CTWC COMMENTS to TCEQ
On the LCRA PROPOSED WATER MANAGEMENT PLAN
July 31, 2013

Lake Travis

Lake Buchanan

Central Texas Water Coalition
P.O. Box 328 Spicewood, TX 78669
Office 830-789-5433
www.OurWater-OurFuture.com
www.Facebook.com/CentralTexasWaterCoalition
www.Twitter.com/CentralTxWater

CENTRAL TEXAS WATER COALITION

July 31, 2013

Ms. Kathy Alexander
Texas Commission on Environmental Quality
P.O. Box 13087 (MC-160)
Austin, TX 78711-3087

Re: **Comments in Support of the Further Evaluation of the Lower Colorado River Authority's Water Management Plan; TCEQ Permit No. 5838; Application No. 5838A**

Dear Ms. Alexander:

In response to Ms. L'Oreal Stepney's June 5, 2013 letter to the Colorado River Basin Stakeholders, the Central Texas Water Coalition (CTWC) appreciates this opportunity to provide additional input to the Texas Commission on Environmental Quality (TCEQ) in its further evaluation of the critically important issues associated with the status and future management of the surface water resources in the Colorado River Basin. These issues have been highlighted by the Lower Colorado River Authority's (LCRA's) proposed amendments to its Water Management Plan (WMP), as submitted to the TCEQ in March 2012.

We respectfully request that the CTWC comments filed on May 27, 2013, the comments shared at our July 1, 2013 meeting, as well as the comments and the technical reports transmitted with this letter be reviewed. We believe that this new data indicates many of the assumptions regarding the hydrology and proper management of the water (as well as water rights) associated with the Highland Lakes are no longer applicable. In addition, the data that formed the basis for water management and water planning decisions, such as historic averages, are not a readily applicable to managing and planning for future water needs.

We respectfully ask you to consider the following:

1. **Austin and Central Texas have dramatically grown in population and economic activity. We now request TCEQ to help develop an effective and protective WMP. The current WMP and LCRA's proposed new WMP leave the Central Texas region at an extremely high risk for water shortages.**

2. **Texas water laws are intended to assure that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the entire state.**

3. **The Highland Lakes are approaching DWDOR levels now because they were depleted in 2011 when 433,251 acre-feet of stored water was sent downstream, not only because of the decreased inflows due to the drought.**

4. **The hydrology Of the Colorado River Basin has changed and new modeling processes are needed to more accurately reflect inflows during periods of multi-year droughts, to properly compute the available firm yield, and to assess associated future water availability.**

5. **A revised WMP is needed to protect firm customers and Central Texas through periods of severe, extended drought. New insights are helpful in better understanding the extended time frames of naturally occurring weather cycles.**

6. **A more robust and holistic approach to conservation of water is needed to achieve the State's conservation goals, particularly in times of drought**.

    a. **Water use rates (on-farm duties) by rice farmers significantly exceed standards established by TCEQ in many cases, and standards are not enforced by LCRA, which could stop and/or reduce waste**.
    b. **Delivery losses to rice farmers are huge (20-30% according to the WMP) and do not appear to be accounted for in billing or on-farm duty.**
    c. **Water pricing and rate policies need to be incorporated into the Water Management Plan to drive required conservation improvements and to generate funding to support required new water supply projects. Under the Texas Water Code §11.036, water rate "price and terms must be just and reasonable and without discrimination."**

7. **The conditions for the TCEQ's granting of water use applications, as set forth in Chapter 11 of the Texas Water Code (and specifically in §11.134), provide an excellent outline for addressing the issues identified by the CTWC. We believe these issues are relevant to the evaluation that the TCEQ is conducting on LCRA's latest WMP application. In order to be effective, a new water management plan should include and implement the three conditions that guide the issuance of a water right permit.**

    a. **As a condition of granting a water rights permit, the TCEQ must conclude that the proposed appropriation is not detrimental to the public welfare;**
    b. **As a condition of granting a water rights permit, the TCEQ must conclude that the proposed appropriation addresses a water supply need in a manner that is consistent with the State Water Plan and the approved Region K Plan; and**
    c. **As a condition of obtaining a water rights permit, applicants must provide evidence that reasonable diligence will be used to avoid waste.**

Below, please find further explanation for each item, and an attached appendix.

1. **Austin and Central Texas have dramatically grown and are continuing to grow in population and economic activity, and we now request TCEQ to help develop an effective and protective WMP. The current WMP and LCRA's proposed new WMP leave the Central Texas region at an extremely high risk for water shortages.**

LCRA deserves credit for helping to enable this Central Texas growth by actively promoting the benefits of the Highland Lakes. However, in recent years LCRA has viewed the Highland Lakes more as just buckets of water to be filled and drained. This view is in opposition to the historical beginnings and LCRA's campaign to bring residents and businesses to the lakes.

State Senator Kirk Watson, as reported in the Lake Travis View, said it best. Watson said that his love for Austin is tied into its natural resources. *"Water is something I care about because I believe it defines this place that we've all decided to call home. It is part of who we are. It is part of the culture. It is part of the fabric that defines us. This area has also changed in a way where those lakes now play a role that they didn't play before. Part of that that role is specifically and directly a part of our economy".*

But now, according to LCRA's latest projections, the water supply of the region is at severe risk. LCRA reports that if persistently dry conditions continue, even with the Emergency Order in place, combined storage levels will fall to 0.55-0.59 million acre feet (27-29% of capacity) by October 1, 2013 and to 0.48-0.54 million acre feet (24-27% of capacity) by January 1, 2014.

At the current level of inflows, this roughly corresponds to less than 2 years of water supply, assuming that accessibility issues do not further hinder supply. Since Austin has recently become the 11th largest city in the US, attracting numerous large businesses in part because of its clean and reliable water supply, this is a situation that should be not be allowed to happen again in the future.

2. **Texas water laws are intended to assure that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; to further economic development; and to protect the agricultural and natural resources of the entire state.**

The water planning mandates in Section 16.051(a) of the Texas Water Code are extensive and challenging: the State Water Plan "shall provide for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions, in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the entire state."

The CTWC encourages the TCEQ to further these objectives by evaluating and addressing the various water uses, demands, and needs of the lower Colorado River Basin in a more holistic approach, as this approach is critical to the future of the region.

Importantly, the Water Code mandates water plans that "further economic development." We look to you, the entity entrusted to oversee and manage this precious resource, to preserve the stored water in the Highland Lakes at sufficient minimum water levels to ensure adequate reserves are kept in place to fulfill 'firm' commitments to the one million people who depend on this water supply through drought cycles similar to the one we are in today, and allow the businesses, local economies, taxing entities, and local governments that depend on the lakes to function at some reasonable level. This presence of stored water would further economic development around Central Texas and the Highland Lakes and is critical to the survival of the Central Texas economy.

3. **The Highland Lakes are approaching DWDOR levels now because they were depleted in 2011, when 433,251 acre-feet was sent downstream, not only because of the decreased inflows due to the drought.**

Without a doubt the current drought cycle has had a devastating effect on inflows to the lakes over the past several years. Yet the lakes are currently at dangerously low levels not only because of the drought but because they have been depleted. The 1988 Final Adjudication establishing the need for a water management plan states that *"LCRA shall interrupt or curtail the supply of water under this certificate or under Certificate of Adjudication 14-5478 pursuant to commitments that are specifically subject to interruption or curtailment, to the extent necessary to allow LCRA to satisfy all demands for water under such certificates pursuant to all firm, uninterruptible commitments." See* Certificate of Adjudication 14-5482, Section 7.

And yet since 2008, the last time the Highland Lakes were full, 1.4 million acre-feet of stored water has been released to supply interruptible customers. Now, despite two years of Emergency Orders limiting further interruptible releases, the firm water customers are facing mandatory curtailment. The 1.4 million acre-feet of stored water supplied to the interruptible customers plays a huge part in the current deficit in the lakes.

If this water had been released in a far more measured fashion, the firm customers would be able to endure several more years of drought without LCRA being unable to meet its legal obligations. This situation highlights the inadequacy of the current and proposed water management plans.

4. **The hydrology has changed and new modeling processes are needed to more accurately reflect inflows during periods of multi-year droughts, the available firm yield and associated water availability.**

INTERA Research Summary:

The findings below support the conclusion that past hydrology is not a good proxy for future hydrology, and that any Lower Colorado Basin WMP must be based solely upon recently observed low stream flow conditions.

- **A significant downward shift in naturalized inflows (hydrology) appears to have occurred.**

Findings by INTERA, Inc. demonstrate that the average annual naturalized inflow to the Highland Lakes in recent years is statistically significantly lower than the average naturalized inflow in historical records, indicating that there has been a downward shift in the natural flow regime (i.e. beyond natural variability). Specifically, inflows to the Highland Lakes have, on average, been significantly reduced since 1999. The last decade (2003-2012) has experienced naturalized inflows that are on average more than 30% lower than the period of record prior to that (1940-2002). The severity of the shift has intensified during the past five years (2008-2012), where naturalized inflows have been 55% lower than the average for the period of record prior (1940-2007). An analysis of active stream gages across the state indicates a trend of decreasing flows across much of central, north and west Texas, with progression of these drier conditions from the northwest to the southeast.

Possible reasons for this shift in hydrology include an increase in illegal diversions; an unaccounted increase in withdrawals from the river alluvium; changes in vegetation in the watershed; construction of stock tanks, amenity ponds and flood control structures; and climate variability.

- **The firm yield is likely lower than the number currently being used**.

Water Availability Model (WAM) results, based on LCRA's Firm Yield WAM and using reduced mean flows typical of the period 1999-2012 (down by 31%), show that the combined storage of the Highland Lakes drops to zero several times during the 73 year simulation period. WAM modeling to assess future water availability requires that future inflows match inflows included within the WAM period of record. The current WAM model, which only contains approved naturalized inflows from 1940-1998, does not contain periods of low flows like those observed from 1999-2013.

- **The Drought Worse than the Drought of Record declaration has been artificially delayed**.

Had TCEQ not issued emergency orders removing LCRA's responsibility to release interruptible water in 2012 and 2013, the combined storage in the Highland Lakes would presently be well below its historical low value, and also below the accepted threshold for defining a new drought of record.

5. **A revised WMP is needed to protect firm customers and Central Texas through periods of severe, extended drought. New insights and a multi-disciplinary approach may be helpful in better understanding the extended time frames of naturally occurring weather cycles and the extensive impacts.**

Texas State Climatologist, Dr. John Nielsen-Gammon, has been saying that the current drought pattern may last for another 10 years. Dr. Nielsen-Gammon and other researchers, such as Dr. Bob Rose with LCRA, point to the current cool-phase of the Pacific Decadal Oscillation (PDO) which may have begun as early as 1999 and may last for 20-30 years, as a leading driver of the extended drought. Dr. Nielsen-Gammon's research is also identifying relationships between long-lasting ocean temperature cycles, such as the PDO, the Atlantic Multi-Decadal Oscillation (AMO), and rainfall in Texas. It is requested that TCEQ factor these long-term drought cycles into the WMP to put in place a much more protective Water Management Plan in periods of extended drought.

Dr. Don Wheeler, a leading authority in statistical process control and applied data analysis, has recently published "Why We Keep Having 100-Year Floods" in Quality Digest (article attached). He draws from an article titled "NOAA Attributes Recent Increase in Hurricane Activity to Naturally Occurring Multi-Decadal Climate Variability", which confirms the existence of cycles which generate two different patterns of hurricane activity, and two associated data set distributions. He points out the value of using process behavior charts (process control charts) to identify naturally occurring cycles and more accurately predict future outcomes. He also shows how the flawed approach of assuming that all of the historical data on hurricanes belongs to the same homogeneous set of data produces erroneous results.

As such, the long-term climate cycle research highlighted above suggests the PDO and AMO cycles will drive distinct periods of drought beyond that seen in normal year-to-year variation. The new WMP must be robust enough to trigger curtailment early enough to enable the remaining water supply to last through these drought cycles. **This can be operationalized in simple ways.**

While naturalized flow data have been traditionally utilized in modeling, study of actual inflow data can also provide insights. Dr. William McNeese, a statistical process control expert for the chemical and process industries, has utilized process behavior charts to analyze actual inflows using historical data provided by LCRA (report attached). These types of charts are used in manufacturing industries to assure compliance with product specifications and to proactively identify and timely correct cases where a major, statistically confirmed, change has occurred in the process. Situations where the major changes occur are referred to as an "out-of-control".

Dr. McNeese's analysis finds an initial indication of an "out-of-control" condition beginning with the 2006 actual inflows, but the strongest signal of a change is indicated beginning in 2008, with 4 out of the last 5 years actual inflows being outside 1 standard deviation of the annual process average. Dr. McNeese concludes that the control chart approach shows that there has been a significant downward shift in the expected actual inflows to the Highland Lakes over the past few years. **He calculates the average inflow in the new state from 2008-2012 to be 456,149 AF/yr. versus the "old" state's average from 1942-2007 of 1,304,361 AF/yr.**

These actual inflow results appear to be consistent with the severe drought susceptibility phases of the PDO and AMO ocean temperature cycles. Inflows to date in 2013 are tracking the record low 2011 inflows, and are well within the expectation of the new state. As such, the sustained very low actual inflow results of recent years demonstrate the need to use the observed very low inflow distribution to plan for periods of extended severe drought in the basin. CTWC looks forward to conducting this type of control chart analysis on the naturalized data from 1999 to 2013, as well as other future years once it is available from TCEQ.

This evidence that the climate of Central Texas operates in two distinct situations, drought and flood, suggests that we might want to manage the water supply of the Highland Lakes with separate sets of curtailment curves. The solution to this may be to create two scenarios for managing the lakes, one for use in flood times "wet scenario", and a second to be used in times of drought "dry scenario." We might want a third set for use in average times "normal scenario."

6. **A more robust and holistic approach to conservation of water is needed to achieve the State's conservation goals, particularly in times of drought**.

The State Water Plan relies on conservation, with a goal of 34.4% (10.2 reuse, 7.2 municipal conservation, .3 other conservation, 16.7 irrigation conservation). The Water Code states that the surface water of the State belongs to the State, and LCRA has acquired the water rights from the rice farmers and is entrusted with managing the State's water in the Colorado River Basin.

The rice industry has been the dominant consumer of the water from the Colorado River Basin, particularly during periods of drought when their use of stored water from the Highland Lakes dramatically increases.

From the beginning of the Water Management Plan process in the Colorado River Basin, there was an expectation of conservation and improvements over time. The initial WMP approved in 1989 prescribed maximum water use standards for the rice industry of 5.25 AF/acre with conservation and improved water use efficiency targets of 25-30%. However, the LCRA data outlining water use by the rice industry shows that they appear to have made little or no progress on conservation, and appear to be using higher levels than the prescribed permitted levels.

a. Water use rates (on-farm duties) by rice farmers significantly exceed standards established by TCEQ in many cases, and standards are not enforced by LCRA, which could stop and/or reduce waste.

Despite the drought situation of the past several years, and despite the legal obligations, water in excess of that allowed by the 1988 Court Adjudication Order and associated guidelines in the current water management plan has been provided to interruptible customers. Water in excess of TCEQ's requirements is being used on many farms and is not being controlled by LCRA. Chapter 2D.3b of the current Water Management Plan states *"The TCEQ, in its Final Adjudication order of all the irrigation rights in the lower Colorado River basin, stated that the use of more than 5.25 acre-feet of water for the irrigation of one acre of rice constituted a waste of water. This goal can be achieved and, in fact, recent results indicate that the overall irrigation demand can be reduced by as much as 25 to 30 percent, thus bringing water use per acre to well within the TCEQ's required 5.25 acre-feet per acre."*

Yet much of the land irrigated with LCRA supplied water is receiving water in excess of TCEQ's guidelines. In 2008, 2009, and 2011, Gulf Coast irrigation district rice acreage had an <u>average</u> usage of 5.38, 6.21, 5.44 acre-feet/acre, respectively. This indicates that over half the acreage used more than 5.25 acre-feet/acre. Even when average usage is less than 5.25 af/acre, water is being used in excess of TCEQ guidelines. As a specific example, in 2011 Lakeside had an average usage of 4.19 af/acre. But while one group of farmers may use only first crop water and consequently less than the 5.25 af limit, others may use 1st and 2nd crop water and use substantially more. If the 5.25 acre-foot/acre duty is to be enforced, historical analysis of plot-by-plot water usage might suggest the necessary corrective actions that should be part of any future water management plan.

This apparent excess water usage only accounts for LCRA supplied surface water. Additional ground water may also be being used. So, 25 years after this adjudication, it would appear that little if any reduction in per acre water use by rice irrigators has been realized.

In its initial submittal of the new WMP, LCRA proposed an increase in the allowable on-farm duties for the rice farmers to supposedly provide more water for drought conditions, This

critical policy request directly conflicts with existing maximum allowable standards and appears to be in direct opposition of the need to manage and conserve during periods of severe drought and to support attainment of the State's conservation goals.

b. Delivery losses to rice farmers are huge (20-30% according to the WMP) and do not appear to be accounted for in billing or on-farm duty.

LCRA's reported stored water losses from release to the diversion point in the 2009-2011 Water Use Reports ranged from 65,000-71,000 AF/yr. or 21% of the released stored water. The LCRA 2010 Water Management Plan indicates that the Gulf Coast and Lakeside Irrigation districts operate with 20-30% losses in their canal systems. None of these losses are accounted for in either billing or on-farm duties, and are arguably a "waste" of water. In order to minimize water waste and drive proper conservation behavior, all water called from storage in the Colorado basin should be charged for and counted against the on-farm duty, as in the Rio Grande basin.

c. Water pricing and rate policies need to be incorporated into the Water Management Plan to drive required conservation improvements and to generate funding to support required new water supply projects. Under the Texas Water Code §11.036 water rate "price and terms must be just and reasonable and without discrimination."

LCRA has historically chosen to separate water pricing policies from the Water Management Plan. They have also chosen to price interruptible water to the rice farmers at exceedingly low raw water prices, using the interruptible nature of the supply as justification. In addition, they have chosen to not charge for huge delivery losses from the Highland Lakes to the diversion points and from the diversion points through the delivery canal system to the rice farmer "front door". This management policy has resulted in LCRA essentially giving the rice farmers huge amounts of the State's raw stored water from the Highland Lakes at exceeding low prices, with little or no incentive for conservation and leaving firm customers to pay the bills and shoulder the risks during periods of extended drought. In the Rio Grande Basin, users that request releases are accountable for all the losses to the point of diversion.

LCRA needs to address their future water allocation system. When using past averages to determine future allocations, the users may keep those averages as high as possible to keep future allocations available. Conservation is not encouraged as it puts future access to water at risk. Since the raw water price is so low, the incentive is to take as much water as possible to ensure future availability.

These approaches have had the effect of largely undermining the State's conservation goals, as it appears to provide an expectation of an entitlement to a large quantity of the State's water every year with essentially no incentive to conserve in the delivery system or on the farm. To make economic sense, water conservation projects require a return, but if raw water costs are

too low and distribution system losses are free, there are no savings to justify and pay for efficiency projects.

The exceedingly low raw water pricing and lack of charging for huge delivery losses also fails to create revenue needed to help pay for new water projects to support the booming population growth. For example, in a 2003 study conducted by LCRA and Netafim, an Israeli drip irrigation manufacturing company, it showed that using subsurface drip irrigation systems could provide as little as 50% water savings when used on rice fields. However, because there is no financial payback via traditional water cost savings, these best practices have not been implemented. Funding of new downstream reservoirs is problematic as the rice farmers provide no funding support, but feel entitled to the water.

CTWC requests that TCEQ correct this upside-down situation by bringing rice farming pricing into the Water Management Planning process, requiring appropriate pricing, payment for delivery losses, and discontinuing policies such as future water allotments based on historical usage approach. This could stop excessive water waste, and promote conservation, efficiency and funding for new water supply projects.

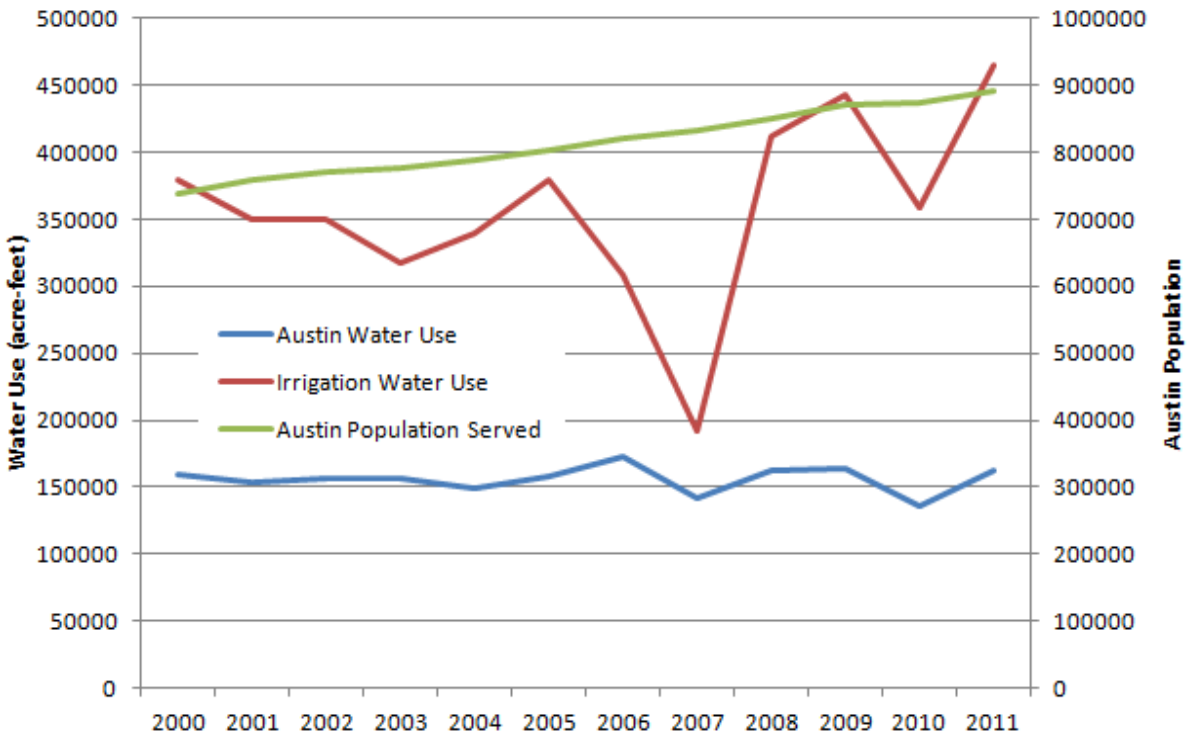
7. **The conditions for the TCEQ's granting of water use applications, as set forth in Chapter 11 of the Texas Water Code (and specifically in §11.134), provide an excellent outline for addressing the issues identified by the CTWC. We believe these issues are relevant to the evaluation that the TCEQ is conducting on LCRA's latest WMP application. In order to be effective, a new water management plan should include and implement the three conditions that guide the issuance of a water right permit.**

    a. **As a condition of granting a water rights permit, the TCEQ must conclude that the proposed appropriation is not detrimental to the public welfare;**
    b. **As a condition of granting a water rights permit, the TCEQ must conclude that the proposed appropriation addresses a water supply need in a manner that is consistent with the State Water Plan and the approved Region K Plan; and**
    c. **As a condition of obtaining a water rights permit, applicants must provide evidence that reasonable diligence will be used to avoid waste.**

The TCEQ has the ability to assure proper management of state water, avoiding water use authorizations that allow wasteful water management practices. To achieve the conservation goals stated in the documents of the 1980s and 1990s, which anticipated 25-30% reductions in water use in the years ahead, the duty for rice irrigation today would be about 3.6 to 3.9 acre-feet/acre.

In the CTWC's review of the water conservation efforts taken by municipalities and the rice industry over the last several decades, it appears that municipalities, especially the City of Austin, have made impressive strides in achieving their goals, while the rice industry's use of water on a per-acre basis has remained fairly constant or has increased. The chart below provides an illustration of this review.

Chart 1: Water Use and Population Trends



This chart compares water use trends by the City of Austin and the four major irrigation districts from 2000-2011. The chart shows how the City of Austin has maintained relatively constant total water usage (blue line) despite a steadily increasing served population (green line). This is contrasted with the amount of water diverted for the four major irrigation operations. This amount has increased over the 11 year period. This water diverted for irrigation does not include the losses from release from storage to the diversion points, which would further raise the red line.

The CTWC urges the TCEQ to scrutinize the volumes of water used by the irrigation districts. It is not practical to expect that in the long term the firm customers like the City of Austin will be able to economically conserve ever-increasing amounts of water while population grows, so that interruptible customers can use increasing amounts of stored water.

CTWC would like to suggest that we define an alternate approach to managing the water supply that takes the needs and goals of all users into account, as well as the reality of the cyclical weather patterns and necessary balance between the needs of the firm and interruptible customers.

At the end of the day, no one benefits from chronically low lake levels. The Highland Lakes interests suffer from on-going losses in economic activity, tax revenues, and access to water supplies through the lakes and alluvial wells that fluctuate with the lakes. Firm municipal and industrial customers suffer from the uncertainty of supply that low lakes levels create. None of these users know what they will do if we actually manage to run the lakes dry, as for many of them it is their sole source of water.

Agricultural users face years of uncertainty around the availability of water, and, for many of them, possibly several additional years of severely restricted or no supply. Even Garwood, which enjoys what is essentially 'firm' supply, cannot receive water if there is no water available. In a drought cycle, the reality is that for the interruptible users, aggressively taking water out of the lakes one year may effectively mean that there is no water for the next year as demonstrated in 2011 and 2012.

For the first time in the history of the LCRA Water Management Plan in its various forms, we are facing a true test of its effectiveness. What we are seeing is that it is clearly not up to the task and does not fulfill its commitment to firm customers. Despite two years of Emergency Orders, we are facing record low lake levels and potentially several more years of extremely low inflow. We need a management approach that manages the normal variation in inflows and demands within years and between alternating wet and dry years, but is much more aggressive about curtailing water as we enter potential long term drought cycles.

A new water management plan should be developed that takes all of these factors into account. In order to avoid a repeat of today's situation, curtailment of interruptible water needs to start earlier and more aggressively than the current or proposed water management plans. Complete curtailment has to be implemented earlier than even specified in the current emergency orders, in order to ensure there is enough water remaining in the bottom of the lakes to last the firm customers through an extended drought cycle. To properly drive conservation efforts, an annual cap should be implemented, and that annual cap should be decreased on a yearly basis in line with conservation expectations.

While a great deal of thought and modeling will have to be put into the specific implementation, all users should be able to agree that in order to be effective a new water management plan needs to include these three aspects.

CTWC SUMMARY:

In addition to TCEQ's review of the attached technical reports, please also consider the comments submitted by the CTWC and many others along the Highland Lakes in response to the TCEQ's April 15, 2013 notice of the LCRA's application to amend its WMP. As shown by the large number of comments and requests for hearing, and the significance of the issues raised, the TCEQ is clearly justified in performing the further evaluation that is now underway.

In closing, the CTWC thanks the TCEQ for taking a leadership role in the stewardship of state water as it performs its additional evaluation of the WMP and the precious water supply in the Lower Colorado River Basin.

Please include consideration of important issues such issues as conservation/avoidance of waste, water accounting practices, fair and nondiscriminatory rates structures, and maintaining reserves of water supply during drought.

Please question the assertion that the mere presence of water in the Highland Lakes means that downstream irrigators are entitled to that water.

Please focus on the stewardship of state water and technical evaluations that are intended to provide the best answers possible on water availability, firm yield for Highland Lakes, and appropriate mechanisms for observing and responding to natural influences on water in a timely manner.

Please consider the inclusion of a specific time period in which the next WMP and those that follow will be in effect, and consider multiple curtailment curves for distinct scenarios, hopefully eliminating the need for future Emergency Orders.

Please consider asking LCRA to make the current Emergency Drought Order an amendment to the current Water Management Plan so that it can be in place permanently until a new water management plan is approved.

Finally, the CTWC thanks the TCEQ for focusing on the severity of the current drought conditions, as well as the importance of considering all data, reports, and comments presented to the TCEQ, even if the agency's evaluation results in an extension of the time initially allocated for this review.

In the interim, the CTWC and its representatives will be available to answer any questions and/or provide additional information that may be helpful, and we look forward to continuing to work with you.

Please contact me at (512) 755-4805 or contact Cindy Smiley of Smiley Law Firm, P.C. at (512) 394-7121 at any time, and thank you very much for your time and attention to this critical evaluation.

Sincerely,

Jo Karr Tedder, President
Central Texas Water Coalition

Attachments:

Austin, Barney PhD, and Jordan Furnans PhD, and Abhishek Singh PhD, INTERA, "Evidence for the Need to Change the Approach to Water Planning in the Lower Colorado Basin," 8 May 2013.
Austin, Barney PhD, and Jordan Furnans PhD, INTERA, "Evidence for the Need to Change the Approach to Water Planning in the Lower Colorado Basin: Part II WAM & WMP Analyses," 12 June 2013.
Furnans, Jordan PhD, INTERA, "Evidence for the Need to Change the Approach to Water Planning in the Lower Colorado Basin: Part III Drought of Record Analysis," 28 June 2013.
McNeese, William PhD, "Analysis of Highland Lakes Inflows Using Statistical Control Charts," 22 June 2013
Rose, Bob PhD. **LCRA,** "Why has it been so dry: Weather patterns make drought more likely" July 2013
Wheeler, Donald PhD, "Why We Keep Having 100-Year Floods: Making predictions using historical data," Quality Digest, 4 June 2013