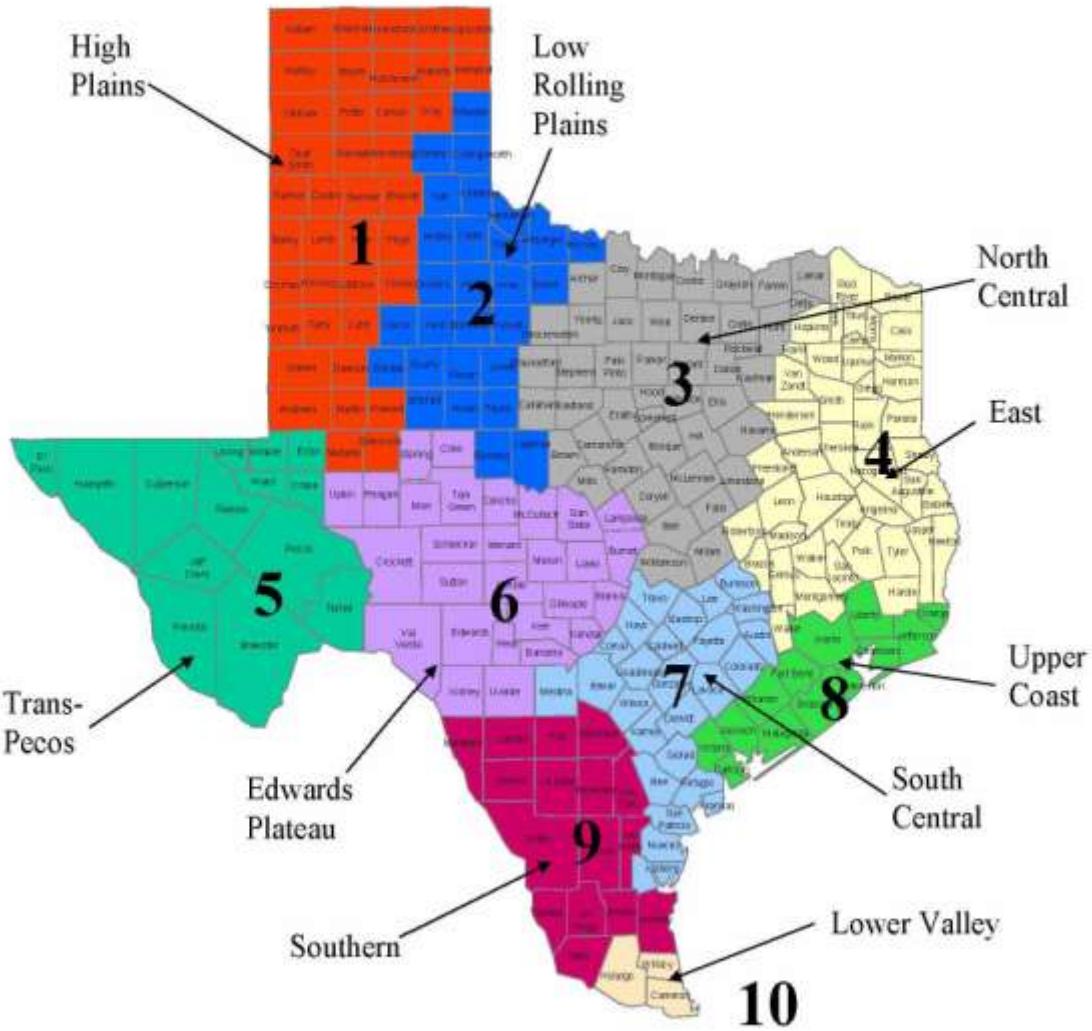
Dr. John W. Nielsen-Gammon, Office of the State Climatologist, (979) 862-2248, fax (979) 862-4466, web site: http://www.met.tamu.edu/osc/

Gus Garcia, Office of Rural Community Affairs, (512) 936-7876, fax (512) 936-6776, web site: http://www.orca.state.tx.us

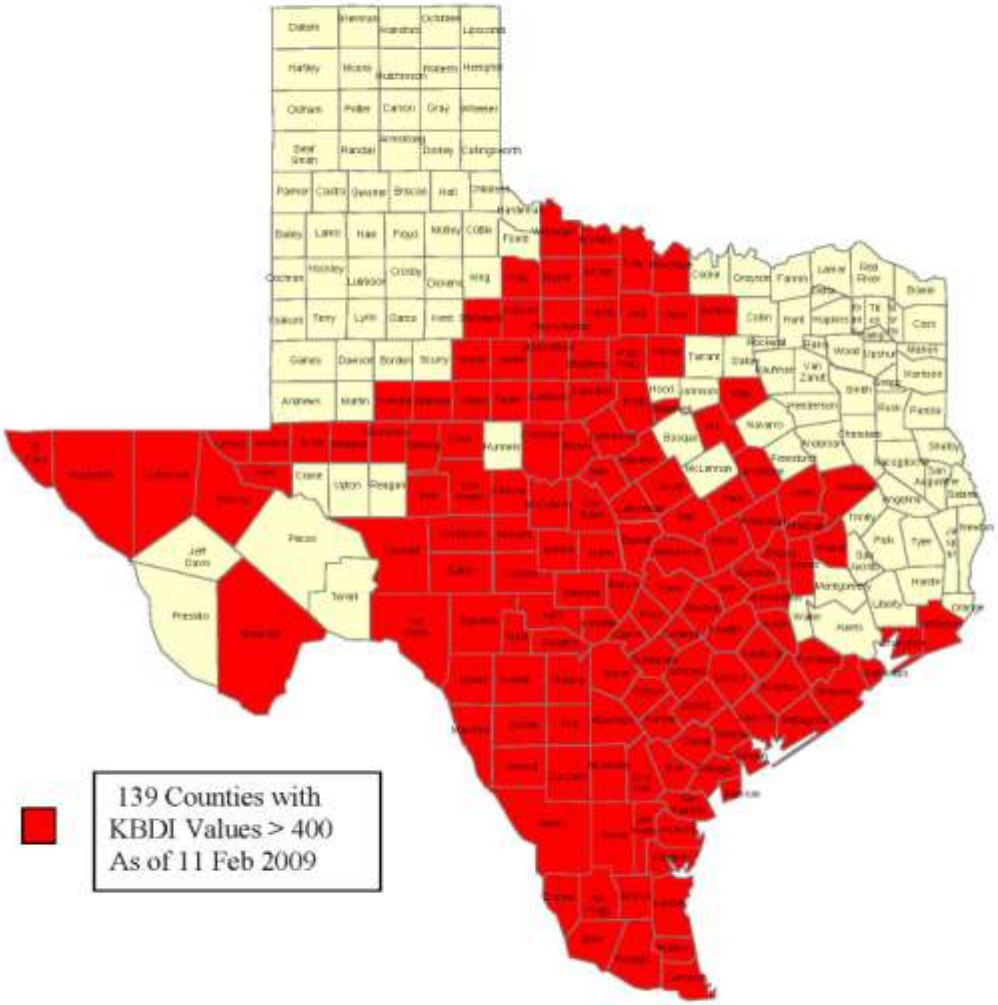
cc:

Amy Jeter, Committee Clerk, Senate Finance Committee
Sarah Hicks, Committee Director, Senate Finance Committee
Teddy Carter, Committee Clerk, Senate Natural Resources Committee
Amy Peterson, Committee Clerk, House Appropriations
Elizabeth Fazio, Committee Clerk, House Natural Resources Committee
Jim Terrell, Committee Clerk, House Agriculture and Livestock Committee
Andrew Cates, Committee Clerk, House Criminal Jurisprudence Committee
Zak Covar, Policy Advisor for TCEQ Issues, Governor's Policy Office
Auburn Mitchell, Policy Advisor for Agriculture/TDA, Governor's Policy Office
Rob Johnson, Lt. Governor's Chief of Staff
Carmen Cernosek, Lt. Governor's Natural Resources Policy Analyst
Shane Linkous, Deputy Division Chief, Intergovernmental Relations, Attorney General's Office
Elizabeth Anderson, Member, Public Safety Commission
Allan B. Polunsky, Chairman, Public Safety Commission
Colonel Stanley Clark, Director, Department of Public Safety
Lieutenant Colonel Lamar Beckworth, Assistant Director, Department of Public Safety
Lori Gabbert, , Budget Analyst, Legislative Budget Board (LBB-DPS)
Tom Lambert, Budget Analyst, Legislative Budget Board (LBB-TCEQ)
Ed Perez, Executive Director, Texas Office of State-Federal Relations, Washington, DC
Brandon Steinmann, Director, Texas Office of State-Federal Relations, Austin, Texas

Attachment 1
Climatic Regions



Attachment 2
Counties with High to Extreme Fire Danger



DROUGHT PREPAREDNESS COUNCIL

RICK PERRY
Governor

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JACK COLLEY
Council Chairman

April 9, 2009

TO: The Honorable Rick Perry, Governor, State of Texas
The Honorable David Dewhurst, Lieutenant Governor, State of Texas
Ms. Esperanza Andrade, Secretary of State, State of Texas
The Honorable Robert Duncan, President Pro-Tempore of the Senate, State of Texas
The Honorable Joe Straus, Speaker of the House, State of Texas
The Honorable Steve Ogden, Chairman, Senate Finance Committee, State of Texas
The Honorable Kip Averitt, Chairman, Senate Natural Resources Committee, State of Texas
The Honorable John Carona, Chairman, Senate Committee on Transportation & Homeland Security, State of Texas
The Honorable Jim Pitts, Chairman, House Appropriations Committee, State of Texas
The Honorable Allan Ritter, Chairman, House Natural Resources Committee, State of Texas
The Honorable Yvonne Gonzalez-Toureilles, Chairman, House Agriculture & Livestock Committee, State of Texas
The Honorable Pete Gallego, Chairman, House Criminal Jurisprudence Committee, State of Texas
Mr. Jay Kimbrough, Chief of Staff, Office of the Governor
Mr. Steven McCraw, Director, Texas Governor's Office of Homeland Security

FROM: Chief Jack Colley, Chairman, Drought Preparedness Council

SUBJECT: Statewide Drought Situation Report

1. NEXT COUNCIL MEETING

April 23, 2:00 p.m., Audit & Inspection Conference Room, Texas Department of Public Safety Headquarters, Building A, 5805 N. Lamar Blvd., Austin, Texas. The Council will continue to meet bi-monthly until further notice.

April 9, 2009 Drought Situation Report

6. WATER RIGHTS – LOWER RIO GRANDE / RIO GRANDE WATERMASTER (RGWM)

Current Overall Conditions: As of March 28, 2009, the U.S. combined ownership at Amistad/Falcon stood at 93.20% of conservation capacity or 3,398,496 acre-feet of new temporary conservation capacity. This is up from 98.61% or 3,344,979 acre-feet from a year ago at this time. Overall, the system is holding 94.48% or 6,013,847 acre-feet of conservation capacity with Amistad at 97.97% or 3,402,550 acre-feet and Falcon at 92.29% or 2,611,297 acre-feet. Mexico has 96.21% or 2,615,350 acre-feet of the water it could store at Amistad/Falcon.

Allocations: As of printing of the March ownership report, all active accounts are currently full. The U.S. allocated 247.088 acre-feet to Class A & B water rights, which include irrigation, mining and recreation. Additionally, the U.S. has an amount in excess of 656,507 acre-feet for future allocations in 2009.

Storage & Loss Amistad vs. Falcon: The U.S. is currently storing approximately 1.87 million acre-feet or 96.1% at Amistad, and approximately 1.52 million acre-feet or 89.8% at Falcon.

Evaporation and seepage losses at Amistad YTD were 13,773 acre-feet. During the same period, the U.S. lost 19,785 acre-feet at Falcon. The ratio of loss between Amistad and Falcon continued to be 1:2, consistent with Amistad being twice as efficient in overall storage and loss.

Releases to Meet Demands: Mexico released 33,181 acre-feet from Amistad and 256,590 acre-feet from Falcon for Mexico needs. The U.S. released 155,329 acre-feet from Amistad and 327,110 acre-feet from Falcon for U.S. needs. Combined with gains between Amistad and Falcon, U.S. inflows to Falcon totaled 236,161 acre-feet. So far, the U.S. met 50% of overall needs in the middle and Lower Rio Grande directly from middle Rio Grande and Amistad inflows this year.

Upper Rio Grande (New Mexico): Currently, Elephant Butte in New Mexico is storing 624,245 acre-feet or 30.85% and Caballo Dam, downstream of Elephant Butte, is storing 38,103 acre-feet or 16.79%. This water storage, in part, was used to meet water needs in the El Paso area.

Outlook: All active accounts began 2009 with 100% usable balances. The U.S. is operating under temporary conservation until levels returns to normal conservation. To help alleviate losses in Falcon, the U.S. continued to monitor ownership and elevation levels in both Falcon and Amistad so that U.S. transfers of water from Amistad to Falcon can be most efficient. "No Charge Pumping" was terminated March 28, 2009 from Amistad because the U.S. ownership dropped below 100%. Extremely dry conditions prevailed across Deep South Texas during the month of February. Monthly rainfall over the region was less than a quarter of an inch, with most areas reporting near a tenth of an inch or less. According to the U.S. Drought Monitor, the very dry conditions over Deep South Texas, combined with above normal temperatures, have allowed drought conditions to return to portions of the region. This will likely result in the persistence or worsening of overall drought conditions in Deep South Texas through Summer 2009.

7. SOUTH TEXAS WATERMASTER – GUADALUPE / LAVACA / SAN ANTONIO / NUECES REGION

March brought significant rainfall to South Central Texas. The rainfall was helpful; however, drought conditions still remain in the area. "Extreme Drought" and "Exceptional Drought" conditions continue to cover a large portion of the area. The Concho Basin continued to show improvement during the month and received significant rainfall.

Area Counties: Bandera, Blanco, Comal, Kendall and Kerr Counties

Rainfall and Area Conditions: This area received 1.5 to 3.25 inches of rain during March. With that rainfall, the Texas Crop Moisture Index classified this area of the Hill Country as "Abnormally Dry" to "Mildly Dry". Most of the surface water diversions in this area were for municipal and industrial uses with a few surface water permit holders irrigating hay and sod fields. The U.S. Drought Monitor indicated this area was currently in "Extreme" to "Exceptional Drought" conditions.

Stream Flow Conditions: Even with the increased amount of rainfall in March, the stream flows of the major streams and their tributaries were flowing well below their mean averages. Most of the major streams have shown a slight decrease in flow during the month of March, and the smaller secondary tributaries lost their surface flows.

Site	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Kerrville	50	128
Guadalupe River near Comfort	46	215
Medina River at Bandera	17	173

Drought Restrictions: All temporary surface water permits in the Guadalupe River Basin above Canyon Lake and the San Antonio River Basin above Lake Medina were suspended. Because of the low stream flows, some State permit holders reached their flow restrictions and were curtailed from pumping. River flows are monitored on a daily basis.

Area Counties: Bee, Goliad, Victoria, Calhoun, Jackson, Refugio, Aransas, San Patricio, Nueces, Kleberg, Jim Wells, Duval, Live Oak, Kenedy, Willacy, Brooks, and Jim Hogg.

Rainfall and Area Conditions: This area received some rainfall during the latter part of March. Some counties in this area received only light showers while others received as much as 2-3 inches. The rainfall events did not provide enough moisture to make a significant impact on the ongoing drought. The rainfall did provide some soil moisture and runoff into local area streams, but the stream flows rapidly declined to below average for this time of the year. The U. S. Drought Monitor indicated "Exceptional Drought" conditions extended to counties along the Gulf Coast. Only the southern most counties in this area experienced "Abnormally Dry" conditions, while the counties in the central area of this region experienced "Moderate to Severe Drought" to "Extreme Drought" conditions. Most of the surface water diversions in this area continued to be for municipal and industrial uses, little irrigational use was noted.

Stream Flow Conditions:

Site (Years of Record)	Beginning Flows CFS	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Guadalupe River near Victoria (74)	350	392	475	1,690
San Antonio River near Goliad (73)	225	232	310	612
San Antonio River at McFaddin below Goliad (2)	260	261	320	447
Guadalupe River near Tivoli (2)	615	739	700	1,960
Mission River near Refugio (69)	2.5	0.06	3	27
Nueces River at Calallen Dam (9)	10	1.9	12	120
Aransas River near Skidmore (44)	3.2	3.4	3.2	9.8

Corpus Christi Reservoir System: The Corpus Christi Reservoir System received minimal inflow during March and the level of the reservoir system continued to drop. The Corpus Christi Reservoir System is currently at 72.6% of capacity or 691,299 acre-feet, compared to 95.5% of capacity or 909,790 acre-feet, at this time last year. Choke Canyon is currently at 78.1% of capacity or 543,122 acre-feet, compared to 95.1% capacity or 661,249 acre-feet, at this time last year. Lake Corpus Christi is currently at 57.6% of capacity or 148,177 acre-feet, compared to 96.6% of capacity or 248,541 acre-feet, at this time last year. Corpus Christi continued to divert much of their monthly water supply needs from Lake Texana.

Drought Restrictions: No additional drought restrictions of water rights in this area.

Area Counties: Atascosa, Karnes, Gonzales, Wilson, McMullen, Dewitt, Guadalupe, Lavaca, Fayette, Colorado, Wharton, and Jackson.

Rainfall and Area Conditions: The south and southwestern portions of this area received 0.40 to 2.25 inches of rain during March. The north and northeastern portions received 1.40 to 2.4 inches. Soil moisture conditions improved in the area but need follow up rains to maintain the improved conditions. Grain and hay crops faired well but with marginal moisture conditions, the improvement may stall. Irrigational activity increased due to spring planting, but most of the activity was municipal use and only the major agricultural diverters. Lake Texana was at 64% of capacity, which is 36.64 ft. above mean sea level.

According to the U.S. Drought Monitoring System, this area experienced "Severe" to "Exceptional" drought conditions.

Stream Flow conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
San Antonio River near Falls City	142	139	272
Cibolo Creek near Falls City	24	27	29
Guadalupe River near Gonzalez	576	484	1,470
Lavaca River at Edna	7.7	7.7	79
Navidad River near Halletsville	2.7	3.3	38
Atascosa River near Whitsett	4.9	2.6	13
Frio River near Tilden	3.1	4.9	41
Nueces River near Tilden	0.0	0.0	4.7

Drought Restrictions: There were no additional restrictions on diversions.

Area Counties: Edwards, Real, Kinney, Uvalde, Zavala, Dimmit, La Salle and Webb.

Rainfall and Area Conditions: The Southwest Texas Area did receive some relief from the drought for the month of March. No rainfall was reported at the beginning of the month. The northern counties saw heavy showers and light showers for the southern counties during mid-month. The month ended with no relief from the drought. The total range of rainfall in the area was from 0.30 to 5.00 inches. Most of the diversions of surface water were for irrigational use, with small amounts for municipal and industrial uses. Crops irrigated in the area include onions, wheat, hay grazers, and pecans. Soil conditions were poor due to the lack of rainfall. The U.S. Drought Report indicated that this area is experiencing "Abnormally Dry" to "Exceptional Drought" conditions.

Stream Flow Conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Nueces River at Laguna	62	42	128
Nueces River at Brackettville	0.00	0.00	25
Nueces River below Uvalde	10	13	68
Frio River at Concan	42	26	93
Sabinal River at Sabinal	1.3	0.46	25
Leona River near Uvalde	16	13	52

Stream flows of intermittent and tributary streams in the area were flowing well below average for this time of year.

Drought Restrictions: Permits with stream flow restrictions are being regulated. The Zavala/Dimmit Water District had a rotational diversion schedule on the Nueces River to ensure adequate water for domestic and livestock use.

Area Counties: Bastrop, Bexar, Blanco, Caldwell, Comal, Fayette, Frio, Guadalupe, Hays, and Medina.

Rainfall and Area Conditions: Moderate widespread rainfall fell across the San Antonio Regional Area during March. Month-to-date rainfall measured at the San Antonio

International Airport was 1.45 inches; the average for March is 1.89 inches. The total rainfall to date is 3.32 inches; the normal year to date is 5.24 inches, a departure of -1.92 inches. On March 24, 2009, the U.S. Drought Monitor indicated the San Antonio Regional Area is experiencing "Extreme" to "Exceptional" drought, impacting crops, pastures, grasslands, stream flows, and reservoir capacities. Ground moisture improved with the recent rainfall, many "dry land" farmers plowed fields and spring planting is well underway. Farmers with supplemental irrigation planted corn, milo, green beans, squash, peas, tomatoes, wheat, and hay grazers.

Stream Flow Conditions: The Guadalupe and Blanco Rivers continued to show the impact of the worsening drought. Small creeks dried and most major streams are beginning to quickly pool or dry up entirely. Municipal use increased with residential lawn irrigation. Industrial use remained constant.

The Canyon Lake Reservoir was at 897.18 feet elevation, impounding 289,775 acre-feet, and was at 76.48% of capacity. On March 30, 2009, the Edwards Aquifer level at the J17 well in Bexar County was 665.6 feet. The historical average for March is 669.3 feet, which is 3.7 feet below the monthly historical average.

Site	Ending Flows CFS	Historical Mean CFS
Blanco River at Wimberley	10	177
San Marcos River at Luling	94	403
Guadalupe River at Spring Branch	73	362
San Marcos Springs	101	178
Comal Springs	272	306

Drought Restrictions: Most Temporary Permits were not allowed to divert surface water. Surface water permits are closely monitored to determine if "real time" stream flows are allowed to divert.

Area Counties: Sterling, Tom Green, Irion, Concho, Coke, Glasscock, Runnels, Reagan, and Schleicher.

The Concho River Valley received above average amounts of rainfall during March. According to information provided by USDA, the State Drought Monitor Index listed the Concho Valley under "Severe" to "Extreme" drought conditions.

Rainfall and Area Conditions: Rainfall in San Angelo for the month was 1.47 inches. Areas surrounding San Angelo received slightly higher rainfall amounts. Average rainfall amount for March is 1.08 inches. Total rainfall for the year is 2.02 inches. In 2007, to date, there was only 0.55 inch of rainfall. The average annual rainfall for San Angelo, based on a 100-year record, is 19 inches. Area reservoirs showed decreases in the amount of storage from the previous month's amounts. The Texas Crop Moisture Index indicated the soil moisture content is "Abnormally Dry". Winter wheat was planted and established. Demand by appropriated surface water rights in the Concho Valley was at increased volume due to the wheat crop irrigation.

Stream Flow Conditions:

Lake Nasworthy is at 83% of capacity or 8,444 acre-feet. O. C. Fisher was at 5% of capacity or 5,616 acre-feet. Twin Buttes Lake was at 31% of capacity or 57,997 acre-feet.

Site (Years of Record)	Ending Flows CFS	Historical Mean CFS
USGS Gaging System at Spring Creek/Twin Buttes (6)	6.6	18
USGS Gaging System at Concho River/San Angelo (78)	13	15
USGS Gaging System at South Concho/Christoval (73)	7.8	19

Drought Restrictions: There were no additional restrictions on diversions in the Concho Valley.

8. **UPPER COLORADO** (Concho River watershed not included)

The upper Colorado River area received more than normal precipitation during March. The National Weather Service in San Angelo reported monthly precipitation of 1.73 inches, which was 0.74 inch above normal. According to the U.S. Drought Monitor, the drought conditions in the area ranged from "Severe" to "Extreme". Most tributaries in the upper Colorado watershed had diminished flows. However, there were isolated areas that flowed at or above the USGS long-term median. The pool levels of EV Spence and OH Ivie Reservoir decreased during March, reaching levels of 9% and 53% of capacity, respectively.

9. **TEXAS PANHANDLE AND SOUTHERN HIGH PLAINS**

Amarillo Area: The Amarillo Region reported the following summary for the Northern panhandle area:

Lake Meredith was at 52.09 feet, down 0.57 feet. Lake Greenbelt ended March at 55.06 feet, down 0.08 feet. Lake MacKenzie was at 69.78 feet, down 0.42 feet. The National Weather Service in Amarillo reported a total rainfall during March of 1.01 inches, which was 0.04 inch below normal. Total rainfall since January 1, 2009, is 1.49 inches, which is 0.74 inches below the year-to-date average. Since March 1, 2009, total snowfall for the area was 12.6 inches, which is 10.9 inches above the monthly average.

Lubbock Area: Lubbock received only 0.37 inch of rain during the month. The average rainfall for March is 0.76 inch. Similar amounts were recorded throughout the area. The average annual rainfall at this point in the year is 1.97 inches. Lubbock recorded 1.23 inches of precipitation thus far. The long term drought situation was not changed. All communities previously noted as being on mandatory water restrictions remained on those restrictions. No new communities were added to the water restrictions list during March, and none were removed.

Lubbock and Amherst remained on mandatory drought restriction status. Ralls, Crosbyton, Spur, Post, White River WCS, and Valley WSC in the South Plains area remained on voluntary drought restriction status.

White River Lake: The lake's pool elevation was at 2351.1 acre-feet, or 18.9 feet below full, the same level as it was at the end of February 2009. White River WSD has groundwater wells on standby to supply water to its customers if the lake level drops below usable levels.

Lake Alan Henry: The lake is one foot below full. It is not used for public drinking water supplies at present, but will be utilized for this purpose in the near future.

10. WILDLIFE CONCERNS

According to Texas Parks and Wildlife biologists, continued dry range conditions could have a negative impact on wild turkey production and hunting prospects for spring turkey season. If portions of Texas remain parched, particularly the Southern region, the Rio Grande turkey breeding activity and nesting effort will be greatly reduced or nonexistent. At J.D. Murphree Wildlife Management Area near Port Arthur, drought conditions worsened. Due to a lack of rainfall, freshwater marshes at Murphree WMA which were inundated by Hurricane Ike were not flushed of saltwater. The lack of flushing is killing plants and damaging soil chemistry. The area's brackish marshes were saltier than usual for this time of year, suffering the same stresses as freshwater marshes.

At the Aransas National Wildlife Refuge, drought may have contributed to the worst winter on record for the world's only wild flock of endangered whooping cranes. After an encouraging multi-year comeback in which flock numbers grew each year, this was the first decline since 2001. Only 249 birds will return north to Canada this spring, down from 270 which arrived in Texas last fall.

At Garner State Park in the Edwards Plateau, there were reports of non-native axis deer dying from starvation coupled with cold weather earlier this year. TPWD wildlife biologists reported range conditions were poor, prickly pear was thin due to the lack of water, and feral hogs were thin and drawn down. Native whitetail deer still appear in decent condition but may perish if the drought situation continues.

10. AGRICULTURAL CONCERNS

Thundershowers provided some relief to portions of North Central and East Texas. However, most of the Southern, Southwestern, West and the Panhandle regions did not receive significant precipitation during the last month, outside of the heavy snows in the northern panhandle. Parts of North, Northeast and East Texas received heavy rains which relieved the majority of the immediate concerns related to agricultural drought. Approximately 48% of the State is in severe to exceptional drought, up from 44% last month. Lack of water, forage and hay resulted in the loss of thousands of cattle as livestock operators struggled to maintain herds in desperate conditions. Livestock auctions were active as ranchers continue to liquidate herds. Dry conditions, wind and warm weather also created dangerous fire conditions on farms and ranches.

The wheat and oat crop conditions continued to decline across most of the State, although significant improvement was observed in North Central and East Texas. According to the Texas Agricultural Statistics Service, 64% of the wheat and 83% of the oat crop was rated poor to very poor. Freeze losses associated with the arctic front on the last week of March were exacerbated by advance maturity associated with drought. Texas will have a very limited dryland wheat or oat crop, with the primary area having average or above average yields in North Central and East Texas.

The majority of the field crop acreage planted on the Gulf Coast and Central Texas is either in dry seedbeds or marginal moisture near the surface associated with light rains. Most of this crop is questionable with respect to either germination or survival.
The following agricultural conditions summaries were compiled by Texas AgriLife Extension district reporters this week:

Central: A freeze threatened much of the small-grain crop, and there were signs of freeze damage to corn as well. Most corn will survive in soils with adequate moisture. High winds dried soils of moisture previously received. Livestock were in fair condition, and producers continued to provide supplemental feed and protein.

Coastal Bend: A small amount of rain was received but not enough to make a difference. Windy weather aggravated the dry conditions. Some producers planted spring crops, hoping for more rain. Pastures remained bare. Cattle were sold or moved to other locations where there was forage.

East: The area received 0.5-3 inches of rain. Pastures and stock tanks showed improvement, but some counties still need more rain. High winds caused light damage to barns and trees. Producers planted vegetable crops, but growth was slowed by cool days and nights. Cattle were in fair to good condition. Feral hog activity increased dramatically.

Far West: Precipitation was limited across the region, and dry and windy conditions prevailed. Rangeland remained very dry. There was a high danger of wildfires. Fruit trees survived a freeze without much damage. Pecan trees began to leaf out. Dryland wheat was severely affected by drought, and some may be baled for hay. Very little if any wheat was expected to be cut for grain. Irrigated wheat appeared productive, but economics may dictate that some of it may also be baled for hay.

North: Soil moisture ranged from short to surplus. Though soils were wet from the frequent rains, vegetation/growth is shorter than normal due to earlier drought conditions. The recent rains helped the wheat considerably and it was heading or near heading as the hard freeze impacted north Texas. Wheat losses estimates were not finalized, and ranged from 0% to 100%, largely dependent on location and stage of maturity. Corn planting neared completion. Approximately 50% of corn was already planted and emerged in fair to good condition. Soybean and sorghum planting began in some areas, and both crops were in fair to good condition. Dairymen harvested wheat and oats for silage. Forages improved, and some producers reduced or ended their supplemental feeding programs. Livestock were in fair to good condition. Some time will be required to tell whether the cooler weather may have harmed the peach production.

Panhandle: Cold weather, high winds and as much as 12 inches of snow came to the region, but soil moisture remained short. Producers continued field work until the blizzard put a halt to all activities. Winter wheat was stressed due to adverse weather conditions and increased insect activity. Producers sprayed some wheat for greenbugs and Russian wheat aphids. There were also signs of disease in wheat. Fields were pre-irrigated for corn plantings.

Rolling Plains: Though a small amount of moisture was received in the form of snow, sleet and rain, conditions remained very dry throughout the region. Temperatures widely fluctuated day to day, but the wind was always blowing, drying out what moisture was received. Pastures were in poor condition with little to no grazing, and ranchers continued to supply supplemental feed daily. Farmers applied pre-emergence herbicides and produced other field work. The winter wheat crop reached an average height of only 6 inches due to drought stress and began to head out. Freeze losses in drought affected wheat are expected to be significant. Producers turned cattle in on the winter wheat in the hope of benefiting from the crop. Grass fires sprung up throughout the district. The largest fire, eight miles south of Archer City, consumed 8,000 acres. Stock tanks were very low.

South: Mild temperatures, a lot of wind, and no rainfall prevailed in the region. Soil moisture ranged from short in the northern parts of the region to very short in the eastern, western and southern parts of the region. Producers in the northern parts of the region planted haygrazer (a sorghum-sudan crop used for grazing, silage and hay). Corn planting in the northern counties was nearly completed. Potato crops developed past the flowering stage, and earlier-planted grain emerged, but with skimpy stands. In the western parts of the region, the last of the spinach fields were plowed under. Corn, wheat and cotton progressed well under irrigation. Cabbage harvesting was ongoing, and onions showed productive bulb development. The sugarcane harvesting was finished; the citrus harvest wound down, and the vegetable harvest continued. Supplemental feeding of livestock continued throughout the region. However, feeding was slightly reduced in some sections of the region where higher levels of rainfall were reported.

South Plains: The region experienced dry weather, with wind ranging from 50-60 mph. Temperatures dropped below freezing. AgriLife agronomists reported widespread freeze injury due to the cold weather in late March compounded by advanced maturity associated with drought. Freeze losses averaged 15% to 25% with some fields in excess of 75%. Soil moisture ranged from very short to short. Winter wheat was in very poor to poor condition due to drought and freeze injury. Pastures and rangeland were in very poor to poor condition. Livestock were in mostly fair to good condition with supplemental feeding continuing.

Southeast: The region was extremely dry. Corn planting should begin soon, but soil moisture remains too short. The Chambers/Liberty Counties Navigation District will most likely be unable to pump water this spring to crops or livestock due to Hurricane Ike. Lake Anahuac, which supplies the water district, remains salty and needs to be flushed by rain. The Trinity River is another source of water for the water district, but needs several heavy rains to re-supply sufficient fresh water as well. Hay feeding and land preparation for spring crops continued.

Southwest: The region remained completely dry. The last heavy rain was July 2007. The current drought appears more severe than the record drought of 1952-1956. Forage availability was nearly non-existent. Several roadside and field wildfires were reported. High, dry, winds and very dry grass along roadways increased the wildfire risk. Ranchers were providing heavy supplemental nutrition to their remaining livestock. Many stock tanks were dry. The soil profile was very dry. Planting spring crops under dry land conditions will be very limited. The cabbage and spinach harvests continued. Potatoes, spring onions, cabbage and spinach made positive progress under heavy irrigation. Planting of irrigated corn and sorghum planting should start soon.

West Central: Cool temperatures with dry, windy conditions continued. Very little rainfall was reported, and the risk of wildfires was extreme. High winds depleted soils of moisture in most areas. Wheat started to head out, but did not look promising as to yields or profitability. Some producers applied herbicides for weed control. The green up of native and improved pasture grasses slowed. Livestock remained in fair to poor condition with producers continuing to supply supplemental feeding.

12. WILDFIRE CONCERNS

The Keetch-Byram Drought Index (KBDI) is used to help determine potential for fire risk. It is a numerical index where each number is an estimate of the amount of precipitation, in 100ths of an inch, needed to bring the soil back to saturation. The index ranges from 0 to

800, with 0 representing a saturated soil, and 800 a completely dry soil. The relationship of the KBDI to fire danger is, as the index increases, the vegetation is subjected to increased moisture stress. KBDI levels and its relationship to expected fire potential are reflected in the following:

KBDI = 0 – 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. This is typical of spring dormant season following winter precipitation.

KBDI = 201 – 400: Typical of late spring; early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 401 – 600: Typical of late summer, early fall. Lower litter and duff layers contribute to fire intensity and will burn actively.

KBDI = 601 – 800: Often associated with more severe drought and increased wildfire occurrence. Intense, deep-burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

There are currently 99 counties, illustrated in Attachment 2, with KBDI values in excess of 400, indicating areas within these counties are beginning to experience dry conditions which could result in an increased fire risk potential.

The Council, which is chaired by Jack Colley, Chief, Governor's Division of Emergency Management, is composed of state agencies concerned with the effects of drought and fire on the citizens of the State of Texas. The attached information was compiled and provided by representatives listed below. Points of contact, telephone numbers, and web site addresses are also provided.

Jack Colley, Chief, Governor's Division of Emergency Management, (512) 424-2443, fax (512) 424-2444, web site: http://www.txdps.state.tx.us/dem

John Sutton, Texas Water Development Board, (512) 463-7988, fax (512) 463-9893, web site: http://www.twdb.state.tx.us

Chris Loft, Texas Commission on Environmental Quality, (512) 239-4715, fax (512) 239-4770, web site: http://www.tceq.state.tx.us

Richard Egg, Texas State Soil & Water Conservation Board, (254) 773-2250, fax (254) 773-3311, web site: http://www.tsswcb.state.tx.us

Lance Williams, Texas Department of Agriculture, (512) 463-3285, fax (800) 835-2981, web site: http://agr.state.tx.us

Dr. Travis Miller, Texas AgriLife Extension Service, (979) 845-4808, fax (979) 845-0456, web site: http://texasextension .tamu.edu

Cindy Loeffler, Texas Parks & Wildlife Department, (512) 912-7015, fax (512) 707-1358, web site: http://www.tpwd.state.tx.us

Edward T. Morris, Department of Housing and Community Affairs, (512) 475-3329, fax (512) 475-7498, web site: http://www.tdhca.state.tx.us

Carla Baze, Texas Department of Transportation, (512) 416-3270, fax (512)416-2941, web site: http:www.txdot.state.tx.us

Michael Dunivan, Texas Forest Service, (830) 997-5426, web site: http://txforestservice.tamu.edu

Paul Tabor, Texas Department of State Health Services, (512) 801-9816, fax (512) 458-7211, web site: http://www.dshs.state.tx.us/

Thomas Walker, Office of the Governor, Economic Development & Tourism, (512) 936-0169, fax (512) 936-0141, web site: http://www.governor.state.tx.us/divisions/ecodev

David A. Van Dresar, Texas Alliance of Groundwater Districts, (979) 968-3135, fax (979) 968-3194, web site: http://www.texasgroundwater.org/

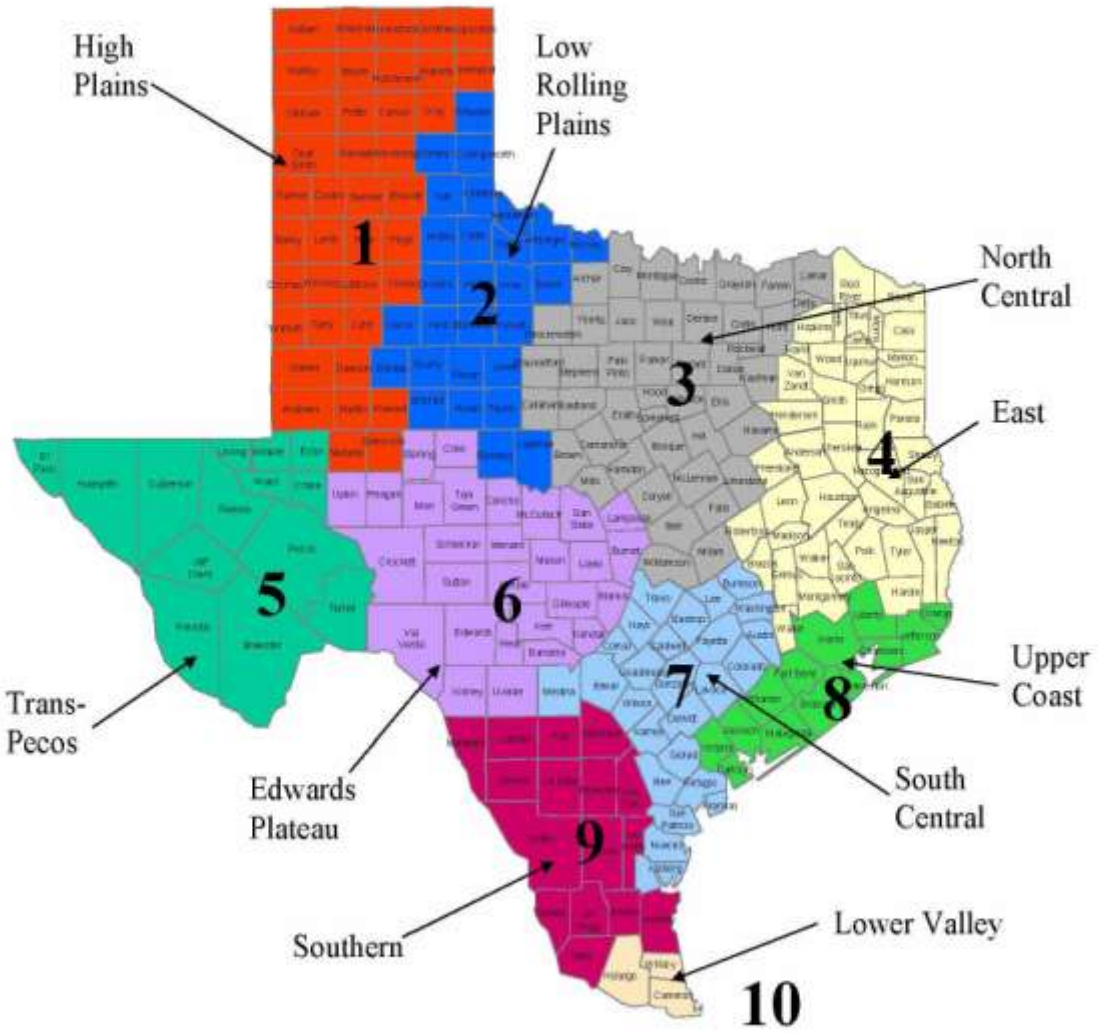
Dr. John W. Nielsen-Gammon, Office of the State Climatologist, (979) 862-2248, fax (979) 862-4466, web site: http://www.met.tamu.edu/osc/

Gus Garcia, Office of Rural Community Affairs, (512) 936-7876, fax (512) 936-6776, web site: http://www.orca.state.tx.us

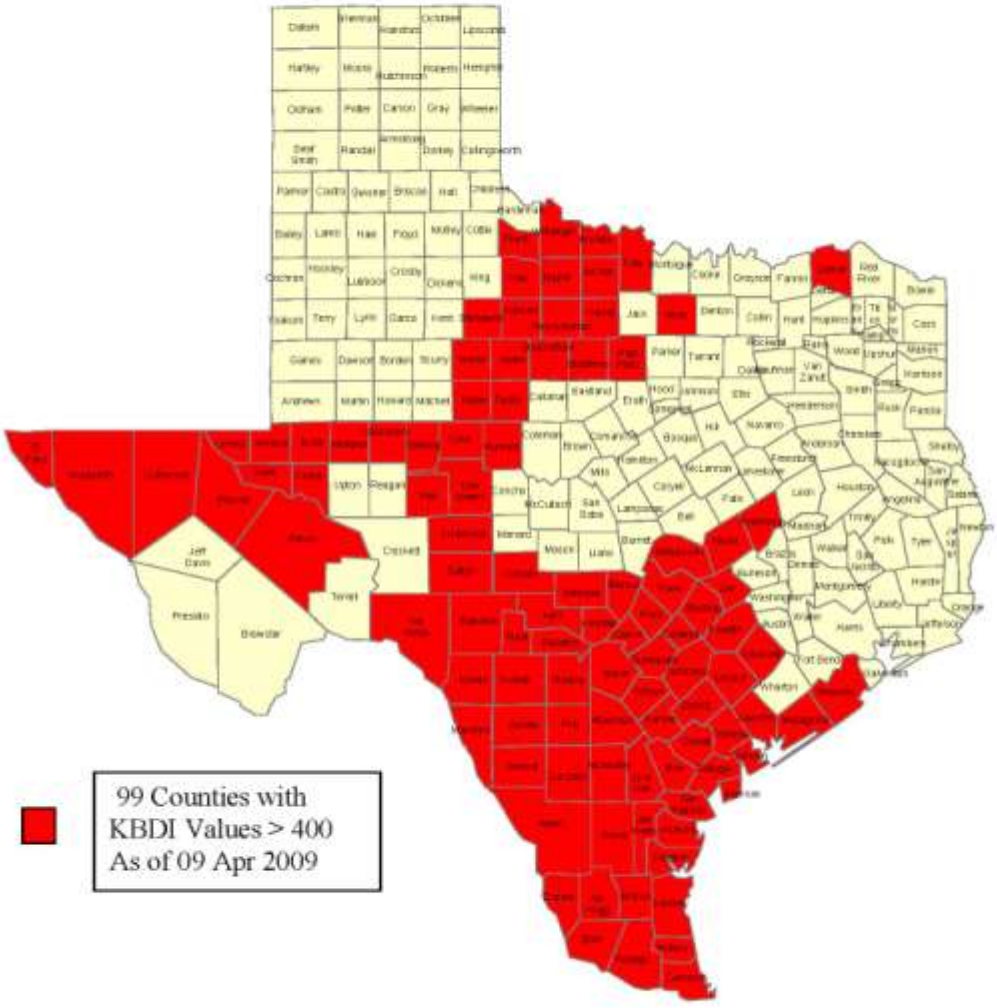
cc:

Amy Jeter, Committee Clerk, Senate Finance Committee
Sarah Hicks, Committee Director, Senate Finance Committee
Teddy Carter, Committee Clerk, Senate Natural Resources Committee
Amy Peterson, Committee Clerk, House Appropriations
Elizabeth Fazio, Committee Clerk, House Natural Resources Committee
Jim Terrell, Committee Clerk, House Agriculture and Livestock Committee
Andrew Cates, Committee Clerk, House Criminal Jurisprudence Committee
Zak Covar, Policy Advisor for TCEQ Issues, Governor's Policy Office
Auburn Mitchell, Policy Advisor for Agriculture/TDA, Governor's Policy Office
Rob Johnson, Lt. Governor's Chief of Staff
Carmen Cernosek, Lt. Governor's Natural Resources Policy Analyst
Shane Linkous, Deputy Division Chief, Intergovernmental Relations, Attorney General's Office
Allan B. Polunsky, Chairman, Public Safety Commission
Carin M. Barth, Member, Public Safety Commission
Ada Brown, Member, Public Safety Commission
C. Tom Clowe, Jr., Member, Public Safety Commission
John Steen, Member, Public Safety Commission
Colonel Stanley Clark, Director, Department of Public Safety
Lieutanant Colonel Lamar Beckworth, Assistant Director, Department of Public Safety
Lori Gabbert,, Budget Analyst, Legislative Budget Board (LBB-DPS)
Tom Lambert, Budget Analyst, Legislative Budget Board (LBB-TCEQ)
Ed Perez, Executive Director, Texas Office of State-Federal Relations, Washington, DC
Brandon Steinmann, Director, Texas Office of State-Federal Relations, Austin, Texas

Attachment 1
Climatic Regions



Attachment 2
Counties with High to Extreme Fire Danger



DROUGHT PREPAREDNESS COUNCIL

RICK PERRY
Governor

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JACK COLLEY
Council Chairman

May 26, 2009

TO: The Honorable Rick Perry, Governor, State of Texas
The Honorable David Dewhurst, Lieutenant Governor, State of Texas
Ms. Esperanza Andrade, Secretary of State, State of Texas
The Honorable Robert Duncan, President Pro-Tempore of the Senate, State of Texas
The Honorable Joe Straus, Speaker of the House, State of Texas
The Honorable Steve Ogden, Chairman, Senate Finance Committee, State of Texas
The Honorable Kip Averitt, Chairman, Senate Natural Resources Committee, State of Texas
The Honorable John Carona, Chairman, Senate Committee on Transportation & Homeland Security, State of Texas
The Honorable Jim Pitts, Chairman, House Appropriations Committee, State of Texas
The Honorable Allan Ritter, Chairman, House Natural Resources Committee, State of Texas
The Honorable Yvonne Gonzalez-Toureilles, Chairman, House Agriculture & Livestock Committee, State of Texas
The Honorable Pete Gallego, Chairman, House Criminal Jurisprudence Committee, State of Texas
Mr. Jay Kimbrough, Chief of Staff, Office of the Governor
Mr. Steven McCraw, Director, Texas Governor's Office of Homeland Security

FROM: Chief Jack Colley, Chairman, Drought Preparedness Council

SUBJECT: Statewide Drought Situation Report

Jack Colley, Chairman Governor's Division of Emergency Mgmt	John Sutton, Member Texas Water Development Board	Richard Egg, Member State Soil & Water Conservation Board
Lance Williams, Member Texas Department of Agriculture	Dr. Travis Miller, Member Texas Cooperative Extension	Cindy Loeffler, Member Texas Parks & Wildlife Department
Carla Baze, Member Texas Department of Transportation	David A. VanDresar, Member Texas Alliance of Groundwater Districts	Paul Tabor, Member Texas Department of State Health Services
Chris Loft, Member Texas Commission on Environmental Quality	Thomas Walker, Member Office of the Governor Economic Development & Tourism	Alfonso Royal, Member Texas Department of Housing and Community Affairs
Michael Dunivan, Member Texas Forest Service	Gus Garcia, Member Office of Rural Community Affairs	Dr. John W. Nielsen-Gammon, Member Office of the State Climatologist

1. NEXT COUNCIL MEETING

June 11, 2009, 2:00 p.m., Audit & Inspection Conference Room, Texas Department of Public Safety Headquarters, Building A, 5805 N. Lamar Blvd., Austin, Texas.

2. GENERAL CONDITIONS

Several storm systems traveled through Texas during April bringing much needed precipitation to drought-stricken areas in the Edwards Plateau and northern South Central Texas. However, a drier than normal April in the southern half of South Central Texas, the Southern, and Lower Valley regions intensified the drought in these areas. Dry weather also intensified severe drought conditions in the Trans-Pecos region and the extreme drought in western North Central Texas. April began with 7.08% of the State experiencing exceptional drought conditions. By the end of the month, it had risen to 9.73% and shifted to the southwest.

The majority of Southeast Texas, Central Texas, and the Edwards Plateau saw above normal precipitation in April. Eleven tornadoes struck the panhandle on April 16 and more than five inches of rain was reported in areas near Lubbock. The active weather moved to the southeast with heavy rain in Central and Southeast Texas along a stationary front on April 17 and ahead of a cold front on April 18. Radar estimates from the Advanced Hydrologic Prediction Service (AHPS) indicated more than a foot of rainfall fell in areas west of Houston. Over five inches of rain fell near Galveston Bay on April 24, and the Edwards Plateau region received significant precipitation, two to five inches, on April 26. Central and Southeast Texas were again hit hard on April 27, with eight to ten inches of rain west of Houston, and on April 28, with four to eight inches north of College Station. April 28 also brought heavy precipitation to an area near Wichita Falls designated with extreme drought and also devastated by wildfires in April. The active second half of April ended with extremely heavy rain, six to ten inches on April 29 in the Red River region, north of the Metroplex.

The extreme precipitation caused widespread flooding across Central and Southeast Texas, particularly in Houston. Overall, the above normal precipitation in these areas was beneficial for agricultural purposes. Streamflow conditions in South Central Texas and the Coastal Bend were generally very low despite normal to above normal precipitation upstream the past two months. The concern over exceptional drought conditions currently lies in the Southern, Lower Valley, and Coastal Bend regions which had less than 50% of expected April precipitation. Despite the dry conditions and a lack of soil moisture, the cotton and corn crops in these regions were reported as doing well.

The El Nino-Southern Oscillation (ENSO) cycle has weakened considerably since February 2009 according to the Climate Prediction Center (CPC). A transition from La Niña to ENSO-neutral is underway in the equatorial Pacific Ocean and will continue through the spring. The current one-month forecast from the CPC calls for an equal chance of below normal, near normal, and above normal precipitation across most of the State. The northeastern Panhandle, North Central, and East Central Texas have a 33-40% chance of above normal precipitation, while Northeast Texas has a 40-50% chance of above normal precipitation. The three-month outlook calls for an equal chance of below normal, near normal, and above normal precipitation across all of Texas except the far west Trans-Pecos region which has a 33-40% chance of above normal precipitation. Improvement of the current drought is expected across Texas through the end of July, though the improvement will likely be more gradual in Southern Texas and the Lower Valley.

3. OVERALL STATEWIDE DROUGHT CONDITIONS

According to drought indices, the State received more relief due to rainfall in April. However, drought conditions worsened in the Trans-Pecos, Southern, and Lower Valley regions.

According to the Palmer Drought Severity Index (PDSI), no region was in an "Extreme Drought" at the end of April. The Southern, South Central, and Trans-Pecos regions were in "Moderate Drought". The Lower Valley, Edwards Plateau, North Central, and Low Rolling Plains regions were under a "Mild Drought' condition, and all other regions were near normal. The PDSI varies from extremely wet, very wet, moderately wet, slightly wet, incipient wet spell, near normal, incipient dry spell, mild drought, moderate drought, severe drought, and extreme drought in order of increasing severity.

According to the Crop Moisture Index (CMI), the Southern and Lower Valley regions were under an "Excessively Dry" condition at the end of April. The Trans-Pecos region was under an "Abnormally Dry" condition. All other regions were either under "Slightly Dry", "Favorably Moist" or "Wet" conditions.

According to the Six-Month Standardized Precipitation Index (SPI), South Central, Southern and Lower Valley regions were under an "Extremely Dry" condition at the end of April. The Upper Coast region was under a "Severely Dry" condition. The Low Rolling Plains, North Central, East, Trans-Pecos, and Edwards Plateau regions were under a "Moderately Dry" condition. The SPI varies in categories of extremely wet conditions, very wet, moderately wet, near normal, moderately dry and, severely dry, extremely dry.

The Keetch-Byram Drought Index (KBDI) indicates an extreme fire danger in the Southern and Lower Valley Regions, a very high fire risk in the Trans-Pecos Region, high in the South Central Region, and above average in the High Plains, Lower Rolling Plains, and Edwards Plateau Regions. The KBDI is a drought index specifically used to describe potential or expected fire behavior. The index is classified as Low, Moderate, High, or Extreme fire danger, in order of increasing severity.

4. WATER UTILITY STATUS

May 2009 began with 136 public water systems requiring customers to conserve water by following water use restrictions. Of those systems, 96 asked customers to follow a mandatory watering schedule and 40 asked for voluntary reductions in usage.

The recent rains and cooler temperatures in areas of the State helped keep the demand for outside water use down. The outdoor growing season began which will increase outside water usage. With the increase in usage and the continued lack of significant rain, it is expected more public water systems will reach Drought Contingency Plan triggers and enact watering restrictions.

5. WATER RIGHTS – STATEWIDE

Applications for new water use permits and amendments to existing permits remained normal for the month. Beginning April 1 and continuing through the end of August, the Hale Clause and Lake Proctor restrictions are in effect. Owners of these water rights with these restrictions are required to call the "Hale Clause Hotline" on a weekly basis to determine if diversion of water is allowed for permits. The availability of unappropriated water for new water use permits continued to decrease in all river basins in the State, and the search for long-term, dependable alternate sources of water remained a high priority issue.

6. WATER RIGHTS – LOWER RIO GRANDE / RIO GRANDE WATERMASTER (RGWM)

Current Overall Conditions: As of April 25, 2009, the U.S. combined ownership at Amistad/Falcon stood at 89.66% of conservation capacity or 3,269,593 acre-feet of new

temporary conservation capacity. Overall, the system is holding 87.41% or 5,563,903 acre-feet of conservation capacity with Amistad at 96.90% or 3,365,257 acre-feet and Falcon at 76.02% or 2,198,646 acre-feet. Mexico has 84.40% or 2,294,309 acre-feet of the water storage at Amistad/Falcon.

Allocations: As of printing of the March ownership report printing, all active accounts are currently full. The U.S. allocated 17,867,351 acre-feet to Class A & B water rights which includes irrigation, mining and recreation. Additionally, the U.S. has an amount in excess of 606,043 acre-feet for future 2009 allocations.

Storage & Loss Amistad vs. Falcon: The U.S. is currently storing approximately 1.84 million acre-feet or 94.5% at Amistad, and approximately 1.42 million acre-feet or 84.0% at Falcon.

Evaporation and seepage losses at Amistad YTD were 38,251 acre-feet. During April, the U.S. lost 46,859 acre-feet at Falcon.

Releases to Meet Demands: Mexico released 42,647 acre-feet from Amistad and 579,972 acre-feet from Falcon for Mexico needs. The U.S. released 225,655 acre-feet from Amistad and 475,564 acre-feet from Falcon for U.S. needs. Combined with gains between Amistad and Falcon, U.S. inflows to Falcon totaled 313,638 acre-feet. So far, the U.S. has met 50% of overall needs in the middle and Lower Rio Grande directly from middle Rio Grande and Amistad inflows this year.

Upper Rio Grande (New Mexico): Currently, Elephant Butte in New Mexico is storing 580,467 acre-feet or 28.69%. Caballo Dam, downstream of Elephant Butte, is storing 52,696 acre-feet or 23.21%. This water storage, in part, was used to meet water needs in the El Paso area.

Outlook: All active accounts began 2009 with 100% usable balances. The U.S. is operating under temporary conservation until levels return to normal conservation. To help alleviate losses in Falcon, the U.S. monitored ownership and elevation levels in both Falcon and Amistad to more efficiently transfer water from Amistad to Falcon. Deep South Texas experienced no rain during April. According to the United States Drought Monitor, the conditions over Deep South Texas were under a "Severe Drought", while the middle Rio Grande area was under an "Extreme Drought" and portions of the middle to the upper Rio Grande were under "Abnormally Dry" conditions. These conditions will likely result in the persistence or worsening of overall drought conditions along the Rio Grande Basin through Summer 2009.

7. SOUTH TEXAS WATERMASTER – GUADALUPE / LAVACA / SAN ANTONIO / NUECES REGION

The South Central area of Texas received scattered showers during April. Showers brought increased flow rates to area rivers but did not provide any long term relief. The U.S. Drought Monitor reflected some slight relief in the Texas Hill Country. However, "Exceptional Drought" continued to spread slowly along the coastal areas.

The Concho River basin did not show much change from the previous month. The rainfall totals in the area were average and flows remained relatively constant during April.

Area Counties: Bandera, Blanco, Comal, Kendall and Kerr Counties

Rainfall and Area Conditions: This area received 1.80 to 3.00 inches of rain during April. With that rainfall, the Texas Crop Moisture Index classified this area of the Hill Country as "Mildly Dry". Most of the surface water diversions in this area were for municipal and industrial uses with a few surface water permit holders irrigating hay and sod fields. The U.S. Drought Monitor indicated the area was in "Extreme Drought" conditions.

Stream Flow Conditions: Most of the major streams have shown a slight increase in flow during April, and the larger secondary tributaries showed somewhat improved surface flows. However, stream flows of the major streams and their tributaries flowed below their historical mean average.

Site	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Kerrville	98	120
Guadalupe River near Comfort	80	291
Medina River at Bandera	26	136

Drought Restrictions: In the Guadalupe River Basin above Canyon Lake, no state permit holders reached their stream flow restrictions. State water right permits and all temporary water right permits in the San Antonio River Basin above Lake Medina are monitored on case by case basis.

Area Counties: Bee, Goliad, Victoria, Calhoun, Jackson, Refugio, Aransas, San Patricio, Nueces, Kleberg, Jim Wells, Duval, Live Oak, Kenedy, Willacy, Brooks, and Jim Hogg.

Rainfall and Area Conditions: This area received some rainfall during the latter part of April. Some counties in the area received only light showers. The rainfall events did not provide enough moisture to make a significant impact on the ongoing drought. The rainfall did provide some soil moisture and runoff into local area streams, but the stream flows rapidly declined to below average for this time of the year. The U.S. Drought Monitor indicated "Exceptional Drought" conditions extended to counties along the Gulf Coast. Only the southern most counties in the area experienced "Abnormally Dry" conditions, while the counties in the central area of this region experienced "Moderate to Severe Drought" to "Extreme Drought" conditions. Most of the surface water diversions in this area continued to be for municipal and industrial uses, little irrigational use was noted.

Stream Flow Conditions:

Site (Years of Record)	Beginning Flows CFS	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Guadalupe River near Victoria (74)	415	1,700	350	3.240
San Antonio River near Goliad (73)	224	857	225	1,120
San Antonio River at McFaddin below Goliad (2)	257	292	260	388
Guadalupe River near Tivoli (2)	629	2,290	615	2,030
Mission River near Refugio (69)	1.7	1.4	2.5	215
Nueces River at Calallen Dam (9)	15	25	10	623
Aransas River near Skidmore (44)	2.9	3.4	3.4	35

Corpus Christi Reservoir System: The Corpus Christi Reservoir System received minimal inflow during April. Choke Canyon is currently at 76.49% of capacity. Lake Corpus Christi is currently at 52.62% of capacity. Corpus Christi continued to divert much of their monthly water supply needs from Lake Texana.

Drought Restrictions: No additional drought restrictions of water rights in this area.

Area Counties: Atascosa, Karnes, Gonzales, Wilson, McMullen, Dewitt, Guadalupe, Lavaca, Fayette, Colorado, Wharton, and Jackson.

Rainfall and Area Conditions: The south and southwestern portions of this area received 0.75 to 1.75 inches of rain during April. The north and northeastern portions received 4.40 to 10.0 inches. Soil moisture conditions improved in the area but need follow up rains to maintain the improved conditions. Grain and hay crops faired well, but with marginal moisture conditions, the improvement may stall. Irrigational activity decreased due to the recent rains. Lake Texana was at 79% of capacity which is 40.21 ft. above mean sea level. This is a 7% increase from last month.

According to the U.S. Drought Monitoring System, this area experienced "Abnormally Dry" to "Exceptional Drought" conditions.

Stream Flow conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
San Antonio River near Falls City	139	125	314
Cibolo Creek near Falls City	27	24	37
Guadalupe River near Gonzalez	468	520	1,220
Lavaca River at Edna	7.7	81	79
Navidad River near Halletsville	3.3	23	27
Atascosa River near Whitsett	2.6	1.5	12
Frio River near Tilden	4.9	0.9	26
Nueces River near Tilden	0.0	0.0	8.1

Drought Restrictions: There were no additional restrictions on diversions.

Area Counties: Edwards, Real, Kinney, Uvalde, Zavala, Dimmit, La Salle and Webb.

Rainfall and Area Conditions: The Southwest Texas Area did not receive relief from the drought during April. No rainfall was recorded at the beginning of the month. The northern counties received rain showers mid-month, ending with rainfall in the northern counties and no rainfall in the southern counties. The range of rainfall for the area was 0.10 to 1.50 inches of rain during April. Most of the diversions of surface water were for irrigational use, with small amounts for municipal and industrial uses. Crops irrigated in the area include onions, wheat, haygrazers (a sorghum-sudan crop used for grazing, silage, and hay), and pecans. Soil conditions were poor due to the lack of rainfall. The U.S. Drought Report indicated that this area is experiencing "Severe Drought" to "Exceptional Drought" conditions.

Stream Flow Conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Nueces River at Laguna	55	66	142
Nueces River at Brackettville	0.00	0.00	12
Nueces River below Uvalde	10	12	71
Frio River at Concan	36	42	140
Sabinal River at Sabinal	0.46	1.4	16
Leona River near Uvalde	7.7	15	40

Stream flows of intermittent and tributary streams in the area were flowing well below average for this time of year.

Drought Restrictions: Currently, the low flow conditions caused several permits with stream flow restrictions to be curtailed, and permits that did not meet their stream flow restrictions were regulated. The Zavala/Dimmit Water District has a rotational diversion schedule on the Nueces River to insure adequate water for domestic and livestock Use. Temporary permits on the Nueces River and Leona River were curtailed.

Area Counties: Bastrop, Bexar, Blanco, Caldwell, Comal, Fayette, Frio, Guadalupe, Hays, and Medina.

Rainfall and Area Conditions: Moderate widespread rainfall fell across the San Antonio Regional Area during April. Month-to-date rainfall measured at the San Antonio International Airport was 1.37 inches. The average for April is 2.60 inches. The total rainfall to date is 5.16 inches; the normal is 7.73 inches, a decrease of 2.57 inches year to date. On April 28, 2009, the U.S. Drought Monitor indicated the San Antonio Regional Area was experiencing "Extreme" to "Exceptional" drought, impacting crops, pastures, grasslands, stream flows, and reservoir capacities. Ground moisture improved with the recent rainfall, many "dry land" farmers plowed fields and spring planting was well underway. Farmers with supplemental irrigation planted corn, milo, green beans, squash, peas, tomatoes, wheat, and hay grazers.

Stream Flow Conditions: The Guadalupe and Blanco Rivers continued to show the impact of the worsening drought. Small creeks dried and most major streams were beginning to quickly pool or dry up entirely. Supplemental surface water irrigation impacted stream flows. Municipal use increased with residential lawn irrigation. Industrial use remained constant.

The Canyon Lake Reservoir was at 896.97 feet elevation, impounding 287,714 acre-feet, and was at 75.9% of capacity. On April 28, 2009, the Edwards Aquifer level at the J17 well in Bexar County was 659.7 feet. The historical average for April is 667.9 feet, which is 8.2 feet below the monthly historical average.

Site	Ending Flows CFS	Historical Mean CFS
Blanco River at Wimberley	22	177
San Marcos River at Luling	84	470
Guadalupe River at Spring Branch	139	386
San Marcos Springs	94	176
Comal Springs	261	302

Drought Restrictions: Most Temporary Permits were not allowed to divert surface water. Surface water permits are closely monitored to determine if "real time" stream flows are allowed to divert. Most "junior" water rights will enter additional stream flow restrictions beginning in May.

Area Counties: Sterling, Tom Green, Irion, Concho, Coke, Glasscock, Runnels, Reagan, and Schleicher.

The Concho River Valley received above average amounts of rainfall during April. According to information provided by USDA, the State Drought Monitor Index listed the Concho Valley under "Moderate Drought" to "Severe Drought" conditions.

Rainfall and Area Conditions: Rainfall in San Angelo during April was 4.61 inches. Areas surrounding San Angelo received slightly higher rainfall amounts. Average rainfall amount for April is 1.84 inches. Total rainfall for the year is 6.88 inches. In 2007, there was only 0.55 inch of rainfall. The average annual rainfall for San Angelo, based on a 100-year record, is 19 inches. Area reservoirs showed decreases in the amount of storage from the previous month's amounts. The Texas Crop Moisture Index indicated the soil moisture content is "Mildly Dry". Winter wheat was planted and established. Corn was planted and cotton fields were prepared for planting. Demand by appropriated surface water rights in the Concho Valley increased volume due to irrigation of wheat crops and the pre-irrigation of cotton crops.

Stream Flow Conditions:

Lake Nasworthy is at 85% of capacity or 8,678 acre-feet. O. C. Fisher was at 5% of capacity or 5,457 acre-feet. Twin Buttes Lake was at 31% of capacity or 57,741 acre-feet.

Site (Years of Record)	Ending Flows CFS	Historical Mean CFS
USGS Gaging System at Spring Creek/Twin Buttes (6)	12	13
USGS Gaging System at Concho River/San Angelo (78)	3.5	64
USGS Gaging System at South Concho/Christoval (73)	8.6	19

Drought Restrictions: There were no additional restrictions on diversions in the Concho Valley.

8. UPPER COLORADO (Concho River watershed not included)

The upper Colorado River area received more than normal precipitation during April. The National Weather Service in San Angelo reported monthly precipitation of 4.61 inches, which was 3.01 inches above normal. According to the U.S. Drought Monitor, the drought conditions in the area ranged from "Abnormally Dry" to "Severe". Most tributaries in the upper Colorado watershed had diminished flows; however, there were isolated areas that flowed at or above the USGS long-term median. The pool levels of EV Spence and OH Ivie Reservoir decreased during March reaching levels of 9% and 52% of capacity, respectively.

9. TEXAS PANHANDLE AND SOUTHERN HIGH PLAINS

Amarillo Area: The Amarillo Region reported the following summary for the Northern panhandle area:

Lake Meredith was at 51.65 feet, down 0.5 foot. Lake Greenbelt ended April at 55.12 feet, down 0.02 foot. Lake MacKenzie was at 70.95 feet, up 0.72 feet. The National Weather Service in Amarillo reported a total rainfall during April of 1.84 inches which was 0.31 inch below normal. Total rainfall since January 1, 2009, is 3.33 inches, or 0.31 inch below the year-to-date average.

Lubbock Area: Lubbock received 1.51 inches of rain during April. The average rainfall is 1.29 inches. Similar amounts were recorded throughout the area. The average annual rainfall at this point in the year is 3.26 inches. Lubbock recorded 2.74 inches of precipitation thus far. The long term drought situation was not changed. All communities previously noted as being on mandatory water restrictions remained on those restrictions. No new communities were added to the water restrictions list during March and none were removed.

Lubbock and Amherst remained on mandatory drought restriction status. Ralls, Crosbyton, Spur, Post, White River WCS, and Valley WSC in the South Plains area remained on voluntary drought restriction status.

White River Lake: The lake's pool elevation was at 2350.54 acre-feet, or 19.4 feet below full, the same level as it was at the end of March 2009. To supply water to its customers, White River WSD has groundwater wells on standby if the lake level drops below usable levels.

Lake Alan Henry: The lake is one foot below full. It is not used for public drinking water supplies at present, but will be utilized for this purpose in the near future.

10. WILDLIFE CONCERNS

No information was received at time of report.

11. AGRICULTURAL CONCERNS

Widespread rains fell across the Plains, North, North Central, East Texas and the Upper Coast, relieving some of the dry conditions. Rainfall amounts last month in North and East Texas were normal during this time of year. Rainfall in the Upper Coast was significant and greatly diminished existing drought conditions. In most of the areas affected, pasture and range conditions were improved. Rain delayed planting operations in North and East Texas.

The Rio Grande Valley and parts of Central and South Texas remained critically dry with little prospect of normal crop or forage yields. Many crops were zeroed out by insurance adjusters. Farmers considered cover crops to reduce wind erosion in the event rain falls.

Central: Rain improved crops and pastures but brought most field work to a standstill. Livestock body condition improved and milk production increased due to a surge in forage growth. Producers slowed supplemental feeding of livestock.

Coastal Bend: The northern counties of the region received some rain and saw improvement in forages. Some crops were replanted, but most progressed well. However, southern counties were either left dry or did not get enough rain to alleviate drought conditions. Growing conditions in the southern counties were poor for crops, and the high, dry winds continued to deplete soil moisture. Because standing forage was scarce, livestock producers continued to provide hay and supplemental protein. Producers also continued to sell cattle.

East: The region received one to six inches of rain. Growth of warm-season grasses in a few counties was stalled by the high levels of moisture and cool nights. Livestock were in good condition.

Far West: A light drizzle was reported in some counties, but not enough to register in rain gauges. Cotton farmers continued to prepare for planting. Chile crops emerged. The first cutting of alfalfa was baled. Fall-planted onions began forming bulbs. The danger of wildfire remained high.

North: Soil moisture ranged from adequate to surplus. Flood damaged was caused by three to eight inches of rain. However, the rainfall filled stock tanks and ponds overflowed. New reports indicated the late freezes in early April did more damage to the wheat crop than was first thought. There were reports of 30-80% of wheat damage due to the freeze. However, the warmer weather resulted in excellent crop-growing conditions. Corn and soybean crops looked productive. Cotton was approximately 10 percent planted and sunflowers were approximately 50% planted. Rice was in fair condition. Pastures and hay meadows looked

productive, and producers fertilized meadows and began the first hay harvest. Cool season forages also provided productive growth. Livestock were in fair to good condition due to improved grazing.

Panhandle: Soil moisture varied from surplus to very short with most areas reporting short. Corn and peanuts were planted. Wheat varied from good to very poor with most areas reporting poor, with small amounts of freeze damage. Pesticide applicators sprayed for Russian wheat aphids, a pest often associated with dry conditions. Rangeland and pasture conditions varied from good to very poor with most areas reporting poor.

Rolling Plains: The region received much-needed moisture, from one to seven inches in most counties. AgriLife Extension in Montague County reported 12 to 17 inches. The heavy rains slowed sorghum planting and lowered the quality of some hay still on the ground. Producers continued to prepare fields for planting of cotton, sorghum and haygrazer. Fertilizers and herbicides were applied. The rain greened up pastures and filled stock tanks. Spring branding began. Producers were baling freeze-damaged wheat as weather permitted.

South: Counties in the region received little to no rain. Farmers prepared to harvest wheat and oats. Managing irrigation of corn, sorghum and cotton dominated farmers' schedules. All irrigated crops faired well with little insect pressure. Pastures and rangeland in some counties greened up with past rains, but most were in poor condition. Livestock were in fair condition, due to heavy supplementation. Producers were weaning calves early to prevent a further decline in condition.

South Plains: Temperatures were up and down, with highs in the 90s followed by nighttime lows in the 40s. Some counties received rain, but not in significant amounts. Soil moisture was short. Corn, sunflower and peanut planting continued. A few fields were planted to cotton, but most producers were waiting for better growing conditions. Wheat was in very poor to poor condition. Pastures and ranges were in very poor to poor condition. Cattle were in good condition with continued supplemental feeding.

Southeast: Heavy rains replenished stock tanks and ground water. Some counties received 4 to 10 inches of rain. Warm temperatures persisted through the evenings, and pastures were in excellent shape. Ryegrass looked "outstanding," and common Bermuda grass started to grow, according to AgriLife Extension county agents. Cool-season annual grasses matured and some fields were cut for hay. Pasture fertilization continued. Reserve hay supplies were short. Livestock were doing well, with supplemental feeding either reduced or halted entirely.

Southwest: March and April rains helped green up the region, but the soil profile remained very dry. High winds and near-record afternoon temperatures aggravated drought conditions. Forage was in extremely short supply. Pastures, rangeland and dryland crops made little progress. Ranchers continued to provide heavy supplemental feed to remaining livestock. Potatoes, spring onions, irrigated corn, sorghum and cotton made good progress under heavy irrigation. The wheat harvest was nearly complete, though with disappointing yields.

West Central: Most counties received a much needed rain, and soil moisture levels faired well. Days have been warm and humid. Field activities increased. Plowing and planting of summer forages began. Crops showed signs of improvement. Stock-tank levels remained low and in need of more runoff. Range and pasture conditions greened up. Livestock were looking better.

12. WILDFIRE CONCERNS

The Keetch-Byram Drought Index (KBDI) is used to help determine potential for fire risk. It is a numerical index where each number is an estimate of the amount of precipitation, in 100ths of an inch, needed to bring the soil back to saturation. The index ranges from 0 to 800, with 0 representing a saturated soil, and 800 a completely dry soil. The relationship of the KBDI to fire danger is, as the index increases, the vegetation is subjected to increased moisture stress. KBDI levels and its relationship to expected fire potential are reflected in the following:

KBDI = 0 – 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. This is typical of spring dormant season following winter precipitation.

KBDI = 201 – 400: Typical of late spring; early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 401 – 600: Typical of late summer, early fall. Lower litter and duff layers contribute to fire intensity and will burn actively.

KBDI = 601 – 800: Often associated with more severe drought and increased wildfire occurrence. Intense, deep-burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

There are currently 102 counties, illustrated in Attachment 2, with KBDI values in excess of 400, indicating areas within these counties are beginning to experience dry conditions which could result in an increased fire risk potential.

The Council, which is chaired by Jack Colley, Chief, Governor's Division of Emergency Management, is composed of state agencies concerned with the effects of drought and fire on the citizens of the State of Texas. The attached information was compiled and provided by representatives listed below. Points of contact, telephone numbers, and web site addresses are also provided.

Jack Colley, Chief, Governor's Division of Emergency Management, (512) 424-2443, fax (512) 424-2444, web site: http://www.txdps.state.tx.us/dem

John Sutton, Texas Water Development Board, (512) 463-7988, fax (512) 463-9893, web site: http://www.twdb.state.tx.us

Chris Loft, Texas Commission on Environmental Quality, (512) 239-4715, fax (512) 239-4770, web site: http://www.tceq.state.tx.us

Richard Egg, Texas State Soil & Water Conservation Board, (254) 773-2250, fax (254) 773-3311, web site: http://www.tsswcb.state.tx.us

Lance Williams, Texas Department of Agriculture, (512) 463-3285, fax (800) 835-2981, web site: http://agr.state.tx.us

Dr. Travis Miller, Texas AgriLife Extension Service, (979) 845-4808, fax (979) 845-0456, web site: http://texasextension .tamu.edu

Cindy Loeffler, Texas Parks & Wildlife Department, (512) 912-7015, fax (512) 707-1358, web site: http://www.tpwd.state.tx.us

Edward T. Morris, Department of Housing and Community Affairs, (512) 475-3329, fax (512) 475-7498, web site: http://www.tdhca.state.tx.us

Carla Baze, Texas Department of Transportation, (512) 416-3270, fax (512)416-2941, web site: http:www.txdot.state.tx.us

Michael Dunivan, Texas Forest Service, (830) 997-5426, web site: http://txforestservice.tamu.edu

Paul Tabor, Texas Department of State Health Services, (512) 801-9816, fax (512) 458-7211, web site: http://www.dshs.state.tx.us/

Thomas Walker, Office of the Governor, Economic Development & Tourism, (512) 936-0169, fax (512) 936-0141, web site: http://www.governor.state.tx.us/divisions/ecodev

David A. Van Dresar, Texas Alliance of Groundwater Districts, (979) 968-3135, fax (979) 968-3194, web site: http://www.texasgroundwater.org/

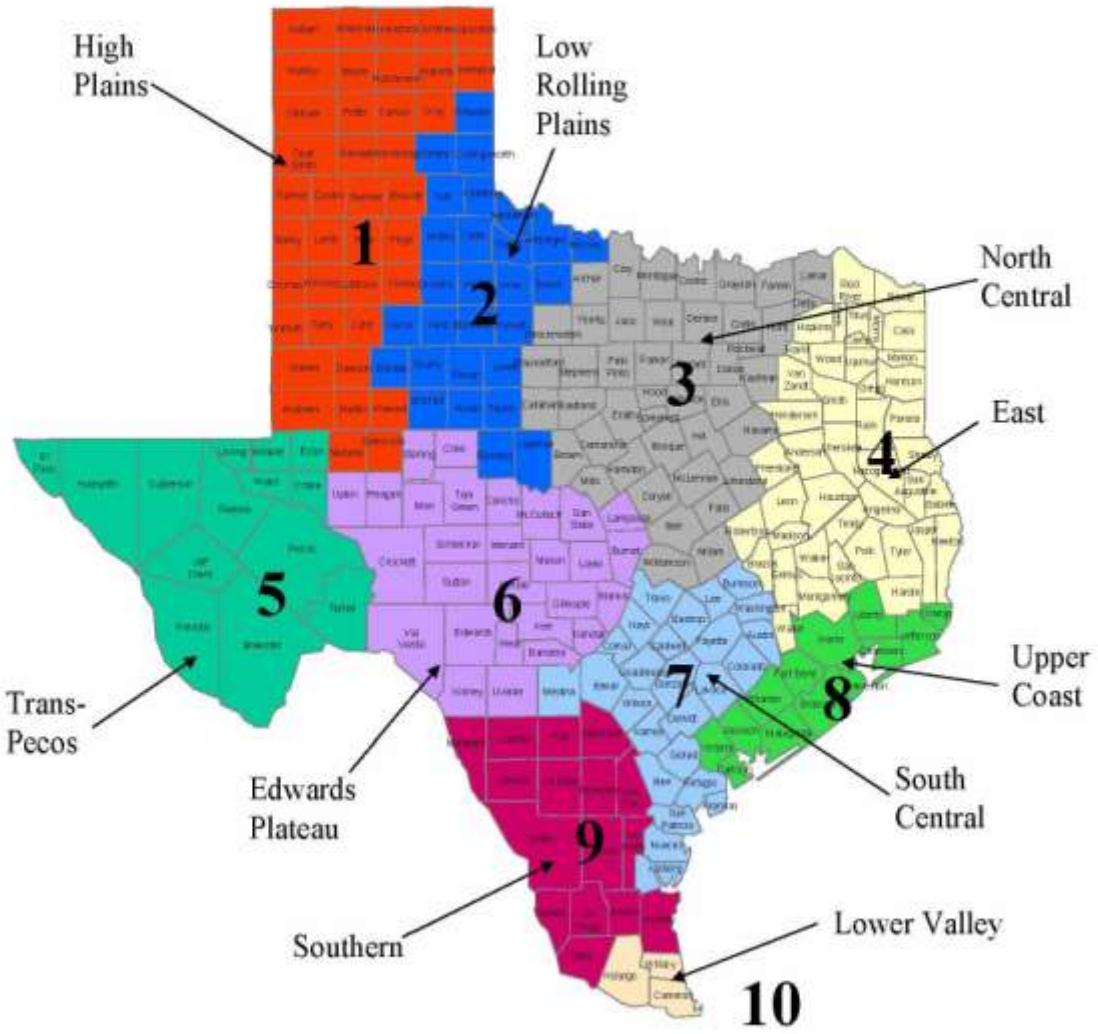
Dr. John W. Nielsen-Gammon, Office of the State Climatologist, (979) 862-2248, fax (979) 862-4466, web site: http://www.met.tamu.edu/osc/

Gus Garcia, Office of Rural Community Affairs, (512) 936-7876, fax (512) 936-6776, web site: http://www.orca.state.tx.us

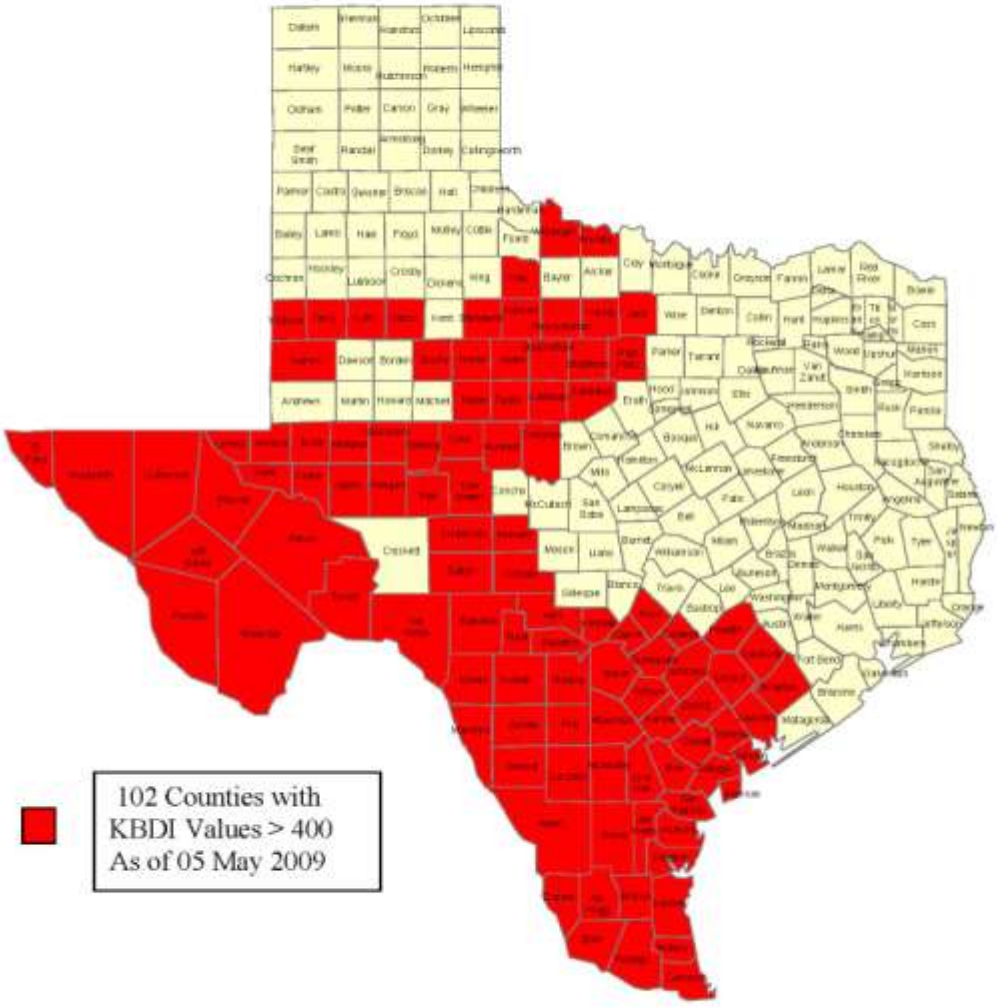
cc:

Amy Jeter, Committee Clerk, Senate Finance Committee
Sarah Hicks, Committee Director, Senate Finance Committee
Teddy Carter, Committee Clerk, Senate Natural Resources Committee
Amy Peterson, Committee Clerk, House Appropriations
Elizabeth Fazio, Committee Clerk, House Natural Resources Committee
Jim Terrell, Committee Clerk, House Agriculture and Livestock Committee
Andrew Cates, Committee Clerk, House Criminal Jurisprudence Committee
Zak Covar, Policy Advisor for TCEQ Issues, Governor's Policy Office
Auburn Mitchell, Policy Advisor for Agriculture/TDA, Governor's Policy Office
Rob Johnson, Lt. Governor's Chief of Staff
Carmen Cernosek, Lt. Governor's Natural Resources Policy Analyst
Shane Linkous, Deputy Division Chief, Intergovernmental Relations, Attorney General's Office
Allan B. Polunsky, Chairman, Public Safety Commission
C. Tom Clowe, Jr., Member, Public Safety Commission
Ada Brown, Member, Public Safety Commission
John Steen, Member, Public Safety Commission
Carin Marcy Barth, Member, Public Safety Commission
Colonel Lamar Beckworth, Interim Director, Department of Public Safety
Lori Gabbert,, Budget Analyst, Legislative Budget Board (LBB-DPS)
Tom Lambert, Budget Analyst, Legislative Budget Board (LBB-TCEQ)
Ed Perez, Executive Director, Texas Office of State-Federal Relations, Washington, DC
Brandon Steinmann, Director, Texas Office of State-Federal Relations, Austin, Texas

Attachment 1
Climatic Regions



Attachment 2
Counties with High to Extreme Fire Danger



DROUGHT PREPAREDNESS COUNCIL

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Governor

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JACK COLLEY
Council Chairman

August 13, 2009

TO: The Honorable Rick Perry, Governor, State of Texas
The Honorable David Dewhurst, Lieutenant Governor, State of Texas
Ms. Esperanza Andrade, Secretary of State, State of Texas
The Honorable Robert Duncan, President Pro-Tempore of the Senate, State of Texas
The Honorable Joe Straus, Speaker of the House, State of Texas
The Honorable Steve Ogden, Chairman, Senate Finance Committee, State of Texas
The Honorable Kip Averitt, Chairman, Senate Natural Resources Committee, State of Texas
The Honorable John Carona, Chairman, Senate Committee on Transportation & Homeland Security, State of Texas
The Honorable Jim Pitts, Chairman, House Appropriations Committee, State of Texas
The Honorable Allan Ritter, Chairman, House Natural Resources Committee, State of Texas
The Honorable Yvonne Gonzalez-Toureilles, Chairman, House Agriculture & Livestock Committee, State of Texas
The Honorable Pete Gallego, Chairman, House Criminal Jurisprudence Committee, State of Texas
Mr. Ray Sullivan, Chief of Staff, Office of the Governor
Mr. Josh Havens, Texas Governor's Office of Homeland Security

FROM: Chief Jack Colley, Chairman, Drought Preparedness Council

SUBJECT: Statewide Drought Situation Report

1. NEXT COUNCIL MEETING

September 10, 2009, 2:00 p.m., Audit & Inspection Conference Room, Texas Department of Public Safety Headquarters, Building A, 5805 N. Lamar Blvd., Austin, Texas.

2. GENERAL CONDITIONS

During July, the long-term drought was entrenched in South Texas, and some regions suffered through the worst drought since precipitation records began back in the 19th Century. Comparisons of the current drought to past droughts revealed precipitation deficits are at an all-time high in the Coastal Bend and in the few counties just east of Interstate-35 between Austin and San Antonio. Compounding the situation was that July 2009 was perhaps the hottest month South Texas has ever experienced, setting records for highest temperatures in several cities. However, rainfall was plentiful in the northern half of Texas and most of North Texas, the Panhandle, and West Texas are not experiencing drought conditions.

An upper-level area of high pressure was entrenched over South Texas during most of the month, suppressing most convective thunderstorm activity that normally exists over the region during July. A few weak storm systems were able to make it to the South Central and Upper Coast regions during the last half of the month. This provided temporary relief from the heat and dryness but did little to alleviate the drought situation in these areas. The storm tracks stayed to the north and provided plentiful July rainfall to areas in West Central, North Central, and Northeast Texas. Midland received three times its normal July rainfall, 6.55 inches. According to radar precipitation estimates of the Advanced Hydrologic Predictive Service, the area between Fort Worth and Wichita Falls saw greater than four times the expected July rainfall, as did the region between Tyler and Texarkana.

The persistent high pressure across South Texas made for a sunny, dry, and historically hot July 2009. Several cities set records for the highest average monthly temperature ever recorded. Austin/Mabry, College Station, Corpus Christi, San Antonio, and Victoria set records for highest temperatures ever, including each calendar month. Houston had its third warmest month, while Austin/Bergstrom and Galveston had their sixth warmest months. The excessive warmth increased stress on crops and livestock, and accelerated evaporation of what little soil moisture was left in South Texas. The Keetch-Byrum soil moisture index is getting dangerously close to 800, which represents soil with absolutely no moisture.

In addition to the record heat, the long-term dryness in South Texas is currently breaking records in many South Texas cities. According to data collected since 1872, San Antonio has a normal annual rainfall amount of 55.49 inches. Year-to-date, the City has received 24.38 inches. According to data collected since 1947, Victoria has a normal annual rainfall amount of 73.23 inches. Year-to-date, the City has received 38.26 inches. Both cities experienced their driest 23-month periods ever, and each needs significant August 2009 rainfall to avoid extending the record dryness to two years. Victoria's drought situation was marginally aided by the fact that the nine-month period ending in September 2007 was the wettest on record, 66.20 inches in nine months. According to data collected since 1855, Austin/Mabry has a normal annual rainfall amount of 61.42 inches. During the past 22 months, the area has received 30.49 inches. This is the second driest 22-month period on record. The year-to-date precipitation ending in July at Port Mansfield was only 1.47 inches of precipitation. The normal amount is 11.47 inches. Sarita received only 1.96 inches. The normal amount is 11.72 inches. College Station tied a record by enduring 56 consecutive days without precipitation ending on July 19.

Currently, 16.8% of Texas is categorized as experiencing "Exceptional Drought" conditions, and all of South Texas from the Brazos Valley southward is in either "Extreme" or "Exceptional Drought". Austin, Corpus Christi, Houston, San Antonio, and Victoria implemented either mandatory or voluntary water restrictions in response to the current drought. The San Antonio Water System is in Stage 2 water restrictions with the Edwards

Aquifer below 650 feet, currently at 644 feet, and will implement Stage 3 restrictions for the first time ever should the level drop below 640 feet. Canyon Lake and Medina Lake were at their lowest recorded levels. Lake Travis is approximately 40 feet below normal.

The El Nino-Southern Oscillation officially entered its warm phase and conditions are expected to continue through the Northern Hemisphere winter, according to the Climate Prediction Center (CPC). The current one-month forecast from the CPC calls for a greater than 33% chance of below normal precipitation across most of the State, with the exception of the northeastern Panhandle and Red River Valley. Unfortunately, a greater than 40% chance of below normal August precipitation exists for all but the far western area of the State.

Equal chances exist for below normal, near normal, and above normal three-month precipitation, August–October, for most of the State, with the northwestern Panhandle having a 33-40% chance of above normal precipitation. Continuation and possible deterioration of the drought in extreme South Texas is expected, while South Texas and the Upper Coast may see some improvement over the next three months. This forecast does not account for any tropical cyclone development that could possibly bring significant precipitation to South Texas and improve the drought situation in the region.

3. OVERALL STATEWIDE DROUGHT CONDITIONS

According to the Palmer Drought Severity Index (PDSI), the Southern and South Central regions were in an "Extreme Drought" at the end of July. The Edwards Plateau and Lower Valley regions were in a "Severe Drought". The remaining regions were in a "Moderate Drought". The PDSI varies from extremely wet, very wet, moderately wet, slightly wet, incipient wet spell, near normal, incipient dry spell, mild drought, moderate drought, severe drought, and extreme drought in order of increasing severity.

According to the Crop Moisture Index (CMI), the South Central, Upper Coast, Southern, and Lower Valley regions were in an "Extremely Dry" condition. The Edwards Plateau was in an "Abnormally Dry" condition. The North Central and East regions were in a "Mildly Dry" condition. According to the Texas Water Development Board (TWDB) scale, the CMI varies from flooding, standing water, fields too wet, moisture adequate, mildly dry, abnormally dry, excessively dry, severely dry, and extremely dry in order of increasing severity.

According to the Six-Month Standardized Precipitation Index (SPI), the Southern and Lower Valley regions were in an "Extremely Dry" condition. The South Central region was in a "Moderately Dry" condition. The SPI varies in categories of extremely wet conditions, very wet, moderately wet, near normal, moderately dry and, severely dry, extremely dry in order of increasing severity.

The Keetch-Byram Drought Index (KBDI) indicates a very high fire danger in the Upper Coast and Southern regions, an exceptional fire danger in the Lower Valley, and a high fire danger in the remaining regions. The KBDI is a drought index specifically used to describe potential or expected fire behavior. The index is classified as Low, Moderate, High, or Extreme fire danger, in order of increasing severity.

4. WATER UTILITY STATUS

August 2009 began with 308 public water systems requiring customers to conserve water by following water use restrictions. The systems included 240 which asked customers to follow

a mandatory watering schedule and 60 asked for voluntary reductions in usage. In addition, eight public water systems relaxed all restrictions to return to normal operation.

The expected increase in usage during the summer months occurred and systems reached the triggers of their Drought Contingency Plans. There is a continued lack of significant rainfall needed to fill lakes and recharge underground aquifers. It is expected this pattern will continue and additional public water systems will reach the triggers of their Drought Contingency Plan and place watering restrictions on customers.

5. WATER RIGHTS – STATEWIDE

New temporary water use permit applications were reviewed on a site-specific basis and issued if there was sufficient surplus water at the requested source. Applications for new water use permits and amendments to existing permits remained normal for the month. Water Rights containing Hale Clause restrictions along the Brazos River, Brazos River Basin were curtailed due to low flows. Owners of water rights with these restrictions were reminded to call the "Hale Clause Hotline" on a weekly basis to determine if diversion of water was allowed for the following week. The availability of unappropriated water for new water use permits continues to decrease in all river basins in the State, and the search for long-term, dependable alternate sources of water remains a high priority issue.

6. WATER RIGHTS – LOWER RIO GRANDE / RIO GRANDE WATERMASTER (RGWM)

Current Overall Conditions: As of July 25, 2009, the U.S. combined ownership at Amistad/Falcon stood at 87.24% of conservation capacity or 2,959,092 acre-feet of temporary conservation capacity. Overall, the system is holding 86.24% or 5,108,284 acre-feet of conservation capacity with Amistad at 98.96% or 3,242,029 acre-feet and Falcon at 70.51% or 1,866,254 acre-feet. Mexico has 84.91% or 2,149,192 acre-feet of the water storage at Amistad/Falcon.

Allocations: As of the June ownership report printing, all active accounts are currently full. The U.S. allocated 17,867,351 acre-feet to Class A and B water rights for irrigation, mining, and recreation. Additionally, the U.S. has an amount in excess of 680,946 acre-feet for future 2009 allocations.

Storage & Loss Amistad vs. Falcon: The U.S. is currently storing approximately 1.84 million acre-feet or 98.3% at Amistad, and approximately 1.15 million acre-feet or 74.1% at Falcon.

Evaporation and seepage losses at Amistad YTD were 127,026 acre-feet. For the same period, 159,126 acre-feet have been lost at Falcon. Amistad is currently 79.8% more efficient in overall storage and loss as compared to total amount in storage.

Releases to Meet Demands: Mexico released 286,833 acre-feet from Amistad and 832,445 acre-feet from Falcon for Mexico needs. The U.S. released 910,879 acre-feet from Amistad and 504,559 acre-feet from Falcon for U.S. needs. Combined with gains between Amistad and Falcon, U.S. inflows to Falcon totaled 586,167 acre-feet. So far, the U.S. met 64% of overall needs in the middle and Lower Rio Grande directly from middle Rio Grande and Amistad inflows this year.

Upper Rio Grande (New Mexico): Currently, Elephant Butte in New Mexico is storing 531,014 acre-feet or 26.24% of capacity. Caballo Dam, downstream of Elephant Butte, is

storing 54,317 acre-feet or 23.93% of capacity. This water storage, in part, was used to meet water needs in the El Paso area.

Outlook: All active accounts began 2009 with 100% usable balances. To help alleviate losses in Falcon, the U.S. will continue to monitor ownership and elevations levels in both Falcon and Amistad so that U.S. transfers of water from Amistad to Falcon can be most efficient.

7. SOUTH TEXAS WATERMASTER – GUADALUPE / LAVACA / SAN ANTONIO / NUECES REGION

Area Counties: Bandera, Blanco, Comal, Kendall and Kerr Counties

Rainfall and Area Conditions: The area received widely scattered rain from 1.0 to 4.0 inches during July. With that rainfall, the Texas Crop Moisture Index classified the area of the Hill Country as "Extremely Dry" to "Severely Dry". Most of the surface water diversions in the area were for municipal and industrial uses with a few surface water permit holders irrigating hay and sod fields. The U.S. Drought Monitor indicates the area is in an "Exceptional Drought" condition.

Stream Flow Conditions: Stream flows of the major streams and their tributaries flowed below average. With the scattered rains the Guadalupe River showed a slight increase in flow for the month of July, while the Medina and the Sabinal Rivers have stopped surface flow in some sections. Most of the larger secondary tributaries still show no surface flows.

Site	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Kerrville	59	96
Guadalupe River near Comfort	37	1170
Medina River at Bandera	0.30	98

Drought Restrictions: In the Guadalupe River Basin above Canyon Lake, no state permit holders reached their stream flow restrictions. State water right permits and all temporary water right permits in the San Antonio River Basin above Lake Medina are monitored on a case by case basis.

Area Counties: Bee, Goliad, Victoria, Calhoun, Jackson, Refugio, Aransas, San Patricio, Nueces, Kleberg, Jim Wells, Duval, Live Oak, Kenedy, Willacy, Brooks, and Jim Hogg.

Rainfall and Area Conditions: The area received only scattered to isolated rain showers throughout the month. The light and scattered showers provided no relief to the continued drought conditions. Stream flows rose for a short time period, but quickly diminished and continue to decline. Most of the area streams flowed below what is expected for this time of the year. It was reported that area crops continued to perish due to the extended drought conditions. The U.S. Drought Monitor indicated that "Exceptional Drought" conditions continue to expand throughout the counties in South and Central Texas. Most surface water diversions in this area continued to be for municipal and industrial uses, with little irrigational use.

Stream Flow Conditions:

Site (Years of Record)	Beginning Flows CFS	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Guadalupe River near Victoria (74)	200	149	220	1,400
San Antonio River near Goliad (73)	140	108	94	604
San Antonio River at McFaddin below Goliad (2)	150	131	181	5,140
Guadalupe River near Tivoli (2)	500	438	392	1,630
Mission River near Refugio (69)	0.40	0.0	0.41	33
Nueces River at Calallen Dam (9)	0	11	0	3,100
Aransas River near Skidmore (44)	1.6	1.3	1.6	6.1

The "saltwater barrier" on the Guadalupe River, near Tivoli, Texas, was activated several times during July. The "saltwater barrier" is activated or engaged to prevent the intrusion of saltwater and the subsequent contamination of "fresh water" when low stream flows occur.

Corpus Christi Reservoir System: The Corpus Christi Reservoir System received minimal inflows during July and the level of the reservoir system continued to drop. The Corpus Christi Reservoir System was at 61.6% of capacity, or 586,685 acre-feet, compared to 87.3% of capacity, or 832,016 acre-feet, during the same time last year. The level of Choke Canyon dropped to 71.1% of capacity, or 494,137 acre-feet, compared to 89.7% of capacity, 623,531 acre-feet, during the same time last year. Lake Corpus Christi was at 36% of capacity, or 92,548 acre-feet, compared to 81% of capacity, or 208,485 acre-feet, last year. Corpus Christi continued to divert much of its monthly water supply needs from Lake Texana.

Drought Restrictions: Some stream flow restrictions of water rights in the area were reached. Stream flow restrictions for the City of Victoria's water rights were reached. The City is currently allowed to exchange ground water, from city wells, from the Guadalupe River.

Area Counties: Edwards, Real, Kinney, Uvalde, Zavala, Dimmit, La Salle and Webb.

Rainfall and Area Conditions: The Southwest Texas Regional Area received minimal amounts of rainfall during July, with no rain reported during the middle of the month. The month ended with heavy showers in the northern counties and light showers in the southern counties. The range of rainfall in the area was 0.10 to 2.00 inches during July. Most of the diversions of surface water were for irrigational use and small amounts for municipal and industrial uses. Crops irrigated in the area include cotton, maze, hay grazers, and pecans. Soil conditions are poor due to the lack of rain fall. The U.S. Drought Report indicates that this area is experiencing "Severe Drought" to "Exceptional Drought" conditions at this time.

Stream Flow Conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Nueces River at Laguna	32	15	114
Nueces River at Brackettville	0.00	0.00	22
Nueces River below Uvalde	4.3	3.8	105
Frio River at Concan	5.4	13	100
Sabinal River at Sabinal	0.05	0.10	27
Leona River near Uvalde	0.0	0.0	40

Stream flows of intermittent and tributary streams in the area were flowing well below average for this time of year.

Drought Restrictions: Currently, the low flow conditions caused several permits with stream flow restrictions to be curtailed, and permits that did not meet their stream flow restrictions were regulated. The Zavala/Dimmit Water District has a rotational diversion schedule for the Nueces River to ensure adequate water for domestic and livestock use. All temporary permits in the Southwest Texas Regional area were shut off.

Area Counties: Bastrop, Bexar, Blanco, Caldwell, Comal, Fayette, Frio, Guadalupe, Hays, and Medina.

Rainfall and Area Conditions: Only a trace of rain fell across the San Antonio Regional Area during July. Rainfall measured at the San Antonio International Airport was 0.81 inch. The average precipitation for July is 2.03 inches. The total rainfall to date for 2009 is 7.95 inches, 11 inches below the normal year to date rainfall of 18.95 inches. The U.S. Drought Monitor dated July 28, 2009 indicated the San Antonio Regional Area was experiencing "Exceptional Drought", impacting crops, pastures, grasslands, stream flows, and reservoir capacities. Ground moisture rapidly diminished with above average temperatures, high winds, the lack of cloud cover, and no rain. With supplemental irrigation, good harvests of hay grazers, blackberries, sweet corn, yellow and white squash, zucchini, cucumbers, tomatoes, white onions, watermelons, antelopes, and garlic were reported. Most "dry land" crops were lost or dramatically stunted due to either the ensuing drought or the lack of rainfall.

Stream Flow Conditions: The Guadalupe and Blanco Rivers continued to reflect the impact of the worsening drought. Small creeks dried and most major streams began to quickly pool or dry up entirely. Supplemental surface water irrigation impacted stream flows. Municipal use increased with residential lawn irrigation. Industrial use remained constant.

The Canyon Lake Reservoir was at 894.33 feet elevation, impounding 270,383 acre-feet, or 71.38% of capacity. On July 31, 2009, the Edwards Aquifer level at the J17 well in Bexar County was 643.6 feet. The historical average for July is 661.1 feet, which is 17.5 feet below the monthly historical average.

Site	Ending Flows CFS	Historical Mean CFS
Blanco River at Wimberley	9.4	438
San Marcos River at Luling	79	355
Guadalupe River at Spring Branch	4.6	140
San Marcos Springs	86	187
Comal Springs	161	278

Drought Restrictions: Most Temporary Permits were not allowed to divert surface water. Surface water permits are closely monitored to determine if "real time" stream flows are allowed to divert. Surface water permits with stream flow restrictions were triggered and curtailed.

Area Counties: Sterling, Tom Green, Irion, Concho, Coke, Glasscock, Runnels, Reagan, and Schleicher.

The Concho River Valley received above average amounts of rainfall during July. According to information provided by USDA, the State Drought Monitor listed the Concho Valley in an "Abnormally Dry" condition.

Rainfall and Area Conditions: Rainfall in San Angelo during July was 4.35 inches. Areas surrounding San Angelo received slightly higher rainfall amounts. The average rainfall amount for July is 1.69 inches. Total rainfall for the year is 12.11 inches. The average annual rainfall for San Angelo, based on a 100-year record, is 19 inches. There were nine days with over one hundred-degree temperatures. Area reservoirs showed continued decreases in the amount of storage capacities from the previous month. The Texas Crop Moisture Index indicated the soil moisture content is "Severely Dry". Corn and sorghum were planted and established. Cotton fields were planted. There was an increased demand by appropriated surface water rights in the Concho Valley due to the irrigation of cotton, corn, and sorghum crops.

Stream Flow Conditions:

Site (Years of Record)	Ending Flows CFS	Historical Mean CFS
USGS Gaging System at Spring Creek/Twin Buttes (6)	34	4.8
USGS Gaging System at Concho River/San Angelo (78)	13	11
USGS Gaging System at South Concho/Christoval (76)	6.9	14

Lake Nasworthy was at 84% of capacity or 8,567 acre-feet. O.C. Fisher was at 4% of capacity or 4,707 acre-feet. Twin Buttes Lake was at 25% of capacity or 45,743 acre-feet.

Drought Restrictions: Most Temporary Permits were not allowed to divert surface water. Surface water permits were closely monitored. Restrictions on diversions were triggered in the Concho Valley based on "real time" stream flows. The few diversions that were allowed

in the area were based on availability in that specific segment. If inflows remain at current levels, without any increases; all diversions in the area will be suspended until such time as the inflow levels return to normal.

8. **UPPER COLORADO** (Concho River watershed not included)

The upper Colorado River area received less than normal precipitation during July. The National Weather Service in San Angelo reported monthly precipitation of 4.64 inches, which was 3.54 inches above normal. According to the U.S. Drought Monitor, the drought conditions in the area ranged from "Abnormally Dry" to "Moderate Drought". Most tributaries in the upper Colorado watershed had diminished flows. However, there were isolated areas that flowed at or above the USGS long-term median. The pool levels of EV Spence and OH Ivie Reservoir decreased during May reaching levels of 7% and 48% of capacity, respectively.

9. **TEXAS PANHANDLE AND SOUTHERN HIGH PLAINS**

Amarillo Area: The Amarillo Region reported the following summary for the Northern panhandle area:

Lake Meredith ended the month at 48.15 feet. Lake Greenbelt ended July at 54.32 feet. Lake MacKenzie ended the month at 72.24. The National Weather Service in Amarillo reported a total rainfall during July of 3.78 inches. Total rainfall since January 1, 2009, is 10.33 inches, or 1.77 inches below the year-to-date average.

Lubbock Area: Lubbock received 1.69 inches of rain during July. The average rainfall is 2.13 inches. Similar amounts were recorded throughout the area. Since the beginning of the year, Lubbock has received a total of 7.55 inches of precipitation. This is 3.13 inches below the normal of 10.68 inches for July. The long term drought situation was not changed. All communities previously noted as being on mandatory water restrictions remained on those restrictions. No new communities were added to the water restrictions list during July and none were removed.

Lubbock and Amherst remained on mandatory drought restriction status. Ralls, Crosbyton, Spur, Post, White River WCS, and Valley WSC in the South Plains area remained on voluntary drought restriction status.

White River Lake: The lake pool elevation was at 2349 acre-feet, or 21.0 feet below full. This is one foot lower than the level at the end of May 2009. White River WSD has groundwater wells on standby if the lake level drops below usable levels.

Lake Alan Henry: The lake is 1.5 foot below full. It is not used for public drinking water supplies at present, but will be utilized for this purpose in the near future.

10. **WILDLIFE CONCERNS**

No information was received at time of report.

11. **AGRICULTURAL CONCERNS**

Welcome rains improved agricultural conditions over most of the High and Rolling Plains, the Trans Pecos, West Central Texas, North and East Texas regions. Dryland crops across

the plains improved. The plains cotton crop varied greatly in age due to problems at planting time, but the majority of the crop was in fair to good condition. Rains were also timely for much of the dryland sorghum crop. Irrigated crop conditions mostly good as temperatures cooled a bit. Crops, pastures and rangeland continued to decline across much of Central, South and Southwest Texas, the Lower Valley and the Gulf Coast and high temperatures and dry conditions continued. Livestock water in Central and South Texas and the Gulf Coast rapidly dried up. Hay was scarce and expensive and livestock auctions ran large numbers of cattle from herds being severely culled or liquidated due to lack of water, grazing and affordable hay or feed supplies.

The following comments regarding agricultural conditions across the State over the last week are from AgriLife Extension reporters.

Central: Most of the region received rain and cooler temperatures in the last week of July. However, the rains were not enough to fill stock tanks or creeks. Bushel weights in corn were low and aflatoxin was found in many samples of harvest corn. Overall, the corn crop was poor, with low or no yields except in irrigated fields. Lack of forages for grazing was still a concern for livestock producers.

Coastal Bend: The region experienced above-normal temperatures and no rain. The drought continued to take its toll. Rangeland and pastures will need several years to come back to quality grazing potential. Row crops were near complete failure. Low grain yields were reported coming into elevators. Farmers and ranchers had a poor outlook, and the agribusiness infrastructure, such as grain facilities, harvesting and trucking companies suffered. Sale of cattle and other livestock continued due to lack of forage, water, and the scarcity and high price of hay.

East: As much as 10 inches of rain was reported in some parts of the region, but most received approximately two inches. Flooding was an issue in some counties. Some burn bans were lifted and another cutting of hay is possible. This is critical as most east Texas farmers have harvested only one cutting. There were reports of grasshoppers and armyworms. Livestock were in fair to good condition.

Far West: The region received one to five inches of rain. Cotton faired well, though in some fields there were reports of bacterial blight, stink bugs and grasshoppers. Pastures looked productive after the rains.

North: Soil moisture ranged from adequate to surplus. Some areas received eight to 16 inches of rain. The pastures and hay fields greatly improved, encouraging producers. Corn and grain sorghum were in fair to good condition and mostly matured, so the rains were not much benefit. The same held true for soybeans. The corn harvest was under way; some producers harvested the crop for silage. Hay was still being sent to South Central Texas. Cotton was in fair condition and should also respond. The rain replenished most stock tanks. Sunflowers proved to be profitable this year with yields of 1,200 pounds and higher per acre. Cattle were in good condition. Rangeland and pastures were in fair to good shape. Drought damaged corn is expected to have increased mycotoxin problems due to rain after harvest maturity.

Panhandle: The region saw widespread showers and lower temperatures, with 0.5 to three inches reported across southern and western counties. However, the northeast corner of the region remained very dry. Corn, cotton, peanuts, and soybeans were in good condition. Sorghum was fair. Cotton needed more heat units. Corn in the northeast was only 50%

pollinated. Wheat fields were prepared for planting. Rain helped dryland crops. Insect counts were low for this time of year, but southwestern corn borer numbers were on the rise. Cattle on grass were doing well, and cattle in feed yards did better thanks to the lower temperatures. The rangelands showed some improvement.

Rolling Plains: From one to six inches of rain helped tremendously in improving pastures and hay fields. It appeared another cutting of hay could be made. Some runoff was collected in parts of the district. Livestock were in fair to good condition. Cotton made beneficial progress in some areas while in other counties farmers have plowed under this year's crop due to poor stands. Moisture will be beneficial as farmers prepare for wheat planting.

South: Continued hot, dry weather meant soil moisture was very short throughout the region. All farmers, even those irrigating, experienced problems keeping up with evaporative demand because of extremely high temperatures. Even trees began to show signs of drought stress and dying. Corn and sorghum harvests were expected to be completed soon. Cotton continued to develop, and most peanuts were pegging. In the eastern parts of the region, sesame as an alternative crop was flowering and setting pods. It was the only crop doing well in that area. Producers continued to move livestock out of the eastern counties or supply heavy supplemental feeding. In some cases, producers totally sold herds. No field preparation for fall crops was reported. In the southern parts of the region, the sorghum and corn harvests were complete, cotton harvesting was beginning, and sugarcane planting was under way.

South Plains: The region experienced slightly cooler temperatures and some much needed rain. Some hail damage was reported in Hale, Cochran, and Bailey counties. Producers continued herbicide applications, irrigating most crops. Cotton bloomed and was mostly in fair to good condition. Sorghum headed out and was in fair to good condition. The rain was expected to improve pastures. Producers continued supplemental feeding of livestock.

Southeast: Due to recent rains, the range conditions dramatically improved in parts of the region. The rain made possible a second or third cutting of hay for most hay producers in Madison County. However, extreme heat and no rain made conditions severe in Grimes and other counties. Burn bans remained in effect.

Southwest: July was the hottest month on record for some stations, 23 days with temperatures of 100 degrees or above. The average high temperature for the month at Uvalde was 100.4. In addition, the last 11 month period was the second-driest period on record. There was some relief, however, as light sporadic showers deposited 0.5 to one inch of rain in the southern most part of the region. The light rain was not significant to agricultural conditions due to high temperatures and dry conditions. Incidences of roadside and field wildfires fires continued. Forage availability was almost non-existent. The corn and sorghum harvests were nearly complete with below-average yields reported. Cotton, peanuts and pecans made excellent progress under heavy irrigation.

West Central: Temperatures were milder with recent weather changes. Many counties reported significant rainfall, raising soil moisture levels. Crops tried to recover from drought conditions. Improved soil moisture will help fall planting get off to a good start. Rangeland and pastures improved due to the rain. Pecans were in fair to good condition.

12. WILDFIRE CONCERNS

The Keetch-Byram Drought Index (KBDI) is used to help determine potential for fire risk. It is a numerical index where each number is an estimate of the amount of precipitation, in 100ths of an inch, needed to bring the soil back to saturation. The index ranges from 0 to 800, with 0 representing a saturated soil, and 800 a completely dry soil. The relationship of the KBDI to fire danger is, as the index increases, the vegetation is subjected to increased moisture stress. KBDI levels and its relationship to expected fire potential are reflected in the following:

KBDI = 0 – 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. This is typical of spring dormant season following winter precipitation.

KBDI = 201 – 400: Typical of late spring; early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 401 – 600: Typical of late summer, early fall. Lower litter and duff layers contribute to fire intensity and will burn actively.

KBDI = 601 – 800: Often associated with more severe drought and increased wildfire occurrence. Intense, deep-burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

There are currently 163 counties, illustrated in Attachment 2, with KBDI values in excess of 400, indicating areas within these counties are beginning to experience dry conditions which could result in an increased fire risk potential.

The Council, which is chaired by Jack Colley, Chief, Governor's Division of Emergency Management, is composed of state agencies concerned with the effects of drought and fire on the citizens of the State of Texas. The attached information was compiled and provided by representatives listed below. Points of contact, telephone numbers, and web site addresses are also provided.

Jack Colley, Assistant Director, Texas Division of Emergency Management, (512) 424-2443, fax (512) 424-2444, web site: http://www.txdps.state.tx.us/dem

John Sutton, Texas Water Development Board, (512) 463-7988, fax (512) 463-9893, web site: http://www.twdb.state.tx.us

Chris Loft, Texas Commission on Environmental Quality, (512) 239-4715, fax (512) 239-4770, web site: http://www.tceq.state.tx.us

Richard Egg, Texas State Soil & Water Conservation Board, (254) 773-2250, fax (254) 773-3311, web site: http://www.tsswcb.state.tx.us

Lance Williams, Texas Department of Agriculture, (512) 463-3285, fax (800) 835-2981, web site: http://agr.state.tx.us

Dr. Travis Miller, Texas AgriLife Extension Service, (979) 845-4808, fax (979) 845-0456, web site: http://texasextension .tamu.edu

Cindy Loeffler, Texas Parks & Wildlife Department, (512) 912-7015, fax (512) 707-1358, web site: http://www.tpwd.state.tx.us

Alfonso Royal, Department of Housing and Community Affairs, (512) 475-3329, fax (512) 475-7498, web site: http://www.tdhca.state.tx.us

Carla Baze, Texas Department of Transportation, (512) 416-3270, fax (512)416-2941, web site: http:www.txdot.state.tx.us

Michael Dunivan, Texas Forest Service, (830) 997-5426, web site: http://txforestservice.tamu.edu

Paul Tabor, Texas Department of State Health Services, (512) 801-9816, fax (512) 458-7211, web site: http://www.dshs.state.tx.us/

Thomas Walker, Office of the Governor, Economic Development & Tourism, (512) 936-0169, fax (512) 936-0141, web site: http://www.governor.state.tx.us/divisions/ecodev

David A. Van Dresar, Texas Alliance of Groundwater Districts, (979) 968-3135, fax (979) 968-3194, web site: http://www.texasgroundwater.org/

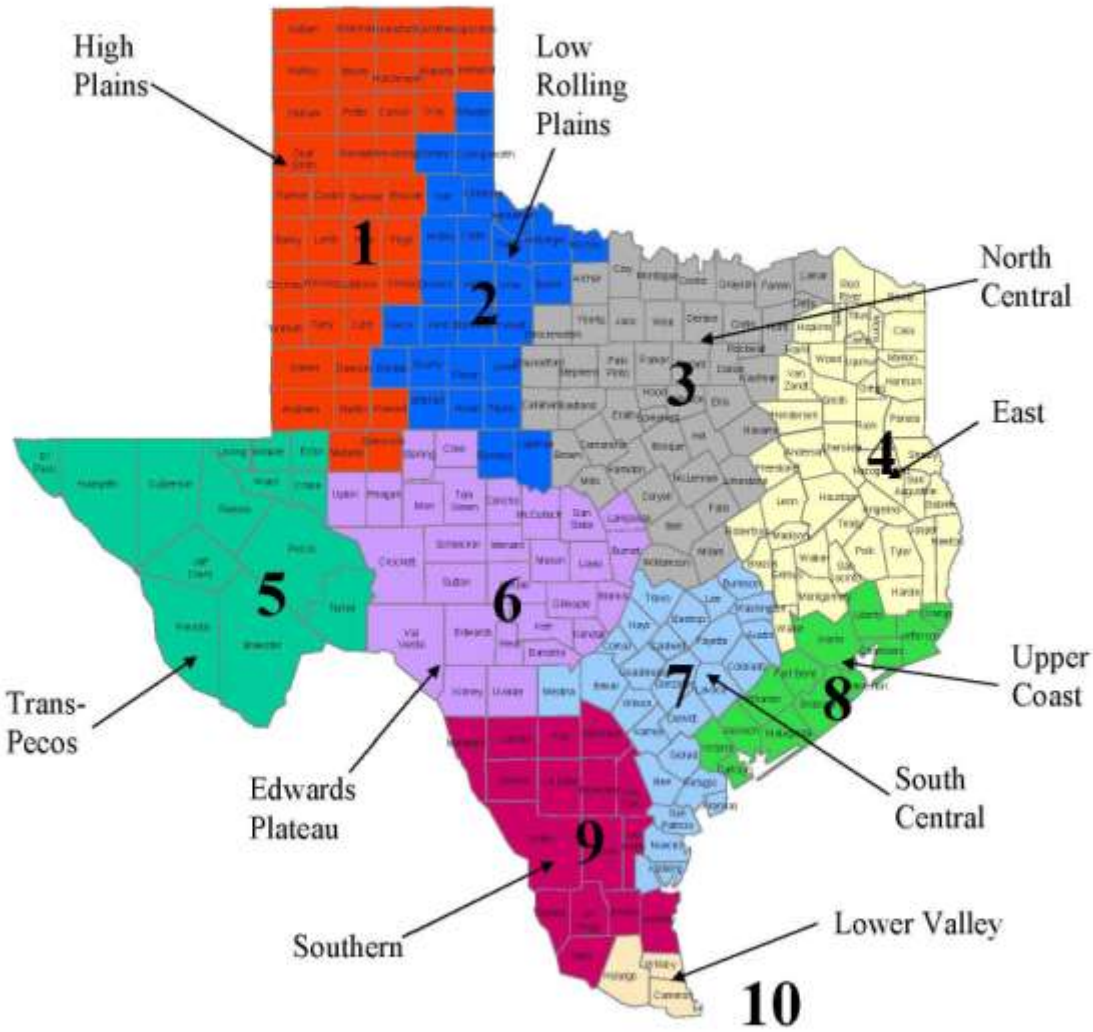
Dr. John W. Nielsen-Gammon, Office of the State Climatologist, (979) 862-2248, fax (979) 862-4466, web site: http://www.met.tamu.edu/osc/

Gus Garcia, Office of Rural Community Affairs, (512) 936-7876, fax (512) 936-6776, web site: http://www.orca.state.tx.us

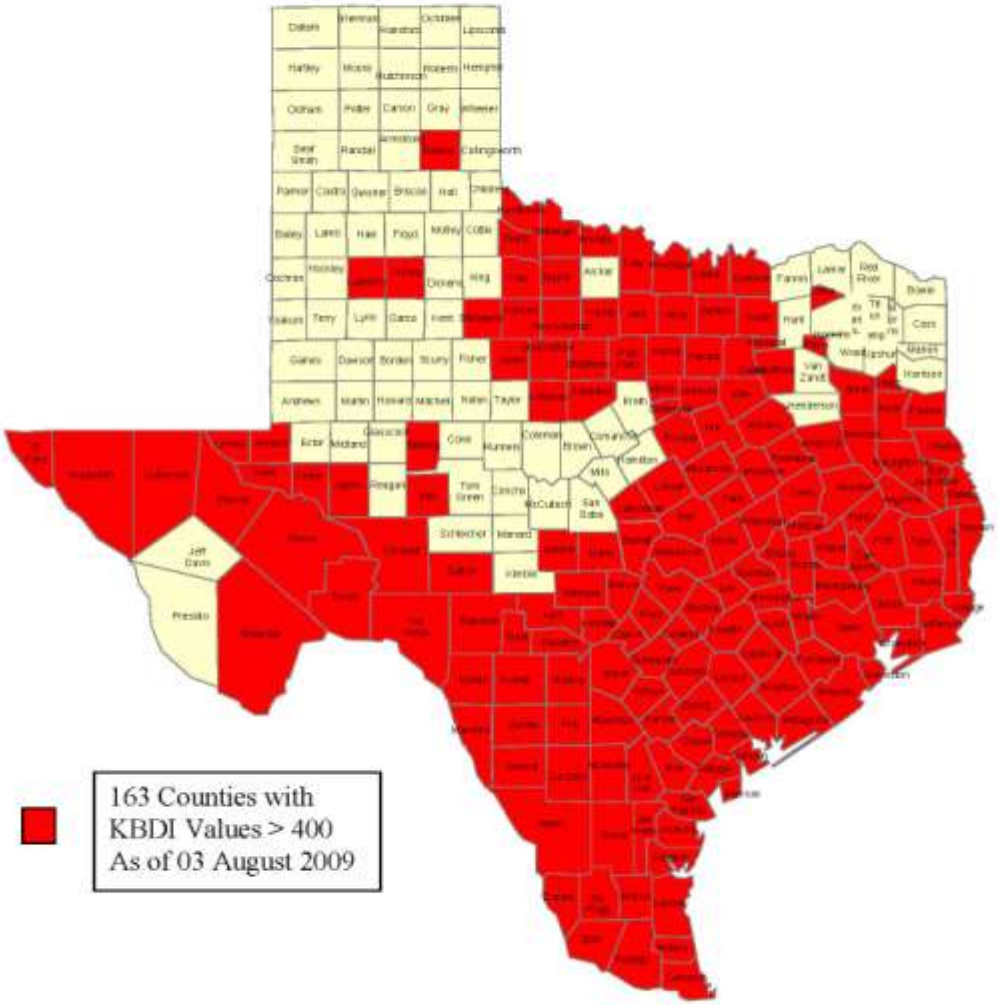
cc:

Amy Jeter, Committee Clerk, Senate Finance Committee
Sarah Hicks, Committee Director, Senate Finance Committee
Teddy Carter, Committee Clerk, Senate Natural Resources Committee
Amy Peterson, Committee Clerk, House Appropriations
Elizabeth Fazio, Committee Clerk, House Natural Resources Committee
Jim Terrell, Committee Clerk, House Agriculture and Livestock Committee
Andrew Cates, Committee Clerk, House Criminal Jurisprudence Committee
Zak Covar, Policy Advisor for TCEQ Issues, Governor's Policy Office
Auburn Mitchell, Policy Advisor for Agriculture/TDA, Governor's Policy Office
Carmen Cernosek, Lt. Governor's Natural Resources Policy Analyst
Shane Linkous, Deputy Division Chief, Intergovernmental Relations, Attorney General's Office
Allan B. Polunsky, Chairman, Public Safety Commission
C. Tom Clowe, Jr., Member, Public Safety Commission
Ada Brown, Member, Public Safety Commission
John Steen, Member, Public Safety Commission
Carin Marcy Barth, Member, Public Safety Commission
Colonel Steven McCraw, Director, Department of Public Safety
Lt. Colonel Lamar Beckworth, Deputy Director, Department of Public Safety
Lori Gabbert,, Budget Analyst, Legislative Budget Board (LBB-DPS)
Tom Lambert, Budget Analyst, Legislative Budget Board (LBB-TCEQ)
Ed Perez, Executive Director, Texas Office of State-Federal Relations, Washington, DC
Brandon Steinmann, Director, Texas Office of State-Federal Relations, Austin, Texas

Attachment 1
Climatic Regions



Attachment 2
Counties with High to Extreme Fire Danger



According to the U.S. Drought Monitoring System, most of the area is experiencing "Normal" to "Abnormally Dry" conditions at this time.

Stream flow Conditions: Stream flow conditions in the area improved during November.

Site	Beginning flows CFS	Ending flows CFS	Historical Mean CFS
San Antonio River near Falls City	360.0	1,010.0	265.0
Cibolo Creek near Falls City	32.0	274.0	30.0
Guadalupe River near Gonzales	1,680.0	3,300.0	1,260.0
The Lavaca River at Edna	64.0	1,860.0	47.0
Navidad River near Halletsville	6.8	210.0	23.0
Atascosa River near Whitsett	12.5	152.0	10.0
Frio River near Tilden	17.0	15.0	42.0
Nueces River near Tilden	0.0	3.5	6.5

Drought Restrictions: Currently, there are no restricted permits due to drought conditions in the area.

Area Counties: Bastrop, Bexar, Blanco, Caldwell, Comal, Fayette, Frio, Guadalupe, Hays, and Medina.

Rainfall and Area Conditions: Widespread rain fell across the San Antonio Regional Area during November. Month-to-date rainfall measured at the San Antonio International Airport was 1.32 inch; the average rainfall for November is 2.58 inches. The total year-to-date rainfall is 28.74 inches. Normal year-to-date rainfall is 30.96 inches. The U.S. Drought Monitor dated November 24, 2009 indicated the San Antonio Regional Area is experiencing "Abnormally Dry" to "Normal" conditions. Ground moisture was excellent with widespread rainfall, cooling temperatures, and cloud cover. Fall plowing and planting were well underway. Currently, winter oats, mustard greens, turnips, beets, carrots, Swiss chard, collard greens, and spinach were planted.

Stream Flow Conditions: The Guadalupe, Medina, and Blanco Rivers improved with the widespread rainfall during November. Small creeks, springs, and perennial creeks flowed. Municipal use dropped with the steady rains throughout the month and there was no need for lawn irrigation. Industrial use remained constant.

The Canyon Lake Reservoir was at 78.89% of capacity, impounding 298,827 acre-feet. The Lake Medina Reservoir was at 25.61% of capacity, impounding 65,258 acre-feet. On November 30, 2009, the Edwards Aquifer level at the J17 well in Bexar County was at 667.7 feet.

Site	Ending Flows CFS	Historical Mean CFS
Blanco River at Wimberley	144	127
San Marcos River at Luling	330	404
Guadalupe River at Spring Branch	165	314
San Marcos Springs	202	167
Comal Springs	299	293

Drought Restrictions: Currently, there are no drought restrictions on surface water permits in the San Antonio Regional Area.

Area Counties: Sterling, Tom Green, Irion, Concho, Coke, Glasscock, Runnels, Reagan, and Schleicher.

The Concho River Valley received above average amounts of rainfall during September. According to information provided by the USDA, the State Drought Monitor listed the Concho Valley in a "Normal" condition.

Rainfall and Area Conditions: The Concho Valley received rainfall amounts well below average during November. Rainfall in San Angelo was 0.05 inch. Areas surrounding San Angelo received slightly higher rainfall amounts. The average rainfall amount for the month of November is 1.20 inch. The total amount of rainfall for the year-to-date is 23.08 inches. Area reservoirs showed a slight decrease in amount of storage from the previous month's amounts. The Texas Crop Moisture Index indicated the soil moisture content is "Adequate". Cotton was established and should begin harvest by mid-month. Wheat was planted. Currently, there is a reduced demand by appropriated surface water rights in the Concho Valley. This is due to cessation of irrigation of cotton crops. There are adequate supplies of surface water in the area at this time.

Stream Flow Conditions:

Site (Years of Record)	Ending Flows CFS	Historical Mean CFS
USGS Gaging System at Spring Creek/Twin Buttes (7)	8.4	16.0
USGS Gaging System at Concho River/San Angelo (79)	13.0	25.0
USGS Gaging System at South Concho/Christoval (76)	18.0	21.0

Lake Nasworthy was at 82% of capacity or 8,336 acre-feet. O.C. Fisher was at four percent of capacity, impounding 4,136 acre-feet. Twin Buttes was at 22% of capacity, impounding 41,319 acre-feet.

Drought Restrictions: Temporary Permits were allowed to divert surface water. Surface water permits were closely monitored. No additional restrictions on diversions were put in to effect in the Concho Valley at this time.

DROUGHT PREPAREDNESS COUNCIL

RICK PERRY
Governor

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JACK COLLEY
Council Chairman

October 8, 2009

TO: The Honorable Rick Perry, Governor, State of Texas
The Honorable David Dewhurst, Lieutenant Governor, State of Texas
Ms. Esperanza Andrade, Secretary of State, State of Texas
The Honorable Robert Duncan, President Pro-Tempore of the Senate, State of Texas
The Honorable Joe Straus, Speaker of the House, State of Texas
The Honorable Steve Ogden, Chairman, Senate Finance Committee, State of Texas
The Honorable Kip Averitt, Chairman, Senate Natural Resources Committee, State of Texas
The Honorable John Carona, Chairman, Senate Committee on Transportation & Homeland Security, State of Texas
The Honorable Jim Pitts, Chairman, House Appropriations Committee, State of Texas
The Honorable Allan Ritter, Chairman, House Natural Resources Committee, State of Texas
The Honorable Yvonne Gonzalez-Toureilles, Chairman, House Agriculture & Livestock Committee, State of Texas
The Honorable Pete Gallego, Chairman, House Criminal Jurisprudence Committee, State of Texas
Mr. Ray Sullivan, Chief of Staff, Office of the Governor
Mr. Josh Havens, Texas Governor's Office of Homeland Security

FROM: Chief Jack Colley, Chairman, Drought Preparedness Council

SUBJECT: Statewide Drought Situation Report

1. NEXT COUNCIL MEETING

November 12, 2009, 2:00 p.m., Audit & Inspection Conference Room, Texas Department of Public Safety Headquarters, Building A, 5805 N. Lamar Blvd., Austin, Texas.

2. GENERAL CONDITIONS

September 2009 was wetter than normal for the majority of drought-stricken South Texas, which provided some much needed short-term relief to the region. However, a significant area of the Gulf Coast from Matagorda County to Kleberg County remained drier than normal during the month. Currently, "Exceptional Drought" covers most of the Coastal Bend and an area in Bastrop, Caldwell, and Guadalupe counties of Central Texas. Even in areas of South Texas receiving above normal September precipitation, significant long-term precipitation deficits remain. Several wet months are needed to fully eradicate the drought.

The most prominent weather feature during September was an upper level low that brought persistent rains during the middle of the month. Widespread significant rain fell in the core drought areas of South Central Texas from September 10-12. Rainfall brought by the low area persisted in North Central and Northeast Texas for more than a week, falling on top of ground already saturated from summer rainfall. Storm systems left the western half of Texas unaffected, with most of the Panhandle and Trans-Pecos regions receiving less than one inch of rainfall.

Widespread heavy rainfall fell on September 22 in South Central Texas, with San Antonio picking up over one inch and Austin/Mabry over two inches of precipitation. For the month, San Antonio was three inches above normal with 6.35 inches of rainfall. Rainfall at Austin/Mabry and Austin Bergstrom was approximately seven inches during September. Overall, September rainfall was five to eight inches in the region of "Severe" to "Exceptional" drought in South Central Texas.

According to the Advance Hydrologic Predictive Service, The Lower Valley showed improvement in the drought situation with a monthly rainfall total of five to ten inches. Brownsville received 9.43 inches of precipitation during September, leading to the elimination of drought conditions by September 29. Victoria and Corpus Christi received above normal precipitation during September. Victoria ended the month with 6.44 inches and Corpus Christi ended with 6.27 inches. Other than Corpus Christi, other Coastal Bend areas east of Highway 77 received less than three inches of precipitation.

September rainfall had a much greater benefit on agriculture and soil moisture than reservoirs and hydrologic conditions. Surface soil moisture was enough to significantly lower the fire danger in South Texas. The increased surface moisture led to the removal of burn bans in several counties. Medina and Canyon Lakes reported new record low levels and Lake Travis remained at its third lowest level on record. Victoria saw enough improvement in reservoir levels to drop Stage 2 watering restrictions. However, the Edwards Aquifer remained low, causing San Antonio to remain in Stage 2 restrictions, while Kerrville continued Stage 3 restrictions.

The El Nino-Southern Oscillation is in the warm phase and these conditions are expected to strengthen through the Northern Hemisphere during winter, according to the Climate Prediction Center (CPC). The current one-month forecast calls for a greater than 50% chance of above normal October precipitation across the majority of East Texas and the Upper Coast, a 40-50% chance of above normal precipitation for a region stretching from North Central Texas through the Lower Valley, and a 33-40% chance of above normal precipitation in the Low Rolling Plains and Edwards Plateau.

The three-month outlook for October through December has a 40-50% chance of above normal precipitation from the Upper Coast to the Lower Valley, which includes all areas of Texas currently in exceptional drought. Except for the Panhandle and Trans Pecos regions,

the rest of the State has a 33-40% chance of above normal precipitation for the remainder of 2009. The drought situation is expected to improve by the end of autumn in all areas of Texas currently experiencing drought conditions.

3. OVERALL STATEWIDE DROUGHT CONDITIONS

The cooler air and rain swept drought away in the majority of the regions. For the regions still in drought, the severity was reduced.

According to the Palmer Drought Severity Index (PDSI), the South Central region was in a "Moderate Drought" condition, and the Southern and Upper Coast regions were in "Mild Drought" conditions. The remaining regions were reported to not show drought conditions.

According to the Crop Moisture Index (CMI), all regions except for the North Central were under a "Mildly Dry" condition. According to the Texas Water Development Board (TWDB) scale, the CMI varies from flooding, standing water, fields too wet, moisture adequate, mildly dry, abnormally dry, excessively dry, severely dry, and extremely dry in order of increasing severity.

According to the Six-Month Standardized Precipitation Index (SPI), the Southern and Lower Valley regions were in "Extremely Dry" conditions. The South Central region was in a "Moderately Dry" condition. The remaining regions were in a "Near Normal" condition. The SPI varies from extremely wet conditions, very wet, moderately wet, near normal, moderately dry and, severely dry, extremely dry in order of increasing severity.

4. WATER UTILITY STATUS

October 2009 began with 342 public water systems requiring customers to conserve water by following water use restrictions. Mandatory watering schedules were imposed by 274 water systems and 55 asked for voluntary reductions in usage. In addition, 13 public water systems were able to relax all restrictions and return to normal operation. Recent rains continued to help by reducing water demand and increasing ground water and surface supplies in some areas of the State.

If rainfall continues as forecasts predict, additional public water systems will be able to relax or remove watering restrictions.

5. WATER RIGHTS – STATEWIDE

New temporary water use permit applications were reviewed on a site-specific basis and issued if there was sufficient surplus water at the requested source. Applications for new water use permits and amendments to existing permits remained normal for the month. Water Rights containing Hale Clause restrictions along the Brazos River and the Brazos River Basin were curtailed due to low flows. Owners of water rights with these restrictions were reminded to call the "Hale Clause Hotline" on a weekly basis to determine if diversion of water was allowed for the following week. The availability of unappropieated water for new water use permits continues to decrease in all river basins in the State, and the search for long-term, dependable alternate sources of water remains a high priority issue.

6. WATER RIGHTS – LOWER RIO GRANDE / RIO GRANDE WATERMASTER (RGWM)

Current Overall Conditions: As of September 26, 2009, the U.S. combined ownership at Amistad/Falcon stood at 80.78% of conservation capacity or 2,740,200 acre-feet of

temporary conservation capacity. Overall, the system is holding 101.24% or 3,434,168 acre-feet of conservation capacity with Amistad at 81.74% or 4,841,560 acre-feet and Falcon at 95.5% or 3,128,530 acre-feet. Mexico has 64.72% or 1,713,030 acre-feet of the water storage at Amistad/Falcon.

Allocations: As of the August ownership report printing, the U.S. stored approximately 1.75 million acre-feet or 95% at Amistad and approximately 987,000 acre-feet or 63.9% at Falcon.

Storage & Loss Amistad vs. Falcon: The U.S. is currently storing approximately 1.77 million acre-feet or 96.2% at Amistad, and approximately 991,000 acre-feet or 63.9% at Falcon.

Releases to Meet Demands: Mexico released 356,022 acre-feet from Amistad and 861,233 acre-feet from Falcon for Mexico needs. The U.S. released 1,160,387 acre-feet from Amistad and 647,387 acre-feet from Falcon for U.S. needs. Combined with gains between Amistad and Falcon, U.S. inflows to Falcon totaled 738,100 acre-feet. So far, the U.S. met 64% of overall needs in the middle and Lower Rio Grande directly from middle Rio Grande and Amistad inflows this year.

Upper Rio Grande (New Mexico): Elephant Butte in New Mexico is currently storing 448,322 acre-feet or 22.16% of capacity. Caballo Dam, downstream of Elephant Butte, is storing 34,050 acre-feet or 15% of capacity. This water storage, in part, was used to meet water needs in the El Paso area.

Outlook: All active accounts began 2009 with 100% usable balances. To help alleviate losses in Falcon, the U.S. will continue to monitor ownership and elevation levels in both Falcon and Amistad so that U.S. transfers of water from Amistad to Falcon can be most efficient. Heavy early September rains brought significant and widespread improvements to the drought conditions affecting Central and Southern Texas for the first time in several months and the Seasonal Outlook through December 2009 calls for additional improvements throughout the regions.

7. SOUTH TEXAS WATERMASTER – GUADALUPE / LAVACA / SAN ANTONIO / NUECES REGION

September brought some much needed rainfall across most of the South Texas and the Concho River Basin. The majority of the heavy rains fell east of San Antonio but there were still significant showers throughout the area. According to the U.S. Drought Monitor, the rains caused a large portion of South Texas to move from "Exceptional Drought" conditions to "Severe and Extreme Drought". Flooding was reported throughout the area with very heavy rains in the Lavaca area. Stream flows showed improvement throughout South Central Texas.

Area Counties: Bandera, Blanco, Comal, Kendall and Kerr Counties

Rainfall and Area Conditions: The area received widely scattered rainfall from five to nine inches during September. With that rainfall, the Texas Crop Moisture Index classified the area of the Hill Country as "Moisture Adequate". Most of the surface water diversions in the area were for municipal and industrial uses with a few surface water permit holders irrigating hay and sod fields. The U.S. Drought Monitor indicated the area is currently in "Severe Drought" to "Extreme Drought" conditions.

Stream Flow Conditions: Stream flows of the major streams and their tributaries all flowed below average. With the scattered rains, the Guadalupe River showed some increase in flow during September. The Medina and the Sabinal Rivers have no surface flow in some segments. Most of the larger secondary tributaries also showed no surface flows.

Site	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Kerrville	50	94
Guadalupe River near Comfort	60	122
Medina River at Bandera	1.5	161

Drought Restrictions: In the Guadalupe River Basin above Canyon Lake, no State permit holders reached their flow restrictions. Due to the lack of flow, State water permit holders in the San Antonio River Basin above Lake Medina are not diverting at this time. All Temporary Water Permits are curtailed.

Area Counties: Bee, Goliad, Victoria, Calhoun, Jackson, Refugio, Aransas, San Patricio, Nueces, Kleberg, Jim Wells, Duval, Live Oak, Kenedy, Willacy, Brooks, and Jim Hogg.

Rainfall and Area Conditions: The area received much needed rainfall during September. The widely and sparsely scattered showers provided minimal relief to the continued drought conditions. Stream flows rapidly increased due to the runoff from the rains, but quickly declined. Most of the area streams flowed below what is expected for this time of the year. It was reported that area crops continue to fail due to extended drought conditions. The U.S. Drought Monitor indicated "Exceptional Drought" to "Extreme Drought" conditions continue to prevail throughout the counties in South and Central Texas. Most surface water diversions in the area continue to be for municipal and industrial uses, with little irrigational use.

Stream Flow Conditions:

Site (Years of Record)	Beginning Flows CFS	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Victoria (74)	150	418	1,820
San Antonio River near Goliad (73)	100	182	815
San Antonio River at McFaddin below Goliad (2)	125	389	736
Guadalupe River near Tivoli (2)	315	998	2,680
Mission River near Refugio (69)	0	0.22	60
Nueces River at Calallen Dam (9)	7	248	394
Aransas River near Skidmore (44)	0.73	1.5	33

The saltwater barrier on the Guadalupe River, near Tivoli, Texas, was activated several times during July. The saltwater barrier is activated or engaged to prevent the intrusion of saltwater and the subsequent contamination of fresh water when low stream flows occur.

Corpus Christi Reservoir System: The Corpus Christi Reservoir System received some inflows during September and the level of the reservoir system rose slightly. The Corpus Christi Reservoir System was at 58.7% of capacity, or 558,967 acre-feet, compared to 83.9% of capacity, or 799,330 acre-feet, during the same time last year. The level of Choke Canyon dropped to 69.8% of capacity, or 485,507 acre-feet, compared to 86.27% of capacity, or 599,573 acre-feet, during the same time last year. Lake Corpus Christi was at 28.6% of capacity, or 73,460 acre-feet, compared to 77.6% of capacity, or 199,757 acre-feet, last year. Corpus Christi continued to divert much of its monthly water supply needs from Lake Texana.

Drought Restrictions: Some stream flow restrictions of water rights in the area were reached, including the City of Victoria. Victoria is currently allowed to exchange ground water from city wells from the Guadalupe River.

Area Counties: Edwards, Real, Kinney, Uvalde, Zavala, Dimmit, La Salle and Webb.

Rainfall and Area Conditions: The Southwest Texas area received some relief from the drought during September. However, due to the overall lack of rainfall for the year, the rain was not enough to bring the area out of the drought. There were small rain showers reported during the beginning of the month with heavy rain reported during the middle of the month. The month ended with widespread substantial rainfall for the entire area, ranging from three to six inches. Most of the diversions of surface water were for irrigational use and small amounts for municipal and industrial uses. Crops irrigated in the area are: cotton, hay grazers, and pecans. Soil conditions improved due to the rainfall. The U.S. Drought Report indicated the area is experiencing "Moderate Drought" to "Extreme Drought" conditions at this time.

Stream Flow Conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Nueces River at Laguna	74	17	142
Nueces River at Brackettville	0.01	0.0	14
Nueces River below Uvalde	4.6	2.8	111
Frio River at Concan	21	2.8	106
Sabinal River at Sabinal	0.37	0.01	15
Leona River near Uvalde	0.0	0.0	40

Stream flows of intermittent and tributary streams in the area were flowing well below average for this time of year.

Drought Restrictions: Currently, two permits with stream flow restrictions were curtailed. Permits that have not met their stream flow restrictions were regulated. Permit holders in the area were asked to cut back on pumping usage. The Zavala/Dimmit Water District has a rotational diversion schedule on the Nueces River to ensure adequate water for domestic and livestock use. Temporary permits were curtailed on the Nueces, Sabinal and the Leona rivers.

Area Counties: Atascosa, Karnes, Gonzales, Wilson, McMullen, Dewitt, Guadalupe, Lavaca, Fayette, Colorado, Wharton, and Jackson

Rainfall and Area Conditions: The southern portions of this area received 4.5 to 14 inches of rainfall during September. The remainder of the area, including the Lavaca area, received six to 16 inches. Hay crop conditions improved and farmers began to plant winter oats and rye. Irrigation activities decreased to a minimum due to the significant precipitation in the area. Lake Texana was at 74% of capacity, 39.10 ft. above mean sea level. This is a 12% decrease in the lake level since August.

According to the U.S. Drought Monitoring System, most of the area is experiencing "Severe Drought" to "Exceptional Drought" conditions at this time.

Stream flow Conditions: Stream flow conditions in the area improved during September.

Site	Beginning flows CFS	Ending flows CFS	Historical Mean CFS
San Antonio River near Falls City	72	219	221
Cibolo Creek near Falls City	11	23	24
Guadalupe River near Gonzales	236	425	878
The Lavaca River at Edna	3	19	31
Navidad River near Halletsville	0	21	8.3
Atascosa River near Whitsett	0	28	5.7
Frio River near Tilden	0.46	1.2	18
Nueces River near Tilden	0	0	64

Drought Restrictions: Currently, there are no restricted permits due to drought conditions in the area.

Area Counties: Bastrop, Bexar, Blanco, Caldwell, Comal, Fayette, Frio, Guadalupe, Hays, and Medina.

Rainfall and Area Conditions: Widespread rain fell across the San Antonio Regional Area during September. Rainfall for the month measured at the San Antonio International Airport was 4.03 inches; the average rainfall for September is three inches. The total year-to-date rainfall is 14.78 inches. Normal year-to-date rainfall is 24.52 inches. The U.S. Drought Monitor dated September 22, 2009 indicated the San Antonio Regional Area is experiencing "Exceptional Drought" to "Extreme Drought" conditions, impacting crops, pastures, grasslands, stream flows, and reservoir capacities. Ground moisture rapidly diminished with above average temperatures, high winds, lack of cloud cover, and little to no rain. Fall plowing and planting were well underway.

Stream Flow Conditions: The Guadalupe, Medina, and Blanco Rivers improved with the widespread rainfall for September. However, historical stream flows were still well below the historical mean flows. Small creeks were still dried up. Historical mean stream flows indicated the severity of the current drought. Municipal use increased with residential lawn irrigation. Industrial use remained constant. The San Marcos River is currently under a staggered pumping schedule tied to current real time stream flows and priority dates.

The Canyon Lake Reservoir was at 70.48% of capacity, impounding 266,968 acre-feet. The Lake Medina Reservoir was at 24.09% of capacity, impounding 61,397 acre-feet. On September 28, 2009, the Edwards Aquifer level at the J17 well in Bexar County was at 661.8 feet.

Site	Ending Flows CFS	Historical Mean CFS
Blanco River at Wimberley	24	88.2
San Marcos River at Luling	136	283
Guadalupe River at Spring Branch	56	296
San Marcos Springs	98	164
Comal Springs	214	270

Drought Restrictions: Most Temporary Permits were not allowed to divert surface water. Surface water permits are closely monitored to determine if "real time" stream flows are allowed to divert. Surface water permits with stream flow restrictions were triggered and cut off.

Area Counties: Sterling, Tom Green, Irion, Concho, Coke, Glasscock, Runnels, Reagan, and Schleicher.

The Concho River Valley received above average amounts of rainfall during September. According to information provided by the USDA, the State Drought Monitor listed the Concho Valley in a "Normal" condition.

Rainfall and Area Conditions: Rainfall in San Angelo for the month of September was 5.68 inches. Areas surrounding San Angelo received slightly higher rainfall amounts. The average rainfall amount for the month of September is 3.10 inches. The total amount of rainfall for the year-to-date is 19.70 inches. Area reservoirs showed a slight decrease in amount of storage from the previous month's amounts. The Texas Crop Moisture Index indicated the soil moisture content is "Adequate". Cotton was established and should begin harvest by mid-month. Wheat was planted. Currently, there is a reduced demand by appropriated surface water rights in the Concho Valley. This is due to cessation of irrigation of cotton crops. There are adequate supplies of surface water in the area at this time.

Stream Flow Conditions:

Site (Years of Record)	Ending Flows CFS	Historical Mean CFS
USGS Gaging System at Spring Creek/Twin Buttes (6)	2.5	5.4
USGS Gaging System at Concho River/San Angelo (78)	13	46
USGS Gaging System at South Concho/Christoval (76)	15	18

Lake Nasworthy was at 86% of capacity or 8,753 acre-feet. O.C. Fisher was at four percent of capacity or 4,326 acre-feet. Twin Buttes Lake was at 23% of capacity or 41,913 acre-feet.

Drought Restrictions: Temporary Permits were allowed to divert surface water. Surface water permits were closely monitored. No additional restrictions on diversions were put in to effect in the Concho Valley at this time.

8. UPPER COLORADO (Concho River watershed not included)

The Upper Colorado River area received more than normal precipitation during September. The National Weather Service reported monthly precipitation was 5.66 inches for the region, 2.71 inches below normal. The reported year-to-date annual rainfall is 20.93 inches. According to the U.S. Drought Monitor, no drought conditions were indicated. USGS gauges indicated there was little to no flow in the Colorado River from Gail down to Ballinger. The San Saba River flowed below the historical USGS long-term median in the upper reaches but above the median in the lower reaches. The Llano River and its tributaries flowed above the USGS long-term median. Despite the more than normal precipitation, the pool levels of EV Spence and OH Ivie Reservoir decreased slightly during September, holding at levels of 6% and 45% of capacity, respectively.

9. TEXAS PANHANDLE AND SOUTHERN HIGH PLAINS

Amarillo Area: The Amarillo region reported the following summary for the Northern panhandle area:

Lake Meredith ended the month at 47.23 feet; Lake Greenbelt ended September at 52 feet; and, Lake MacKenzie ended the month at 71.73 feet. The National Weather Service in Amarillo reported a total rainfall during September of 1.88 inches.

Lubbock Area: Lubbock received 2.46 inches of rain during September, which is near average. Since the beginning of the year, Lubbock received a total of 1.48 inches of precipitation. This is 5.20 inches below normal. No new communities were added to the water restrictions list during September.

Lubbock and Amherst remained on mandatory drought restriction status. Ralls, Crosbyton, Spur, Post, White River WCS, and Valley WSC in the South Plains area remained on voluntary drought restriction status.

White River Lake: The lake pool elevation was 23 feet below full capacity. White River WSD has groundwater wells on standby if the lake level drops below usable levels.

Lake Alan Henry: The pool elevation was at full capacity. A new surface water treatment package plant is now online and can produce up to 144,000 gallons per day for use by the community that lives around this lake. The City of Lubbock is currently in the planning stages to construct water pipeline between the Lake Alan Henry and the City of Lubbock. The plans are to lay the pipeline and a have new surface water treatment plant constructed in Lubbock by 2012.

10. WILDLIFE CONCERNS

No information was received by the time of this report.

11. AGRICULTURE CONCERNS

Rainfall over the last month had a beneficial impact on agricultural conditions. In general, rains were too little and too late for most of South Texas, the Gulf Coast, North Central and

East Texas. The majority of the corn crop in the North Texas Blacklands and the Upper Coast was severely damaged by the summer drought; which was followed by prolonged rains after harvest maturity, further decreasing quality and harvestable yield. Another issue faced by producers of wheat and oats, as well as farmers and ranchers planting winter pasture or trying to harvest a fall hay cutting, was army worms, which tend to be destructive of tender, new tissue, particularly in the falls following a dry summer. This was troublesome as supplies of hay and winter feed were generally very short across the State due to the prolonged drought, and insects damaged badly needed forages for winter feed.

Cool weather and some light frost slowed maturity and terminated crops in the High Plains and Rolling Plains. The majority of the wheat crop was planted, with the remaining acres in the region waited on surface moisture.

The following are comments regarding agricultural conditions across the State over the last week from AgriLife Extension reporters.

South: The weather was mild, with scattered rains in some areas and heavy rainfall in others. Grasses responded well to rain and warm days and pastures are slowly greening up. Producers prepared to harvest hay for winter. Livestock were in good condition, but in some counties ranchers still hauled water. More rain was needed to fill ponds and tanks in many areas. Wheat and oats plantings completed with some fields already emerging. The cotton harvest was nearly completed. The peanut harvest was expected to begin in approximately two weeks. Producers began planting spinach.

Central: Runoff from rains began to fill stock tanks. New growth on Bermuda grass pastures and fields with emerged wheat or oats were heavily infested by army worms. Livestock were in good condition, with supplemental feeding slowed thanks to recent grass growth. Initial soybean yields were low.

Coastal Bend: Temperatures were near normal with scattered rainfall reported throughout the region. Minor field and pasture flooding resulted with little harmful effect. Sesame and sunflowers continued to dry down. Pastures slowly recovered from the drought. In Victoria County, 800 round bales of hay for drought relief were dispersed to 18 ranchers. The hay was shipped from Arkansas and sold to ranchers for $35 per bale. Additional shipments were scheduled for the coming weeks.

Southeast: Rain filled stock tanks and improved crop conditions. Volunteer rye grass and clovers appeared. Producers reported significant damage to pastures and hay fields from army worms. In Chambers County, the rice ratoon crop harvest continued. Producers planted or prepared to plant rye grass to offset forage deficits from the summer drought. The condition of livestock improved with increased grass growth and availability of water. Soybeans appeared beneficial, with some fields in the bloom stage.

East: Many counties continued to receive beneficial amounts of rain. Hay was harvested as weather permitted. Winter pastures were planted and prepared. Livestock were in positive condition. Several counties reported heavy infestations of army worms.

Far West: Isolated showers brought 0.5 to one inch of rain. Pastures remained dry. The majority of pecans filled out. Producers began defoliating cotton and harvesting was expected to start.

North: Soil moisture ranged from adequate to surplus. Recent rains helped grasses grow and establish winter pasture. The hay crop for this year was of good quantity but low quality.

The corn harvest was finished, and sorghum harvest neared completion. Early reports indicate sorghum yields would be average. Soybeans started to change color and drop leaves, and below-average soybean yields were predicted. The cotton and rice harvests continued. Peanuts were in fair condition. Livestock were in fair to good condition. Wheat producers prepared fields, but were not expected to be able to plant wheat for grain until late October or early November. Fall army worms took a toll on early planted wheat, oats, and the last cutting of Bermuda grass hay.

Panhandle: Topsoil moisture was short with no rain reported during the beginning of October. Cooler temperatures occurred over the majority of the area with low-lying areas showing frost. The corn harvest began with a slow start due to wet fields. Cotton was in beneficial condition with bolls from 25 to 90 percent open. Growers continued to defoliate some fields in preparation for harvest. The peanut harvest started in some areas. Sorghum continued to mature. Soybeans were 50 percent harvested in some areas. Wheat was 60 to 80 percent planted. The wheat that was planted was 25 to 60 percent emerged. Cattle were in beneficial condition, and the weaning of calves was expected to begin. Rangeland was in fair condition.

Rolling Plains: Cool, wet weather stimulated growth of cool-season grasses and the winter wheat crop. Wheat producers worried about army worms, grasshoppers and many other problems associated with early planting, but feared dry weather more and continued planting. However, the rain came too late to help cotton. The grain sorghum harvest was nearly completed. Some hay was cut and baled. Cattle on rangeland showed beneficial body-condition scores. Producers looked for affordable hay in anticipation of winter feeding.

South Plains: Mild and dry conditions continued with high winds coming late in the reporting period. Soil moisture was short to adequate. The corn and milo harvests progressed well. Cotton was in fair to good condition. Growers continued to defoliate cotton, but harvesting only began in a few fields. The grain sorghum and sunflower harvests were ongoing as conditions allowed. Producers planted winter wheat and digging and harvesting peanuts. Pastures and rangeland were in fair to good condition. Livestock were in good condition with continued supplemental feeding.

Southwest: Areas of the region received as much as eight inches of rain, greening up the warm-season grasses which survived the drought. Where less hardy rangeland grasses died from the drought, the greening was from lower-quality grasses and weeds. The green-up improved prospects for remaining livestock and wildlife. However, year-to-date cumulative rainfall remained significantly below the long-term average, and more rain is needed to sustain production. The rain interrupted the cotton harvest, but the crop was mostly harvested and stalks destroyed for boll-weevil control. Peanuts and some pecans took full advantage of the rainfall and made beneficial progress. The pecan harvest was expected to begin as soon as orchard floors dry. The fall sweet-corn harvest continued with some fields scheduled to mature in November in time for Thanksgiving sales. Fall-planted cabbage, pickling cucumbers and green beans made beneficial progress. The cabbage harvest began.

West Central: The region reported humid, warm days and cool nights with scattered showers. Soil moisture conditions were excellent. Planting of fall crops was in full swing and cotton looked productive. Producers continued baling and cutting hay. Rangeland and pastures were in good condition as winter forages and cool-season grasses greened up. However, stock tanks and pond levels remained low. Livestock were in good condition with continued supplemental feeding. Pecan shuck split began and growers prepared for harvest, expecting a productive crop.

12. WILDFIRE CONCERNS

The Keetch-Byram Drought Index (KBDI) is used to help determine potential for fire risk. It is a numerical index where each number is an estimate of the amount of precipitation, in 100ths of an inch, needed to bring the soil back to saturation. The index ranges from 0 to 800, with 0 representing a saturated soil, and 800 a completely dry soil. The relationship of the KBDI to fire danger is, as the index increases, the vegetation is subjected to increased moisture stress. KBDI levels and its relationship to expected fire potential are reflected in the following:

KBDI = 0 – 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. This is typical of spring dormant season following winter precipitation.

KBDI = 201 – 400: Typical of late spring; early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 401 – 600: Typical of late summer, early fall. Lower litter and duff layers contribute to fire intensity and will burn actively.

KBDI = 601 – 800: Often associated with more severe drought and increased wildfire occurrence. Intense, deep-burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

There are currently 104 counties, illustrated in Attachment 2, with KBDI values in excess of 400, indicating areas within these counties are beginning to experience or sustain dry conditions which could result in an increased fire risk potential.

The Council, which is chaired by Jack Colley, Assistant Director, Texas Division of Emergency Management, is composed of state agencies concerned with the effects of drought and fire on the citizens of the State of Texas. The attached information was compiled and provided by representatives listed below. Points of contact, telephone numbers, and web site addresses are also provided.

Jack Colley, Assistant Director, Texas Division of Emergency Management, (512) 424-2443, fax (512) 424-2444, web site: http://www.txdps.state.tx.us/dem

John Sutton, Texas Water Development Board, (512) 463-7988, fax (512) 463-9893, web site: http://www.twdb.state.tx.us

Chris Loft, Texas Commission on Environmental Quality, (512) 239-4715, fax (512) 239-4770, web site: http://www.tceq.state.tx.us

Richard Egg, Texas State Soil & Water Conservation Board, (254) 773-2250, fax (254) 773-3311, web site: http://www.tsswcb.state.tx.us

Lance Williams, Texas Department of Agriculture, (512) 463-3285, fax (800) 835-2981, web site: http://agr.state.tx.us

Dr. Travis Miller, Texas AgriLife Extension Service, (979) 845-4808, fax (979) 845-0456, web site: http://texasextension .tamu.edu

Cindy Loeffler, Texas Parks & Wildlife Department, (512) 912-7015, fax (512) 707-1358, web site: http://www.tpwd.state.tx.us

Department of Housing and Community Affairs, (512) 475-3329, fax (512) 475-7498, web site: http://www.tdhca.state.tx.us

Carla Baze, Texas Department of Transportation, (512) 416-3270, fax (512)416-2941, web site: http:www.txdot.state.tx.us

Michael Dunivan, Texas Forest Service, (830) 997-5426, web site: http://txforestservice.tamu.edu

Paul Tabor, Texas Department of State Health Services, (512) 801-9816, fax (512) 458-7211, web site: http://www.dshs.state.tx.us/

Thomas Walker, Office of the Governor, Economic Development & Tourism, (512) 936-0169, fax (512) 936-0141, web site: http://www.governor.state.tx.us/divisions/ecodev

David A. Van Dresar, Texas Alliance of Groundwater Districts, (979) 968-3135, fax (979) 968-3194, web site: http://www.texasgroundwater.org/

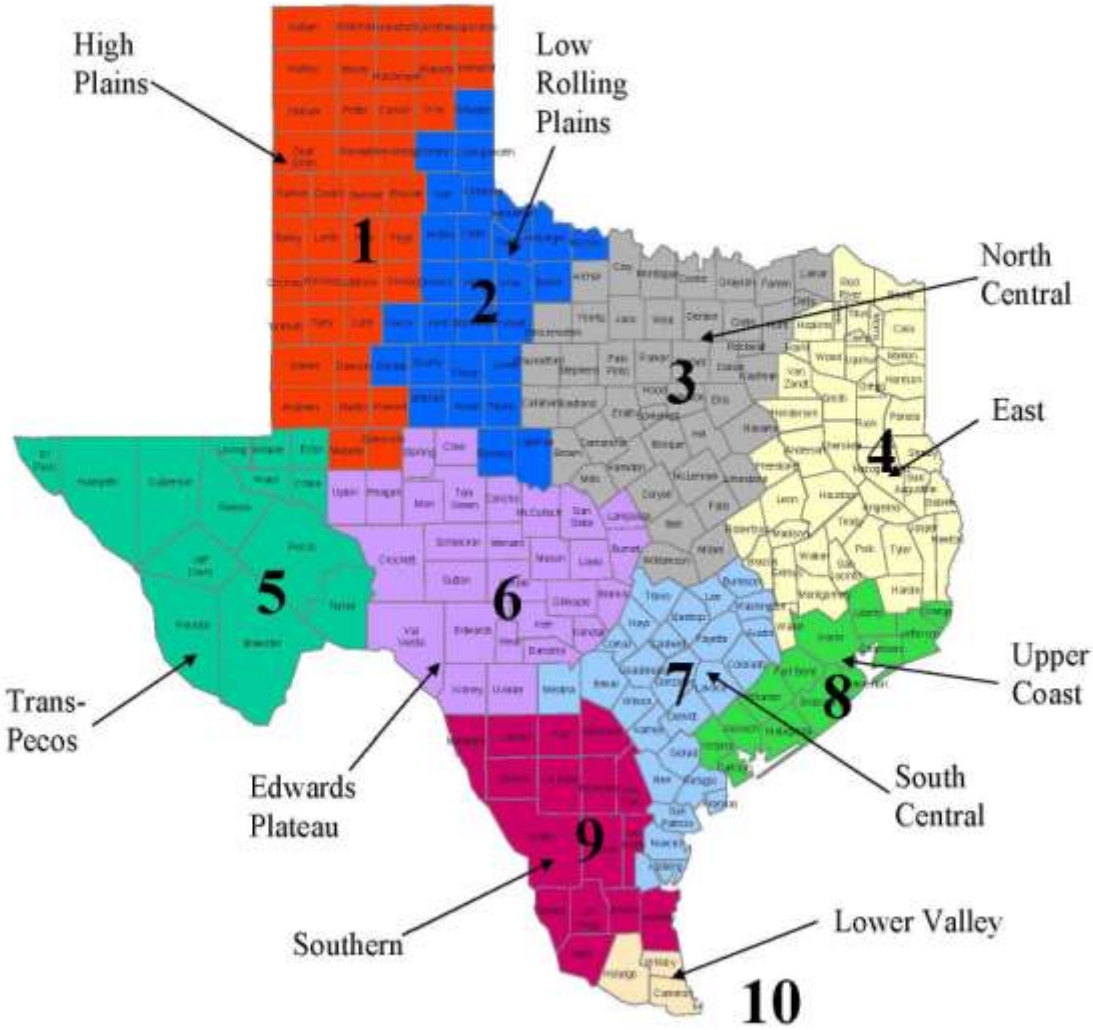
Dr. John W. Nielsen-Gammon, Office of the State Climatologist, (979) 862-2248, fax (979) 862-4466, web site: http://www.met.tamu.edu/osc/

Gus Garcia, Texas Department of Rural Affairs, (512) 936-7876, fax (512) 936-6776, web site: http://www.tdra.state.tx.us

cc:

Amy Jeter, Committee Clerk, Senate Finance Committee
Sarah Hicks, Committee Director, Senate Finance Committee
Teddy Carter, Committee Clerk, Senate Natural Resources Committee
Amy Peterson, Committee Clerk, House Appropriations
Elizabeth Fazio, Committee Clerk, House Natural Resources Committee
Jim Terrell, Committee Clerk, House Agriculture and Livestock Committee
Andrew Cates, Committee Clerk, House Criminal Jurisprudence Committee
Zak Covar, Policy Advisor for TCEQ Issues, Governor's Policy Office
Auburn Mitchell, Policy Advisor for Agriculture/TDA, Governor's Policy Office
Carmen Cernosek, Lt. Governor's Natural Resources Policy Analyst
Shane Linkous, Deputy Division Chief, Intergovernmental Relations, Attorney General's Office
Allan B. Polunsky, Chairman, Public Safety Commission
C. Tom Clowe, Jr., Member, Public Safety Commission
Ada Brown, Member, Public Safety Commission
John Steen, Member, Public Safety Commission
Carin Marcy Barth, Member, Public Safety Commission
Colonel Steven McCraw, Director, Department of Public Safety
Lt. Colonel Lamar Beckworth, Deputy Director, Department of Public Safety
Lori Gabbert,, Budget Analyst, Legislative Budget Board (LBB-DPS)
Tom Lambert, Budget Analyst, Legislative Budget Board (LBB-TCEQ)
Ed Perez, Executive Director, Texas Office of State-Federal Relations, Washington, DC
Brandon Steinmann, Director, Texas Office of State-Federal Relations, Austin, Texas

Attachment 1
Climatic Regions



Attachment 2
Counties with High to Extreme Fire Danger

DROUGHT PREPAREDNESS COUNCIL

RICK PERRY
Governor

5805 N. Lamar Blvd.
P.O. Box 4087
Austin, Texas 78773-0220
Phone: (512) 424-2138
Fax: (512) 424-2444

JACK COLLEY
Council Chairman

December 10, 2009

TO: The Honorable Rick Perry, Governor, State of Texas
The Honorable David Dewhurst, Lieutenant Governor, State of Texas
Ms. Esperanza Andrade, Secretary of State, State of Texas
The Honorable Robert Duncan, President Pro-Tempore of the Senate, State of Texas
The Honorable Joe Straus, Speaker of the House, State of Texas
The Honorable Steve Ogden, Chairman, Senate Finance Committee, State of Texas
The Honorable Kip Averitt, Chairman, Senate Natural Resources Committee, State of Texas
The Honorable John Carona, Chairman, Senate Committee on Transportation & Homeland Security, State of Texas
The Honorable Jim Pitts, Chairman, House Appropriations Committee, State of Texas
The Honorable Allan Ritter, Chairman, House Natural Resources Committee, State of Texas
The Honorable Yvonne Gonzalez-Toureilles, Chairman, House Agriculture & Livestock Committee, State of Texas
The Honorable Pete Gallego, Chairman, House Criminal Jurisprudence Committee, State of Texas
Mr. Ray Sullivan, Chief of Staff, Office of the Governor
Mr. Josh Havens, Texas Governor's Office of Homeland Security

FROM: Chief Jack Colley, Chairman, Drought Preparedness Council

SUBJECT: Statewide Drought Situation Report

1. NEXT COUNCIL MEETING

January 8, 2010, 2:00 p.m., Audit & Inspection Conference Room, Texas Department of Public Safety Headquarters, Building A, 5805 N. Lamar Blvd., Austin, Texas.

2. GENERAL CONDITIONS

November 2009 was drier than normal across most of Texas, but the rainfall in areas with above normal precipitation was greatly beneficial. The November dryness in North Central and Northeast Texas alleviated a dangerous flooding situation after the torrential rainfall in October. Further south, "Exceptional Drought" was eradicated in South Texas by the end of the month. "Exceptional Drought" was not present in Texas by the end of November, a condition not seen in more than a year according to the United States Drought Monitor (USDM). The western half of Texas was drier than normal for the fourth consecutive month, which has caused drought to develop in the southern Panhandle and Trans-Pecos regions.

The South Central, Coastal Bend, and Lower Valley regions picked up three to five inches of precipitation, with isolated areas receiving ten inches. However, long-term precipitation deficits remained large in these regions, so the drought has not ended in a hydrological sense. The past few months were very dry in a six-county region just north of Del Rio, and November did little to improve what developed into an "Extreme Drought." This area in Southwest Texas and the "Extreme Drought" area in South Texas, an area from Nueces County to northern Zapata County, were classified as long-term droughts with hydrologic impacts. A shorter-term, agricultural drought was classified as moderate by the USDM in the southwestern Panhandle by the end of the month.

Though the El Nino Southern Oscillation was in a positive phase, the dryness in Texas over the first half of November was contrary to the typical wetness associated with El Nino. The only widespread rainfall occurred in South Central Texas on November 8, with Hurricane Ida providing most of the moisture. A cold front brought wet weather to the eastern half of Texas on November 16 and 17, with rainfall totals generally less than an inch. A low in the Gulf of Mexico was a major rainmaker in the core of the drought region in South Texas, with a broad region receiving more than three inches of precipitation. Aransas County was hardest hit with radar estimates of more than 10 inches of rain on November 19 and additional rainfall on November 20. Another cold front, which left bitterly cold air and snow behind in the Panhandle, brought a large area of half an inch to an inch of rain in East Texas the final day of November.

During the month, both Corpus Christi and Victoria saw more than double the normal precipitation expected in November. However, the recent rainfall had only minimal impacts on recharging the water supplies for both Corpus Christi and Victoria, though residents were only encouraged to voluntarily conserve water. November dryness was particularly evident in the Edwards Plateau and Low Rolling Plains, with a large area receiving less than a quarter inch of rainfall. San Angelo, Abilene, Midland, Wichita Falls, Lubbock, and Amarillo typically do not receive much precipitation in November, but the past month's dryness was particularly extreme. These areas saw significant summertime precipitation, so a few months of fall and winter dryness should not cause stress on water resources.

According to the Climate Prediction Center (CPC), the warm (El Nino) phase of the El Nino-Southern Oscillation remained in place during November and is expected to continue through the end of Northern Hemisphere winter. The current one-month forecast calls for a 33-40% chance of above normal December precipitation North Central Texas and the Edwards Plateau. A 40-50% chance of above normal December precipitation is forecasted by the CPC in Central and East Texas, while areas within 100 miles of the entire Texas coast have a greater than 50% chance of above normal precipitation.

The three-month outlook forecasted by the CPC, which is valid for December through February, shows a 33-40% chance of above normal precipitation in the southern Panhandle, North Central Texas, and East Texas. A 40-50% chance of above normal precipitation is forecasted for the Upper Coast, Central Texas, and the Edwards Plateau. A greater than 50% chance of above normal precipitation is forecasted for South Central and South Texas, including both regions classified as "Extreme Drought" at the end of November. Overall, the next three months should bring improvement to the drought situation in all of the State.

3. OVERALL STATEWIDE DROUGHT CONDITIONS

The cooler air and rain continued to improve moisture conditions across Texas. Most regions are now in normal or wet conditions. The severity has been reduced for those that were still in drought. Detailed drought conditions per index can be summarized as follows:

According to the Palmer Drought Severity Index (PDSI), the High Plains and Trans-Pecos regions were in a "Mildly Dry" condition. The remaining regions were reported not to show drought conditions.

According to the Crop Moisture Index (CMI), all regions with the exception of the South Central, Upper Coast, and East Texas regions were in a "Slightly Dry" condition. According to the Texas Water Development Board (TWDB) scale, the CMI varies from flooding, standing water, fields too wet, moisture adequate, mildly dry, abnormally dry, excessively dry, severely dry, and extremely dry in order of increasing severity.

According to the Six-Month Standardized Precipitation Index (SPI), the Lower Valley region was in a "Moderately Dry" condition. The remaining regions were in a "Near Normal" condition. The SPI varies from extremely wet conditions, very wet, moderately wet, near normal, moderately dry and, severely dry, extremely dry in order of increasing severity.

4. WATER UTILITY STATUS

December 2009 began with 342 public water systems with water conservation restrictions. Mandatory watering schedules were imposed by 183 water systems and 49 asked for voluntary reductions in usage. In addition, 110 public water systems were able to relax all restrictions and return to normal operation. Recent rains continued to help by reducing water demand and increasing ground and surface water supplies in some areas of the State.

Increased rainfall and reduced demand allowed additional public water systems to relax or remove water restrictions.

5. WATER RIGHTS – STATEWIDE

New temporary water use permit applications were reviewed on a site-specific basis. Permits were issued if there was sufficient surplus water at the requested source. Applications for new water use permits and amendments to existing permits remained normal for the month. Until April 1, 2010, the water rights owners in the Brazos River Basin whose permits contain Hale Clause restrictions may observe the less severe stream flow restrictions of permits. The availability of unappropriated water for new water use permits continued to decrease in all river basins in the State. The search for long-term, dependable alternate sources of water remains a high priority issue.

6. WATER RIGHTS – LOWER RIO GRANDE / RIO GRANDE WATERMASTER (RGWM)

Current Overall Conditions: As of November 21, 2009, the U.S. combined ownership at Amistad/Falcon stood at 79.42% of conservation capacity or 2,693,989 acre-feet of temporary conservation capacity. Overall, the system is holding 81.32% or 4,816,428 acre-feet of conservation capacity with Amistad at 95.97% or 3,143,933 acre-feet and Falcon at 63.19% or 1,672,495 acre-feet. Mexico has 83.86% or 2,122,439 acre-feet of the water storage at Amistad/Falcon.

Storage & Loss Amistad vs. Falcon: The U.S. is currently storing approximately 1.72 million acre-feet or 93.7% at Amistad, and approximately 970,000 acre-feet or 62.5% at Falcon.

Releases to Meet Demands: Mexico released 374,469 acre-feet from Amistad and 879,930 acre-feet from Falcon for Mexico needs. The U.S. released 1,264,933 acre-feet from Amistad and 755,176 acre-feet from Falcon for U.S. needs. Combined with gains between Amistad and Falcon, U.S. inflows to Falcon totaled 852,293 acre-feet. So far, the U.S. met 67% of overall needs in the middle and Lower Rio Grande directly from middle Rio Grande and Amistad inflows this year.

Upper Rio Grande (New Mexico): Elephant Butte in New Mexico is currently storing 479,129 acre-feet or 23.68% of capacity. Caballo Dam, downstream of Elephant Butte, is storing 26,753 acre-feet or 11.79% of capacity. This water storage, in part, was used to meet water needs in the El Paso area.

Outlook: All active accounts began 2009 with 100% usable balances. To help alleviate losses in Falcon, the U.S. will continue to monitor ownership and elevation levels in both Falcon and Amistad so U.S. transfers of water from Amistad to Falcon can be most efficient. According the latest U.S. Drought Monitor, "Severe Drought" to "Moderate Drought" conditions continued across Zapata, Jim Hogg, Brooks, and Kenedy Counties, with "Abnormally Dry" to "Near Normal" conditions over the Lower Rio Grande Valley.

7. SOUTH TEXAS WATERMASTER – GUADALUPE / LAVACA / SAN ANTONIO / NUECES REGION

November continued to bring much needed rainfall across most of the South Central Texas and the Concho River Basin. Although rains greatly improved a majority of the drought conditions throughout the area, there was a narrow band showing "Exceptional Drought" conditions. This area stretched from the coast near Corpus Christi across to the area of Zapata and Webb Counties. The drought conditions continued to improve moving into December.

Area Counties: Bandera, Blanco, Comal, Kendall and Kerr Counties

Rainfall and Area Conditions: The area received scattered rainfall from 4 to 5 inches during November. The Texas Crop Moisture Index classified the area of the Hill Country as "Mildly Dry." Most of the surface water diversions in the area were for municipal and industrial uses with a few surface water permit holders irrigating hay and sod fields. The U.S. Drought Monitor indicated the area is currently in "Severe Drought" to "Abnormally Dry" conditions.

Stream Flow Conditions: Flows of the major streams and their tributaries still flowed below average. With the scattered rains, the Guadalupe, Medina, and Sabinal Rivers showed some increase in flow during November. Most of the larger secondary tributaries also showed no surface flows.

Site	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Kerrville	79	109
Guadalupe River near Comfort	112	156
Medina River at Bandera	52	95

Drought Restrictions: No State permit holders reached their flow restrictions in the Guadalupe River Basin above Canyon Lake. State water permit holders in the San Antonio River Basin above Lake Medina are not diverting at this time, due to the lack of the flow. All Temporary Water Permits are reviewed on a case by case basis.

Area Counties: Bee, Goliad, Victoria, Calhoun, Jackson, Refugio, Aransas, San Patricio, Nueces, Kleberg, Jim Wells, Duval, Live Oak, Kenedy, Willacy, Brooks, and Jim Hogg.

Rainfall and Area Conditions: The area received much needed rainfall during November. Some areas received as much as four inches while other areas received only scattered to isolated rain showers. Stream flows rapidly increased due to the runoff from the rains. Most of the area streams flowed above what is expected for this time of the year. The U.S. Drought Monitor indicated "Moderate Drought" to "Severe Drought" conditions continue to prevail throughout the counties in South and Central Texas. Duval, Jim Hogg, Jim Wells, and portions of Kleberg and Nueces Counties experienced "Exceptional Drought" conditions. Most surface water diversions in the area continue to be for municipal and industrial uses, with little irrigational use.

Stream Flow Conditions:

Site (Years of Record)	Beginning Flows CFS	Ending Flows CFS	Historical Mean CFS
Guadalupe River near Victoria (75)	3,000.0	1,550.0	1,910.0
San Antonio River near Goliad (75)	1,300.0	882.0	580.0
San Antonio River at McFaddin below Goliad (2)	4,500.0	1,360.0	685.0
Guadalupe River near Tivoli (2)	3,200.0	3,140.0	2,910.0
Mission River near Refugio (69)	70.0	78.0	29.0
Nueces River at Calallen Dam (9)	0.0	5.7	883.0
Aransas River near Skidmore (44)	10.0	11.0	6.6

Stream flows of the Guadalupe River continued to flow over the saltwater barrier near Tivoli, Texas.

Corpus Christi Reservoir System: The Corpus Christi Reservoir System received some inflows during November and the level of the reservoir system rose slightly. The Corpus

Christi Reservoir System was at 58.3% of capacity, or 555,209 acre-feet, compared to 78.6% of capacity, or 749,056 acre-feet, during the same time last year. The level of Choke Canyon dropped to 68.1% of capacity, or 473,646 acre-feet. Lake Corpus Christi was at 31.7% of capacity, or 81,563 acre-feet, compared to 68.1% of capacity, or 175,241 acre-feet, last year. Corpus Christi continued to divert much of its monthly water supply needs from Lake Texana.

Drought Restrictions: No drought restrictions of water rights were reached.

Area Counties: Edwards, Real, Kinney, Uvalde, Zavala, Dimmit, La Salle and Webb.

Rainfall and Area Conditions: The Southwest Texas area received some relief from the drought during November. However, due to the overall lack of rainfall for the year, the rain was not enough to bring the area out of the drought. There were small rain showers reported during the beginning of the month with heavy rain reported during the middle of the month. The month ended with light showers for the entire area, ranging from half an inch to five inches. Most of the diversions of surface water were for irrigational use and small amounts for municipal and industrial uses. Crops irrigated in the area are: cotton, hay grazers, and pecans. Soil conditions improved due to the rainfall. The U.S. Drought Report indicated the area is experiencing "Moderately Dry" to "Extreme Drought" conditions at this time.

Stream Flow Conditions:

Site	Ending Flows CFS	Last Month CFS	Historical Mean CFS
Nueces River at Laguna	51.0	53.0	124.0
Nueces River at Brackettville	0.02	0.03	3.6
Nueces River below Uvalde	5.2	5.2	82.0
Frio River at Concan	34.0	34.0	94.0
Sabinal River at Sabinal	2.4	0.74	9.9
Leona River near Uvalde	0.0	0.0	46.0

Stream flows of intermittent and tributary streams in the area were flowing well below average for this time of year.

Drought Restrictions: Currently, one permit with stream flow restrictions was curtailed. Permits that have not met their stream flow restrictions were regulated. The Zavala/Dimmit Water District has a rotational diversion schedule on the Nueces River to ensure adequate water for domestic and livestock use. Temporary permits were curtailed on the Nueces, Sabinal and the Leona rivers.

Area Counties: Atascosa, Karnes, Gonzales, Wilson, McMullen, Dewitt, Guadalupe, Lavaca, Fayette, Colorado, Wharton, and Jackson

Rainfall and Area Conditions: The southern portions of this area received 4 to 8.5 inches of rainfall during November. The remainder of the area, including the Lavaca area, received 8 to 12 inches. Hay crop conditions improved and farmers began to plant winter oats and rye. Irrigation activities decreased to a minimum due to the significant precipitation in the area. Lake Texana was at 100% of capacity, or 44.10 feet above mean sea level. This is the second month Lake Texana was at 100% of capacity.

in the area were based on availability in that specific segment. If inflows remain at current levels, without any increases; all diversions in the area will be suspended until such time as the inflow levels return to normal.

8. **UPPER COLORADO** (Concho River watershed not included)

The upper Colorado River area received less than normal precipitation during July. The National Weather Service in San Angelo reported monthly precipitation of 4.64 inches, which was 3.54 inches above normal. According to the U.S. Drought Monitor, the drought conditions in the area ranged from "Abnormally Dry" to "Moderate Drought". Most tributaries in the upper Colorado watershed had diminished flows. However, there were isolated areas that flowed at or above the USGS long-term median. The pool levels of EV Spence and OH Ivie Reservoir decreased during May reaching levels of 7% and 48% of capacity, respectively.

9. **TEXAS PANHANDLE AND SOUTHERN HIGH PLAINS**

Amarillo Area: The Amarillo Region reported the following summary for the Northern panhandle area:

Lake Meredith ended the month at 48.15 feet. Lake Greenbelt ended July at 54.32 feet. Lake MacKenzie ended the month at 72.24. The National Weather Service in Amarillo reported a total rainfall during July of 3.78 inches. Total rainfall since January 1, 2009, is 10.33 inches, or 1.77 inches below the year-to-date average.

Lubbock Area: Lubbock received 1.69 inches of rain during July. The average rainfall is 2.13 inches. Similar amounts were recorded throughout the area. Since the beginning of the year, Lubbock has received a total of 7.55 inches of precipitation. This is 3.13 inches below the normal of 10.68 inches for July. The long term drought situation was not changed. All communities previously noted as being on mandatory water restrictions remained on those restrictions. No new communities were added to the water restrictions list during July and none were removed.

Lubbock and Amherst remained on mandatory drought restriction status. Ralls, Crosbyton, Spur, Post, White River WCS, and Valley WSC in the South Plains area remained on voluntary drought restriction status.

White River Lake: The lake pool elevation was at 2349 acre-feet, or 21.0 feet below full. This is one foot lower than the level at the end of May 2009. White River WSD has groundwater wells on standby if the lake level drops below usable levels.

Lake Alan Henry: The lake is 1.5 foot below full. It is not used for public drinking water supplies at present, but will be utilized for this purpose in the near future.

10. **WILDLIFE CONCERNS**

No information was received at time of report.

11. **AGRICULTURAL CONCERNS**

Welcome rains improved agricultural conditions over most of the High and Rolling Plains, the Trans Pecos, West Central Texas, North and East Texas regions. Dryland crops across

Southwest and the lower parts of the Gulf Coast, where stock tanks remain low. Grazing is short and soil moisture profiles are short for spring planting.

The following are comments made by Texas AgriLife Extension Service district reporters on agricultural conditions across the State for the week beginning November 30.

South: With the exception of Webb and Cameron Counties, all counties reported adequate soil moisture levels. Cold, overcast weather with some rain slowed field activity and peanut harvesting in the northern part of the region. Two inches of rain fell in the eastern part of the region. The recent rain helped dryland wheat and oats in the western part of the region. Cabbage and spinach harvesting resumed where fields were dry enough. In the southern part of the region, crops progressed well, forage availability was fair and the tomato harvest began. Warm-season forage production ended due to low temperatures, but it was expected with continued moisture, cool-season native grasses should provide good grazing. Livestock were in fair condition. Stock tank water levels remained the limiting factor. Livestock producers were increasing supplemental feed rations due to cold and wet weather.

Central: Cold fronts brought rain, helping maintain high soil moisture. Most of the region received a freeze, which stopped all warm-season grass growth and ended hay production. Most producers planned to use standing forage for winter.

Coastal Bend: Approximately half an inch to two inches of rain was followed by sleet, snow flurries and a hard freeze. Farmers did not perform any field work due to wet soils. Soil moisture levels were in good condition.

East: Parts of the region received as much as four inches of rain, followed by the first freeze of the year, ending the growing season. Winter oats, rye, and wheat pastures made beneficial growth. Livestock producers fed hay and other supplements. Cattle were in fair to good condition and fall calving continued.

Far West: The pecan and cotton harvests were put on hold due to snow and rain. Approximately two to ten inches of snow fell in the region. Fields were too wet for any farming activity. The main cotton harvest was finished, but many modules remained in the field. Cotton remaining in the field awaited drier conditions. Winter wheat growth slowed due to low temperatures.

North: Soil-moisture levels were in the surplus range for most of the region. Some counties had rain and colder temperatures with a little snow. The wet conditions halted all field work. There were also reports of frost and hard freezes. Nearly half of the planned wheat acres were not planted at this date as wet field prevented planting. Due to the late date, it is likely that fields not planted to wheat at this time will be planted to spring crops. The soybeans, sorghum and cotton harvests were finished. The cold, wet weather was hard on livestock, but most appeared to be in good shape going into the winter. Because winter pastures were not ready for grazing, many cattle producers were forced to provide considerable amounts of supplemental feed and hay.

Panhandle: Much colder temperatures were experienced throughout the region. Soil moisture levels were short. Some cotton was harvested, with the harvest expected to be completed by Christmas. Dryland wheat was stressed by low temperatures and dry conditions. Cattle producers spent more time supplementing cattle and breaking ice in stock water tanks. Rangeland deteriorated, with most counties reporting it to be in poor to fair condition.

Rolling Plains: Winter hit hard in parts of the region. Rain, sleet and a small amount of snow were followed by a hard freeze in some counties. The moisture stopped the cotton harvest but was beneficial for wheat, pastures, and rangeland. Livestock producers fed cattle supplemental protein on a regular basis but did not need to feed hay. More than an average number of stocker cattle were put on wheat. Most of the wheat producers in the region completed or nearly completed planting. Some wheat producers found rust in several varieties. Insect activity was otherwise low, while greenbugs were present but not at economically significant thresholds.

South Plains: A cold blast came to the region. The high on December 3 was 30 degrees. On December 4, temperatures ranged from 18 to 36 degrees, with half an inch to three inches of snow. Soil moisture was short to adequate. The cotton and sorghum harvests were nearly complete. Many gins were approximately two-thirds finished ginning. Winter wheat continued to mature. Pastures and rangeland were in poor to fair condition. The cold weather stressed area livestock, and producers continued with supplemental feeding.

Southwest: There was a hard freeze December 5, with lows in the low 20s. The impact on vegetable crops was not yet known, but losses were expected. The only other frost this fall was light and did not occur in all areas, so some crops may not have developed adequate cold tolerance. The pecan harvest was nearly complete. The lettuce, cabbage and spinach harvests continued. Producers were preparing fields for potato planting, which should begin soon after Christmas.

West Central: The region experienced lower than normal temperatures with freezing rain in many areas. The cotton harvest slowed due to wet conditions, but field activity was expected to pick up as fields dried out. Small grain fields progressed well. Rangeland and pastures were improving as cool-season grasses began growing after recent moisture. Livestock remained in fair to good condition, and producers increased supplemental feeding. Stock pond levels were higher. The pecan harvest was slowed by the wet weather. The crop looked productive overall, but prices were down.

12. WILDFIRE CONCERNS

The Keetch-Byram Drought Index (KBDI) is used to help determine potential for fire risk. It is a numerical index where each number is an estimate of the amount of precipitation, in 100ths of an inch, needed to bring the soil back to saturation. The index ranges from 0 to 800, with 0 representing a saturated soil, and 800 a completely dry soil. The relationship of the KBDI to fire danger is, as the index increases, the vegetation is subjected to increased moisture stress. KBDI levels and its relationship to expected fire potential are reflected in the following:

KBDI = 0 – 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. This is typical of spring dormant season following winter precipitation.

KBDI = 201 – 400: Typical of late spring; early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 401 – 600: Typical of late summer, early fall. Lower litter and duff layers contribute to fire intensity and will burn actively.

KBDI = 601 – 800: Often associated with more severe drought and increased wildfire occurrence. Intense, deep-burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

There are currently 47 counties, illustrated in Attachment 2, with KBDI values in excess of 400, indicating areas within these counties are beginning to experience or sustain dry conditions which could result in an increased fire risk potential.

The Council, which is chaired by Jack Colley, Assistant Director, Texas Division of Emergency Management, is composed of state agencies concerned with the effects of drought and fire on the citizens of the State of Texas. The attached information was compiled and provided by representatives listed below. Points of contact, telephone numbers, and web site addresses are also provided.

Jack Colley, Assistant Director, Texas Division of Emergency Management, (512) 424-2443, fax (512) 424-2444, web site: http://www.txdps.state.tx.us/dem

John Sutton, Texas Water Development Board, (512) 463-7988, fax (512) 463-9893, web site: http://www.twdb.state.tx.us

Chris Loft, Texas Commission on Environmental Quality, (512) 239-4715, fax (512) 239-4770, web site: http://www.tceq.state.tx.us

Richard Egg, Texas State Soil & Water Conservation Board, (254) 773-2250, fax (254) 773-3311, web site: http://www.tsswcb.state.tx.us

Lance Williams, Texas Department of Agriculture, (512) 463-3285, fax (800) 835-2981, web site: http://agr.state.tx.us

Dr. Travis Miller, Texas AgriLife Extension Service, (979) 845-4808, fax (979) 845-0456, web site: http://texasextension .tamu.edu

Cindy Loeffler, Texas Parks & Wildlife Department, (512) 912-7015, fax (512) 707-1358, web site: http://www.tpwd.state.tx.us

Carla Baze, Texas Department of Transportation, (512) 416-3270, fax (512)416-2941, web site: http:www.txdot.state.tx.us

Michael Dunivan, Texas Forest Service, (830) 997-5426, web site: http://txforestservice.tamu.edu

Suzanne Burnham, Texas Department of State Health Services, (512) 801-9816, fax (512) 458- 7111, web site: http://www.dshs.state.tx.us/

Thomas Walker, Office of the Governor, Economic Development & Tourism, (512) 936-0169, fax (512) 936-0141, web site: http://www.governor.state.tx.us/divisions/ecodev

David A. Van Dresar, Texas Alliance of Groundwater Districts, (979) 968-3135, fax (979) 968-3194, web site: http://www.texasgroundwater.org/

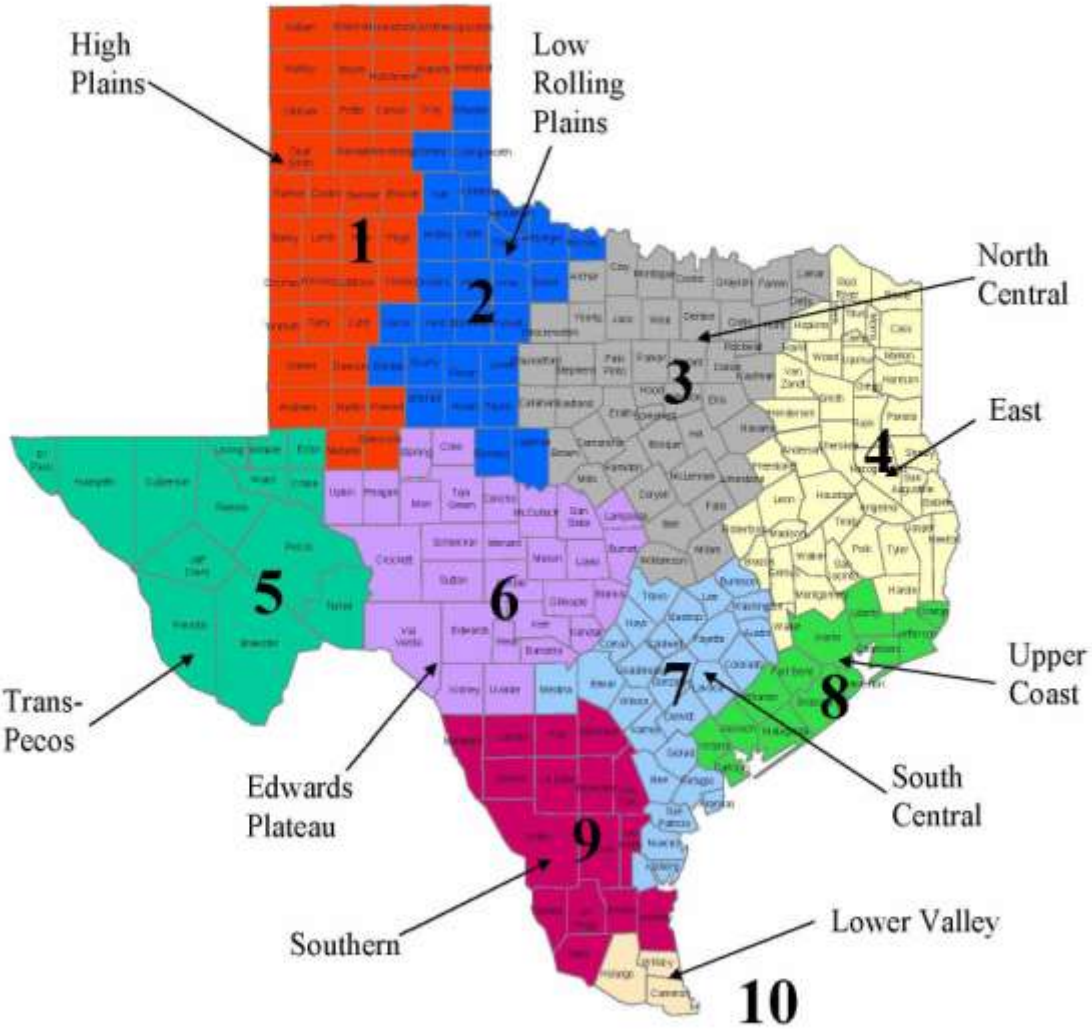
Dr. John W. Nielsen-Gammon, Office of the State Climatologist, (979) 862-2248, fax (979) 862-4466, web site: http://www.met.tamu.edu/osc/

Gus Garcia, Texas Department of Rural Affairs, (512) 936-7876, fax (512) 936-6776, web site: http://www.tdra.state.tx.us

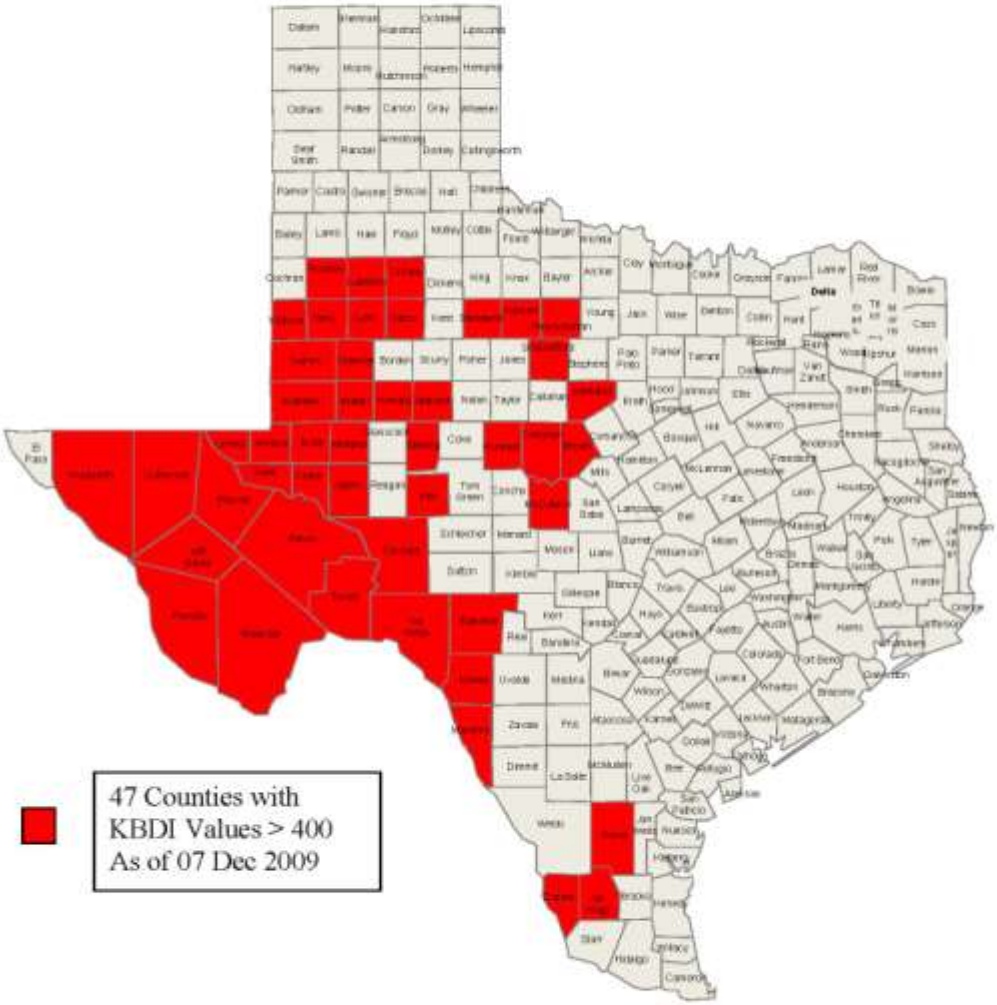
cc:

Amy Jeter, Committee Clerk, Senate Finance Committee
Sarah Hicks, Committee Director, Senate Finance Committee
Teddy Carter, Committee Clerk, Senate Natural Resources Committee
Amy Peterson, Committee Clerk, House Appropriations
Elizabeth Fazio, Committee Clerk, House Natural Resources Committee
Jim Terrell, Committee Clerk, House Agriculture and Livestock Committee
Andrew Cates, Committee Clerk, House Criminal Jurisprudence Committee
Zak Covar, Policy Advisor for TCEQ Issues, Governor's Policy Office
Auburn Mitchell, Policy Advisor for Agriculture/TDA, Governor's Policy Office
Carmen Cernosek, Lt. Governor's Natural Resources Policy Analyst
Shane Linkous, Deputy Division Chief, Intergovernmental Relations, Attorney General's Office
Allan B. Polunsky, Chairman, Public Safety Commission
C. Tom Clowe, Jr., Member, Public Safety Commission
Ada Brown, Member, Public Safety Commission
John Steen, Member, Public Safety Commission
Carin Marcy Barth, Member, Public Safety Commission
Steven McCraw, Director, Department of Public Safety
Lt. Colonel Lamar Beckworth, Deputy Director, Department of Public Safety
Lori Gabbert,, Budget Analyst, Legislative Budget Board (LBB-DPS)
Tom Lambert, Budget Analyst, Legislative Budget Board (LBB-TCEQ)
Ed Perez, Executive Director, Texas Office of State-Federal Relations, Washington, DC
Brandon Steinmann, Director, Texas Office of State-Federal Relations, Austin, Texas

Attachment 1
Climatic Regions



Attachment 2
Counties with High to Extreme Fire Danger



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Appendix G:

Monthly PDSI Images for 2009

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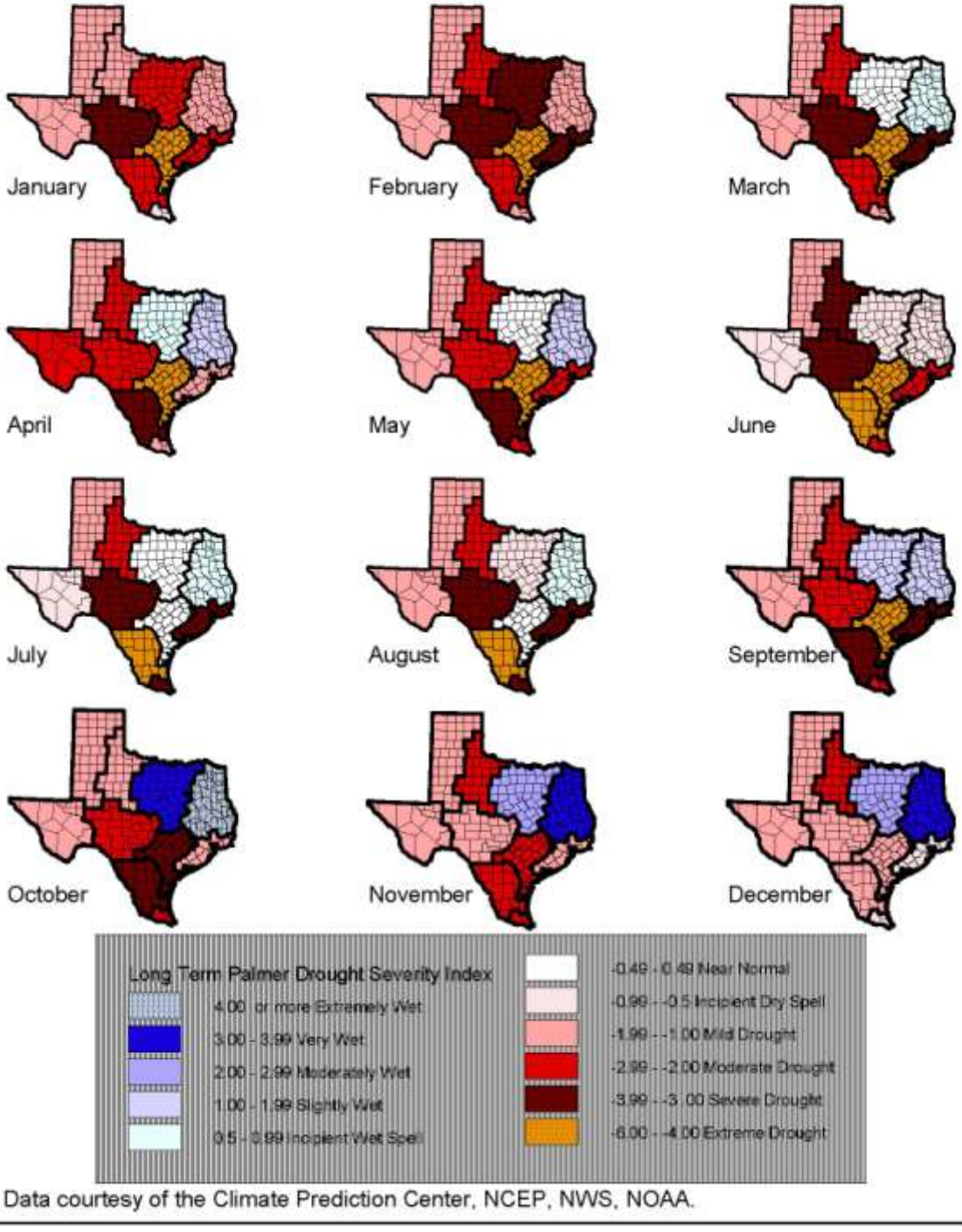
Attachment 2. Long-Term Palmer Drought Severity Index 2009



Data courtesy of the Climate Prediction Center, NCEP, NWS, NOAA.

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Appendix H :

District Resolutions

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LONE STAR GROUNDWATER CONSERVATION DISTRICT

Resolution No. 09-008

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE LONE STAR GROUNDWATER CONSERVATION DISTRICT AMENDING THE LONE STAR GROUNDWATER CONSERVATION DISTRICT RULES

SECTION 1. Rule 1.1 of the Lone Star Groundwater Conservation District Rules ("District Rules") is amended to read as follows:

Insert the following definitions in their appropriate place using alphabetical order and renumber the remaining subsections accordingly:

"Impounded water" means groundwater produced from a well that is discharged into or otherwise held in a surface impoundment for subsequent withdrawal and use for irrigation or any other purpose.

"Miscellaneous impoundment losses" means the exfiltration losses or percolation losses of water through the bottom and sides of a surface impoundment, excluding evaporative losses.

"Surface impoundment" means an artificially dug or natural occurring hole, pond, lake, or other land surface depression, including without limitation an impounded stream or other watercourse, used for holding groundwater produced from a non-exempt well.

SECTION 2. Rule 2.3(a) of the District Rules is amended to read as follows:

(20) the withdrawal for subsequent use of impounded water without measuring and recording at all times all such withdrawn volumes using a properly installed, functioning and calibrated flow measurement device, or failure to comply with all calibration testing, installation, notification, and certification requirements [District Rules 13.2];

(21) the failure to file with the District a true and correct copy of the log required under District Rule 13.2(e) by March 1st of the calendar year in which it is due [District Rules 13.2(h)]

[~~(20)~~](22) the incursion of any three Minor Violations of the District Rules within a period of three (3) consecutive years—for purposes of this subsection only, a minor violation is incurred when a person receives notice of such by the General Manager by any method listed in District Rule 2.4; and

[~~(21)~~](23) any other act or omission not listed in this subsection that is determined by order or resolution of the Board to constitute a Major Violation.

SECTION 3. Section 13 of the District Rules is amended by amending the title of the section to read as follows:

WASTE PROHIBITED;
CONSERVATION STANDARDS FOR CERTAIN IMPOUNDMENTS

SECTION 4. Section 13 of the District Rules is amended by adding the following Rule 13.2 to read as follows:

Rule 13.2 Conservation Standards for Certain Impoundments and Practices

(a) No groundwater produced from a well may be discharged into or otherwise held in any surface impoundment and subsequently used for irrigation or any other purpose, except as specifically authorized by this rule.

(b) Groundwater produced from a non-exempt well may be held as impounded water only if, beginning not later than January 1, 2010, all volumes of water impounded and actually withdrawn from the surface impoundment for subsequent use are separately measured and recorded at all times using a properly installed, functioning and calibrated flow measurement device as otherwise prescribed by this rule.

(c) Surface impoundments used or designed to hold groundwater produced within the District shall be constructed and at all times maintained such that the miscellaneous impoundment losses do not exceed 10 percent of the total volume of groundwater discharged annually into the surface impoundment.

(d) Meters used to satisfy the flow measurement requirements of Subsection (b):

(1) shall conform to the American Water Works Association ("AWWA") Standard M6, "Water Meters-Selection, Installation, Testing, and Maintenance," as that standard may revised by the AWWA from time to time;

(2) must be capable of being calibrated and maintaining calibration for no fewer than 90 contiguous days; and

(3) must be capable of reliable measurement within a margin of error not to exceed the standards specified in AWWA Standard M6.

(e) Each permit holder authorized to produce groundwater that will be impounded and subsequently withdrawn for use shall, no less frequently than once each month or such other interval required in the terms of the applicable permit, inspect the meter required by this rule and record in a log the total volume registered on the meter at the time of the inspection.

(f) Each meter required by Subsection (b) must be calibrated upon installation. The person who installs any meter required by this rule shall submit to the District a certificate of

calibration for each installed meter. Any meter that is not calibrated to achieve the accuracy standards specified in AWWA M6 cannot be used and must be replaced.

(g) The calibration of each meter required under Subsection (b) shall be tested once every three (3) years. Before any such calibration testing, the permit holder shall notify the District verbally or in writing no fewer than 48 hours before the scheduled testing shall take place. District staff or any authorized representative of the District may be present to observe the calibration testing. If the calibration testing shows a variance greater than the variation allowed in AWWA M6, the District may require the permit holder to correct all monthly readings conducted since the most recent previous calibration to account for any inaccuracies in the readings.

(h) A true and correct copy of the log required under Subsection (e) shall be submitted to the District with the water production report required by Rule 4.3 by the deadline set forth under Rule 4.3, along with a copy of the production log required under Rule 11.6.

(i) The failure to submit to the District, in whole or in part, the information required to be maintained in Subsection (e) shall be considered by the District during any pertinent permit renewal or amendment process as evidence indicating the absence of the claimed subsequent use activity, and the permit amount requested may be reduced as a result.

SECTION 4. Recognizing the importance of implementing these reasonable conservation standards at a time when Montgomery County is experiencing increased pressures on limited water supplies, a trend that is only exacerbated by the current drought conditions plaguing Montgomery County and much of the State of Texas, the amendments to the District Rules that are contained in this Resolution shall become effective immediately upon adoption by the Lone Star Groundwater Conservation District Board of Directors.

AND IT IS SO ORDERED.

PASSED AND ADOPTED on this _____ day of _____, 2009.

LONE STAR GROUNDWATER CONSERVATION DISTRICT

By: _____
Richard J. Tramm, Board President

ATTEST:

_____
Sam W. Baker, Board Secretary

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District Regulatory Plan
Phase II(B)

As Adopted November 10, 2009

Lone Star Groundwater Conservation District
207 West Phillips, Suite 300
Conroe, Texas 77305

(936) 494-3436

www.lonestargcd.org

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Background and Purpose

Since its creation by the Texas Legislature and subsequent confirmation by the citizens of Montgomery County in 2001, the District has worked tirelessly to be an effective and prudent manager of the groundwater resources underlying Montgomery County and to otherwise meet its obligations under the law. The Gulf Coast Aquifer serves as the primary source of all consumptive water uses within Montgomery County and, based on the most recent data available to the District, has a sustainable yield in the District of approximately 64,000 acre-feet per year.

Sustainable yield, in this case, is the amount of groundwater each year that is reintroduced as recharge into the portion of the Gulf Coast Aquifer that underlies Montgomery County. Any amount of groundwater withdrawn from an aquifer that is in excess of its sustainable yield has the effect of taking more water from the aquifer than can be replenished naturally through recharge. This condition is often referred to as "aquifer mining."

The District has rejected any groundwater management strategy that would encourage mining of the Gulf Coast Aquifer. Instead, the District committed to managing water in the Gulf Coast Aquifer on a sustainable basis early after its creation, and it remains equally committed to this principle today. This commitment is reflected in the District's Management Plan, which was updated and readopted in accordance with State law in 2008. The sustainable yield of the Gulf Coast Aquifer is thus an important regulatory marker for the District.

As of October 2009, the District had authorized the production of approximately 87,215 acre-feet per year of groundwater from the Gulf Coast Aquifer through permits issued by the District. In addition to permitted production, state law and District rules provide exemptions to the District's permitting and metering requirements for certain groundwater users—*i.e.*, those that use limited amounts of groundwater for individual domestic purposes or for watering livestock or poultry. A recent study commissioned by the District determined that the best current estimate for exempt uses accounts for an estimated 7,700 acre-feet of groundwater production each year from primarily the Gulf Coast Aquifer.

Thus, approximately 95,000 acre-feet of groundwater is authorized for production from the Gulf Coast Aquifer each year from within the District under permits issued by the District or under a permitting exemption. This exceeds the currently recognized sustainable yield of the Gulf Coast Aquifer in the District by approximately 31,000 acre-feet. Because Montgomery County is one of the fastest growing counties in the United States, the disparity between the Gulf Coast Aquifer's sustainable yield and the total volume of groundwater that is produced from the aquifer will continue to grow—unless significant efforts are made to permanently reduce the county's reliance on groundwater.

In 2006, the District formally adopted Phase I of what is a multi-phased regulatory plan designed to require a comprehensive conversion from groundwater to alternative water sources in an effort to reduce total annual groundwater production within Montgomery County to a level that does not exceed, on average, the sustainable yield of the Gulf Coast Aquifer. In the 2006 District Regulatory Plan ("DRP") Phase I, the District established January 1, 2015, as the deadline by which total annual groundwater production within Montgomery County had to be reduced to an

amount equal to or less than the sustainable yield of the Gulf Coast Aquifer in the District, which is presently considered to be 64,000 acre-feet.

In February 2008, the District adopted Phase II(A) of the DRP to insure that water producers and users in the District were making incremental progress toward compliance with the 2015 groundwater reduction requirement. Phase II(A) required certain Large Volume Groundwater Users ("LVGUs"), either individually or jointly with other LVGUs, to submit a Water Resources Assessment Plan ("WRAP") to the District. Through the WRAPs, LVGUs were required to describe (a) their current and projected water demands through 2045, and (b) their plans for substituting not less than 30 percent of their total water demands with an Alternative Water Source by January 1, 2015. Phase II(A) defined a Large Volume Groundwater User to be any non-exempt and non-agricultural groundwater producer subject to the District's regulatory jurisdiction that, through a single well or a combination of wells, actually produced or was authorized by any permit issued by the District to produce 10 million gallons or more of groundwater annually on or after January 1, 2008. Those authorized to produce, or actually producing, 10 million gallons of groundwater per year or more for non-agricultural uses account for approximately 92 percent of total permitted production in Montgomery County.

Today, in its continuing conversion effort that formally began in 2006, the District adopts this Phase II(B) of the DRP. DRP Phase II(B) is designed to provide the actual regulatory requirements for achieving a long-term sustainable rate of groundwater production within Montgomery County—beginning with an initial conversion effort that is required to be met by 2016. The District has determined that the year of initial groundwater reduction and conversion should be changed from calendar year 2015 to 2016, because of the delay in the originally anticipated time frame for adoption of these actual regulatory requirements and the need for LVGUs to have a corresponding increment of time to implement them. As part of those requirements, Phase II(B) requires each LVGU in the District to submit a Groundwater Reduction Plan ("GRP"), either individually or jointly with other LVGUs, and it otherwise establishes regulatory milestones designed to allow for the initial phase of conversion from groundwater to an Alternative Water Source, generally consistent with the underlying conversion assumptions set out in Phases I and II(A) of the DRP.

DRP Phase II(B) Requirements

Based on the District's review of the WRAPs submitted in compliance with Phase II(A) of the DRP, and the continuing recognition that groundwater depletion remains a county-wide concern, the District has determined that maintaining the single, county-wide management zone regulatory approach established in the DRP Phase I is the most appropriate approach for developing, administering and enforcing the initial conversion requirements set forth and defined herein. In addition, only Large Volume Groundwater Users, as that term has been redefined for purposes of this DRP Phase II(B), are subject to the Initial Conversion Obligation provided for herein. The District may amend the class of groundwater producers subject to the conversion requirements of this DRP Phase II(B) in the future to include other groundwater users in the District if it determines such an amendment is warranted in its efforts to conserve, preserve, and protect the groundwater resources of Montgomery County. In addition, if the level of

groundwater production in the District from the Gulf Coast Aquifer that is attributable to permitted uses by non-LVGUs and to exempt uses increases, the District may require further reductions in groundwater production beyond the level achieved by the Initial Conversion Obligation required in this DRP Phase II(B).

It is important to recognize that the purpose of this initial conversion effort, and related requirements in this DRP Phase II(B), is to begin in 2016 reducing groundwater production within the District to sustainable levels, or as close to sustainable levels as the District determines is pragmatic at this time based upon technological, economical, and practical considerations. It is equally important to recognize that, because of the continued growth in Montgomery County and the increases in water demand that are attributable to such sustained growth since 2006, the District will likely require further groundwater reductions and conversion efforts in the future to achieve and maintain a truly sustainable level of groundwater production in Montgomery County. The District anticipates that the development of these anticipated additional conversion requirements will also be motivated by the availability of better science and more precise data regarding the sustainable level of production—referred to herein as the Aquifer Sustainable Yield.

Unless further reduced in the future by the District, the maximum amount of groundwater that an LVGU will be authorized to produce in any calendar year after 2016 will be the same static, fixed maximum volume of groundwater that the LVGU was legally authorized to produce in 2016 while achieving the reduction and conversion requirements set forth in this DRP Phase IIB (the Conversion Obligation), which are based upon a reduction in calendar year 2009 permitted authorization. An LVGU will not be authorized in years after 2016 to increase groundwater production based upon any type of percentage or ratio approach of total demand or use.

The District recognizes, however, that such rigid production ceilings described above could in some instances prove impracticable to achieve and, as a result, could have unintended adverse impacts on economic development within Montgomery County. To address the often competing goals of robust economic growth and prudent groundwater resource management, the District has designed the DRP Phase II(B) to allow, under certain conditions described in greater detail below, an LVGU to continue meeting increased demand after 2016 by using groundwater in the short-term. However, any LVGU that chooses to meet post-2016 demand growth by using groundwater in this manner must nevertheless undergo subsequent conversion efforts so that its average groundwater use throughout the 2016-2045 planning period does not exceed its 2016 maximum authorized groundwater production level, and also achieve any further groundwater reductions that may be required by the District in the future. The District anticipates that these additional conversion efforts may involve the promulgation of additional DRP phases in the future.

A person or entity that owns or operates two or more otherwise independent public water supply systems or commercial operations under separate permits issued by the District that are not tied to a common distribution system is not subject to the Initial Conversion Obligation or other applicable provisions of this DRP Phase II(B) for any of its independent systems or operations that do not, on their own accord, qualify the person or entity as a Large Volume Groundwater User or a New LVGU. For example, an investor owned utility that owns numerous separate and

distinct public water systems for separate platted subdivisions is not required to submit a GRP for a particular public water supply system that: (1) is authorized under its own permit, (2) is not interconnected to a larger aggregated system, and (3) is permitted for, and produces, less than 10,000,000 gallons per year. However, the District may revise the definitions of "LVGU" or "New LVGU" in the future to include non-exempt persons or other persons or entities producing less than 10,000,000 gallons per year if the District determines such a revision is necessary to conserve, preserve, and protect the groundwater resources of Montgomery County.

Based on these premises, the DRP Phase II(B) requirements include the following:

1. By 2016, each LVGU in the District must meet its Initial Conversion Obligation, which means each LVGU must:

   A. have reduced its groundwater production to no more than 70 percent of its Total Qualifying Demand, which is based upon the LVGU's 2009 permitted authorization; and

   B. actually met not less than 30 percent of its Total Qualifying Demand by implementing water conservation measures and/or using an Alternative Water Source.

2. For any growth in water demand experienced by an LVGU after 2009 that cannot be met by the implementation of water conservation measures, such increased demand must be met using an Alternative Water Source beginning in 2016, unless:

   A. the LVGU does in fact timely meet or exceed its Initial Conversion Obligation; and

   B. the LVGU's overall annual groundwater production does not exceed 70 percent of its Total Qualifying Demand when averaged over the 2016-2045 planning period.

   Thus, groundwater use by an LVGU after its successful 2016 groundwater reduction and conversion will not exceed 70 percent of its Total Qualifying Demand, except as specifically allowed under this averaging provision, regardless of what percentage such groundwater use is of an LVGU's overall water use or demand. In addition, LVGUs must also achieve any further groundwater reductions that may be adopted in the future by the District.

3. The District encourages the use of conservation among all groundwater users within the District, and particularly among all LVGUs, in an effort to reduce overall demand on the Gulf Coast Aquifer. Accordingly, the District recognizes the implementation of aggressive conservation measures by all LVGUs in the District as a best practice, and it strongly encourages each LVGU to implement sound water conservation practices and mechanisms as a way of reducing its overall water demand, and thus reducing its need for additional Alternative Water Sources and groundwater to otherwise meet those demands.

4. Each LVGU must submit a Groundwater Reduction Plan ("GRP") to the District in accordance with the provisions herein:

A. to ensure that necessary progress is made by each LVGU to appropriately plan, finance, design, construct, and otherwise implement conservation measures and/or develop an Alternative Water Source so that, by the end of calendar year 2016, it will have met its Initial Conversion Obligation;

B. to ensure that the District can identify and accurately account for LVGUs participating jointly in achieving the Initial Conversion Obligation; and

C. to ensure the District can reasonably anticipate and establish the achievement, timing, and level of groundwater reductions for its groundwater planning and management purposes.

5. Two or more LVGUs may enter into contractual agreements to share costs, to increase efficiencies in the development, planning and construction of water supply infrastructure, to increase efficiencies in the distribution and delivery of groundwater alternatives and to otherwise cooperate under the framework of a single, Joint GRP. In these instances, individual LVGUs will satisfy the requirements of the DRP if they are included in a Joint GRP that, as an aggregated group, achieves full regulatory compliance with all applicable provisions of this DRP Phase II(B).

6. Notwithstanding anything in this DRP Phase II(B) to the contrary, an LVGU may include groundwater produced from the Gulf Coast Aquifer in a county adjacent to the District as an Alternative Water Source for purposes of meeting its Initial Conversion Obligation only if each of the following conditions are met:

   A. the LVGU provides retail water service in a distribution system located both within the District and in an adjacent county that is supplied by groundwater or surface water produced or diverted from locations both within the District and the adjacent county;

   B. the LVGU included as an element of its WRAP, and by April 1, 2009, did accomplish, a reduction of groundwater production in the District so that the user's total annual volume of groundwater produced in the District was reduced by no less than 35 percent from its 2008 calendar year production within the District, if annualized at the rate of production after April 1, 2009, and if the LVGU thereafter does not exceed that total annual volume;

   C. no less than 100 percent of groundwater used by the LVGU as an alternative supply in the adjacent county is subject to the surface water conversion requirements of a subsidence district or a groundwater conservation district other than the District that are at least as stringent as the Initial Conversion Obligations set forth in this DRP Phase II(B); and

   D. the LVGU committed in writing to the District before April 1, 2009, that it would not ever increase groundwater production in the District above the levels produced in accordance with Paragraph (B) above.

7. On or before June 1, 2010, each LVGU must submit to the District a Declaration of Intent to Submit a GRP ("DOI"). In its DOI, each LVGU must indicate whether it intends to submit

an individual GRP that accounts only for its efforts to meet its Initial Conversion Obligation, or whether it intends to participate in a Joint GRP with at least one other LVGU. For DOIs that indicate the intent to participate in a Joint GRP, the LVGU must identify the Joint GRP Sponsor and provide a copy of a written agreement or other confirmation from the Joint GRP Sponsor indicating that the LVGU will be included in such Joint GRP. For purposes of efficiency, and as an alternative to the foregoing, a Joint GRP Sponsor may submit a single DOI on behalf of all LVGUs that intend to participate in its Joint GRP, so long as such DOI is accompanied with copies of written agreements or other confirmation indicating that each LVGU identified in the DOI has agreed to be included in the Joint GRP.

8. A person that qualifies as a New LVGU who has a Total Qualifying Demand must submit to and have certified by the District a GRP, or become included in a fully compliant Joint GRP, as otherwise provided by this DRP Phase II(B) before being authorized to continue producing groundwater as a New LVGU. A New LVGU that held a permit from the District to produce groundwater in calendar year 2009 may be authorized to produce groundwater within the District in an amount not to exceed 70 percent of its Total Qualifying Demand, unless and until subsequent conversion requirements are adopted by the District. Unless otherwise provided for in this DRP Phase II(B), a GRP submitted by a New LVGU must meet all applicable GRP requirements provided for in this DRP Phase II(B).

9. A New LVGU that has no Total Qualifying Demand may only be authorized to produce groundwater within the District if:

   A. the New LVGU joins a fully compliant Joint GRP; and

   B. each gallon of groundwater produced by the New LVGU is offset by a gallon-for-gallon conversion from groundwater to an Alternative Water Source by a groundwater producer or producers within the same Joint GRP.

10. An LVGU that timely submits a fully compliant GRP to the District but later determines that one or more of its Alternative Water Sources is no longer available to it because of regulatory denials or unanticipated economic considerations shall notify the District in writing as soon as practicable after such a determination is made by the LVGU. Within 180 days after submitting such notice to the District, the LVGU shall submit to the District an amended individual GRP or an amended Joint GRP indicating that the LVGU has joined a Joint GRP.

11. Notwithstanding paragraphs 9 and 10 above, the District may authorize a New LVGU, or an existing LVGU that determines that one or more of its Alternative Water Sources is no longer available to it because of regulatory denials or unanticipated economic considerations, to continue producing groundwater without submitting a GRP, or an amended GRP, to the District if it demonstrates to the satisfaction of the District that:

   A. there are no economically feasible Alternative Water Sources available that would allow it to submit its own compliant GRP or amended GRP to the District, and, if applicable, that its Alternative Water Source or sources are no longer available to it because of regulatory denials or unanticipated economic considerations;

B. it did in fact make a written request to join the Joint GRP Sponsor of each Safe Harbor GRP in the District for inclusion into its respective Joint GRP under substantially the same terms and conditions as are applicable to existing participants in such Safe Harbor GRP plus paying for any additional costs of the GRP reasonably attributable to the addition of the LVGU or New LVGU; and

C. it was unable, after attempting to negotiate in good faith with the Joint GRP Sponsor of each Safe Harbor GRP in the District, to reach agreement with any Safe Harbor GRP for inclusion into its respective Joint GRP.

12. An LVGU or New LVGU that qualifies for a GRP exception under paragraph 11 above may be authorized to produce groundwater without a GRP only until such time as it is able to join a Joint GRP, or until such time as an Alternative Water Source or sources becomes economically feasible and available to it. The District may order any such LVGU or New LVGU to implement special groundwater conservation measures and to pay a civil penalty of not to exceed $4.00 per 1,000 gallons of groundwater produced in excess of 70 percent of its Total Qualifying Demand during the time it produces groundwater within the District without being a part of a compliant GRP.

13. The District may authorize an LVGU to convey or transfer a permit issued by the District to only if:

    A. the conveyed or transferred permit is amended to authorize the production of not to exceed 70 percent of the transferring LVGU's Total Qualifying Demand; and

    B. the type of use authorized by the conveyed or transferred permit remains the same.

    The District shall not authorize the conveyance or transfer to an LVGU of any permit held by a non-LVGU.

Groundwater Reduction Plans

A GRP represents the specific plan that each LVGU will follow in developing, securing, and executing all necessary financing and other contractual agreements, land and right-of-way acquisition, infrastructure design and construction, and any additional regulatory authorizations required under the laws of the State of Texas or of the United States in order to meet its Initial Conversion Obligation.

By no later than January 1, 2011, each LVGU must submit a GRP to the District, or must be included in a Joint GRP that is submitted to the District, that fully complies with the requirements set forth in this DRP Phase II(B). The District will review each GRP for compliance with the DRP and all applicable District Rules. The failure of an LVGU to submit a fully compliant GRP to the District by January 1, 2011, or to be included in a fully compliant Joint GRP that is submitted to the District by January 1, 2011, will subject each applicable LVGU to civil penalties and other enforcement measures as provided for herein.

A GRP must be signed and sealed by a person that is registered as a professional engineer in the State of Texas.

In order to demonstrate the requisite commitment and actual ability to meet the Initial Conversion Obligation, each LVGU must submit a GRP, or must be included in a Joint GRP, that includes, at a minimum, the information described below.

Projected Water Demand

1. Identify the population and the projected water demand for 2016, 2025, 2035, and 2045 for each LVGU that is subject to the GRP using data from the Texas Water Development Board or the Texas State Demographer, unless it is demonstrated in the GRP to the satisfaction of the District that an alternative methodology or source of data is more reliable. This data must include explanations detailing significant projected increases or decreases in total water demand. Public water suppliers should use intended service areas when completing this population and water demand information, and should include a map of such intended service areas for each of the above years.

2. Include a water reuse feasibility assessment describing the availability of reclaimed water to serve as all or a portion of the Alternative Water Source.

3. Provide evidence demonstrating that each Alternative Water Source proposed in the GRP will be a source or sources of water that will be adequate in volume to allow the LVGU to meet its Initial Conversion Obligation.

Plans for Meeting Initial Conversion Obligation

In order to ensure that an LVGU has the requisite ability and commitment to reduce its groundwater production to a level that satisfies its Initial Conversion Obligation and thus ensure that the District can achieve its groundwater management objectives, each LVGU must demonstrate in its GRP that its plan for meeting its Initial Conversion Obligation is reasonably feasible under professionally accepted technical, engineering, legal, or financial standards applicable at the time of submission. Therefore, each GRP must include:

1. any design, engineering, construction, legal, financial, and technical components of the proposed conversion plan;

2. a description of any feasibility studies undertaken, or that are proposed to be undertaken, by the LVGU for facilities development, siting, easement acquisition, and construction;

3. a report of preliminary engineering on proposed facilities to be constructed through 2016, including a description of the proposed project and area maps;

4. a description of how substantial infrastructure costs may be financed;

5. a description of each Alternative Water Source and/or conservation project the LVGU intends to rely upon to meet its Initial Conversion Obligation, including, where applicable, the disclosure of each supplier of water that the LVGU proposes to use as an Alternative Water Source;

6. any executed contracts, proof of financial commitments, or other documentation necessary to demonstrate that every water supplier that the LVGU proposed to rely upon for an Alternative Water Source does in fact have sufficient supplies of, and sufficiently reliable legal rights to, the requisite volumes of Alternative Water Source, and is willing to provide the Alternative Water Source in the volumes and rates required to satisfy the LVGU's Initial Conversion Obligation;

7. a timetable that identifies the specific deadlines, by date, that the LVGU itself must meet in order to comply with its Initial Conversion Obligation for:

   A. securing financing;

   B. executing all water supply agreements or other contractual obligations necessary for the supply or delivery or each Alternative Water Source identified in the GRP;

   C. closing on all right-of-way or other necessary real property acquisitions;

   D. finalizing all requisite preliminary designs;

   E. obtaining all necessary permits or other legal authorizations necessary from any applicable State or Federal regulatory authority;

   F. initiating and completing each necessary phase of construction or implementation of a conservation project; and

   G. all other milestones or information that the LVGU believes are important for an adequate understanding of the proposed Alternative Water Source and/or conservation project.

Any LVGU that chooses to meet post-2016 demand growth after the Initial Conversion Obligation by producing groundwater in some years in an amount that exceeds its 2016 maximum authorized groundwater production level by undergoing subsequent groundwater reduction and conversion efforts so that its average groundwater use throughout the 2016-2045 planning period does not exceed its 2016 maximum authorized groundwater production level must also include in its GRP identification and conceptual engineering of the Alternate Water Sources and/or conservation measures that it intends to pursue to achieve average groundwater use throughout the planning period that is compliant with the Initial Conversion Obligation.

If the contractual commitment for any Alternative Water Source is for a term that expires before January 1, 2045, the GRP should include a description regarding the availability of contract renewal options through an additional term or terms until at least January 1, 2045. If contract renewal options are not available to the LVGU, then the GRP should include a description of

available alternatives to replacing the Alternative Water Source upon expiration of the contract term.

If the District determines that implementation of the GRP is not feasible under the appropriate standards:

A. the District may pursue enforcement action against the LVGU based on the submission of a GRP that does not comply with this DRP Phase II(B); or,

B. in its sole discretion, the District may defer enforcement until it is determined that the LVGU has failed to achieve the Initial Conversion Obligation.

Additional Requirements for Joint GRPs

1. As discussed above, an LVGU may satisfy its GRP requirement by participating in a Joint GRP along with one or more additional LVGUs. There is no maximum number of LVGUs that may be included in a Joint GRP. However, each Joint GRP submitted to the District must include all requisite information for each LVGU that would otherwise be required of the LVGU if it was submitting an individual GRP.

2. Each Joint GRP must:

   A. demonstrate the requisite commitment and actual ability of the aggregated LVGUs participating in the Joint GRP to collectively meet the Initial Conversion Obligation;

   B. designate a Joint GRP participant to serve as the Joint GRP Sponsor;

   C. include a written agreement between the participants demonstrating that the Joint GRP Sponsor is duly authorized to submit the Joint GRP and to otherwise act on behalf of all of the participants in developing, submitting, and executing the Joint GRP.

3. Notwithstanding any other provision of this DRP Phase II(B) to the contrary, a Joint GRP may provide for the over-conversion to Alternative Water Sources of some participant LVGUs and for the under-conversion to Alternative Water Sources by other participant LVGUs if the participants in the Joint GRP collectively achieve the Initial Conversion Obligation for the aggregated Total Qualifying Demand of all of the participants. For example, the Joint GRP may provide that the water demands for some individual participant LVGUs will be met by using 100 percent groundwater, as long as the group as a whole achieves the required conversion amount for all participants by over-converting other participant LVGUs. The purpose of allowing this conversion flexibility within each Joint GRP is to assist in reducing overall conversion costs by reducing the amount of infrastructure that must be built to achieve the required conversion.

Safe Harbor GRPs

It is essential to the economic viability of Montgomery County that New LVGUs are allowed to develop within the District after the initial conversion process required by this DRP Phase II(B) is underway, or is initially completed. Likewise, it is essential to the viability of the portion of the Gulf Coast Aquifer that underlies Montgomery County and the District's ability to manage the aquifer as required by law that any new LVGU development be done in a manner that is consistent with the fundamental purpose of this conversion effort, so that the County's water demands can still be satisfied with the use of groundwater only on a long-term sustainable basis. In effort to find a responsible balance between these two important considerations, and recognizing that the ability of the District to achieve its regulatory goals for all applicants likely hinges on a coordinated approach to water planning by all or most LVGUs so that each LVGU will have an opportunity to comply with the District's regulations, the District will recognize any Joint GRP that accounts for 10 percent or more of the total water demand within the District as a Safe Harbor GRP. A Safe Harbor GRP is simply a Joint GRP that the District recognizes is of sufficient size that it may have the ability to accommodate water demand growth within the District by accepting groundwater users that become LVGUs for the first time after January 1, 2010, into its Joint GRP. A Safe Harbor GRP has no additional obligations than another Joint GRP, except for the following:

A. A Safe Harbor GRP must include a New LVGU Growth Plan that identifies how, and under what conditions, the Joint GRP could accommodate groundwater producers that become LVGUs for the first time after January 1, 2010;

B. A Safe Harbor GRP must ensure that its New LVGU Growth Plan is periodically updated by submitting amendments to the plan to the District as warranted by any material change in circumstances or capacity; and

A Safe Harbor GRP that was unable or unwilling to accept a New LVGU that attempted to join its GRP must, within 60 days of receiving a written request by the District, submit in writing to the District and the New LVGU a statement setting forth the reasons for the denial and an estimate of the time, conditions, and circumstances, if any, under which acceptance of the New LVGU may be feasible.

District Review of GRPs

1. The District will review a GRP or GRP amendment following its submittal and, within 90 days thereafter, either (i) approve the GRP and provide the LVGU or Joint GRP Sponsor with a certificate indicating such approval, or (ii) provide the LVGU or Joint GRP Sponsor with a list of deficiencies that must be addressed in order for the GRP to be so certified, and a reasonable time period within which such deficiencies must be addressed. Within 90 days following the receipt of the additional requested information, the District shall either certify the GRP or, if the GRP still contains deficiencies, the District shall return the GRP to the LVGU and commence enforcement actions against the same for failure to comply with the requirements of this DRP Phase II(B). Notwithstanding any of the foregoing, a GRP that is

found by the District to be noncompliant with any requirement in this DRP Phase II(B) at any time after submission, including during either 90-day review period, may be subject to enforcement action by the District. The District may, in its sole discretion, defer enforcement under this paragraph until such time as the District determines that the LVGU has failed to meet its Initial Conversion Obligation.

2. An LVGU or Joint GRP Sponsor may amend a certified GRP at any time, without penalty, so long as the amended GRP meets applicable District requirements, in order to update, supplement, correct, modify or otherwise revise such GRP or any component thereof.

3. The District will review each component of the timetable required under numbered paragraph 7 of the Plans for Meeting Initial Conversion Obligation above for a determination of whether the milestones are reasonably achievable.

4. If the District concludes that information in a certified GRP is materially inaccurate the District may revoke its certification of the GRP and order the LVGU or Joint GRP Sponsor to timely amend the GRP or be subject to civil penalties or other enforcement action by the District.

Early Conversion Incentive

In order to promote conservation, the District will allow any LVGU that completes a project between November 11, 2008, and December 31, 2015, that employs a metered conservation measure, including without limitation metered reclaimed water from a wastewater treatment plant, to replace local groundwater as a source of supply to apply to the District for an early conversion credit. The District shall review the application and the evidence supporting it and issue the early conversion credits in an amount equal to twice the total amount of metered conserved or reclaimed water the District determines was used or will be used during that time period, along with any appropriate terms and conditions it deems appropriate.

Notwithstanding the Initial Conversion Obligation, an LVGU may utilize the early conversion credits to produce groundwater at any time after January 1, 2016, in excess of the amount it would otherwise be authorized to produce in a calendar year by an amount not to exceed the amount recognized in the LVGU's early conversion credits. A gallon of groundwater production authorized under an early conversion credit may only be used once before it is expended for all times. Any metered conserved or reclaimed water used by an LVGU on or after January 1, 2016, shall not be eligible for such credits and shall instead be considered as part of the LVGU's Alternative Water Source for purposes of meeting its Initial Conversion Obligation on a gallon-for-gallon ratio.

Enforcement

Each LVGU that fails to submit to the District a DOI, or be included in a DOI that is submitted to the District, that complies with the provisions herein by June 1, 2010, shall be subject to

enforcement for violation of District Rules. In addition, the District shall review all GRPs to determine compliance with the requirements set forth herein. A person required to submit a GRP under this DRP Phase II(B) that fails to submit to the District a fully compliant GRP by January 1, 2011, shall be subject to enforcement for violation of District Rules, including permit suspension or revocation and the assessment of penalties by the District. The District may order an LVGU or New LVGU that the District determines is not in compliance with the provisions contained in this DRP Phase II(B) to implement special groundwater conservation measures, and it may assess a noncompliant LVGU or New LVGU the following penalties in lieu of or in addition to seeking an injunction or other legal or equitable remedies available to the District:

A. a flat fee civil penalty not to exceed $10,000.00 per day per violation, for each day of a continuing violation; or

B. a civil penalty of up to $4.00 per thousand gallons of groundwater produced after failing to comply with any applicable deadline provided for herein, but not to exceed $10,000 per day per violation, for each day of a continuing violation.

District Regulatory Plan Construction and Severability

This DRP Phase II(B) shall be broadly construed to achieve the intent and purposes of Chapter 36 of the Texas Water Code, the District Act, and the District Rules. In the event of a conflict between this DRP Phase II(B) and any provision of the District Rules, the DRP Phase II(B) provisions shall control. If a provision contained in this DRP Phase II(B) is for any reason held to be invalid, illegal, or unenforceable in any respect, the invalidity, illegality, or unenforceability does not affect any other provisions of this DRP Phase II(B), which shall be construed as if the invalid, illegal, or unenforceable provision had never been contained in it.

Definitions

"Alternative Water Source" means water other than groundwater produced from the Gulf Coast Aquifer within Montgomery County, or any county that adjoins Montgomery County. An Alternative Water Source may include brackish groundwater produced from geologic formations underlying the Gulf Coast Aquifer, but only to the extent that any such production will not threaten the quality or the quantity of fresh water supplies within the Gulf Coast Aquifer within the District, and to the extent that such production does not cause subsidence within the District.

"Aquifer Sustainable Yield" means the annual amount of groundwater, expressed in acre-feet, that is reintroduced as recharge into the Gulf Coast Aquifer and is available for production from within the District. The Aquifer Sustainable Yield shall be determined by the District using the most reliable information that is readily available. Thus, the Aquifer Sustainable Yield may be adjusted from time-to-time as new information regarding the depletion and recharge of the Gulf Coast Aquifer from within Montgomery County is developed and published. The Aquifer Sustainable Yield is currently recognized as 64,000 acre-feet.

"Brackish groundwater" means groundwater with a total dissolved solids ("TDS") concentration in excess of 1,500 milligrams per liter (mg/l), unless it can be shown to the District that a discrete source of water that has a lesser concentration of TDS nevertheless requires demineralization treatment before it is suitable for development as an Alternative Water Source.

"Gulf Coast Aquifer" means the major aquifer in Texas that parallels the Gulf of Mexico and includes the Evangeline, Chicot, and Jasper Aquifers. The Gulf Coast Aquifer is described in more detail by the Texas Water Development Board in the most recently adopted State Water Plan. The Texas Water Development Board's description of the Gulf Coast Aquifer, as it may be amended from time-to-time, is incorporated into this definition. For purposes of this DRP Phase II(B), the Gulf Coast Aquifer also includes any perched aquifers that may serve as sources of recharge to the Evangeline, Chicot, or Jasper Aquifers.

"Initial Conversion Obligation" is the requirement that by the end of calendar year 2016, each LVGU must have reduced its groundwater production to no more than 70 percent of its Total Qualifying Demand and actually met not less than 30 percent of its Total Qualifying Demand by implementation of conservation measures and/or by using an Alternative Water Source.

"Joint GRP" means a GRP submitted by one or more LVGUs that have contractually agreed to abide by its terms, that includes all requisite information for each participating LVGU that would otherwise be required of the LVGU if it was submitting an individual GRP, and that allows the participating LVGU's to achieve the Initial Conversion Obligation as a group rather than as individuals.

"Joint GRP Sponsor" is the LVGU representative designated as such in a Joint GRP to be principally responsible for coordinating the development, submission, and execution of the Joint GRP.

"Large Volume Groundwater User" or "LVGU" is defined for purposes of this DRP Phase II(B) to mean any person or entity that, through a single well or a combination of wells, actually produced or was authorized by a permit or permits issued by the District to produce 10 million gallons or more of groundwater annually from within the District during calendar year 2009. A Large Volume Groundwater User does not include any person or entity that produces groundwater solely for its own domestic use associated with a single family residence, agricultural use, as that term is defined by Chapter 36, Water Code, or both domestic and agricultural use.

"New Large Volume Groundwater User" or "New LVGU" means any person or entity that:

A. through a single well or a combination of wells actually produces, or is permitted to produce, 10 million gallons or more of groundwater annually on or after January 1, 2010, but did not qualify as an LVGU prior to January 1, 2010; or

B. otherwise requires 10 million gallons or more of groundwater annually for the first time on or after January 1, 2010.

"Preliminary Engineering" means the amount of engineering necessary to define the infrastructure needs of the project, to determine the feasibility and projected construction timetable of the project, and to establish reliable cost estimates. The requirement of preliminary engineering is not intended to include preliminary construction plans for the entire submittal, however, that level of detail could be required for specific components. The District will make the final determination of whether a proposed GRP meets the definition of preliminary engineering.

"Safe Harbor GRP" is any Joint GRP that accounts for at least 10 percent of the total water demand of all LVGUs within the District.

"Total Qualifying Demand" means the final volume of groundwater that a permit holder is authorized under the terms of a permit issued by the District to produce in calendar year 2009. Such final volume shall be determined by the District after receipt of water production reports due to the District on February 15, 2010. The District may reduce the final volume by amending the permit if and to the extent it determines that the amount previously authorized in the permit unreasonably exceeded the 2009 groundwater demand of the permit holder.

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Appendix I:

Definition of Terms

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DEFINITION OF TERMS

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

"acre-foot" means the amount of water necessary to cover one acre of land to the depth of one foot, or 325,851 U.S. gallons of water.

"Alternative Water Source" means water other than groundwater produced from the Gulf Coast Aquifer within Montgomery County, or any county that adjoins Montgomery County. An Alternative Water Source may include brackish groundwater produced from geologic formations underlying the Gulf Coast Aquifer, but only to the extent that any such production will not threaten the quality or the quantity of fresh water supplies within the Gulf Coast Aquifer within the District, and to the extent that such production does not cause subsidence within the District.

"aquifer" means the portions of the Chicot, Evangeline, or Jasper Aquifers located in the District or any other water bearing geologic formation in the District.

"aquifer sustainable yield" means the annual amount of groundwater, expressed in acre-feet, that is reintroduced as recharge into the Gulf Coast Aquifer and is available for production from within the District. The Aquifer Sustainable Yield shall be determined by the District using the most reliable information that is readily available. Thus, the Aquifer Sustainable Yield may be adjusted from time-to-time as new information regarding the depletion and recharge of the Gulf Coast Aquifer from within Montgomery County is developed and published. The Aquifer Sustainable Yield is currently recognized as 64,000 acre-feet.

"beneficial use" or "beneficial purpose" means use of groundwater for:

(a) agricultural, gardening, domestic (including lawn-watering), stock raising, municipal, mining, manufacturing, industrial, commercial, or recreational purposes;

(b) exploring for, producing, handling, or treating oil, gas, sulfur, lignite, or other minerals; or

(c) any other purpose that is useful and beneficial to the users that does not constitute waste.

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

"brackish groundwater" means groundwater with a total dissolved solids ("TDS") concentration in excess of 1,500 milligrams per liter (mg/l), unless it can be shown to the District that a discrete source of water that has a lesser concentration of TDS nevertheless requires demineralization treatment before it is suitable for development as an Alternative Water Source.

"completed well," or a well that has been "completed," means a well, the construction of which has been completed, with sealed off access of undesirable water or constituents to the well bore by utilizing proper casing and annular space positive displacement or pressure tremie tube grouting or cementing (sealing) methods.

"deteriorated well" means a well that, because of its condition, will cause or is likely to cause pollution of any water in the District including groundwater.

"dewatering well" means a well used to remove water from a construction site or excavation, or to relieve hydrostatic uplift on permanent structures.

"District" means the Lone Star Groundwater Conservation District created in accordance with Section 59, Article XVI, Texas Constitution, Chapter 36, Texas Water Code, and the District Act.

"District Rules" means these Rules, as finally adopted by the Board, and all mandatory provisions of the Regulatory Plan.

"domestic use" means the use of groundwater by an individual or a household to support domestic activity. Such use may include water for drinking, washing, or culinary purposes; for irrigation of lawns, or of a family garden and/or orchard; for watering of domestic animals; and for water recreation including aquatic and wildlife enjoyment and supplying water for private, residential swimming pools. Domestic use does not include water used to support activities for which consideration is given or received or for which the product of the activity is sold. Domestic use does not include use by or for a public water system. Domestic use does not include water used for open-loop residential geothermal heating and cooling systems, but does include water used for closed-loop residential geothermal systems.

"effective date" means the most recent date of adoption of these Rules or amendments thereto.

"emergency permit" means a permit issued by the District for emergency needs, as set forth under Rule 3.16.

"exempt well" means a new or an existing well that is exempt from permitting under the laws of this State or these Rules and is not required to have an Operating or historic use permit to withdraw water from the aquifer.

"existing and historic use period" means the time period of January 1, 1992, through August 26, 2002.

"existing use" means production and beneficial use of groundwater from the aquifer during the existing and historic use period.

"existing well" means a well that was in existence or for which drilling commenced prior to August 26, 2002.

"groundwater" means water percolating below the surface of the earth.

"groundwater reservoir" means a specific subsurface water-bearing stratum.

"groundwater withdrawal amount" means the amount of groundwater from the aquifer, in millions of gallons per annum, that is authorized to be withdrawn under a permit issued by the District.

"Gulf Coast Aquifer" means the major aquifer in Texas that parallels the Gulf of Mexico and includes the Evangeline, Chicot, and Jasper Aquifers. The Gulf Coast Aquifer is described in more detail by the Texas Water Development Board in the most recently adopted State Water Plan. The Texas Water Development Board's description of the Gulf Coast Aquifer, as it may be amended from time-to-time, is incorporated into this definition. For purposes of this DRP Phase II(B), the Gulf Coast Aquifer also includes any perched aquifers that may serve as sources of recharge to the Evangeline, Chicot, or Jasper Aquifers.

"historic use" means production and beneficial use of groundwater from the aquifer during the existing and historic use period.

"historic use permit" means a permit required by the District for the operation of any non-exempt, existing water well or well system that produced groundwater during the existing and historic use period.

"impermeable" means having a coefficient of permeability of 1×10^{-7} centimeters per second or less.

"impounded water" means groundwater produced from a well that is discharged into or otherwise held in a surface impoundment for subsequent withdrawal and use for irrigation or any other purpose.

"Initial Conversion Obligation" is the requirement that by the end of calendar year 2016, each LVGU must have reduced its groundwater production to no more than 70 percent of its Total Qualifying Demand and actually met not less than 30 percent of its Total Qualifying Demand by implementation of conservation measures and/or by using an Alternative Water Source.

"Joint GRP" means a GRP submitted by one or more LVGUs that have contractually agreed to abide by its terms, that includes all requisite information for each participating LVGU that would otherwise be required of the LVGU if it was submitting an individual GRP, and that allows the participating LVGU's to achieve the Initial Conversion Obligation as a group rather than as individuals.

"Joint GRP Sponsor" is the LVGU representative designated as such in a Joint GRP to be principally responsible for coordinating the development, submission, and execution of the Joint GRP.

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

"Large Volume Groundwater User" or "LVGU" is defined for purposes of this DRP Phase II(B) to mean any person or entity that, through a single well or a combination of wells, actually produced or was authorized by a permit or permits issued by the District to produce 10 million gallons or more of groundwater annually from within the District during calendar year 2009. A Large Volume Groundwater User does not include any person or entity that produces groundwater solely for its own domestic use associated with a single family residence, agricultural use, as that term is defined by Chapter 36, Water Code, or both domestic and agricultural use.

"leachate well" means a well used to remove contamination from soil or groundwater.

"management zone" means one or more of the zones into which the Board may divide the District following the completion of the District Management Plan as set forth under Section 4.

"Maximum Historic Use" (MHU) means the amount of groundwater from the aquifer as determined by the District that, unless proportionally adjusted or otherwise altered by the District, an applicant for a historic use permit is authorized to withdraw equal to the greater of the following, as may be applicable:

(a) for an applicant who has beneficial use during the existing and historic use period for a full calendar year, the applicant's actual maximum beneficial use of groundwater from the aquifer excluding waste during any one full calendar year of the historic use period; or

(b) for an applicant who has beneficial use during the existing and historic use period but due to the applicant's activities not having been commenced and in operation for the full final calendar year of the existing and historic use period the applicant does not have beneficial use for a full calendar year. The applicant's extrapolated maximum beneficial use will be calculated as follows: the amount of groundwater that would normally have been placed to beneficial use without waste by the applicant for the last full calendar year during the existing and historic use period for the applied-for purpose had the applicant's activities been commenced and in operation for the full final calendar year during the existing and historic use period.

"meter" or "measurement device" means a water flow measuring device that can measure within plus or minus five percent (+/- 5%) of accuracy the instantaneous rate of flow and record the amount of groundwater produced or transferred from a well or well system during a measure of time.

"miscellaneous impoundment losses" means the exfiltration losses or percolation losses of water through the bottom and sides of a surface impoundment, excluding evaporative losses.

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

"New Large Volume Groundwater User" or "New LVGU" means any person or entity that:

(a) through a single well or a combination of wells actually produces, or is permitted to produce, 10 million gallons or more of groundwater annually on or after January 1, 2010, but did not qualify as an LVGU prior to January 1, 2010; or

(b) otherwise requires 10 million gallons or more of groundwater annually for the first time on or after January 1, 2010.

"new well" means a well for which drilling commenced on or after August 26, 2002.

"non-exempt well" means an existing or a new well that does not qualify for exempt well status under the laws of this State or these Rules.

"Operating Permit" means a permit required by the District for drilling, equipping, completing, substantially altering, operating, or producing groundwater from any non-exempt water well for which a historic use permit or amendment thereto to include such well has not been issued by the District or timely applied for and awaiting District action.

"pollution" means the alteration of the physical, thermal, chemical, or biological quality of, or the contamination of any groundwater in the District that renders the groundwater harmful, detrimental, or injurious to humans, animal life, vegetation, property, or to public health, safety, or welfare, or impairs the usefulness or public enjoyment of the water for any lawful or reasonable use.

"Preliminary Engineering" means the amount of engineering necessary to define the infrastructure needs of the project, to determine the feasibility and projected construction timetable of the project, and to establish reliable cost estimates. The requirement of preliminary engineering is not intended to include preliminary construction plans for the entire submittal, however, that level of detail could be required for specific components. The District will make the final determination of whether a proposed GRP meets the definition of preliminary engineering.

"production" or "producing" means the act of extracting groundwater from an aquifer by pumping or other method.

"public water supply well" means a well that produces the majority of its water for use by a public water system.

"public water system" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, which includes all uses described under the definition for drinking water in 30 Texas Administrative Code, Section 290.38. Such a system must have at least fifteen service connections or serve at least twenty-five individuals at least 60 days out of the year, or utilize 9,125,000 or more gallons of water per year. This term includes any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Two or more systems with each having a potential to serve less than fifteen connections or less than twenty-five individuals but owned by the same person, firm, or corporation and located on adjacent land will be considered a public water system when the total potential service connections in the combined systems are fifteen or greater or if the total number of individuals served by the combined systems total twenty-five or greater at least 60 days out of

the year, or utilize 9,125,000 or more gallons of water per year. Without excluding other meanings of the terms "individual" or "served," an individual shall be deemed to be served by a water system if he lives in, uses as his place of employment, or works in a place to which drinking water is supplied from the system.

"pump" means any facility, device, equipment, material, or method used to obtain water from a well.

"registration" means a well owner providing certain information about a well to the District for the District's records, as more particularly described under Rule 3.9.

"Regulatory Plan" means the District Regulatory Plan, which is incorporated herein by reference as a rule of the District and which sets forth specific regulations or policies related to groundwater management within the boundaries of the District or within a particular management zone, including without limitation the delineation of management zones and the establishment of proportional adjustment regulations or other regulations adopted to conserve groundwater or facilitate the use of surface water within the District.

"Rule" or "Rules" means rule or Rules of the District.

"Safe Harbor GRP" is any Joint GRP that accounts for at least 10 percent of the total water demand of all LVGUs within the District.

"Small Volume Groundwater Users" means all persons who do not meet the definition of Large Volume Groundwater Users.

"subsidence" means the lowering in elevation of the surface of the land caused by the withdrawal of groundwater from the aquifer.

"surface impoundment" means an artificially dug or natural occurring hole, pond, lake, or other land surface depression, including without limitation an impounded stream or other watercourse, used for holding groundwater produced from a non-exempt well.

"Total Qualifying Demand" means the final volume of groundwater that a permit holder is authorized under the terms of a permit issued by the District to produce in calendar year 2009. Such final volume shall be determined by the District after receipt of water production reports due to the District on February 15, 2010. The District may reduce the final volume by amending the permit if and to the extent it determines that the amount previously authorized in the permit unreasonably exceeded the 2009 groundwater demand of the permit holder.

"transfer" means a change in a permit or application for a permit or a change in a registration as follows, except that the term "transfer" shall have its ordinary meaning as read in context when used in other contexts:

(a) ownership;

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

(c) point of withdrawal;

(d) purpose of use;

(e) place of use; or

(f) maximum rate of withdrawal.

"waste" means one or more of the following:

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

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

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

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

(e) willfully or negligently causing, suffering, or allowing groundwater to escape into any river, creek, natural watercourse, depression, lake, reservoir, drain, sewer, street, highway, road, or road ditch, or onto any land other than that of the owner of the well unless such discharge is authorized by permit, rule, or other order

issued by the Texas Commission on Environmental Quality under Chapters 11 or 26 of the Texas Water Code;

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

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

(h) operating a deteriorated well;

(i) drilling a well within the boundaries of the District without a required permit;

(j) operating a well within the boundaries of the District without a required permit;

(k) producing groundwater in violation of District Rule 6.2(b) or (c); or

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

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

"well owner" means the person who owns a possessory interest in:

(a) the land upon which a well or well system is located or to be located;

(b) the well or well system; or

(c) the groundwater withdrawn from a well or well system.

"withdraw" means the act of extracting or producing groundwater by pumping or other method.