TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
INTEROFFICE MEMORANDUM

TO: Chief Clerk

DATE: June 18, 2015

THRU: Caroline Sweeney, Deputy
Office of Legal Services

Robert Martinez, Director
Environmental Law Division

FROM: Robin Smith, Attorney
Environmental Law Division

SUBJECT: Lower Colorado River Authority
Docket No. 2015-0817-WR
CN600253637; RN104252267
Consideration of a request from the Lower Colorado River Authority for an emergency order to amend its 2010 Water Management Plan, Permit No. 5838 Colorado River, Colorado River Basin, Travis, Burnet, and Llano Counties

The Commission received an application on May 15, 2015, from the Lower Colorado River Authority (LCRA) for an emergency order to temporarily amend its 2010 Water Management Plan (WMP) under Sections 5.501, 11.138, and 11.139 of the Texas Water Code. LCRA updated its request on June 5, 2015. LCRA requests the authority to suspend all releases of interruptible water to Gulf Coast, Lakeside, and Pierce Ranch irrigation operations for the duration of the order. LCRA filed this request for an emergency order to amend its 2010 Water Management Plan to change requirements for the release of water to irrigation operations downstream in 2015 due to persistent drought conditions in LCRA's five Highland Lakes (Lakes Buchanan, Inks, LBJ, Marble Falls, and Travis).

Tex. Water Code § 11.139 provides that the Commission can grant an emergency order to amend an existing permit after notice to the Governor if the Commission finds that emergency conditions exist which present an imminent threat to the public health and safety and which override the necessity to comply with established statutory procedures and there are no feasible practicable alternative to the emergency authorization.

Additionally under Section 11.139, if an imminent threat to the public health and safety exists which requires emergency action before the Commission can take action and there are no feasible alternatives, the Executive Director may issue the emergency order after notice to the Governor. In such case, the Commission must hold a hearing to

affirm, modify or set aside the Executive Director's order as soon as practicable but not later than 20 days after the emergency authorization is granted.

Notice was sent to the Governor on June 16, 2015. The Executive Director issued an Emergency Order on June 17, 2015. Mailed notice of the Executive Director's Emergency Order was sent to all water right holders in the Colorado River Basin.

The Executive Director finds that LCRA has shown that an imminent threat to public health and safety exists if the emergency order is not issued, that there are no feasible practicable alternatives, and that the requirements for an emergency order in Section 11.139 have been met. Although recent rainfalls have resulted in increased storage in Lakes Buchanan and Travis, the lakes have not recovered. Water supply conditions in the Colorado River Basin significantly lag behind the recovery curve in other basins in Texas. If additional interruptible water is released, it could reverse the recent storage gains, and, if wet conditions above Lakes Buchanan and Travis do not continue, firm water supply could be at risk.

The Executive Director's Emergency Order provides that LCRA is not required to release interruptible water for its interruptible customers in the Gulf Coast, Lakeside, and Pierce Ranch irrigation operations during the duration of this order. That Order is attached to this Executive Summary as Exhibit A. The attachments to LCRA's application may be found at:

http://www.tceq.texas.gov/agency/lcra-emergency-order

Staff's technical summary recommending issuance of the order is attached as Exhibit B.

cc: Kevin McCalla, TCEQ; Ron Ellis, TCEQ: Kathy Alexander, TCEQ

Exhibit A

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AN ORDER granting an emergency authorization to the Lower Colorado River Authority to amend its Water Management Plan, Permit No. 5838, pursuant to Section 11.139 of the Texas Water Code

On June 17, 2015, the Executive Director (ED) of the Texas Commission on Environmental Quality (TCEQ or Commission) considered an application from the Lower Colorado River Authority (LCRA) for a new emergency order to amend its 2010 Water Management Plan (WMP), Permit No. 5838, under Texas Water Code Sections 5.501, 11.138, and 11.139, and any other applicable law.

The ED has jurisdiction to consider this matter and makes the following Findings of Fact and Conclusions of Law:

I. FINDINGS OF FACT

1. On May 15, 2015, LCRA filed a request for an emergency order (EO) to suspend any obligation LCRA might have under the 2010 WMP to release interruptible stored water to customers in the Gulf Coast, Lakeside, and Pierce Ranch irrigation operations for the remainder of the irrigation season. The reason for requesting the emergency order is the persistent drought conditions in and around LCRA's five Highland Lakes (Lakes Buchanan, Inks, LBJ, Marble Falls, and Travis). LCRA's request is attached hereto as Attachment A and incorporated herein by reference.

2. On June 5, 2015, LCRA updated its EO request. LCRA's amended request is attached hereto as Attachment B and incorporated herein by reference.

3. On February 18, 2015, the ED issued an emergency order allowing the LCRA to suspend the requirement in LCRA's WMP to make releases of interruptible stored water to customers in the Gulf Coast, Lakeside, and Pierce Ranch irrigation operations for the first part of the 2015 irrigation season. The Commission affirmed that order in its public meeting on March 4, 2015. That order will expire on June 18, 2015.

LCRA'S Water Rights and 2010 Water Management Plan

4. LCRA has the right to divert and use up to 1.5 million acre-feet (AF) from Lakes Buchanan and Travis under Certificates of Adjudication Nos. 14-5478 and 14-5482. By court order, LCRA has developed a WMP, Permit No. 5838, currently dated 2010, which is part of these certificates.

5. The Certificates of Adjudication and the 2010 WMP govern LCRA's operation of Lakes Buchanan and Travis and dictate how LCRA makes water available from these lakes to help meet "firm" water customer needs, downstream interruptible irrigation demands, and environmental flow needs of the lower Colorado River and Matagorda Bay.

6. Certificates of Adjudication 14-5478 and 14-5482 state that "LCRA shall interrupt or curtail the supply of water . . . pursuant to commitments that are specifically subject to interruption or curtailment, to the extent necessary to allow LCRA to satisfy all demand for water under such certificate pursuant to all firm, uninterruptible water commitments." The WMP further describes how LCRA will manage and curtail supplies from the lakes during times of drought including through a repeat of the Drought of Record.

7. As established in the 2010 WMP, the combined firm yield of Lakes Buchanan and Travis is 535,812 acre-feet per year (AFY). Of this amount, 90,546 AFY is committed to O.H. Ivie Reservoir, making 445,266 AFY of firm water supply available from Lakes Buchanan and Travis for LCRA's firm water customers.

8. As established in the 2010 WMP, until firm demand for water equals the combined firm yield, LCRA can supply water for irrigated agriculture on an interruptible basis. To manage the supply, LCRA's 2010 WMP imposes several trigger points keyed to the total combined storage capacity of Lakes Buchanan and Travis that are intended to ensure the firm water supply is protected during droughts. The most relevant trigger points are set out in the following table:

Combined Storage of Lakes Buchanan and Travis	Date on Which Trigger is Decided	Action Taken
1.4 million acre feet	At any time	Request firm customers to implement voluntary drought response measures.

Combined Storage of Lakes Buchanan and Travis	Date on Which Trigger is Decided	Action Taken
1.4 million acre feet	On Jan. 1	Environmental releases for instream flows reduced to meet critical needs for ecosystems for following year. Begin gradual curtailment of interruptible supply to four major irrigation operations.
900,000 acre feet	At any time	Request firm customers to implement mandatory water restrictions; develop firm customer curtailment plan.
600,000 acre feet	At any time	If criteria indicate a drought worse than the Drought of Record, then cease interruptible supply and begin curtailment of firm supply.

9. LCRA's 2010 WMP defines "Drought of Record" as "the drought that occurred during the critical drought period." "The Critical Drought Period" is defined as "the period of time during which the reservoir was last full and refilled, and the storage content was at its lowest minimum value."

10. Under the 2010 WMP, the LCRA Board may declare a Drought Worse than the Drought of Record (DWDR) if it finds that the following three conditions are simultaneously met:

    a. Duration of drought is more than 24 months, which is determined by counting the number of consecutive months since both Lakes Buchanan and Travis were last full;

    b. Inflows to the lakes are less than inflows during the drought of record; and

    c. Lakes Buchanan and Travis combined storage has less than 600,000 AF of water.

11. Under the 2010 WMP, once a drought has lasted more than 36 months and a DWDR has been declared by the LCRA Board, the interruptible stored water would be fully and immediately curtailed – making no stored water available for agricultural irrigation or other interruptible uses until lake levels recover or the inflows into the lakes increase substantially. Moreover, LCRA will implement pro

rata curtailment of its firm water users once a DWDR is declared and after interruptible stored water (agriculture) uses have been curtailed.

12. Prior to a declaration of a DWDR, LCRA is obligated by the 2010 WMP to provide at least some interruptible water to its four major irrigation operations. Under the WMP, LCRA is to make a preliminary determination in November of its interruptible water releases based on projections of storage on January 1 of the upcoming year.

13. Under the 2010 WMP, there is no significant difference in how much stored water will be available for diversion by the four downstream irrigation operations at different lake levels. At 1,150,000 AF, 195,000 AF would be released, and with storage just over 600,000 AF, 172,000 AF would be available.

Current Conditions

14. Rainfall, which resulted in an amount of about 71,001 AF of inflows, or 21% of average, in the Highland Lakes watershed, increased in the first four months of 2015. In May, inflows jumped to about 400,000 acre AF. On June 4, 2015, the combined storage was 1,337,831 AF or 66 percent full. On June 16, 2015, the combined storage was 1,377,689 AF or 68 percent full.

15. Despite recent rainfall, rainfall in the watershed and flows to the lakes have consistently been low for the last few years, as set out in more detail in findings below. If conditions return to pre-May 2015 levels, and LCRA has to release stored water, conditions could deteriorate quickly and a DWDR could occur by June 2016. This date assumes that 175,000 AF is made available to downstream irrigators in 2015, and that LCRA follows the 2010 WMP in 2016.

16. Based on a combined storage level of 689,400 AF on January 1, 2015, the 2010 WMP would have required LCRA to make available about 175,000 AF (requiring the release of 210,000 AF) for the 2015 crop year. Although this demand is likely reduced at this time because planting decisions have already occurred, farmers that started rice on groundwater or farmers seeking to use water for other crops could call on stored water under the 2010 WMP.

17. LCRA does not know how much stored water may be called for to release for the rest of this irrigation season Based upon acreages filed with the Farm Service Agency, in 2014, approximately 5,000 acres of rice were planted on groundwater in Matagorda County, approximately 27,200 acres in Wharton County, and approximately 12,300 acres in Colorado County. Data from 2015 is not yet available, but LCRA staff expects 2015 acreages to be similar.

18. May 2015 rainfall is only the second month in the past five years in which inflows were above average for the month. Continued normal and above-normal inflows are needed to offset the years of record-low inflows.

19. In 1952, inflows to Lakes Buchanan and Travis increased the storage by 970,000 AF, from 621,221 AF to 1,592,000 AF. Yet the drought of the 1950's did not end until 1957.

20. On September 10, 2009, the storage level in Lakes Buchanan and Travis was 789,357 AF, or 39 percent of capacity. By May 1, 2010, the storage level was 1,815,264, or 90 percent of capacity. The drought did not end, however, and was followed by extremely low inflow years.

21. The first criteria for a DWDR has been met. The drought has lasted for more than 24 months. Duration of drought is determined by counting the number of consecutive months since both Lakes Buchanan and Travis were last full, which was February 13, 2005. The cumulative inflow deficit had been met until this month. The inflow deficit was at least five percent worse than the average inflow deficit over a similar period of time during the Drought of Record for at least 6 months. The inflow deficit has been as much as 90% more than the inflow deficit for a similar period of inflows experienced during the Drought of Record for the lower Colorado River Basin, which occurred from 1947 to 1957.

22. The combined storage of Lakes Buchanan and Travis on December 1, 2014 was 691,132 acre feet, which is the lowest December 1 level in LCRA's history. On May 1, 2015, the lakes were at 767,000 AF, which is the third lowest May 1 combined storage level in LCRA's history. While the combined storage level is 1,377,689 AF as of June 16, 2015, storage levels could drop dramatically. In May 2012, the lakes refilled to an amount close to 1.1 million AF (to 1.033 million AF on May 22, 2012) and yet without any release to Lakeside, Gulf Coast and Pierce Ranch, the lakes dropped to 637,123 AF on September 19, 2013, the second lowest level on record. The lakes were 31.7% full.

23. The inflows into the lakes have been at record lows. The years 2011, 2013, and 2014 are the three lowest inflow years on record. Five of the last six years have been among the ten lowest years of inflow on record. Inflows into the lakes in 2011 were the lowest annual inflows on record, about 10% of average inflows. Inflows in 2012 were the seventh lowest on record, and inflows in 2013 were the third lowest on record. Inflows in 2014 were the second lowest inflows on record.

24. The average annual inflows over the past seven years, from 2008 through 2014, have been about 32 percent of the long-term average from 1942 through 2014.

25. The inflows into Lakes Buchanan and Travis during the current drought have been the lowest for the time periods ranging from 12 months to 84 months, and are significantly lower for periods of similar duration during the historic Drought of Record, including the 1950's. The total inflows for the 84 months prior to the filing of LCRA's application were only about half of the lowest 84 month inflow period in the Drought of Record.

26. After adjusting inflows to account for the fact that O.H. Ivie Reservoir did not exist in the 1950's, the comparison of the current drought to the Drought of

Record shows the recent inflows (until May 2015) were dramatically lower than the 1950's drought. Inflows since 2008 are at about half of the inflows for the first seven years of the Drought of Record.

27. High temperatures have been unprecedented. State Climatologist, Dr. John Nielsen-Gammon, recognized 2011 as the worst one year statewide drought on record dating back to 1895. The summer of 2011 was the hottest on record in Texas, and 2011 was also the hottest in Austin. Year 2011 tied with 1921 as the hottest on record statewide. Summer temperatures for Austin in 2013 were the fifth hottest on record. The summer temperatures in 2014 were not as extreme in Austin, but were still above normal, ranking the 34th warmest since 1895.

28. Total average rainfall across Texas from October 1, 2010, to September 30, 2011 was 11.18 inches, or 38% of the long-term average. This is lower than the previous record of 13.91 inches occurring between October 1955 and September 1956.

29. Since 2011, there have been some periods with closer to normal rain fall totals, but the rainfall has generally been sporadic, often with several weeks between rainfall events. Heavy widespread rain in the Llano and San Saba River watershed on September 19 and 20, 2013, averaged two to three inches in the watersheds, but included isolated totals of up to six or seven inches. Yet this rain event only yielded approximately 24,000 AF of inflow to the lakes.

30. Rain in 2014 in the watershed contributing to Lakes Buchanan and Travis failed to provide the type of inflows needed for lake levels to improve. Two to three inches of rainfall only produced about 4,000 AF of inflow to the lakes in early November, 2014, and one to three inches failed to provide more than 17,000 AF of inflow in late November. A rainfall March 20 -22, 2015 of about 1 to 2.5 inches above the Highland Lakes produced only 17,000 AF of inflow, while a rainfall event of 2 to 4 inches in March of 2007 yielded almost 100,000 AF of inflow. The limited amount of inflows shows the severity of the ongoing drought and the dry soil conditions.

31. Inflows to the lakes have been below average in 59 of the past 61 months. From January to April 2015 rainfall totals were close to normal, but inflows were only about 21 percent of the historical period for that four-month period.

32. The National Weather Service's Climate Prediction Center three months drought outlook calls for drought improvement and possible drought elimination across the Hill Country, Central Texas and middle Texas coastal region between the months of May and July. As of May 2015, the sea surface temperatures in the tropical Pacific were above the threshold for El Niño. Rainfall forecasts are normal to above normal rainfall for the Highland Lakes watershed for May and June, with more normal rainfall in July and August, which tend to yield low rainfall totals. Later this year, normal to above normal rainfall is again forecast for the area. While this forecast is promising, many times there has been little yield of inflows and the large storms hit downstream of Lake Travis.

33. The 2010 WMP was developed using simulations of a repetition of the hydrologic period from 1940 to 1965. While that period includes the 1950's Drought of Record, the recent severe low inflows of 2011 and 2013 are less than half of the lowest annual inflow in the 1950's and the multi-year inflows are also worse than any multi-year inflows which were simulated during the development of the WMP. This trend continued in 2014.

34. The recent drought conditions are outside the range of hydrologic conditions that were considered during formulation of the 2010 WMP.

35. As of May 1, 2015, for the ongoing drought, actual inflows into the Highland Lakes and the combined storage in Lakes Buchanan and Travis have trended close to the 99th percentile exceedance trace for extended periods.

36. In early May, the U.S. Drought Monitor showed that most of the Texas Hill Country and the Highland Lakes Watershed is within the "moderate to severe drought" classification. On June 8, 2015, most of the state is out of drought classification, although some of the Highland Lake watershed is in the "abnormally dry" classification. However, the Drought Monitor does not specifically show hydrologic drought, which is worse than the depicted conditions.

37. LCRA's canals for the delivery of irrigation water have been shut down since 2012. It is likely that use of these canals will result in significant losses of water. If only a limited supply was made available, it would be difficult to decide how to efficiently use these canals. If water is delivered to Lakeside or Gulf Coast, significant amounts of water would be required to recharge and fill these canals to get the water to the delivery points.

Impact on LCRA's Firm Customers

38. The 2010 WMP requires that firm customers (mainly cities and industries) be curtailed on a pro rata basis and that LCRA cease all releases for interruptible stored water (regardless of the impact on the crops) when a DWDR is declared.

39. LCRA provides raw water out of the combined firm yield of Lakes Buchanan and Travis to over 60 retail and wholesale potable water suppliers that together serve over one million people. In addition, LCRA provides water to several electric utilities from the firm water supply of Lakes Buchanan and Travis. These electric utilities provide electricity into the electrical grid in Texas operated by the Electric Reliability Council of Texas (ERCOT) and provide electricity to customers in Texas. LCRA also provides firm raw water to several industries located downstream.

40. The firm water use in 2012 from Lakes Buchanan and Travis was about 148,000 AF. An amount of 31,000 AF was supplied for the environment, and 9,000 AF of

water was supplied to farmers in the Garwood Irrigation Division. The total use of water from the lakes for 2012 was approximately 188,000 AF. In 2013, firm use from the lakes was approximately 173,000 AF; 33,500 AF was supplied for environmental flow needs, and about 22,000 AF of water was supplied to Garwood Irrigation Division. LCRA's total use of water from the lakes in 2013 was approximately 229,000 AF.

41. In 2014, firm water supplied from Lakes Buchanan and Travis was about 128,000 AF, including 5,000 AF for the environment, and 16,000 AF of interruptible stored water for the Garwood Irrigation Division. The total supply of water from the two lakes in 2014 was about 149,000 AF.

42. The maximum historical annual amount of reported firm water use from the firm supplies of Lakes Buchanan and Travis during 2000 through 2013 was 247,000 AF in 2011. The maximum interruptible water released from Lakes Buchanan and Travis during this same period occurred in 2011 and totaled approximately 433,000 AF. The maximum total amount released or used from the Highland Lakes, about 714,000 AF, occurred in 2011.

43. LCRA-adopted water use reduction targets including mandatory pro rata curtailment of firm water supplies for customers of 20% or more will be implemented when combined storage levels fall below 600,000 AF and other criteria are met for a DWDR.

44. Some LCRA customers, such as the City of Austin, have already seen significant water savings through reductions in outdoor water use. Industrial customer will have to implement the full 20% reduction more quickly and these reductions, especially for power plants, could impact production.

45. At the time of this order, over 40 public water systems that rely on the Highland Lakes or that draw from the tributaries that typically contribute significant inflow to the Highland Lakes are already in some form of drought restrictions.

46. If LCRA is required to follow the 2010 WMP and the drought continues, LCRA and its firm customers may need to acquire or develop large quantities of alternative water supplies to meet essential needs of their respective potable water systems. LCRA's firm customers are working on plans to implement curtailment and secure alternate supplies; however many of LCRA's firm customers do not have any readily available alternative sources of water supply that could substitute for their reliance on the Colorado River and these projects could take years to develop. Following the 2010 WMP under current drought conditions could pose an imminent threat to firm customers served by LCRA from Lakes Buchanan and Travis.

47. LCRA has 18 customers that actively take raw water for municipal purposes from Lake Travis. The lowest pumping elevations of the intakes range from 545 feet mean sea level (msl) to 645 feet msl on Lake Travis. As lake levels drop, retail water suppliers are unable to pump water from the lakes. This causes wholesale

raw water customers to either move intakes to reach the water, or obtain alternate sources. Smaller systems will likely have to haul water from a water utility with a viable source. Firm customers are actively spending or planning to spend funds to allow their intakes to operate at lower elevations or making plans to haul water.

48. If the lake levels drop more quickly than arrangements for alternative intakes or supplies can be implemented, the situation presents an imminent threat to public health and safety for the LCRA water systems and for its customers' water systems.

Water Conservation and Drought Contingency Plan

49. LCRA's water conservation plan complies with TCEQ rules. LCRA required its municipal customers to adopt conservation plans before there was a state requirement.

50. LCRA provides conservation program planning support for its customers. In 2012, LCRA began a rebate program for certain irrigation technologies and a wholesale customer cost-share program focused on conservation. LCRA has supported significant improvements in water use efficiency in rice irrigation systems, including volumetric pricing and canal rehabilitation.

51. LCRA was originally required to develop a Drought Contingency Plan (DCP) as a direct result of the court order adjudicating LCRA's water rights and the Texas Water Commission's 1989 WMP Order.

52. When TCEQ adopted the Chapter 288 rules for DCPs, LCRA adopted separate stand-alone DCPs relating to irrigation, municipal, and industrial operations that more specifically addressed the requirements of the Chapter 288 rules. LCRA incorporated all of the same triggers and criteria from the WMP into its Chapter 288 DCP. These DCPs were incorporated into Chapter 4 of the WMP.

53. In August 2011, LCRA called on its firm water customers to voluntarily implement mandatory water use restrictions under their DCPs to reduce water use by 10 to 20%.

54. LCRA adopted water use reduction targets including the following: water use reduction goals for firm water supply customers of 5% by asking firm customers to implement their voluntary water use reduction measures when the combined storage of Lakes Buchanan and Travis is less than 1.4 million AF; 10 to 20% reduction goals by asking firm customers to implement their own mandatory water use reduction measures when combined storage levels fall below 900,000 AF; and a mandatory pro rata curtailment of firm water supplies for customers of 20% or more will be implemented when combined storage levels fall below 600,000 AF and other criteria are met for a DWDR .

55. LCRA has pending or final pro rata plans for all of its firm water customers who are actively diverting water.

56. LCRA has adopted additional changes to LCRA's raw water contract rules that include the procedures for implementing a pro rata curtailment of firm water customers. The rules also provide a surcharge to be set by the LCRA Board for unauthorized use of water (taking more water than authorized under a mandated curtailment of firm water supplies) and clarifying the drought contingency requirements related to golf course irrigation and recreational use.

57. LCRA's WMP requires LCRA to develop a firm water curtailment plan to be approved by the LCRA Board and TCEQ. The WMP provides that the curtailment will be in response to combined storage dropping below 600,000 AF. TCEQ approved that plan for LCRA's firm customers in December of 2011.

58. LCRA has fully implemented its DCP. All of LCRA's firm customers that currently divert and purchase water from LCRA have a DCP. Most of these firm customers have stayed in some form of mandatory water restrictions, significantly limiting landscape irrigation. LCRA's industrial customers have worked to reduce non-essential water uses. Also, LCRA has had several meetings with firm customers in preparation for pro rata curtailment.

59. Except for a six-week period in the summer of 2012, the City of Austin customers have had once a week outdoor watering restriction for the past two years. The LCRA Board approved the no more than once per week watering restriction that took effect in March 2014. The restriction applies if combined storage is below 1.1 million AF and interruptible stored water has been cut off. The Executive Director has not been asked to approve this restriction, and expresses no opinion on this restriction.

Alternatives

60. LCRA has evaluated many alternatives to address the emergency conditions that the drought presents. Alternatives explored include: Utilizing water from LCRA's other lakes, aggressive conservation, interbasin transfers, an off-channel reservoir, and trucking in water from other sources. LCRA has evaluated many other alternatives to address the emergency conditions that the drought presents.

61. None of the alternatives LCRA has identified would avert the projected water supply shortage because most of the supplies identified would produce insufficient or uncertain quantities of supply, would create other operational issues for customers, may involve a lengthy permitting process (if not implemented on an emergency basis), or would take years to develop. None of the alternatives identified are feasible or practicable alternatives to the emergency authorization.

62. Amending downstream run of the river rights to allow diversion for new uses and at new locations would provide some supply, but the use of these rights alone is not – by itself – a feasible and practicable alternative to the emergency relief related to the 2010 WMP. All of the rights would require amendments to add diversion points, additional places of use, and possible storage. Also, the downstream run-of-river water rights are highly variable in terms of availability and quantity, and do not provide by themselves a sufficient quantity of water to eliminate the need for the emergency relief from the 2010 WMP as requested herein.

63. Using the downstream water rights to supply the downstream industrial and municipal users kept about 7,000 and 1,000 AF of water in the lakes in 2012 and 2013, respectively. In the first four months of 2015, LCRA has supplied approximately 3,000 AF under these temporary permits. This water would otherwise have been released from Lakes Buchanan and Travis. While this was beneficial, temporary permits are not sufficient replacement for water lost if releases are required.

64. Using a permanent amendment to the Gulf Coast water right allowed LCRA to divert from the river for industrial customers in the Gulf Coast Canal System about 9,800 AF and 10,200 AF in 2012 and 2013 respectively.

65. Reductions in water use will not result in preventing the emergency that would be created by falling reservoir levels due to the releases of stored water to irrigators under the 2010 WMP. Implementing reduced water use will likely take considerable time before the water savings identified in LCRA's DCP would be seen. Aggressive municipal conservation requires solid partnerships with customers, a good method for calculating water savings and a strong education and enforcement program; measures that are costly and take time. And, the result would be an insufficient amount of water.

66. According to a study from the Texas Water Development Board, measures required to achieve 15 to 20 percent savings of water would have onerous effects on customers, affecting customers' quality of life and local economic conditions.

67. Although groundwater appears to be available in many areas, the uncertainty associated with the long-term availability of groundwater supplies makes this a high-risk alternative for water supply. Many areas have Groundwater Conservation Districts (GCD) that regulate use and permitting of groundwater.

68. In 2013, LCRA obtained groundwater production permits in Bastrop County and since that time has installed wells that are meeting most of the demand at the Lost Pines Power Park. The City of Burnet has begun using its groundwater wells to meet a portion of the demand. Obtaining written agreements with landowners takes approximately 9 to 12 months and obtaining permits can take several years.

69. LCRA has a permit for an off-channel reservoir in the lower basin that will add 90,000 AF of firm water for the region. LCRA is moving forward with constructing this reservoir, but it is not expected to be on-line until 2017.

70. The use of other LCRA lakes is not a viable option at this time. Lakes Inks, LBJ and Marble Falls are not currently authorized for municipal use. If LCRA quit refilling these lakes but allowed the lakes to be maintained at levels that would not have significant impacts to cities and industries around them, it estimates that perhaps a one-time supply of about 34,000 AF could be made available. However, lowering the storage of these lakes could also significantly impact hydroelectric generation capabilities.

71. Several LCRA-managed lakes are cooling water reservoirs with operational constraints. Any released surface water from Lake Bastrop would need to be replenished with either surface water (including releases from Lakes Buchanan and Travis) if there is no rain, or from a limited supply of groundwater. There are operational and timing issues related to releasing and replenishing water in the lake on a schedule needed for generation reliability. Releases from other intervening lakes could raise operational issues for LCRA's firm customers over a timeframe that cannot be readily addressed.

72. LCRA is pursuing a formal amendment to its 2010 WMP but that process will not be completed in time to address LCRA's requested relief. LCRA filed an application to amend its 2010 WMP on March 12, 2012. TCEQ prepared a draft permit for LCRA comment on October 12, 2012. Notice of the application was sent to all water right holders in the Colorado River Basin and published in local newspapers in April 2013. May 28, 2013, was the last date to request a public meeting or a contested case hearing, or comment on the application. On June 3, 2013, the TCEQ Executive Director advised LCRA that he would not be forwarding the application to the Commission at that time, and his staff would be conducting further review on the application. The Executive Director's staff issued a draft report with recommendations on curtailments of interruptible water on May 16, 2014. LCRA submitted a revised application on October 31, 2014, with similar curtailments to those recommended by the Executive Director.

73. LCRA received an emergency order under Texas Water Code Section 11.148 for an application dated December 23, 2014, to reduce the release requirement for the Blue Sucker fish under the 2010 WMP. While beneficial, this relief would not replace the water that would be released to irrigators under the 2010 WMP.

74. This emergency order is the only means by which LCRA can obtain timely relief to make a significant impact on its remaining storage in a workable manner.

75. The conditions at the time of this emergency order create an emergency situation which presents an imminent threat to the public health and safety and justifies the issuance of this emergency order.

Relief Requested

76. LCRA seeks an emergency order to suspend any obligation LCRA might have under the 2010 WMP to provide interruptible stored water to any landowners or customers within the Gulf Coast, Lakeside, and Pierce Ranch irrigation operations for the duration of the emergency order.

Notice

77. Notice was provided to the Governor of Texas regarding the Executive Director's consideration of this emergency order by letter dated June 16, 2015. The date and time of the hearing at which the Commission will consider whether to affirm, modify, or set aside this order is included in this emergency order under the Ordering Provisions. Notice of this emergency order and of the Commission hearing will be mailed to all water right holders in the basin.

II. CONCLUSIONS OF LAW

1. The ED may issue an emergency order under Texas Water Code Section 11.139 to amend a certificate of adjudication after notice to the Governor if the ED finds that emergency conditions exist which present an imminent threat to the public health and safety and override the necessity to comply with established statutory procedures which requires immediate action before the Commission can take action and there are no feasible practicable alternatives to the emergency authorization.

2. The Findings of Fact show that the requirements of Conclusion of Law No. 1 have been met. Despite the recent rainfall, following the 2010 WMP with the ongoing drought and its effect on the water supply constitute an emergency that presents an imminent threat to the public health and safety and there are no feasible, practicable alternatives to this action. The Executive Director of the Commission has the authority to issue this emergency order.

3. The Commission must consider whether to affirm, modify, or set aside an emergency order issued by the Executive Director under Section 11.139 of the Texas Water Code no later than 20 days after the Executive Director issues the order.

NOW, THEREFORE, BE IT ORDERED BY THE EXECUTIVE DIRECTOR OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY THAT:

1. LCRA's 2010 WMP is amended to alleviate LCRA from any obligation to provide interruptible stored water to customers within the Gulf Coast, Lakeside, and Pierce Ranch irrigation operations for the duration of this emergency order.

2. This emergency order is final and effective on June 17, 2015.

3. This emergency order terminates in 120 days, or October 15, 2015.

4. This emergency order may be renewed once for no more than 60 days.

5. This order only addresses the specific relief requested from LCRA and is not meant as precedent for amendments to LCRA's WMP or future emergency relief.

6. The Commission will consider whether to affirm, modify, or set aside this emergency order on July 1, 2015 at 9:30 a.m. at:

Texas Commission on Environmental Quality
12100 Park 35 Circle
Building E, Room 201S
Austin, Texas

7. If any provision, sentence, clause, or phrase of this emergency order is for any reason held to be invalid, the invalidity of any portion shall not affect the validity of the remaining portions of this emergency order.

Issue Date:

June 17, 2015

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Richard A. Hyde, P.E.
Executive Director

Attachment A

LCRA
ENERGY • WATER • COMMUNITY SERVICES

May 15, 2015

Richard Hyde, P.E.
Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087, MC-109
Austin, TX 78711-3087

Dear Mr. Hyde:

On March 24, 2015, the Texas Commission on Environmental Quality (TCEQ) affirmed the Executive Director's issuance of an order granting the Lower Colorado River Authority (LCRA) emergency relief from its 2010 Water Management Plan for the first part of the 2015 irrigation season. Although we have seen some recent widespread rain events, inflows to the Highland Lakes remain at low levels and combined storage on May 1, 2015 was the third-lowest May 1 level in the history of the lakes (only having been lower in 2014 and 1952). Because drought conditions continue to threaten LCRA's water supply, LCRA hereby files the attached application seeking further emergency relief through the end of the irrigation season.

LCRA urges that this relief be granted notwithstanding anything to the contrary in the 2010 WMP, and has included in its application the information needed to support TCEQ's processing of this application under any or all of TCEQ's emergency authorities it may deem most appropriate, including Texas Water Code §§ 5.501, 11.138, and 11.139. LCRA requests that TCEQ process this request under whatever authority it deems most appropriate in light of the exceptional drought and in a manner that allows LCRA to gain the benefit of the authorization for the duration of the 2015 irrigation season.

We look forward to hearing from you regarding this LCRA application. For questions or a meeting, please contact David Wheelock, Manager of Water Supply and Conservation, at (512) 730-6822 or Lyn Clancy, Managing Associate General Counsel and Senior Water Policy Advisor at (512) 578-3378.

Sincerely,

Phil Wilson
General Manager

cc: Kellye Rila, TCEQ

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

P.O. Box 13087 MC-160, Austin, Texas 78711-3087
Telephone (512) 239-4691, FAX (512) 239-4770

APPLICATION FOR A TEMPORARY WATER USE PERMIT FOR MORE THAN 10 ACRE-FEET OF WATER, AND/OR FOR A DIVERSION PERIOD LONGER THAN ONE CALENDAR YEAR

This form is for an application for a temporary permit to divert water under Section 11.138, Texas Water Code. Any permit granted from this application may be suspended **at any time** by the applicable TCEQ Office if it is determined that surplus water is no longer available.

Notice: This form will not be processed until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol.

1. **Data on Applicant and Project:** Social Security or Federal ID No. CN 600253637

   A. Name: Lower Colorado River Authority (LCRA); Attn: David Wheelock, P.E., Manager, Water Supply and Conservation

   B. Mailing Address: P.O. Box 220, L200, Austin, TX 78767

   C. Telephone Number: 512-730-6822 Fax Number: 512-473-4026 E-mail Address: david.wheelock@lcra.org

   D. Applicant owes fees or penalties? ☐ Yes ☑ No

   If yes, provide the amount and the nature of the fee or penalty as well as any identifying number:

   N/A

   E. Describe Use of Water Temporary emergency authorization to allow LCRA to deviate from the 2010 Water Management Plan as it relates to release of interruptible stored water for the 2015 growing season, as described more fully in LCRA's Brief and Attachments provided with this application.

   F. Description of Project (TDH Project No. if applicable) N/A

   G. Highway Designation No. N/A Counties Llano, Burnet, Travis, Bastrop, Fayette, Colorado, Wharton, and Matagorda

2. **Type of Diversion (check one):**

   ☑ From Stream ☑ From Reservoir

3. **Rate of Diversion:**

   A. Maximum _____ gpm
   (capacity of pump)

4. **Amount and Source of Water:**

   See Supplemental Brief and Attachments provided with this application.

   _____ acre-feet of water within a period of _____ (specify term period not to exceed a three year term). The water is to be obtained from _____, tributary of _____, tributary of _____, tributary of _____, _____ Basin.

5. **Location of Diversion Point:** Provide Latitude and Longitude in decimal degrees to at least six decimal places, and indicate the method used to calculate the diversion point location.

   At Latitude _____°N, Longitude _____°W, ((at) or (near) the stream crossing of), (at a reservoir in the vicinity of) _____(R-O-W) (Highway), located in Zip Code _____, located _____ miles in a _____ direction from _____ _____ (County Seat), _____ County, and _____ miles in a _____direction from _____ _____, a nearby town shown on County road map. Note: Distance in straight line miles.

   Enclose a USGS 7.5 minute topographic map with the diversion point and/or the return water discharge points labeled. Owner's written consent is required for water used from any private reservoir, or private access to diversion point.

6. **Access to Diversion Point (check one):**

   ____ Public right-of-way
   ____ Private property
   (A letter of permission from landowner is attached)
   ____ Other (Explain)

7. **Fees Enclosed:**

	10 ac-ft or less	greater than 10 ac-ft
Filing	$ 100.00	$ 250.00
Recording.....	$ 1.25	$ 1.25
Use ($1.00 per ac-ft or fraction thereof)	$ _____	$ 500.00
(Note: 1 ac-ft = 325,851 gals. 1 ac-ft = 7758.35 bbls.) Total	$ _____	$ 751.25

Upon completion of any project for which a temporary water permit is granted, the Permittee is required by law to report the amount of water used. This document must be properly signed and duly notarized before it can by accepted or considered by the Texas Commission on Environmental Quality.

Name (sign)

Phil Wilson
Name (print)

Subscribed and sworn to me as being true and correct before me this 15th day of May, 2015

TABETHA JASKE
Notary Public, State of Texas
My Commission Expires
January 11, 2018

Notary Public, State of Texas

Form TCEQ-10202 (revised 3/2010)

APPLICATION OF THE	§	BEFORE THE
LOWER COLORADO RIVER	§	
AUTHORITY FOR EMERGENCY	§	TEXAS COMMISSION ON
AUTHORIZATION RELATED TO	§	
WATER MANAGEMENT PLAN	§	ENVIRONMENTAL QUALITY

LOWER COLORADO RIVER AUTHORITY'S BRIEF AND ATTACHMENTS IN SUPPORT OF APPLICATION FOR EMERGENCY AUTHORIZATION RELATED TO WATER MANAGEMENT PLAN UNDER TEXAS WATER CODE §§ 5.501, 11.138 & 11.139

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APPLICATION OF THE	§	**BEFORE THE**
LOWER COLORADO RIVER	§	
AUTHORITY FOR EMERGENCY	§	**TEXAS COMMISSION ON**
AUTHORIZATION RELATED TO	§	
WATER MANAGEMENT PLAN	§	**ENVIRONMENTAL QUALITY**

LOWER COLORADO RIVER AUTHORITY'S BRIEF AND ATTACHMENTS IN SUPPORT OF APPLICATION FOR EMERGENCY AUTHORIZATION RELATED TO WATER MANAGEMENT PLAN

I. Introduction.

The lower Colorado River basin continues to suffer from a prolonged and exceptional drought. After suffering from the worst single year drought in recorded history, the Lower Colorado River Authority (LCRA) has, four years in a row, sought and obtained emergency relief from the Texas Commission on Environmental Quality (TCEQ) related to the LCRA Water Management Plan (WMP), which orders have provided for alternative procedures for the curtailment of interruptible stored water from lakes Buchanan and Travis.[1] Most recently, on March 24, 2015, TCEQ affirmed the Executive Director's order granting emergency relief, again continuing LCRA's rights to restrict releases of interruptible stored water for irrigated agriculture in the lower basin for the first part of the 2015 irrigation season.[2] Consistent with these Emergency Orders, with the exception of the Garwood division, LCRA has not provided interruptible stored water for agricultural use for the last three plus years.

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1 Attachment A – TEX. COMM'N ENVTL. QUAL., Docket No. 2015-0220-WR, *Order Affirming with Modification an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority Amending the 2010 Water Management Plan* (March 24, 2015) (herein "March 2015 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-1044-WR, *Order Affirming an Order Granted by the Executive Director that Grants an Emergency Order Requested by the Lower Colorado River Authority* (August 15, 2014) (herein "August 2014 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, *Order Affirming an Order issued by the Executive Director that grants a renewal of the Emergency Order issued to the Lower Colorado River Authority* (June 17, 2014) (herein "2014 Emergency Order Extension"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, *Order Affirming in Part, and Modifying in Part, the Executive Director's Emergency Order Authorizing the Lower Colorado River Authority to Amend its Water Management Plan* (Feb. 27, 2014) (herein "2014 Emergency Order").

See also TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Granting an Emergency Authorization to the Lower Colorado River Authority* (July 26, 2013) (herein "July 2013 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Affirming, with Modification, an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (June 10, 2013) (herein "2013 Emergency Order Extension"); TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Affirming, with Modification, an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (Feb. 19, 2013) (herein "2013 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2096-WR, *Order Affirming an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (Dec. 12, 2011) (herein "2011 Emergency Order").

2 *See* Attachment A, March 2015 Emergency Order.

Unfortunately, although LCRA has eliminated nearly all releases of interruptible stored water for agriculture for the past three years, the drought continues to plague the upper basin. Notwithstanding some periods with normal rainfall amounts, the lakes have not recovered, and the combined storage in lakes Buahanan and Travis on May 1, 2015 of 767,000 acre-feet is the third-lowest May 1 level in LCRA's history. And rainfall that has occurred since May 1 has not contributed substantially to combined storage in a manner that would alleviate the need for the emergency relief sought in this application.

This drought is unprecedented in many respects, particularly with regard to inflows into lakes Buchanan and Travis, the primary water supply for this region. The Governor's Emergency Disaster Proclamation has consistently included the watershed contributing inflows to lakes Buchanan and Travis since July 2011. The reason for this inclusion is clear: annual inflows in 2011, 2013 and 2014 represent the three lowest inflow years on record and inflows in 2012 were also well below normal. As discussed further herein, by many metrics, inflows are significantly lower than inflows in the 1950s Drought of Record.

Without further relief, the 2010 WMP will once again become effective. As in recent years, LCRA again requests TCEQ to issue a new emergency order that would continue LCRA's rights to suspend any obligation it might have under the 2010 WMP to release interruptible stored water through the remainder of the irrigation season outside of the Garwood division. Reversion to the 2010 WMP could otherwise obligate LCRA to provide interruptible stored water for first or second crop rice that was initially planted using groundwater or for supplemental uses (such as row crops or wildlife management). With persistent drought conditions, such releases could cause storage levels to fall to 600,000 acre-feet or lower, which would prompt LCRA to declare a Drought Worse than Drought of Record (DWDR) under the WMP. Such a declaration would occur based upon indicator criteria including drought duration, drought intensity, and combined storage levels that suggest the basin may be experiencing a drought worse than the 1950s. At such time, LCRA would immediately cease releases of water for agriculture, thus potentially wasting water supply that cannot be recaptured, while at the same time imposing mandatory water use reductions of 20% on municipal and industrial customers.

As the Commission has previously recognized, these conditions pose an imminent threat to human health and safety. The requested relief is the most practicable alternative to addressing the emergency conditions faced by the lower Colorado River basin by better ensuring that firm customer demands are not curtailed while the drought continues because of releases of interruptible stored water for irrigated agriculture.

Except as specifically set forth in this Application, LCRA requests consideration of and incorporates by reference as if set forth fully herein all supporting information and arguments

filed with TCEQ on December 23, 2014 in support of LCRA's original application for emergency relief for the 2015 irrigation season.

II. Relief Requested – Overview.

Pursuant to LCRA Board Action, which authorized LCRA to seek relief for all of 2015,[3] LCRA requests that TCEQ issue a new emergency order suspending LCRA's obligations under the 2010 WMP related to interruptible stored water for downstream irrigation purposes for the remainder of the 2015 irrigation season. Specifically, LCRA seeks an emergency order pursuant to Texas Water Code § 11.139, and any other applicable law, confirming that LCRA does not have to provide interruptible stored water to any landowners or customers within the Gulf Coast, Lakeside, or Pierce Ranch irrigation operations, including those who might seek to use stored water for irrigating rice that has to date been watered with groundwater, or for any other purposes such as row crops, pasture or wildlife management.

LCRA requests this relief notwithstanding anything to the contrary in the 2010 WMP. LCRA requests that relief be granted pursuant to Texas Water Code §§ 5.501, 11.138, and 11.139. LCRA further requests that an order be issued by the Executive Director on or prior to June 18, but no earlier than June 11, 2015, so that this matter may be timely considered by the Commission at its July 1 agenda.

III. Background: LCRA's Water Management Plan and Drought Contingency Plan.

A. Overview of LCRA's 2010 Water Management Plan.

LCRA holds several water rights, including the water rights for lakes Buchanan and Travis, under Certificates of Adjudication 14-5478 and 14-5482 (Attachments C and D), which are further subject to the conditions and criteria set forth in the 2010 WMP (Attachment E). The original Water Management Plan was required by court order[4] and is a condition of LCRA's Certificates of Adjudication 14-5478 and 14-5482.[5] The Certificates of Adjudication and the TCEQ-approved WMP govern LCRA's operation of lakes Buchanan and Travis and dictate how LCRA makes water available from these lakes to help meet "firm" water[6] customer needs,

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[3] Attachment B-2, November 19, 2014 Resolution of the Board of Directors of the Lower Colorado River Authority Regarding Drought Management Actions in Response to Current Drought Conditions (herein "November 2014 LCRA Board Resolution").

[4] *See* Attachment F, Excerpts from *In re The Exceptions of the Lower Colorado River Authority and the City of Austin to the Adjudication of Water Rights in the Lower Colorado River Segment of the Colorado River Basin*, No. 115, 414-A-1 (264th Dist. Ct., Bell County, Tex. April 20, 1988), Lake Buchanan Conclusion of Law 4 and Lake Travis Conclusion of Law 6.

[5] *See* Attachment C, Certificate of Adjudication 14-5478 at p. 4 (2.B.(7)); and Attachment D, Certificate of Adjudication 14-5482 at p. 4 (2.B.(7)).

[6] Firm water refers to the amount of water that LCRA has determined would be available on a consistent or firm

downstream interruptible irrigation demands, and environmental flow needs of the lower Colorado River and Matagorda Bay. Certificates of Adjudication 14-5478 and 14-5482 state that "LCRA shall interrupt or curtail the supply of water . . . pursuant to commitments that are specifically subject to interruption or curtailment, to the extent necessary to allow LCRA to satisfy all demand for water under such certificate[] pursuant to all firm, uninterruptible water commitments."[7] The TCEQ-approved WMP further describes how LCRA will manage and curtail supplies from the lakes during times of drought including through a repeat of the 1950s Drought of Record.[8] The WMP also sets forth criteria for triggering various drought response measures for customers upon declaration of a Drought Worse than the Drought of Record (DWDR).[9]

As established in the 2010 WMP, the combined firm yield of lakes Buchanan and Travis, while honoring downstream senior water rights, is 535,812 acre-feet per year (AFY). Of this amount, 90,546 AFY is committed to O.H. Ivie Reservoir, making 445,266 AFY of firm water supply available from lakes Buchanan and Travis for LCRA to help meet the firm water needs of its customers.[10] Until firm demand for water from lakes Buchanan and Travis equals the combined firm yield, LCRA can supply stored water from these lakes for irrigated agriculture on an interruptible basis.[11] The maximum historical annual amount of reported firm water use by LCRA customers from the firm supplies of lakes Buchanan and Travis during 2000 through 2014 was about 247,000 acre-feet in 2011. In addition, about 33,000 acre-feet of water was supplied in 2011 to help meet environmental flow needs. The maximum amount of interruptible stored water released from lakes Buchanan and Travis during this same period occurred in 2011 and totaled about 433,000 acre-feet. The maximum total amount released or used from the Highland Lakes, about 714,000 acre-feet, occurred in 2011. In 2012, firm water use from lakes Buchanan and Travis by LCRA customers was about 148,000 acre-feet; about 31,000 acre-feet was

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basis through the 1950s Drought of Record water availability analysis after honoring all senior water rights.

7 *See* Attachment C, Certificate of Adjudication 14-5478 at p. 4 (2.B.(7)); and Attachment D, Certificate of Adjudication 14-5482 at p. 4 (2.B.(7)).

8 Drought of Record refers to the worst hydrologic drought that has occurred since detailed records have been kept. This drought for the lower Colorado River basin is the drought that occurred from 1947-1957. The WMP states that the Drought of Record occurred between 1947 and 1956. The reservoirs, however, did not recover until mid-1957. See Attachment E – 2010 WMP at p. 4-19. Although preliminary information suggests the ongoing drought may be more severe than the 1950s Drought of Record, for purposes of the WMP and LCRA's firm water contracts, the Drought of Record is the drought from 1947-1957.

9 Attachment E – 2010 WMP at 4-34. The WMP criteria for declaring a DWDR are indicator criteria that can be evaluated in real time to assess whether an ongoing drought might be worse than the 1950s Drought of Record. One of these criteria – combined storage – is also affected by demands. Therefore, it is possible that a drought may actually be worse than the Drought of Record *even if* storage content is held above the triggering criteria through the implementation of demand management strategies.

10 Attachment E – 2010 WMP at 5-31.

11 *See* Attachment F, Excerpts from *In re The Exceptions of the Lower Colorado River Authority and the City of Austin to the Adjudication of Water Rights in the Lower Colorado River Segment of the Colorado River Basin*, No. 115, 414-A-1 (264th Dist. Ct., Bell County, Tex. April 20, 1988), Finding of Fact No. 19(e) (Lake Buchanan) and Finding of Fact No. 26(e) (Lake Travis).

supplied to help meet environmental flow needs; and about 9,000 acre-feet of interruptible stored water was supplied to farmers in the Garwood irrigation division. Total use of water from lakes Buchanan and Travis in 2012 was about 188,000 acre-feet. In 2013, firm water use from lakes Buchanan and Travis by LCRA customers was about 173,000 acre-feet; about 33,000 acre-feet was supplied to help meet environmental flow needs; and about 22,000 acre-feet of interruptible stored water was supplied for farmers in the Garwood irrigation division. Total use of water from lakes Buchanan and Travis in 2013 was about 229,000 acre-feet. In 2014, firm water supplied from lakes Buchanan and Travis by LCRA customers was about 128,000 acre-feet; about 5,000 acre-feet was supplied to help meet environmental flow needs; and about 16,000 acre-feet of interruptible stored water was supplied for farmers in the Garwood irrigation division. Total supply of water from lakes Buchanan and Travis in 2014 was about 149,000 acre-feet. *See* Affidavit of Ryan Rowney (Attachment G).

To manage the supply, the 2010 WMP imposes several trigger points keyed to the total combined storage capacity of lakes Buchanan and Travis that are intended to ensure that reasonable firm water demands can be met during droughts.[12] For purposes of this application, the most relevant trigger points are set out in Table 1.

Table 1. 2010 WMP Triggers

Combined Storage of lakes Buchanan and Travis	Date on Which Trigger is Decided	Action Taken
1.4 MAF	At any time	Request firm customers to implement voluntary drought response measures.[13]
1.4 MAF	On Jan. 1	Begin gradual curtailment of interruptible supply to four major irrigation operations. Environmental releases for instream flows reduced to meet critical needs for ecosystems for following year.[14]
900,000 acre-feet	At any time	Request firm customers to implement mandatory water restrictions; develop firm customer curtailment plan.[15]
600,000 acre-feet	At any time	If criteria indicate a drought worse than the Drought of Record, then cease interruptible supply and begin mandatory pro rata curtailment of firm supply.[16]

[12] Attachment E – 2010 WMP at 4-5.

[13] *Id.* at 4-32.

[14] Attachment E – 2010 WMP at 4-32; 2010 WMP Order at FOF 9, 10 and 11.

[15] Attachment E – 2010 WMP at 4-32.

[16] *Id.*

The 2010 WMP also includes conditions under which the LCRA Board of Directors may declare a Drought Worse than the Drought of Record (DWDR).[17] To declare a DWDR, the Board must find that the following three conditions are simultaneously met:

1. Duration of drought is more than 24 months, which is determined by counting the number of consecutive months since both lakes Buchanan and Travis were last full;[18]
2. Inflows to the lakes are less than inflows during the Drought of Record;[19] and
3. Combined storage of lakes Buchanan and Travis is less than 600,000 acre-feet of water.[20]

Under the 2010 WMP, once a drought has lasted more than 36 months and a DWDR has been declared, interruptible stored water must be fully and immediately curtailed – making no stored water available for agricultural irrigation or other interruptible uses until lake levels recover or the inflows into the lakes increase substantially.[21] Moreover, LCRA will implement pro rata curtailment of its firm water users once a DWDR is declared and after interruptible stored water (agriculture) uses have been cut off.[22]

Prior to a declaration of a DWDR, however, LCRA is obligated by the 2010 WMP to provide at least some interruptible stored water to the four major irrigation operations. Under the 2010 WMP, the LCRA Board is to make a preliminary determination in November based on projections of storage on January 1 of the upcoming year.[23] Using January 1 storage, the amounts available under the 2010 WMP follow a sliding scale.[24] Thus, the decision regarding curtailment of interruptible supplies to the four major irrigation operations during the entire year is keyed to the January 1 storage levels.[25] Based on the January 1, 2015 combined storage of

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17 As noted above, these criteria are real-time indicators that a drought *might* be worse than the 1950s Drought of Record. It is possible that although the criteria are all met, once the full hydrologic dataset is evaluated, the drought might not be worse than the 1950s Drought of Record. Conversely, in a drought that is later shown to hydrologically be worse than the 1950s Drought of Record, because of demand management during the drought, the combined storage might remain above 600,000 acre-feet, such that all three criteria for the declaration of DWDR are not satisfied.

18 *Id.* at 4-34. For purposes of the WMP, the duration of a drought is the time period since both lakes Buchanan and Travis were at their maximum allowable water conservation storage levels.

19 The cumulative inflow deficit since the beginning of the drought must exceed the envelope curve for cumulative inflow deficits by at least 5 percent for six consecutive months. Attachment E – 2010 WMP at 4-34.

20 *Id.* at 4-34.

21 *Id.* at 4-34.

22 *Id.*

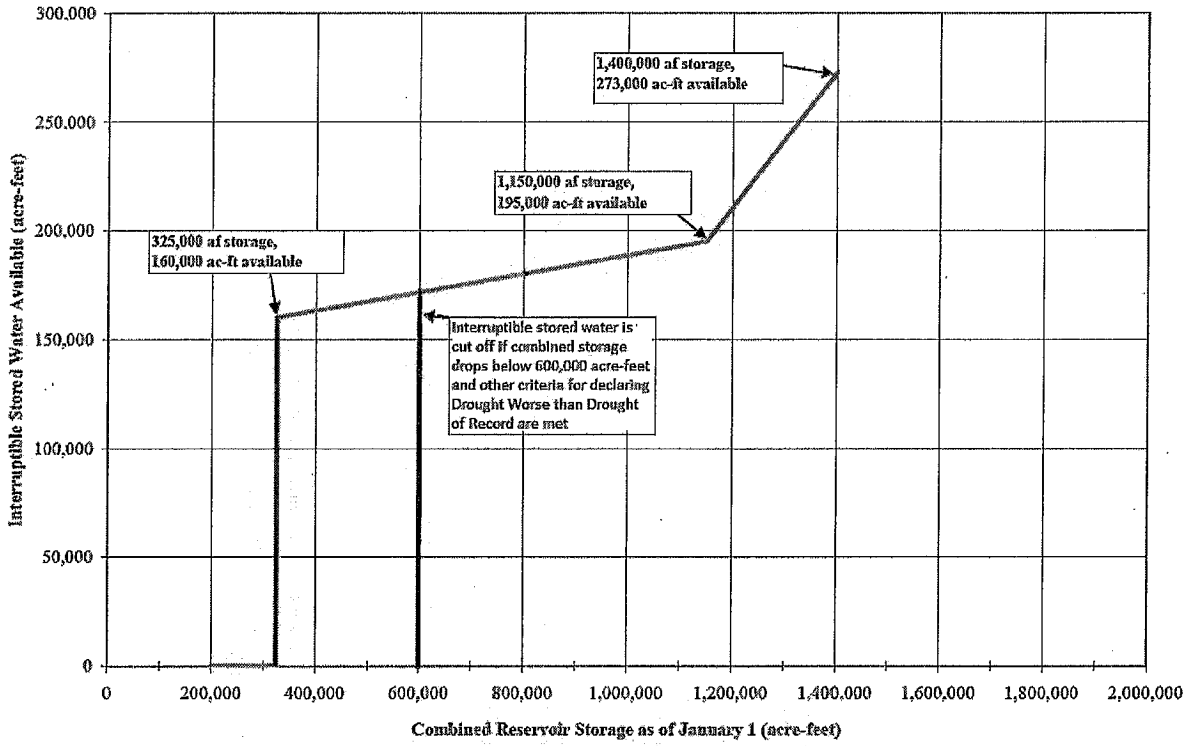
23 *Id.* at 3-7 and 4-21.

24 *Id.* at 4-24.

25 *Id.* at 3-7 and 4-21.

689,400 acre-feet, the 2010 WMP would provide about 175,000 acre-feet of interruptible stored water for diversion by those operations. (*See* Figure 1, Curtailment Curve from 2010 WMP.) Total curtailment of interruptible stored water under the 2010 WMP does not occur until a declaration of a DWDR.

Figure 1. Interruptible Stored Water Available for Diversion by the Four Downstream Irrigation Operations under the 2010 WMP



B. Overview of LCRA's Drought Contingency Plan and relationship to the Water Management Plan.

Prior to adoption of state law in 1997 and TCEQ's subsequent adoption of the Chapter 288 rules in 1999 that require all major water rights holders to develop and implement a drought contingency plan (DCP), LCRA already had a "Drought Management Plan" for managing its water supplies in lakes Buchanan and Travis through a repeat of the 1950s Drought of Record. The "Drought Management Plan" was incorporated in the WMP and when TCEQ adopted its rules for DCPs, LCRA adopted separate stand-alone DCPs for its irrigation, municipal and industrial operations that more specifically addressed the requirements of the Chapter 288 rules. Then, although the DCP addressed things not specifically required of the original court or TCEQ orders on the WMP, LCRA incorporated the DCPs into Chapter 4 of the 2010 WMP, largely for customer ease of reference. LCRA was originally required to develop the Drought Management Plan as a direct result of the court order adjudicating LCRA's water rights and the Texas Water

Commission's 1989 WMP Order, giving initial approval to LCRA of an earlier version of the plan. Specifically, the Commission ordered LCRA to submit a drought management plan to the Commission for its review and approval, which was filed with the Texas Water Commission on October 19, 1990.[26] The Drought Management Plan is subject to the continuing supervision of the TCEQ and LCRA is required to provide an annual report documenting compliance with the approved plan and any special conditions.[27]

When LCRA was required under TCEQ's Chapter 288 rules to develop and implement a DCP, LCRA incorporated the same triggers and criteria from the approved WMP into its DCP, and elaborated on the details of how pro rata curtailment of interruptible customers might occur to comply with the additional requirements of TCEQ's Chapter 288 rules. The Drought Management Plan included elements that go beyond what is required of a DCP, particularly the allocation of supply between firm and interruptible customers. TCEQ has recognized that LCRA can modify certain elements of its DCP without amending the WMP and providing an opportunity for contested case hearing.[28] However, this does not include changes that alter the total amount of interruptible stored water supplied under the WMP.

The water use reduction targets in LCRA's DCP for firm water supplies comply with TCEQ's DCP rules adopted in 2004. These include:

- water use reduction goals for firm water supply customers of 5 percent by asking customers to implement their voluntary water use reduction measures when the combined storage of lakes Buchanan and Travis is less than 1.4 million acre-feet;
- a 10 to 20 percent reduction goal by asking firm customers to implement their own mandatory water use reduction measures when combined storage levels fall below 900,000 acre-feet; and
- pursuant to Texas Water Code § 11.039, a mandatory pro rata curtailment of firm water supplies for customers of 20 percent or more will be implemented when combined storage levels fall below 600,000 acre-feet and other criteria in the WMP are met that correspond to a drought more severe than the Drought of Record.

In April 2007, LCRA adopted changes to LCRA's raw water contract rules to improve implementation of LCRA's DCP. These included:

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[26] Attachment E – 1989 WMP Order, Ordering Provision 1.g.; 1990 WMP Order FOF 4.

[27] Attachment E – 1990 WMP Order, Ordering Provision 1.b., 1.e.

[28] Attachment E – 2010 WMP Order, Ordering Provision 1.g. Some of LCRA's firm customers dispute the extent to which LCRA can modify the firm customer DCP without an opportunity for a contested case hearing as part of a WMP amendment process. This issue, however, is not specifically relevant to this application for emergency relief.

- clarifying how LCRA will, in accordance with Texas Water Code § 11.039, impose a pro rata curtailment during an emergency shortage of firm water as a result of a drought, accident, or other cause;
- providing that a customer must pay a surcharge to be set by the LCRA Board for the unauthorized use of water, if the customer takes more water than authorized under a mandated curtailment of firm water supplies; and
- clarifying the drought contingency requirements related to golf course irrigation and recreational use.

In June 2010, LCRA adopted additional changes to LCRA's raw water contract rules that include the procedures for implementing a pro rata curtailment of firm water customers.[29] Additional changes were made to the rules related to pro rata curtailment in December 2013 and November 2014. The 2010 WMP includes a requirement that LCRA develop a stored water curtailment plan to be approved by the LCRA Board and TCEQ in response to combined storage dropping below 900,000 acre-feet.[30] TCEQ approved LCRA's water curtailment plan for its firm customers in December 2011.[31] Under this curtailment plan and LCRA's DCP, in the event that combined storage drops below 600,000 acre-feet and a DWDR is declared, firm customers will be subject to an initial 20 percent mandatory reduction in use as compared to a recent baseline demand.

In response to the ongoing drought conditions, the LCRA Board further amended the firm customer drought contingency plan to require that, if combined storage on March 1, 2014 was below 1.1 million acre-feet and interruptible stored water supply to the Gulf Coast, Lakeside and Pierce Ranch irrigation operations was cut off, LCRA's customers would be required to implement a landscape irrigation watering schedule of no more than once per week.[32] The Board reaffirmed this action in November 2014.[33] The criteria for this restriction to take effect have been met and the restriction will be in effect until storage increases to above 1.1 million acre-feet or the supply of interruptible stored water to the Gulf Coast, Lakeside and Pierce Ranch irrigation operations resumes. LCRA has also adopted measures that would take effect in the event that combined

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29 *See* LCRA Water Contract Rules, Article 11, Pro Rata Curtailment of Water Use by Firm Water Customers, *available at*: http://lcra.org/water/water-supply/water-supply-contracts/ (last visited Dec. 18, 2014).

30 Attachment E – 2010 WMP at 4-32 & 2010 WMP Order, Ordering Provision No. 1(g).

31 Attachment H, TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2097-WR, *Order Approving the Lower Colorado River Authority's Water Curtailment Plan for its Firm Water Customers* (Dec. 12, 2011).

32 *See* Attachment B-1, November 2013 LCRA Board Resolution. While some LCRA firm customers have questioned LCRA's authority to implement this restriction, the customers are nonetheless implementing the restrictions. *See* Affidavit of Nora Mullarkey Miller (Attachment I). LCRA's authority on this issue is not specifically relevant to this application for emergency relief.

33 *See* Attachment B-2, November 2014 LCRA Board Resolution.

storage falls below 600,000 acre-feet and is preparing for possible further declines in storage. *See* Affidavit of Nora Mullarkey Miller (Attachment I).

IV. There is an Emergency.

LCRA requests the Commission to promptly act on its request to address the exceptional drought that has persisted in the areas that contribute inflows to lakes Buchanan and Travis and preserve water to meet the essential needs of LCRA's municipal and industrial customers if the drought continues. As discussed below, this drought is unprecedented in many respects, particularly with regard to inflows into the primary water supply for this region, lakes Buchanan and Travis. At times, this drought has been more intense than the region's Drought of Record that occurred between 1947 and 1957. The Governor on May 8, 2015, re-issued the Emergency Disaster Proclamation regarding drought for many areas of the state, including nearly all the counties in the lower Colorado River basin that border on and contribute inflows into lakes Buchanan and Travis.[34] The Governor's declaration recognizes that "significantly low rainfall across Texas beginning in late 2010 and continuing has resulted in declining reservoir and aquifer levels, threatening water supplies and delivery systems in many parts of the state" and that the "drought conditions have reached historic levels and continue to pose an imminent threat to public health, property, and the economy."[35]

A. The lakes have not recovered, despite the emergency orders in place in 2012, 2013 and 2014.

1. Record-low inflows into lakes Buchanan and Travis have continued.

By almost every measure, the inflows to the Highland Lakes are at record lows. At times, the inflow deficit has been as much as 90% more than the inflow deficit for a similar period of inflows experienced during the historic Drought of Record for the lower Colorado River basin, which occurred from 1947 to 1957. Affidavit of Ron Anderson (Attachment K, Tab 2).

Annual gauged inflows into lakes Buchanan and Travis in five of the last six years are among the ten lowest years of inflow on record as shown in Table 2. Inflows in 2011, 2013 and 2014 were the three lowest inflows on record. *See* Affidavit of Ryan Rowney (Attachment G).

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[34] Attachment J, *available at*: http://gov.texas.gov/files/press-office/DISASTER_drought_proc_05_08_15.pdf (last visited May 11, 2015). Counties included in the Governor's declaration that contribute flows into or contain LCRA's Highland lakes include: Burnet, Edwards, Gillespie, Kendall, Kerr, Lampasas, Llano, McCulloch, Mills, Real, San Saba and Travis.

[35] *Id.*

Table 2. Lowest Annual Gauged Inflows into the Highland Lakes (acre-feet)

Year	Amount
2011	127,802
2014	209,023
2013	215,138
2008	284,462
2006	285,229
1963	392,589
2012	393,163
1983	433,312
1999	448,162
2009	499,732
Average (1942-2014)	1.2 million

Gauged inflows into lakes Buchanan and Travis during the current drought have been the lowest for time periods ranging from 12 months up to 84 months, and are significantly lower for periods of similar duration during the historic Drought of Record. *See* Table 3. In fact, the total inflows for the past 84 months were only about half of the lowest 84-month inflow period in the Drought of Record. Affidavit of Ryan Rowney (Attachment G).

Table 3. Comparison of Gauged Inflows in Current Drought to Drought of Record

	Lowest inflows for time period in ongoing drought		Lowest inflows for time period in 1950s Drought of Record	
Time Period	Period ending	Inflows (acre-feet)	Period ending	Inflows (acre-feet)
12 months	Sept. 2011	120,160	Apr. 1951	408,784
24 months	May 2014	393,337	Mar. 1952	1,006,681
36 months	Mar. 2015	643,177	Aug. 1952	1,636,088
48 months	Feb. 2015	936,774	Aug. 1952	3,035,846
60 months	Apr. 2015	1,348,206	Aug. 1952	4,128,806
72 months	Apr. 2015	2,372,796	Apr. 1955	5,193,016
84 months	Apr. 2015	2,617,790	Aug. 1952	6,050,804

When inflows are adjusted to account for the fact that O.H. Ivie Reservoir was not in place in the 1950s, the comparison of the current drought to the Drought of Record still shows the recent inflows are dramatically lower than the 1950s Drought of Record, with inflows since

2008 at about half of the inflows for the first seven years of the Drought of Record. *See* Affidavit of Ron Anderson (Attachment K, Tab 3).

2. High temperatures and sporadic rainfall have contributed to the low inflows and low lake levels.

In addition to the record-low inflow conditions affecting lakes Buchanan and Travis noted above, drought conditions have been recognized throughout the state in the form of rainfall and extreme heat. Year 2011 was recognized by Texas State Climatologist, Dr. John Nielsen-Gammon, as the worst one-year statewide drought on record. The summer of 2011 was the hottest on record in Texas. Year 2011 was the hottest on record for Austin, and the second hottest statewide. Year 2012 tied with 1921 as the hottest on record statewide. Summer temperatures for Austin in 2013 were the 5th hottest on record. Although summer 2014 was not as extreme in Austin, it was still above normal, ranking the 34th warmest since 1895. *See* Affidavit of Bob Rose (Attachment L).

Since 2011, there have been some periods with closer to normal rainfall totals, but the rainfall has generally been sporadic, often with several weeks between significant rain events. Rain events in the contributing watershed of lakes Buchanan and Travis 2014 failed to provide the type of inflows needed for the lake levels to improve. For example, a rain event in early November 2014 included rain totals averaging two to three inches above the Highland Lakes but produced only about 4,000 acre-feet of inflow to the lakes; another event later in November with rain totals averaging one to three inches yielded about 17,000 acre-feet of inflow. *See* Affidavit of Bob Rose (Attachment L); Affidavit of Ryan Rowney (Attachment G). While these events lacked prolonged, heavy rainfall intensity, the limited amount of inflows are indicative of the severity of the ongoing drought and the dry soil conditions that have yet to be overcome. By comparison, an event in March 2007 with similar rainfall totals (but more intensity) produced almost 100,000 acre-feet of inflows to lakes Buchanan and Travis. *See* Affidavit of Bob Rose (Attachment L); Affidavit of Ryan Rowney (Attachment G). Similar rain events in 2013 were equally as unproductive from a water supply standpoint. *See* Affidavit of Ryan Rowney (Attachment G).

Furthermore, recent rains in 2015 have tended to be heaviest below the Highland Lakes. *See* Affidavit of Bob Rose (Attachment L). The gauged inflows into the Highland Lakes for the period of January to April 2015 totalled about 71,000 acre-feet as compared to about 620,000 acre-feet that flowed past Bay City at the lower end of the Colorado River. *See* Affidavit of Ryan Rowney (Attachment G).

The drought conditions have created a circumstance where the lakes have been unable to recover in any significant manner, even with an emergency cutoff of nearly all water supply for downstream irrigation in 2012, 2013 and 2014, as well as the emergency relief associated with

releases for the Blue Sucker in the Spring of 2014 and 2015. As noted above, by many measures, the recent low inflows are already as bad as or worse than the 1950s.

3. Recent rainfall forecasts are positive, but for significant recovery in the lakes, inflows need to break the trend of being below normal.

As of May 2015, the sea surface temperatures in the tropical Pacific were above the threshold for El Niño. Normal to above normal rainfall is forecast for the Highland Lakes watershed for May and June, with more normal conditions in July and August which tend to yield low rainfall totals. Later in the year, normal to above normal rainfall is again forecast for the Highland Lakes watershed. *See* Affidavit of Bob Rose (Attachment L). While the rainfall forecasts are promising, the recent history is that rain has fallen in a pattern yielding little inflows and larger storm events have stayed downstream of Lake Travis. *See id.* Inflows to the lakes have been below average in 59 of the past 60 months, including the January to April 2015 period in which rainfall totals were close to normal while inflows were only about 21 percent of the historical average for that four-month period. *See* Affidavit of Ryan Rowney (Attachment G). While the rainfall outlook is positive, the trend of below average inflows has yet to be overcome.

B. Reverting to the 2010 Water Management Plan creates the potential of releasing water that should be conserved for later use if the drought persists.

If LCRA were to revert to the 2010 WMP for the remainder of the irrigation season, farmers who have started crops on groundwater or run-of-river water may seek to compel LCRA to make interruptible stored water available at a time when significant recovery in lake storage has not occurred, increasing the chance of triggering mandatory curtailment of firm water customers. Releasing more interruptible stored water would only increase the likelihood of combined storage falling below 600,000 acre-feet—which is the third and final criterion for a Drought Worse than Drought of Record declaration. In fact, as of May 2015, even with emergency drought relief in place, there is a chance of reaching conditions triggering a declaration of Drought Worse than Drought of Record during the irrigation season. *See* Affidavit of Ron Anderson (Attachment K). If that occurred, all interruptible stored water would be cut off; potentially jeopardizing any crops that were not yet harvested and firm customers would be subject to a 20 percent reduction in supply. Furthermore, any water previously released would no longer be in storage to help meet the needs of LCRA's firm customers through a prolonged drought. Simply put, allowing any additional release of interruptible stored water would only amplify the risk and shorten the timeframe that LCRA and its firm customers have to prepare for such an occurrence.

This approach is unacceptable.

The 2010 WMP requires that firm customers (mainly cities and industries) be curtailed on a pro rata basis and that LCRA cease all releases for interruptible stored water (*regardless* of the impact on the crops) when a DWDR is declared.[36] As discussed above, to declare a DWDR under the WMP, the Board must find that the following three criteria indicating conditions may be worse that the 1950s Drought of Record are simultaneously met:

1. Duration of drought is more than 24 months, which is determined by counting the number of consecutive months since both lakes Buchanan and Travis were last full;[37]
2. Inflows to the lakes are less than inflows during the Drought of Record;[38] and
3. Combined storage of lakes Buchanan and Travis is less than 600,000 acre-feet of water.[39]

The first criterion has been met. The drought has lasted more than 24 months. In fact, despite significant rains in 2007 and 2010, the last time that both lakes Buchanan and Travis were simultaneously at their maximum allowable water conservation storage levels was February 13, 2005. *See* Affidavit of Ryan Rowney (Attachment G). In addition, the cumulative inflow deficit criteria has been met. *See* Affidavit of Ron Anderson (Attachment K). Despite the emergency relief implemented in 2012, 2013 and 2014, the combined storage in the lakes has failed to substantially recover. In fact, within this period, combined storage fell from a high of 1,032,000 acre-feet (51 percent full) on May 22, 2012 to a low of 637,000 acre-feet (31 percent full) on September 19, 2013. The combined storage in lakes Buchanan and Travis was about 767,000 acre-feet on May 1, 2015, or about 33 percent full. *See* Affidavit of Ryan Rowney (Attachment G).

Following the 2010 WMP significantly increases the risk that a DWDR will be declared during 2015, possibly during the growing season. The 2010 WMP employs a "curtailment curve" that determines the amount of interruptible stored water to be made available based on the combined storage in lakes Buchanan and Travis on January 1 of any year. However, as explained above, interruptible stored water can be completely curtailed at any time during the irrigation season if the combined storage of lakes Buchanan and Travis drops to 600,000 acre-feet. Based on January 1, 2015 combined storage of 689,400 acre-feet, the 2010 WMP would have required LCRA to make available around about 175,000 acre-feet for diversion for

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[36] Attachment E – 2010 WMP at 4-32.

[37] Attachment E – 2010 WMP at 4-34. For purposes of the WMP, the duration of a drought is the time period since both lakes Buchanan and Travis were at their maximum allowable water conservation storage levels.

[38] The cumulative inflow deficit since the beginning of the drought must exceed the envelope curve for cumulative inflow deficits by at least 5 percent for six consecutive months. Attachment E – 2010 WMP at 4-34.

[39] Attachment E – 2010 WMP at 4-34.

interruptible irrigation use in the lower basin for the 2015 crop year.[40] *See* Affidavit of Ryan Rowney (Attachment G). Even without any releases of interruptible stored water other than to Garwood, combined storage could drop to 600,000 acre-feet in the next few months. *See* Affidavit of Ron Anderson (Attachment K). Any releases of interruptible stored water for Gulf Coast, Lakeside or Pierce Ranch would amplify that risk.

The only meaningful action that can be taken to preserve LCRA's firm water supplies in the face of potential mandatory curtailment of LCRA's firm water customers is for LCRA to continue to seek and obtain the relief that has been granted in prior Commission Orders; namely, to allow LCRA to continue to suspend all releases of interruptible stored water to its interruptible stored water customers other than Garwood.. *See* Affidavit of Ron Anderson (Attachment K); Affidavit of David Wheelock (Attachment M).

V. The Emergency Conditions Present an Imminent Threat to the Public Health and Safety.

LCRA provides raw water out of the combined firm yield of lakes Buchanan and Travis to over 60 retail and wholesale potable water suppliers that together serve over one million people. LCRA's municipal raw water customers include, but are not limited to, the Cities of Austin, Cedar Park, Leander, Burnet, Marble Falls, Pflugerville, Lakeway, Bee Cave, Horseshoe Bay, other Highland Lakes cities, water supply corporations, special districts, and investor-owned utilities. In addition, LCRA provides water to several electric utilities—LCRA, Bastrop Energy Partners, Austin Energy, Gen-Tex Corporation, and South Texas Project Nuclear Operating Company—from the firm water supply of lakes Buchanan and Travis. These electric utilities provide electricity into the electrical grid in Texas operated by the Electric Reliability Council of Texas (ERCOT) and provide electricity to customers in Texas. LCRA also provides firm raw water to several industries located downstream, including Oxea Chemical and Underground Services Markham. *See* Affidavit of David Wheelock (Attachment M).

As discussed above, if LCRA were following the 2010 WMP this year, LCRA would be obligated to release significant quantities of water from lakes Buchanan and Travis for interruptible agriculture—as much as 210,000 acre-feet. *See* Affidavit of Ryan Rowney (Attachment G). Such a release could result in combined storage dropping to 600,000 acre-feet - prompting LCRA to make a declaration of DWDR. At that point, any releases of interruptible stored water would have amounted to an irreversible reduction of the water supply available for firm customers. Combined storage on May 1, 2015 of 767,000 acre-feet is only about three percent higher than the combined storage on March 4, when TCEQ first approved relief for 2015.

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[40] Attachment E – 2010 WMP at 4-24 & 4-26.

While rainfall in the lower basin below Lake Travis has generated more runoff recently, the water supply conditions for the Highland Lakes are similar or worse than conditions in place when TCEQ issued its earlier orders for the 2012, 2013 and 2014 seasons. In fact, the May 1, 2015 combined storage level was the third-lowest recorded storage on that date since the lakes were built. *See* Affidavit of Ryan Rowney (Attachment G). The conditions once again support the conclusion that following the 2010 WMP under these conditions poses an imminent threat to firm customers served by LCRA.[41] As the drought has continued, LCRA and its firm customers are actively exploring ways to acquire or develop alternative water supplies to meet essential needs of their respective potable water systems. However, it takes many years to develop significant additional new water supplies. As the Commission recognized in prior emergency orders, the sheer length of time that it takes to develop or conserve significant quantities of water supply mean that a water supply emergency arises well before a reservoir goes dry.[42] Releasing interruptible stored water based on the 2010 WMP further increases the amount of water for essential needs that will need to be acquired elsewhere should the drought continue. For the most part, although LCRA's firm customers are working on plans to implement curtailment and secure alternate supplies (such as local groundwater), most have not secured any readily available sources of water supply that could substitute for their reliance on the Colorado River. *See* Affidavit of Ryan Rowney (Attachment G); Affidavit of David Wheelock (Attachment M).

Moreover, as the lake levels drop, it becomes more difficult and expensive for the retail water suppliers to pump water from lakes Buchanan and Travis. LCRA has 18 customers that actively take raw water for municipal purposes from Lake Travis. The lowest pumping elevations of the intakes range from about 545 feet mean sea level (msl) to 645 feet msl on Lake Travis. If the levels in Lake Travis or Lake Buchanan drop below the current lowest pumping elevations, LCRA and its wholesale raw water customers must take action to either lower their pumping elevation or find alternative supplies. For smaller systems, the alternative is likely hauling water from a water utility with a viable source. For larger systems, temporary measures must be implemented to extend the intake capabilities to reach lower elevation water. Similar measures would likely be needed by LCRA's raw water customers that have their own intake facilities. Firm customers have indicated that they are actively spending or planning to spend

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41 Attachment A – March 2015 Emergency Order, Finding of Fact Nos. 14-16, 20, 24-30, 32, 35, Conclusion of Law No.2; August 2014 Emergency Order, Finding of Fact Nos. 14-16, 20, 24-29, 32, 34-35, Conclusion of Law No. 2; 2014 Emergency Order Extension, Finding of Fact No. 3, 12, Conclusion of Law No. 4; 2014 Emergency Order, Finding of Fact Nos. 18-25, 28, 30, 31, 33-36, 45, 60, 61, Conclusion of Law 4; *see also* 2013 Emergency Order, Finding of Fact Nos. 18, 20, 22, 26, 27, 31-33, Conclusion of Law 2; 2013 Emergency Order Extension, Finding of Fact Nos. 9, 10, 16, 17, Conclusion of Law 4; July 2013 Emergency Order, Finding of Fact Nos. 21, 23, 26, 28, Conclusion of Law 2; 2011 Emergency Order, Finding of Fact Nos. 20, 21, 25, 30, 31, Conclusion of Law 2.

42 Attachment A - March 2015 Emergency Order, Finding of Fact Nos. 41-43; August 2014 Emergency Order, Findings of Fact Nos. 32, 34; 2014 Emergency Order, Finding of Fact Nos. 45, 60, 61; *see also* 2013 Emergency Order, Findings of Fact Nos. 32-33; 2013 Emergency Order Extension, Finding of Fact No. 16; July 2013 Emergency Order, Finding of Fact No. 28; 2011 Emergency Order, Findings of Fact Nos. 30-31.

funds to allow their intakes to operate at lower elevations. *See* Affidavit of Ryan Rowney (Attachment G). Overall, over 40 public water systems that rely on the Highland Lakes or that draw from the tributaries that typically contribute significant inflow to the Highland Lakes are already in some form of drought restriction and are at risk of water supply shortages.[43] If the lake levels drop more quickly than arrangements for alternative intakes or supplies can be implemented, the current drought presents an imminent threat to public health and safety for the water systems of those customers.

VI. The Threat to Public Health and Safety Override the Necessity to Comply with the Established Statutory Procedures.

Once again, allowing LCRA the flexibility to deviate from the requirements of the 2010 WMP, as requested by this application, provides LCRA with one of the very few opportunities it has to make a substantial difference in the amount of water available in the combined storage of the two lakes. *See* Affidavit of David Wheelock (Attachment M).[44]

Because the WMP is required by, and incorporated into, LCRA's Certificates of Adjudication 14-5478 and 14-5482, the WMP may only be amended in the same manner and following the same procedures as one would amend any state-issued water right, which procedures for this type of amendment would require basin-wide 30-day public notice, likely public meetings, significant staff review, and presents the potential for a lengthy constested case hearing.

The time period in which LCRA must make decisions regarding its commitments of interruptible water occur long before there could be any decision on any amendments to the 2010 WMP if the regular TCEQ water rights permitting procedures are followed. Once interruptible stored water is released, the water cannot be brought back. Thus, the emergency authorization is the only means by which LCRA can obtain timely approval to make a significant impact on its supply remaining in storage.

VII. There are No Feasible Alternatives to the Emergency Authorization.

A. LCRA has implemented and will continue to implement its water conservation and drought plans.

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[43] *See* Tex. Comm'n Envtl. Qual., *List of Texas PWSs Limiting Water Use to Avoid Shortages* at: http://www.tceq.texas.gov/drinkingwater/trot/droughtw.html (last updated on May 8, 2015) (last visited May 11, 2015).

[44] *See also* Attachment A, March 2015 Emergency Order, Finding of Fact Nos.55-66; August 2014 Emergency Order, Findings of Fact 51-54, 57; 2014 Emergency Order Findings of Fact Nos. 66-69; July 2013 Emergency Order, Findings of Fact Nos. 26, 36-37, 39; 2013 Emergency Order Finding of Fact No. 44, 46; 2011 Emergency Order, Finding of Fact No. 46.

LCRA has, to this point, fully implemented its Drought Contingency Plan. LCRA requires all of its customers that currently divert and purchase water from LCRA to have a drought contingency plan (DCP). As of May 1, 2015, 100 percent of those customers are covered by a DCP that is on file. *See* Affidavit of Nora Mullarkey Miller (Attachment I). In August 2011, the combined storage of lakes Buchanan and Travis dropped below 900,000 acre-feet. LCRA called on its firm water customers to voluntarily implement mandatory water use restrictions under their individual DCPs to reduce their water use by 10 to 20 percent.[45] *See* Affidavit of Nora Mullarkey Miller (Attachment I). As lake conditions continued to deteriorate, LCRA's firm customers stepped up their efforts to extend the water supply. Since that time, most of LCRA's municipal customers have stayed in some form of mandatory water restrictions, significantly limiting landscape irrigation. LCRA industrial customers, who consist of power plants and a few large industries along the Gulf Coast, have also worked to reduce non-essential water uses. *See* Affidavit of Nora Mullarkey Miller (Attachment I, Tab 2). As noted above, in November 2013 (and reaffirmed in November 2014), as part of LCRA's drought response, the LCRA Board approved a no more than once-per-week watering restriction that took effect in March 2014 and remains in effect as long as combined storage is below 1.1 million acre-feet and interruptible stored water for Gulf Coast, Lakeside and Pierce Ranch is cut off.[46] While many customers were already implementing once or twice per week watering restrictions, the LCRA Board action makes the once per week restriction applicable across all LCRA customers.

While water conservation is in the forefront of everyone's minds during times of drought, LCRA has on-going water conservation efforts that it has been implementing for many years. As detailed in the Affidavit of Nora Mullarkey Miller (Attachment I, Tab 2), LCRA's commitment to water conservation is unwavering, and spans all user groups. Prior to any state requirement for water conservation plans, LCRA required its municipal customers to adopt such plans and has continued to strengthen the minimum requirements of those plans to further encourage wise water use. LCRA developed the Major Rivers fourth-grade curriculum in 1988, which has reached more than 1 million school children in Texas through a partnership with the Texas Water Development Board (TWDB). LCRA also provides significant conservation program planning support for its customers. *See* Affidavit of Nora Mullarkey Miller (Attachment I, Tab 2). In 2012, LCRA began a rebate program for certain irrigation technologies, and a wholesale customer cost-share program focused on conservation. *See* Affidavit of Nora Mullarkey Miller (Attachment I, Tab 2).

LCRA's conservation efforts have also supported significant improvements in irrigation water use efficiency in rice irrigation systems. Since the 1990s, volumetric pricing and canal rehabilitation are estimated to have saved approximately 13 percent, or about 41,500 acre-feet

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[45] The WMP does not allow LCRA to impose mandatory curtailments on its firm water customers until a drought worse than the Drought of Record is declared.

[46] *See* Attachments B-1 and B-2, November 2013 and November 2014 LCRA Board Resolutions.

annually, of the projected water use that would have occurred without conservation practices in place. Between 2006 and 2013, LCRA provided up to 30 percent of the costs to the farmers for the implementation of precision laser land leveling on more than 30,000 acres of land. *See* Affidavit of Nora Mullarkey Miller (Attachment I, and Tab 2). Additional efforts implemented by LCRA to use water more efficiently in the irrigation operations are described in LCRA's Water Conservation Plan.

B. Requiring the firm water customers to curtail water use by up to 20 percent will take time and have a significant impact on these customers.

When LCRA declares a DWDR and releases of interruptible stored water cease, LCRA's DCP requires firm customers to implement measures to try to immediately reduce their water consumption by twenty percent (20%) as compared to a baseline water use.[47] In December 2011, LCRA obtained approval from the TCEQ of its Water Curtailment Plan for firm water customers.[48] Since that time, LCRA has worked with its firm customers on the development of their plans for drought response under a pro rata curtailment. *See* Affidavit of Nora Mullarkey Miller (Attachment I).

Achievement of a twenty percent reduction in water use may require firm customers to implement fairly dramatic measures. Some municipal customers plan to eliminate all outdoor spray irrigation as a drought response measure under pro rata curtailment. Some of LCRA's customers, such as the City of Austin, have already achieved significant water savings through dramatic reductions in outdoor water use. While this could mean required reductions under pro rata curtailment for these customers may be a smaller incremental step initially, the practical matter is that, if water supplies continue to decline, customers will likely have to adopt water reductions that are more stringent than the initial twenty percent. Moreover, most industrial customers would have to implement the full twenty percent reduction more immediately. Reductions in use by industrial customers, including power plants, likely means a curtailment in annual production. *See* Affidavit of Nora Mullarkey Miller (Attachment I, and Tab 2).

Reductions in water use by firm customers cannot prevent the emergency created by falling reservoir levels that would result from the level of irrigation releases required by the 2010 WMP. Firm customer water use reductions simply cannot be implemented fast enough once such a reduction is mandated by LCRA.[49] Extensive benchmarking research shows that these savings are achievable but that it will likely take water suppliers considerable time (up to a year)

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47 Attachment E – 2010 WMP at p. 4-32.

48 Attachment H, TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2097-WR, *Order Approving the Lower Colorado River Authority's Water Curtailment Plan for its Firm Water Customers* (Dec. 12, 2011).

49 *See* Attachment A – March 2015 Emergency Order, Finding of Fact Nos. 59-60; August 2014 Emergency Order, Finding of Fact No. 54; 2014 Emergency Order, Finding of Fact No. 69; *see also* 2013 Emergency Order, Finding of Fact No. 44; July 2013 Emergency Order, Finding of Fact No. 40; 2011 Emergency Order, Finding of Fact No. 39.

to implement drought restrictions that result in the level of water savings identified in LCRA's DCP. *See* Affidavit of Nora Mullarkey Miller (Attachment I, Tab 3 and Tab 4).

C. *The use of LCRA's downstream run-of-river water rights to meet firm customer needs provides an additional supply, but not a sufficient or predictable supply.*

In evaluating options to address the firm water needs of its customers, LCRA evaluated the possibility of using its downstream run-of-river rights to meet the needs of the firm water customers located downstream of Lake Travis. LCRA has obtained temporary permits since 2012 to use water under Certificate of Adjudication 14-5476 or Certificate of Adjudiction 14-5475 at diversion points along the river downstream of Lady Bird Lake. These permits have allowed LCRA to meet some firm demands with run-of-river water rather than releasing water from lakes Buchanan and Travis to meet these demands.

By their very nature, the downstream run-of-river water rights are highly variable in terms of availability and quantity. LCRA's firm customers need to have certainty as to the quantity of water that will be available and when the water will be available for their operations. To make these rights sufficiently predictable without backup supply from lakes Buchanan and Travis, especially in times of severe drought, LCRA would need to construct small reservoirs for storage beyond those existing reservoirs that some of LCRA's customers own and operate. The normal permitting process for such facilities, at best, takes up to two years with approvals or permits required from, at a minimum, TCEQ and the United States Army Corps of Engineers. *See* Affidavit of David Wheelock (Attachment M).

Finally, the downstream run-of-river water rights do not provide by themselves a sufficient quantity of water to eliminate the need for the emergency relief from the 2010 WMP as requested herein. LCRA using the downstream water rights to supply the downstream industrial and municipal users at diversion points for which LCRA does not have permanent authorizations kept about 7,000, 1,000 and 7,000 acre-feet of water in the reservoirs in 2012, 2013 and 2014 respectively. *See* Affidavit of Ryan Rowney (Attachment G). These rights only serve to offset the amount of stored water required to be released for the downstream firm customers. While clearly beneficial, it is equally as clear that temporary permits to supply these firm customers are not a sufficient replacement for the water that could be lost if LCRA were required to follow the 2010 WMP. *See* Affidavit of David Wheelock (Attachment M).

D. *LCRA obtained relief related to the Blue Sucker requirement but the savings achieved do not remove the need for the emergency authorization.*

The emergency relief approved by TCEQ in March 2015 reduced the instream flow requirement associated with the Blue Sucker from 500 cubic feet per second (cfs) to 300 cfs for a

six-week period. LCRA previously estimated that without the emergency relief, up to about 21,000 acre-feet might be released from lakes Buchanan and Travis to meet the instream flow requirement. As a result of the emergency relief and inflows from rain events below Lake Travis during the six-week period, LCRA did not release any water from storage for the instream flow requirement. *See* Affidavit of Ryan Rowney (Attachment G). While the relief and rain events allowed LCRA to preserve some water in lakes Buchanan and Travis, the water savings do not remove the need for the emergency authorization sought herein.

E. LCRA has explored other alternatives for protecting firm supply, but they are not feasible or practicable alternatives to the emergency authorization.

LCRA has evaluated many other alternatives to address the emergency conditions that the drought presents. As was the case when LCRA sought emergency relief over the past three years, none of the alternatives identified would avert the projected water supply shortage because most of the supplies identified would produce insufficient or uncertain quantities of supply, would create other operational issues for customers, involve a lengthy permitting process (if not implemented on an emergency basis), or would take years to develop.[50] None of the alternatives identified are feasible or practicable alternatives to the emergency authorization. *See* Affidavit of David Wheelock (Attachment M, Tab 3).

VIII. The Emergency Relief.

A. Proposed Relief – Allow curtailment of interruptible stored water to deviate from the TCEQ-approved 2010 WMP.

LCRA seeks this additional TCEQ order to make clear that for the remainder of the 2015 irrigation season, the 2010 WMP will not be effective and no interruptible stored water would be provided outside of the Garwood irrigation division. This deviation from the 2010 WMP would apply notwithstanding anything to the contrary in the 2010 WMP. LCRA requests that relief be granted pursuant to Texas Water Code §§ 5.501, 11.138, and 11.139. LCRA further requests that an order be issued by the Executive Director on or prior to June 18, but no earlier than June 11, 2015, so that this matter may be timely considered by the Commission at its July 1 agenda.

B. Proposed dates the authorization should begin and end.

LCRA requests that TCEQ process this request in a manner that allows LCRA to gain the benefit of the authorization for as long as may be needed to address this exceptional drought. To that end, LCRA requests that:

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[50] *See* Attachment A – March 2015 Emergency Order, Finding of Fact Nos.55-56; August 2014 Emergency Order, Finding of Fact No. 51; 2014 Emergency Order, Finding of Fact No. 66; *see also* 2013 Emergency Order Findings of Fact Nos. 47-48; 2013 Emergency Order Extension, Finding of Fact No. 15; July 2013 Emergency Order, Finding of Fact No. 37; 2011 Emergency Order, Findings of Fact Nos. 41-42.

1. The emergency authorization become effective upon expiration of the existing order (June 18, 2015); and

2. The emergency authorization continue through the initial 120 day period allowed by Texas Water Code § 11.139, and any extension thereof as allowed by Section 11.139.

Should this exceptional drought persist, LCRA will evaluate at the appropriate time whether any further relief from the Water Management Plan may be needed and seek such relief as the LCRA Board may deem necessary and appropriate at that time.

C. The requested relief will be effective by preserving stored water for firm customers and avoiding waste.

Continuing to deviate from the 2010 WMP avoids the possibility of interruptible releases amplifying the risk of triggering a DWDR declaration in the next few months. *See* Affidavit of David Wheelock (Attachment M); Affidavit of Ron Anderson (Attachment K). If additional interruptible stored water were to be released, that water would be lost from the system, and no longer available to help meet the needs of LCRA's firm water customers in a prolonged drought.

IX. Conclusion.

It is clear the 2010 WMP puts at risk a significant quantity of stored water that may be needed to meet firm water commitments in this unprecedented drought. The ongoing drought and its effect on the water supply is an emergency that presents an imminent threat to the public health and safety. Authorizing a temporary deviation from the 2010 WMP will help preserve the water supply to help meet the critical needs of LCRA firm water customers in this prolonged drought. This application, in combination with actions LCRA has already taken related to use of its downstream water rights, presents the only feasible and practicable alternatives to addressing this exceptional drought in a timely manner. For these reasons, LCRA respectfully requests that TCEQ grant its application for an emergency authorization under Texas Water Code §§ 5.501, 11.138 and 11.139.

X. Certification.

"I, Phil Wilson, General Manager, Lower Colorado River Authority, certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Phil Wilson, General Manager
Lower Colorado River Authority

Date: 5/15/15

Subscribed and sworn to as being true and correct before me on this the 15th day of May 2015.

TABETHA JASKE
Notary Public, State of Texas
My Commission Expires
January 11, 2018

Notary Public of the State of Texas

XI. Attachments

Attachment A – TEX. COMM'N ENVTL. QUAL., Docket No. 2015-0220-WR, *Order Affirming with Modification an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority Amending the 2010 Water Management Plan* (March 24, 2015) (herein "March 2015 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-1044-WR, *Order Affirming an Order Granted by the Executive Director that Grants an Emergency Order Requested by the Lower Colorado River Authority* (August 15, 2014) (herein "August 2014 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, *Order Affirming an Order issued by the Executive Director that grants a renewal of the Emergency Order issued to the Lower Colorado River Authority* (June 17, 2014) (herein "2014 Emergency Order Extension"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, *Order Affirming in Part, and Modifying in Part, the Executive Director's Emergency Order Authorizing the Lower Colorado River Authority to Amend its Water Management Plan* (Feb. 27, 2014) (herein "2014 Emergency Order").

See also TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Granting an Emergency Authorization to the Lower Colorado River Authority* (July 26, 2013) (herein "July 2013 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Affirming, with Modification, an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (June 10, 2013) (herein "2013 Emergency Order Extension"); TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Affirming, with Modification, an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (Feb. 19, 2013) (herein "2013 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2096-WR, *Order Affirming an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (Dec. 12, 2011) (herein "2011 Emergency Order").

Attachment B - LCRA Board Resolutions Regarding Drought Management Actions

B-1: November 19, 2013 Resolution of the Board of Directors of the Lower Colorado River Authority Regarding Drought Management Actions in Response to Current Drought Conditions.

B-2: November 19, 2014 Resolution of the Board of Directors of the Lower Colorado River Authority Regarding Drought Management Actions in Response to Current Drought Conditions.

Attachment C – Certificate of Adjudication 14-5478, as amended

Attachment D – Certificate of Adjudication 14-5482, as amended

Attachment E – Excerpts from the 2010 Water Management Plan (2010 WMP) including:

Table of Contents and Preface;

Chapter 1 – Introduction to the Water Management Plan;

Chapter 3.C. – Annual Allocation of Firm and Interruptible Water;

Chapter 4 – Development of the Drought Management Plan;

September 20, 1989 Texas Water Commission Order approving LCRA's Water Management Plan (1989 WMP Order");

December 23, 1991 Texas Water Commission Order approving LCRA's Drought Management Plan (1991 WMP Order");

December 18, 1992 Texas Water Commission Order approving amendments to LCRA's Water Management Plan and Drought Management Plan (1992 WMP Order"); and

March 1, 1999 Texas Natural Resource Conservation Commission Order approving amendments to LCRA's Water Management Plan and Drought Contingency Plan (1999 WMP Order").

January 27, 2010 Texas Commission on Environmental Quality Agreed Order Approving Amendments to Lower Colorado River Authority's Water Management Plan (2010 WMP Order).

Attachment F – Excerpts from Order Adjudication LCRA's Water Rights for Lakes Buchanan and Travis, *In re The Exceptions of the Lower Colorado River Authority and the City of Austin to the Adjudication of Water Rights in the Lower Colorado River Segment of the Colorado River Basin*, No. 115, 414-A-1 (264th Dist. Ct., Bell County, Tex. April 20, 1988).

Attachment G – Affidavit of Ryan Rowney

Tab 1 – Resume of Ryan Rowney

Tab 2 – Combined Storage in lakes Buchanan and Travis since Jan. 1, 2008

Attachment H – TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2097-WR, *Order Approving the Lower Colorado River Authority's Water Curtailment Plan for its Firm Water Customers* (Dec. 12, 2011).

Attachment I – Affidavit of Nora Mullarkey Miller

Tab 1 – Resume of Nora Mullarkey Miller

Tab 2 – LCRA's Ongoing Water Conservation Initiatives and Drought Response Efforts

Tab 3 – Benchmarking Research on Drought Restrictions implemented in other Communities (2011).

Tab 4 – Benchmarking Research on Mandatory Drought Restrictions implemented in other Communities (2013).

Attachment J – Proclamation by the Governor of the State of Texas (May 8, 2015)

Attachment K – Affidavit of Ron Anderson

Tab 1 – Resume of Ron Anderson

Tab 2 – Summary of Inflow Deficit for lakes Buchanan and Travis

Tab 3 – Cumulative Historical Inflows to Lakes Travis and Buchanan

Tab 4 – Description of Stochastic Modeling

Attachment L – Affidavit of Bob Rose

Tab 1 – Resume of Bob Rose

Attachment M – Affidavit of David Wheelock

Tab 1 – Resume of David Wheelock

Tab 2 – Map of LCRA Water Service Area

Tab 3 – Summary of Water Supply Alternatives

Attachment N – LCRA Policies Regarding Delegation of Authority and Organizational Chart

The attachments to LCRA's Emergency Order application can be found at http://www.tceq.texas.gov/agency/lcra/lcra-emergency-order

Attachment B

LCRA
ENERGY • WATER • COMMUNITY SERVICES

June 4, 2015

RECEIVED
JUN 05 2015
EXECUTIVE DIRECTOR

Richard Hyde, P.E.
Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087, MC-109
Austin, TX 78711-3087

Dear Mr. Hyde:

On May 15, 2015, the Lower Colorado River Authority (LCRA) filed an application with the Texas Commission on Environmental Quality (TCEQ) seeking emergency relief from the 2010 Water Management Plan through the end of the 2015 irrigation season. Given the substantial rainfall the basin has experienced since the application was filed, your staff asked that we update our application to reflect any changed conditions. To that end, a revised brief and amended affidavits supporting LCRA's application are provided with this letter. As you will see, though substantial gains in water storage in the reservoirs managed by the LCRA have occurred, the water supply conditions for the lower Colorado River basin stand out as significantly lagging behind the recovery curve that most reservoirs across Texas have enjoyed. Accordingly, LCRA continues to urge that the requested relief be granted.

We look forward to hearing from you regarding this LCRA application. For questions or a meeting, please contact David Wheelock, Manager of Water Supply and Conservation, at (512) 730-6822 or Lyn Clancy, Managing Associate General Counsel and Senior Water Policy Advisor at (512) 578-3378.

Sincerely,

Phil Wilson
General Manager

cc: Kellye Rila, TCEQ
Bridget Bohac, TCEQ

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TCEQ
CHIEF CLERK'S OFFICE
ENVIRONMENTAL
QUALITY

LCRA
ENERGY • WATER • COMMUNITY SERVICES

May 15, 2015

2015 MAY 15 PM 4 27

Richard Hyde, P.E.
Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087, MC-109
Austin, TX 78711-3087

Dear Mr. Hyde:

On March 24, 2015, the Texas Commission on Environmental Quality (TCEQ) affirmed the Executive Director's issuance of an order granting the Lower Colorado River Authority (LCRA) emergency relief from its 2010 Water Management Plan for the first part of the 2015 irrigation season. Although we have seen some recent widespread rain events, inflows to the Highland Lakes remain at low levels and combined storage on May 1, 2015 was the third-lowest May 1 level in the history of the lakes (only having been lower in 2014 and 1952). Because drought conditions continue to threaten LCRA's water supply, LCRA hereby files the attached application seeking further emergency relief through the end of the irrigation season.

LCRA urges that this relief be granted notwithstanding anything to the contrary in the 2010 WMP, and has included in its application the information needed to support TCEQ's processing of this application under any or all of TCEQ's emergency authorities it may deem most appropriate, including Texas Water Code §§ 5.501, 11.138, and 11.139. LCRA requests that TCEQ process this request under whatever authority it deems most appropriate in light of the exceptional drought and in a manner that allows LCRA to gain the benefit of the authorization for the duration of the 2015 irrigation season.

We look forward to hearing from you regarding this LCRA application. For questions or a meeting, please contact David Wheelock, Manager of Water Supply and Conservation, at (512) 730-6822 or Lyn Clancy, Managing Associate General Counsel and Senior Water Policy Advisor at (512) 578-3378.

Sincerely,

Phil Wilson
General Manager

RECEIVED
MAY 15 2015
Texas Commission on Environmental Quality
Commissioners' Offices

cc: Kellye Rila, TCEQ

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

P.O. Box 13087 MC-160, Austin, Texas 78711-3087
Telephone (512) 239-4691, FAX (512) 239-4770

APPLICATION FOR A TEMPORARY WATER USE PERMIT FOR MORE THAN 10 ACRE-FEET OF WATER, AND/OR FOR A DIVERSION PERIOD LONGER THAN ONE CALENDAR YEAR

This form is for an application for a temporary permit to divert water under Section 11.138, Texas Water Code. Any permit granted from this application may be suspended at any time by the applicable TCEQ Office if it is determined that surplus water is no longer available.

Notice: This form will not be processed until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol.

1. **Data on Applicant and Project:** Social Security or Federal ID No. CN 600253637

   A. Name: Lower Colorado River Authority (LCRA); Attn: David Wheelock, P.E., Manager, Water Supply and Conservation

   B. Mailing Address: P.O. Box 220, L200, Austin, TX 78767

   C. Telephone Number: 512-730-6822 Fax Number: 512-473-4026 E-mail Address: david.wheelock@lcra.org

   D. Applicant owes fees or penalties? ☐ Yes ☑ No

   If yes, provide the amount and the nature of the fee or penalty as well as any identifying number:

   N/A

   E. Describe Use of Water Temporary emergency authorization to allow LCRA to deviate from the 2010 Water Management Plan as it relates to release of interruptible stored water for the 2015 growing season, as described more fully in LCRA's Brief and Attachments provided with this application.

   F. Description of Project (TDH Project No. if applicable) N/A

   G. Highway Designation No. N/A Counties Llano, Burnet, Travis, Bastrop, Fayette, Colorado, Wharton, and Matagorda

2. **Type of Diversion (check one):**

   ☑ From Stream ☑ From Reservoir

3. **Rate of Diversion:**

   A. Maximum _____ gpm
   (capacity of pump)

4. **Amount and Source of Water:**

   See Supplemental Brief and Attachments provided with this application.

   _____ acre-feet of water within a period of _____ (specify term period not to exceed a three year term). The water is to be obtained from _____, tributary of _____, tributary of _____, tributary of _____, _____ Basin.

5. **Location of Diversion Point:** Provide Latitude and Longitude in decimal degrees to at least six decimal places, and indicate the method used to calculate the diversion point location.

   At Latitude _____°N, Longitude _____°W, ((at) or (near) the stream crossing of), (at a reservoir in the vicinity of) _____(R-O-W) (Highway), located in Zip Code _____, located _____ miles in a _____ direction from _____ (County Seat), _____ County, and _____ miles in a _____direction from _____, a nearby town shown on County road map. Note: Distance in straight line miles.

   Enclose a USGS 7.5 minute topographic map with the diversion point and/or the return water discharge points labeled. Owner's written consent is required for water used from any private reservoir, or private access to diversion point.

6. **Access to Diversion Point (check one):**

   ____ Public right-of-way
   ____ Private property
   (A letter of permission from landowner is attached)
   ____ Other (Explain)

7. **Fees Enclosed:**

	10 ac-ft or less	greater than 10 ac-ft
Filing	$ 100.00	$ 250.00
Recording.....	$ 1.25	$ 1.25
Use ($1.00 per ac-ft or fraction thereof)	$ _____	$ 500.00
(Note: 1 ac-ft = 325,851 gals. Total 1 ac-ft = 7758.35 bbls.)	$ _____	$ 751.25

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MAY 15 2015

Texas Commission on Environmental Quality
Commissioners' Offices

Upon completion of any project for which a temporary water permit is granted, the Permittee is required by law to report the amount of water used. This document must be properly signed and duly notarized before it can by accepted or considered by the Texas Commission on Environmental Quality.

Name (sign)

Phil Wilson
Name (print)

Subscribed and sworn to me as being true and correct before me this 15th day of May, 20 15

TABETHA JASKE
Notary Public, State of Texas
My Commission Expires
January 11, 2018

Notary Public, State of Texas

Form TCEQ-10202 (revised 3/2010)

APPLICATION OF THE	§	BEFORE THE
LOWER COLORADO RIVER	§	
AUTHORITY FOR EMERGENCY	§	TEXAS COMMISSION ON
AUTHORIZATION RELATED TO	§	
WATER MANAGEMENT PLAN	§	ENVIRONMENTAL QUALITY

LOWER COLORADO RIVER AUTHORITY'S AMENDED BRIEF AND ATTACHMENTS IN SUPPORT OF APPLICATION FOR EMERGENCY AUTHORIZATION RELATED TO WATER MANAGEMENT PLAN UNDER TEXAS WATER CODE §§ 5.501, 11.138 & 11.139

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APPLICATION OF THE	§	**BEFORE THE**
LOWER COLORADO RIVER	§	
AUTHORITY FOR EMERGENCY	§	**TEXAS COMMISSION ON**
AUTHORIZATION RELATED TO	§	
WATER MANAGEMENT PLAN	§	**ENVIRONMENTAL QUALITY**

LOWER COLORADO RIVER AUTHORITY'S AMENDED BRIEF AND ATTACHMENTS IN SUPPORT OF APPLICATION FOR EMERGENCY AUTHORIZATION RELATED TO WATER MANAGEMENT PLAN

I. Introduction.

While May 2015 has brought devastating floods across Texas and made the record books as one of the wettest months on record, and though substantial gains in water storage in the reservoirs managed by the Lower Colorado River Authority (LCRA) have occurred, the lower Colorado River basin continues to suffer the effects of a prolonged and exceptional drought. After suffering from the worst single year drought in recorded history, the Lower Colorado River Authority (LCRA) has, four years in a row, sought and obtained emergency relief from the Texas Commission on Environmental Quality (TCEQ) related to the LCRA Water Management Plan (WMP), which orders have provided for alternative procedures for the curtailment of interruptible stored water from lakes Buchanan and Travis.[1] Most recently, on March 24, 2015, TCEQ affirmed the Executive Director's order granting emergency relief, again continuing LCRA's rights to restrict releases of interruptible stored water for irrigated agriculture in the

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[1] Attachment A – TEX. COMM'N ENVTL. QUAL., Docket No. 2015-0220-WR, *Order Affirming with Modification an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority Amending the 2010 Water Management Plan* (March 24, 2015) (herein "March 2015 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-1044-WR, *Order Affirming an Order Granted by the Executive Director that Grants an Emergency Order Requested by the Lower Colorado River Authority* (August 15, 2014) (herein "August 2014 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, *Order Affirming an Order issued by the Executive Director that grants a renewal of the Emergency Order issued to the Lower Colorado River Authority* (June 17, 2014) (herein "2014 Emergency Order Extension"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, *Order Affirming in Part, and Modifying in Part, the Executive Director's Emergency Order Authorizing the Lower Colorado River Authority to Amend its Water Management Plan* (Feb. 27, 2014) (herein "2014 Emergency Order").

See also TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Granting an Emergency Authorization to the Lower Colorado River Authority* (July 26, 2013) (herein "July 2013 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Affirming, with Modification, an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (June 10, 2013) (herein "2013 Emergency Order Extension"); TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Affirming, with Modification, an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (Feb. 19, 2013) (herein "2013 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2096-WR, *Order Affirming an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (Dec. 12, 2011) (herein "2011 Emergency Order").

lower basin for the first part of the 2015 irrigation season.[2] Consistent with these Emergency Orders, with the exception of the Garwood division, LCRA has not provided interruptible stored water for agricultural use for the last three plus years.

Unfortunately, although LCRA has eliminated nearly all releases of interruptible stored water for agriculture for the past three years, and *even* though recent rains have substantially increased available waters supplies statewide, the water supply conditions for the lower Colorado River basin stand out as significantly lagging behind the recovery curve that most reservoirs across Texas have enjoyed. Many of this state's reservoirs are at or near full capacity. However, the combined storage in lakes Buchanan and Travis on June 4, 2015 was 1,337,687 acre-feet or 66 percent full. The combined storage on June 1, 2015 was 1,304,400 acre-feet, or 65 percent full. While this represents a marked improvement over the past month – May 1 capacity was only 38 percent full – the need for the emergency relief sought in this application remains.

This drought is unprecedented in many respects, particularly with regard to inflows into lakes Buchanan and Travis, the primary water supply for this region. The Governor's Emergency Disaster Proclamation has consistently included the watershed contributing inflows to lakes Buchanan and Travis since July 2011. The reason for this inclusion is clear: annual inflows in 2011, 2013 and 2014 represent the three lowest inflow years on record and inflows in 2012 were also well below normal. As discussed further herein, by many metrics, inflows are significantly lower than inflows in the 1950s Drought of Record.

Without further relief, the 2010 WMP will once again become effective. As in recent years, LCRA again requests TCEQ to issue a new emergency order that would continue LCRA's rights to suspend any obligation it might have under the 2010 WMP to release interruptible stored water through the remainder of the irrigation season outside of the Garwood division. Reversion to the 2010 WMP could otherwise obligate LCRA to provide interruptible stored water for first or second crop rice that was initially planted using groundwater or for supplemental uses (such as row crops or wildlife management). The lower Colorado River Basin has a history of droughts temporarily broken by floods only to return to severe drought. This occurred in the 1950s drought and in the current drought with significant recoveries in 1952 and 2010 only to see drought conditions return in the following years. The improved storage conditions as of June 1, 2015 fall well short of the recoveries experienced in 1952 and 2010 and do not warrant returning to the provisions of the 2010 WMP. Continued suspension of interruptible stored water releases is a sound precautionary measure that will allow time to more fully assess whether the recent, welcome shift to wet weather will remain long enough to support resumption of more normal operations or whether – as in 1952 and 2010 – these conditions are merely a short-lived reprieve from one of the worst recorded droughts central Texas has ever experienced.

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[2] *See* Attachment A, March 2015 Emergency Order.

Reverting to the 2010 WMP could lead to calls for significant releases of interruptible stored water, thereby quickly erasing much of the gains the lakes have experienced in a very short time. In prior applications, LCRA has faced a near-term risk of having combined storage drop to a point where curtailment of its firm customers was imminent and, thankfully, recent increases in lake storage have considerably delayed that possibility. However; if persistent drought conditions resume as they did after 1952 and 2010, reversion to the 2010 WMP could cause significant drops in storage levels over a relatively short period of time, once again raising the risk that LCRA may have to declare a Drought Worse than Drought of Record (DWDR) under the WMP. In that case, LCRA would immediately cease any releases of water for agriculture, thus potentially wasting water supply that cannot be recaptured, while at the same time imposing mandatory water use reductions of 20% on municipal and industrial customers.

The Commission has repeatedly recognized since 2011 that the conditions that have faced this basin pose an imminent threat to human health and safety. And although recent wet weather offers considerable hope for the future water supply conditions, it is far too early to declare victory. Continued relief remains warranted and represents the most practicable alternative to addressing the emergency water supply conditions faced by the lower Colorado River basin.

II. Relief Requested – Overview.

Pursuant to LCRA Board Action, which authorized LCRA to seek relief for all of 2015,[3] LCRA requests that TCEQ issue a new emergency order suspending LCRA's obligations under the 2010 WMP related to interruptible stored water for downstream irrigation purposes for the remainder of the 2015 irrigation season. Specifically, LCRA seeks an emergency order pursuant to Texas Water Code § 11.139, and any other applicable law, confirming that LCRA does not have to provide interruptible stored water to any landowners or customers within the Gulf Coast, Lakeside, or Pierce Ranch irrigation operations, including those who might seek to use stored water for irrigating rice that has to date been watered with groundwater, or for any other purposes such as row crops, pasture or wildlife management.

LCRA requests this relief notwithstanding anything to the contrary in the 2010 WMP. LCRA requests that relief be granted pursuant to Texas Water Code §§ 5.501, 11.138, and 11.139. LCRA further requests that an order be issued by the Executive Director on or prior to June 18, but no earlier than June 11, 2015, so that this matter may be timely considered by the Commission at its July 1 agenda.

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[3] Attachment B-2, November 19, 2014 Resolution of the Board of Directors of the Lower Colorado River Authority Regarding Drought Management Actions in Response to Current Drought Conditions (herein "November 2014 LCRA Board Resolution").

III. Background: LCRA's Water Management Plan and Drought Contingency Plan.

A. Overview of LCRA's 2010 Water Management Plan.

LCRA holds several water rights, including the water rights for lakes Buchanan and Travis, under Certificates of Adjudication 14-5478 and 14-5482 (Attachments C and D), which are further subject to the conditions and criteria set forth in the 2010 WMP (Attachment E). The original Water Management Plan was required by court order[4] and is a condition of LCRA's Certificates of Adjudication 14-5478 and 14-5482.[5] The Certificates of Adjudication and the TCEQ-approved WMP govern LCRA's operation of lakes Buchanan and Travis and dictate how LCRA makes water available from these lakes to help meet "firm" water[6] customer needs, downstream interruptible irrigation demands, and environmental flow needs of the lower Colorado River and Matagorda Bay. Certificates of Adjudication 14-5478 and 14-5482 state that "LCRA shall interrupt or curtail the supply of water . . . pursuant to commitments that are specifically subject to interruption or curtailment, to the extent necessary to allow LCRA to satisfy all demand for water under such certificate[] pursuant to all firm, uninterruptible water commitments."[7] The TCEQ-approved WMP further describes how LCRA will manage and curtail supplies from the lakes during times of drought including through a repeat of the 1950s Drought of Record.[8] The WMP also sets forth criteria for triggering various drought response measures for customers upon declaration of a Drought Worse than the Drought of Record (DWDR).[9]

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4 *See* Attachment F, Excerpts from *In re The Exceptions of the Lower Colorado River Authority and the City of Austin to the Adjudication of Water Rights in the Lower Colorado River Segment of the Colorado River Basin*, No. 115, 414-A-1 (264th Dist. Ct., Bell County, Tex. April 20, 1988), Lake Buchanan Conclusion of Law 4 and Lake Travis Conclusion of Law 6.

5 *See* Attachment C, Certificate of Adjudication 14-5478 at p. 4 (2.B.(7)); and Attachment D, Certificate of Adjudication 14-5482 at p. 4 (2.B.(7)).

6 Firm water refers to the amount of water that LCRA has determined would be available on a consistent or firm basis through the 1950s Drought of Record water availability analysis after honoring all senior water rights.

7 *See* Attachment C, Certificate of Adjudication 14-5478 at p. 4 (2.B.(7)); and Attachment D, Certificate of Adjudication 14-5482 at p. 4 (2.B.(7)).

8 Drought of Record refers to the worst hydrologic drought that has occurred since detailed records have been kept. This drought for the lower Colorado River basin is the drought that occurred from 1947-1957. The WMP states that the Drought of Record occurred between 1947 and 1956. The reservoirs, however, did not recover until mid-1957. See Attachment E – 2010 WMP at p. 4-19. Although preliminary information suggests the ongoing drought may be more severe than the 1950s Drought of Record, for purposes of the WMP and LCRA's firm water contracts, the Drought of Record is the drought from 1947-1957.

9 Attachment E – 2010 WMP at 4-34. The WMP criteria for declaring a DWDR are indicator criteria that can be evaluated in real time to assess whether an ongoing drought might be worse than the 1950s Drought of Record. One of these criteria – combined storage – is also affected by demands. Therefore, it is possible that a drought may actually be worse than the Drought of Record *even if* storage content is held above the triggering criteria through the implementation of demand management strategies.

As established in the 2010 WMP, the combined firm yield of lakes Buchanan and Travis, while honoring downstream senior water rights, is 535,812 acre-feet per year (AFY). Of this amount, 90,546 AFY is committed to O.H. Ivie Reservoir, making 445,266 AFY of firm water supply available from lakes Buchanan and Travis for LCRA to help meet the firm water needs of its customers.[10] Until firm demand for water from lakes Buchanan and Travis equals the combined firm yield, LCRA can supply stored water from these lakes for irrigated agriculture on an interruptible basis.[11] The maximum historical annual amount of reported firm water use by LCRA customers from the firm supplies of lakes Buchanan and Travis during 2000 through 2014 was about 247,000 acre-feet in 2011. In addition, about 33,000 acre-feet of water was supplied in 2011 to help meet environmental flow needs. The maximum amount of interruptible stored water released from lakes Buchanan and Travis during this same period occurred in 2011 and totaled about 433,000 acre-feet. The maximum total amount released or used from the Highland Lakes, about 714,000 acre-feet, occurred in 2011. In 2012, firm water use from lakes Buchanan and Travis by LCRA customers was about 148,000 acre-feet; about 31,000 acre-feet was supplied to help meet environmental flow needs; and about 9,000 acre-feet of interruptible stored water was supplied to farmers in the Garwood irrigation division. Total use of water from lakes Buchanan and Travis in 2012 was about 188,000 acre-feet. In 2013, firm water use from lakes Buchanan and Travis by LCRA customers was about 173,000 acre-feet; about 33,000 acre-feet was supplied to help meet environmental flow needs; and about 22,000 acre-feet of interruptible stored water was supplied for farmers in the Garwood irrigation division. Total use of water from lakes Buchanan and Travis in 2013 was about 229,000 acre-feet. In 2014, firm water supplied from lakes Buchanan and Travis by LCRA customers was about 128,000 acre-feet; about 5,000 acre-feet was supplied to help meet environmental flow needs; and about 16,000 acre-feet of interruptible stored water was supplied for farmers in the Garwood irrigation division. Total supply of water from lakes Buchanan and Travis in 2014 was about 149,000 acre-feet. *See* Amended Affidavit of Ryan Rowney (Attachment G).

To manage the supply, the 2010 WMP imposes several trigger points keyed to the total combined storage capacity of lakes Buchanan and Travis that are intended to ensure that reasonable firm water demands can be met during droughts.[12] For purposes of this application, the most relevant trigger points are set out in Table 1.

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[10] Attachment E – 2010 WMP at 5-31.

[11] *See* Attachment F, Excerpts from *In re The Exceptions of the Lower Colorado River Authority and the City of Austin to the Adjudication of Water Rights in the Lower Colorado River Segment of the Colorado River Basin*, No. 115, 414-A-1 (264th Dist. Ct., Bell County, Tex. April 20, 1988), Finding of Fact No. 19(e) (Lake Buchanan) and Finding of Fact No. 26(e) (Lake Travis).

[12] Attachment E – 2010 WMP at 4-5.

Table 1. 2010 WMP Triggers

Combined Storage of lakes Buchanan and Travis	Date on Which Trigger is Decided	Action Taken
1.4 MAF	At any time	Request firm customers to implement voluntary drought response measures.[13]
1.4 MAF	On Jan. 1	Begin gradual curtailment of interruptible supply to four major irrigation operations. Environmental releases for instream flows reduced to meet critical needs for ecosystems for following year.[14]
900,000 acre-feet	At any time	Request firm customers to implement mandatory water restrictions; develop firm customer curtailment plan.[15]
600,000 acre-feet	At any time	If criteria indicate a drought worse than the Drought of Record, then cease interruptible supply and begin mandatory pro rata curtailment of firm supply.[16]

The 2010 WMP also includes conditions under which the LCRA Board of Directors may declare a Drought Worse than the Drought of Record (DWDR).[17] To declare a DWDR, the Board must find that the following three conditions are simultaneously met:

1. Duration of drought is more than 24 months, which is determined by counting the number of consecutive months since both lakes Buchanan and Travis were last full;[18]
2. Inflows to the lakes are less than inflows during the Drought of Record;[19] and

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[13] *Id.* at 4-32.

[14] Attachment E – 2010 WMP at 4-32; 2010 WMP Order at FOF 9, 10 and 11.

[15] Attachment E – 2010 WMP at 4-32.

[16] *Id.*

[17] As noted above, these criteria are real-time indicators that a drought *might* be worse than the 1950s Drought of Record. It is possible that although the criteria are all met, once the full hydrologic dataset is evaluated, the drought might not be worse than the 1950s Drought of Record. Conversely, in a drought that is later shown to hydrologically be worse than the 1950s Drought of Record, because of demand management during the drought, the combined storage might remain above 600,000 acre-feet, such that all three criteria for the declaration of DWDR are not satisfied.

[18] *Id.* at 4-34. For purposes of the WMP, the duration of a drought is the time period since both lakes Buchanan and Travis were at their maximum allowable water conservation storage levels.

[19] The cumulative inflow deficit since the beginning of the drought must exceed the envelope curve for cumulative inflow deficits by at least 5 percent for six consecutive months. Attachment E – 2010 WMP at 4-34.

3. Combined storage of lakes Buchanan and Travis is less than 600,000 acre-feet of water.[20]

Under the 2010 WMP, once a drought has lasted more than 36 months and a DWDR has been declared, interruptible stored water must be fully and immediately curtailed – making no stored water available for agricultural irrigation or other interruptible uses until lake levels recover or the inflows into the lakes increase substantially.[21] Moreover, LCRA will implement pro rata curtailment of its firm water users once a DWDR is declared and after interruptible stored water (agriculture) uses have been cut off.[22]

Prior to a declaration of a DWDR, however, LCRA is obligated by the 2010 WMP to provide at least some interruptible stored water to the four major irrigation operations. Under the 2010 WMP, the LCRA Board is to make a preliminary determination in November based on projections of storage on January 1 of the upcoming year.[23] Using January 1 storage, the amounts available under the 2010 WMP follow a sliding scale.[24] Thus, the decision regarding curtailment of interruptible supplies to the four major irrigation operations during the entire year is keyed to the January 1 storage levels.[25] Based on the January 1, 2015 combined storage of 689,400 acre-feet, the 2010 WMP would provide about 175,000 acre-feet of interruptible stored water for diversion by those operations. (*See* Figure 1, Curtailment Curve from 2010 WMP.) Total curtailment of interruptible stored water under the 2010 WMP does not occur until a declaration of a DWDR.

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20 *Id.* at 4-34.

21 *Id.* at 4-34.

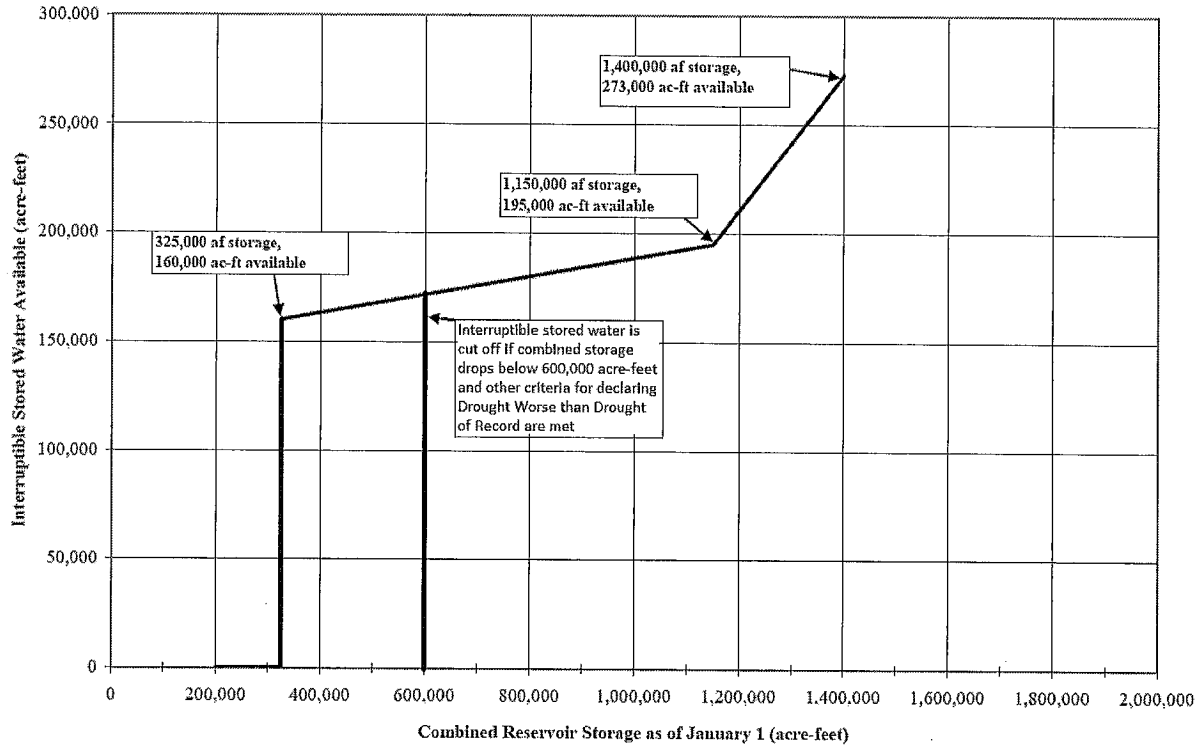
22 *Id.*

23 *Id.* at 3-7 and 4-21.

24 *Id.* at 4-24.

25 *Id.* at 3-7 and 4-21.

Figure 1. Interruptible Stored Water Available for Diversion by the Four Downstream Irrigation Operations under the 2010 WMP



B. Overview of LCRA's Drought Contingency Plan and relationship to the Water Management Plan.

Prior to adoption of state law in 1997 and TCEQ's subsequent adoption of the Chapter 288 rules in 1999 that require all major water rights holders to develop and implement a drought contingency plan (DCP), LCRA already had a "Drought Management Plan" for managing its water supplies in lakes Buchanan and Travis through a repeat of the 1950s Drought of Record. The "Drought Management Plan" was incorporated in the WMP and when TCEQ adopted its rules for DCPs, LCRA adopted separate stand-alone DCPs for its irrigation, municipal and industrial operations that more specifically addressed the requirements of the Chapter 288 rules. Then, although the DCP addressed things not specifically required of the original court or TCEQ orders on the WMP, LCRA incorporated the DCPs into Chapter 4 of the 2010 WMP, largely for customer ease of reference. LCRA was originally required to develop the Drought Management Plan as a direct result of the court order adjudicating LCRA's water rights and the Texas Water Commission's 1989 WMP Order, giving initial approval to LCRA of an earlier version of the plan. Specifically, the Commission ordered LCRA to submit a drought management plan to the Commission for its review and approval, which was filed with the Texas Water Commission on October 19, 1990.[26] The Drought Management Plan is subject to the continuing supervision of

[26] Attachment E – 1989 WMP Order, Ordering Provision 1.g.; 1990 WMP Order FOF 4.

the TCEQ and LCRA is required to provide an annual report documenting compliance with the approved plan and any special conditions.[27]

When LCRA was required under TCEQ's Chapter 288 rules to develop and implement a DCP, LCRA incorporated the same triggers and criteria from the approved WMP into its DCP, and elaborated on the details of how pro rata curtailment of interruptible customers might occur to comply with the additional requirements of TCEQ's Chapter 288 rules. The Drought Management Plan included elements that go beyond what is required of a DCP, particularly the allocation of supply between firm and interruptible customers. TCEQ has recognized that LCRA can modify certain elements of its DCP without amending the WMP and providing an opportunity for contested case hearing.[28] However, this does not include changes that alter the total amount of interruptible stored water supplied under the WMP.

The water use reduction targets in LCRA's DCP for firm water supplies comply with TCEQ's DCP rules adopted in 2004. These include:

- water use reduction goals for firm water supply customers of 5 percent by asking customers to implement their voluntary water use reduction measures when the combined storage of lakes Buchanan and Travis is less than 1.4 million acre-feet;
- a 10 to 20 percent reduction goal by asking firm customers to implement their own mandatory water use reduction measures when combined storage levels fall below 900,000 acre-feet; and
- pursuant to Texas Water Code § 11.039, a mandatory pro rata curtailment of firm water supplies for customers of 20 percent or more will be implemented when combined storage levels fall below 600,000 acre-feet and other criteria in the WMP are met that correspond to a drought more severe than the Drought of Record.

In April 2007, LCRA adopted changes to LCRA's raw water contract rules to improve implementation of LCRA's DCP. These included:

- clarifying how LCRA will, in accordance with Texas Water Code § 11.039, impose a pro rata curtailment during an emergency shortage of firm water as a result of a drought, accident, or other cause;

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27 Attachment E – 1990 WMP Order, Ordering Provision 1.b., 1.e.

28 Attachment E – 2010 WMP Order, Ordering Provision 1.g. Some of LCRA's firm customers dispute the extent to which LCRA can modify the firm customer DCP without an opportunity for a contested case hearing as part of a WMP amendment process. This issue, however, is not specifically relevant to this application for emergency relief.

- providing that a customer must pay a surcharge to be set by the LCRA Board for the unauthorized use of water, if the customer takes more water than authorized under a mandated curtailment of firm water supplies; and
- clarifying the drought contingency requirements related to golf course irrigation and recreational use.

In June 2010, LCRA adopted additional changes to LCRA's raw water contract rules that include the procedures for implementing a pro rata curtailment of firm water customers.[29] Additional changes were made to the rules related to pro rata curtailment in December 2013 and November 2014. The 2010 WMP includes a requirement that LCRA develop a stored water curtailment plan to be approved by the LCRA Board and TCEQ in response to combined storage dropping below 900,000 acre-feet.[30] TCEQ approved LCRA's water curtailment plan for its firm customers in December 2011.[31] Under this curtailment plan and LCRA's DCP, in the event that combined storage drops below 600,000 acre-feet and a DWDR is declared, firm customers will be subject to an initial 20 percent mandatory reduction in use as compared to a recent baseline demand.

In response to the ongoing drought conditions, the LCRA Board further amended the firm customer drought contingency plan to require that, if combined storage on March 1, 2014 was below 1.1 million acre-feet and interruptible stored water supply to the Gulf Coast, Lakeside and Pierce Ranch irrigation operations was cut off, LCRA's customers would be required to implement a landscape irrigation watering schedule of no more than once per week.[32] The Board reaffirmed this action in November 2014.[33] This restriction was in effect from March 1, 2014 to May 26, 2015 when combined storage increased to above 1.1 million acre-feet. With combined storage still below 1.4 million acre-feet, LCRA will follow its DCP and request that firm customers voluntarily implement the applicable drought response measures in their drought contingency plans. LCRA has also adopted measures that would take effect in the event that a DWDR is declared and has spent considerable time preparing for possible further declines in storage. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I).

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29 *See* LCRA Water Contract Rules, Article 11, Pro Rata Curtailment of Water Use by Firm Water Customers, *available at*: http://lcra.org/water/water-supply/water-supply-contracts/ (last visited Dec. 18, 2014).

30 Attachment E – 2010 WMP at 4-32 & 2010 WMP Order, Ordering Provision No. 1(g).

31 Attachment H, TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2097-WR, *Order Approving the Lower Colorado River Authority's Water Curtailment Plan for its Firm Water Customers* (Dec. 12, 2011).

32 *See* Attachment B-1, November 2013 LCRA Board Resolution. While some LCRA firm customers have questioned LCRA's authority to implement this restriction, the customers are nonetheless implementing the restrictions. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I). LCRA's authority on this issue is not specifically relevant to this application for emergency relief.

33 *See* Attachment B-2, November 2014 LCRA Board Resolution.

IV. There is an Emergency.

LCRA requests the Commission to promptly act on its request to address the exceptional drought that has persisted in the areas that contribute inflows to lakes Buchanan and Travis and preserve water to meet the essential needs of LCRA's municipal and industrial customers if the drought continues. As discussed below, this drought is unprecedented in many respects, particularly with regard to inflows into the primary water supply for this region, lakes Buchanan and Travis. At times, this drought has been more intense than the region's Drought of Record that occurred between 1947 and 1957. The Governor on May 8, 2015, re-issued the Emergency Disaster Proclamation regarding drought for many areas of the state, including nearly all the counties in the lower Colorado River basin that border on and contribute inflows into lakes Buchanan and Travis.[34] The Governor's declaration recognizes that "significantly low rainfall across Texas beginning in late 2010 and continuing has resulted in declining reservoir and aquifer levels, threatening water supplies and delivery systems in many parts of the state" and that the "drought conditions have reached historic levels and continue to pose an imminent threat to public health, property, and the economy."[35] Recent wet weather and improvements in water storage conditions provide no assurance that the longer-term drought is indeed coming to an end. Accordingly, emergency relief remains warranted and appropriate.

A. The lakes have not recovered, despite the emergency orders in place in 2012, 2013 and 2014 or recent rains.

1. Record-low inflows into lakes Buchanan and Travis have continued.

By almost every measure, the inflows to the Highland Lakes are at record lows. At times, the inflow deficit has been as much as 90% more than the inflow deficit for a similar period of inflows experienced during the historic Drought of Record for the lower Colorado River basin, which occurred from 1947 to 1957. Amended Affidavit of Ron Anderson (Attachment K, Tab 2). While inflows in May 2015 erased the inflow deficit, the combined storage in lakes Buchanan and Travis—about 66 percent full—is far from recovered. *See* Amended Affidavit of Ryan Rowney (Attachment G).

Annual gauged inflows into lakes Buchanan and Travis in five of the last six years are among the ten lowest years of inflow on record as shown in Table 2. Inflows in 2011, 2013 and 2014 were the three lowest inflows on record. *See* Amended Affidavit of Ryan Rowney (Attachment G).

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[34] Attachment J, *available at*: http://gov.texas.gov/files/press-office/DISASTER_drought_proc_05_08_15.pdf (last visited May 11, 2015). Counties included in the Governor's declaration that contribute flows into or contain LCRA's Highland lakes include: Burnet, Edwards, Gillespie, Kendall, Kerr, Lampasas, Llano, McCulloch, Mills, Real, San Saba and Travis.

[35] *Id.*

Table 2. Lowest Annual Gauged Inflows into the Highland Lakes (acre-feet)

Year	Amount
2011	127,802
2014	209,023
2013	215,138
2008	284,462
2006	285,229
1963	392,589
2012	393,163
1983	433,312
1999	448,162
2009	499,732
Average (1942-2014)	1.2 million

Gauged inflows into lakes Buchanan and Travis during the current drought have been the lowest for time periods ranging from 12 months up to 84 months, and are significantly lower for periods of similar duration during the historic Drought of Record. *See* Table 3. In fact, the total inflows for the 84 months ending in April 2015 were only about half of the lowest 84-month inflow period in the Drought of Record. *See* Amended Affidavit of Ryan Rowney (Attachment G).

Table 3. Comparison of Gauged Inflows in Current Drought to Drought of Record

	Lowest inflows for time period in ongoing drought		Lowest inflows for time period in 1950s Drought of Record	
Time Period	Period ending	Inflows (acre-feet)	Period ending	Inflows (acre-feet)
12 months	Sept. 2011	120,160	Apr. 1951	408,784
24 months	May 2014	393,337	Mar. 1952	1,006,681
36 months	Mar. 2015	643,177	Aug. 1952	1,636,088
48 months	Feb. 2015	936,774	Aug. 1952	3,035,846
60 months	Apr. 2015	1,348,206	Aug. 1952	4,128,806
72 months	Apr. 2015	2,372,796	Apr. 1955	5,193,016
84 months	Apr. 2015	2,617,790	Aug. 1952	6,050,804

When inflows are adjusted to account for the fact that O.H. Ivie Reservoir was not in place in the 1950s, the comparison of the current drought to the Drought of Record still shows

the recent inflows are significantly lower than the 1950s Drought of Record, with inflows since 2008 at about 70 percent of the inflows for the first seven years of the Drought of Record. *See* Amended Affidavit of Ron Anderson (Attachment K, Tab 3). This is the case even with the inclusion of May 2015 inflows.

2. High temperatures and sporadic rainfall have contributed to the low inflows and low lake levels.

In addition to the record-low inflow conditions affecting lakes Buchanan and Travis noted above, drought conditions have been recognized throughout the state in the form of rainfall and extreme heat. Year 2011 was recognized by Texas State Climatologist, Dr. John Nielsen-Gammon, as the worst one-year statewide drought on record. The summer of 2011 was the hottest on record in Texas. Year 2011 was the hottest on record for Austin, and the second hottest statewide. Year 2012 tied with 1921 as the hottest on record statewide. Summer temperatures for Austin in 2013 were the 5th hottest on record. Although summer 2014 was not as extreme in Austin, it was still above normal, ranking the 34th warmest since 1895. *See* Amended Affidavit of Bob Rose (Attachment L).

Since 2011, there have been some periods with closer to normal rainfall totals, but until the past month, the rainfall has generally been sporadic, often with several weeks between significant rain events. Rain events in the contributing watershed of lakes Buchanan and Travis 2014 failed to provide the type of inflows needed for the lake levels to improve. For example, a rain event in early November 2014 included rain totals averaging two to three inches above the Highland Lakes but produced only about 4,000 acre-feet of inflow to the lakes; another event later in November with rain totals averaging one to three inches yielded about 17,000 acre-feet of inflow. *See* Amended Affidavit of Bob Rose (Attachment L); Amended Affidavit of Ryan Rowney (Attachment G). While these events lacked prolonged, heavy rainfall intensity, the limited amount of inflows are indicative of the severity of the ongoing drought and the dry soil conditions that have been in place. By comparison, an event in March 2007 with similar rainfall totals (but more intensity) produced almost 100,000 acre-feet of inflows to lakes Buchanan and Travis. *See* Amended Affidavit of Bob Rose (Attachment L); Amended Affidavit of Ryan Rowney (Attachment G). Similar rain events in 2013 were equally as unproductive from a water supply standpoint. *See* Amended Affidavit of Ryan Rowney (Attachment G).

The rains in the first four months of 2015 tended to be heaviest below the Highland Lakes. *See* Amended Affidavit of Bob Rose (Attachment L). The gauged inflows into the Highland Lakes for the period of January to April 2015 totaled about 71,000 acre-feet as compared to about 620,000 acre-feet that flowed past Bay City at the lower end of the Colorado River. *See* Amended Affidavit of Ryan Rowney (Attachment G). Only in May did inflows to the Highland Lakes jump, with gauged inflows totaling about 400,000 acre-feet. *See* Amended Affidavit of Ryan Rowney (Attachment G).

The drought conditions have created a circumstance where, prior to May 2015, the lakes have been unable to recover in any significant manner, even with an emergency cutoff of nearly all water supply for downstream irrigation in 2012, 2013 and 2014, as well as the emergency relief associated with releases for the Blue Sucker in the Spring of 2014 and 2015. And even with the influx of water into the lakes in the past month, the combined storage of lakes Buchanan and Travis is far from recovered. As noted above, by many measures, the recent low inflows are already as bad as or worse than the 1950s.

3. Recent wet conditions have improved water supply conditions, but significant improvements are still needed

May 2015 rainfall was above normal over much of the Highland Lakes watershed and the state. Normal to above normal rainfall is forecast for the watershed for this summer, which offers hope for continued improvements in water supply conditions. Later in the year, above normal rainfall is forecast for the Highland Lakes watershed. *See* Amended Affidavit of Bob Rose (Attachment L). However, May 2015 represents only the second month in the past five years in which inflows were above average for the month. *See* Amended Affidavit of Ryan Rowney (Attachment G). Thus, while the May inflows were a marked improvement and the rainfall forecasts are promising, continued normal and above-normal inflows are needed to offset the years of record-low inflows.

B. Reverting to the 2010 Water Management Plan creates the potential of releasing water that should be conserved for later use if the dry conditions return.

If LCRA were to revert to the 2010 WMP for the remainder of the irrigation season, farmers who have started crops on groundwater or run-of-river water may seek to compel LCRA to make interruptible stored water available at a time when sufficient recovery in lake storage has not occurred. Although LCRA does not have a definite estimate of the amount of interruptible stored water that could be needed by these farmers,[36] the 2010 WMP establishes a maximum annual supply for diversion of a substantial amount of water - up to 175,000 acre-feet so long as

[36] Based upon acreages filed with the Farm Service Agency, in 2014, approximately 5,000 acres of rice were planted on groundwater in Matagorda County, approximately 27,200 acres in Wharton County and approximately 12,300 acres in Colorado County. For 2015, FSA data is not yet available. However, LCRA staff expects 2015 acreages to be similar. The extent to which these acres are within LCRA's irrigation operation service areas is unknown. Similarly, whether farmers within LCRA's Lakeside and Gulf Coast service areas who started on groundwater would seek delivery of interruptible stored water that may be available should emergency relief be denied is unclear. It is reasonable to assume that Pierce Ranch would use more surface water if available, given that it already is using run-of-river supply. More water could be requested for waterfowl later in the year even if the land was not farmed. See Amended Affidavit of Ryan Rowney (Attachment G).

storage remains below 1.4 million acre-feet.[37] While LCRA is hopeful that the recent rainfall and runoff represent a reliable shift from the five-year trend of below normal inflows, it could just be a short blip in this otherwise persistent drought. Furthermore, the recovery in storage as of June 4, 2015 falls well short of the recoveries in 1952 and 2010—years which in retrospect represented a reprieve rather than an end to prolonged drought.[38] If recent inflows represent a similar short-term reprieve, reverting to the 2010 WMP and releasing this amount of water could cause the lakes to fall nearly as fast as they have risen and place the lower Colorado River basin right back in the position of facing significant potential for mandatory curtailment of firm water customers should dry conditions return. *See* Amended Affidavit of Ron Anderson (Attachment K). Any water previously released would no longer be in storage to help meet the needs of LCRA's firm customers through such a prolonged drought.

This approach is unacceptable.

The 2010 WMP requires that firm customers (mainly cities and industries) be curtailed on a pro rata basis and that LCRA cease all releases for interruptible stored water (*regardless* of the impact on the crops) when a DWDR is declared.[39] As discussed above, to declare a DWDR under the WMP, the Board must find that the following three criteria indicating conditions may be worse that the 1950s Drought of Record are simultaneously met:

1. Duration of drought is more than 24 months, which is determined by counting the number of consecutive months since both lakes Buchanan and Travis were last full;[40]

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37 As discussed in the Amended Affidavit of Ryan Rowney (Attachment G), requiring LCRA to provide interruptible stored water for agricultural at this point also presents very practical concerns. For example, LCRA's canals have been shut down and maintained only at a very minimal level for the last 3 years. It would not be surprising to find significant increases in canal losses due to vegetation growth and compromised integrity of canals that have not had more continuous maintenance typical of LCRA's normal operations. If a limited supply were available, determining which canals could be efficiently operated on short order may prove difficult and controversial among customers spread across the system who originally started on groundwater or for landowners who wish to use the water for waterfowl. Historically, LCRA has only made water available for waterfowl if canals that were already in operation for rice irrigation had sufficient capacity. Charging canals only for waterfowl purposes could require significant expense and may be inefficient from a water management perspective. Moreover, LCRA does not have Board-approved form contracts or rates for 2015 interruptible supply that can be used to provide interruptible stored water for rice, turf or supplemental uses. Since the last time LCRA provided interruptible stored water, significant updates to cost of service studies and rate design have been conducted with considerable stakeholder input; however, final rates have not been adopted and many issues remain unresolved.

38 After the inflows in September 1952, the combined storage of lakes Buchanan and Travis was almost 1.6 million acre-feet; in May 2010, the combined storage was over 1.8 million acre-feet. *See* Amended Affidavit of Ryan Rowney (Attachment G).

39 Attachment E – 2010 WMP at 4-32.

40 Attachment E – 2010 WMP at 4-34. For purposes of the WMP, the duration of a drought is the time period since both lakes Buchanan and Travis were at their maximum allowable water conservation storage levels.

2. Inflows to the lakes are less than inflows during the Drought of Record;[41] and

3. Combined storage of lakes Buchanan and Travis is less than 600,000 acre-feet of water.[42]

The first criterion has been met. The drought has lasted more than 24 months. In fact, despite significant rains in 2007 and 2010, the last time that both lakes Buchanan and Travis were simultaneously at their maximum allowable water conservation storage levels was February 13, 2005. *See* Amended Affidavit of Ryan Rowney (Attachment G). In addition, the cumulative inflow deficit criteria had been met until this month. If inflows revert to the levels experienced in all but two of the past 61 months, the inflow deficit criteria would again be met in short order. *See* Amended Affidavit of Ron Anderson (Attachment K). Despite the emergency relief implemented in 2012, 2013 and 2014, the combined storage in the lakes failed to substantially recover. In fact, during a sixteen-month period, even with emergency relief, combined storage fell from 1,032,000 acre-feet (51 percent full) on May 22, 2012 to 637,000 acre-feet (31 percent full) on September 19, 2013. The combined storage in lakes Buchanan and Travis was about 1,337,687 acre-feet on June 4, 2015, or about 66 percent full. *See* Amended Affidavit of Ryan Rowney (Attachment G). Even now, with widespread rains across the entire state and wet ground, where reservoirs in neighboring basins to either side of the Colorado River are overflowing and many reservoirs are nearly full, the water supply conditions within the Colorado River basin are markedly behind. Amended Affidavit of David Wheelock (Attachment M).

Following the 2010 WMP significantly increases the risk that the recent gains in storage will be reversed and, if dry conditions return, the potential for declaring a DWDR will return in the next year. The 2010 WMP employs a "curtailment curve" that determines the amount of interruptible stored water to be made available based on the combined storage in lakes Buchanan and Travis on January 1 of any year. However, as explained above, interruptible stored water can be completely curtailed at any time during the irrigation season if the combined storage of lakes Buchanan and Travis drops to 600,000 acre-feet. Based on January 1, 2015 combined storage of 689,400 acre-feet, the 2010 WMP would have required LCRA to make available around about 175,000 acre-feet for diversion for interruptible irrigation use in the lower basin for the 2015 crop year.[43] *See* Amended Affidavit of Ryan Rowney (Attachment G). Although demand for interruptible stored water is expected to be reduced because most planting decisions have already occurred, if LCRA is required to make water available under the provisions of the 2010 WMP, farmers that started rice on groundwater or farmers seeking to use water for other crops or for wildlife management could decide to call upon interruptible stored water.

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41 The cumulative inflow deficit since the beginning of the drought must exceed the envelope curve for cumulative inflow deficits by at least 5 percent for six consecutive months. Attachment E – 2010 WMP at 4-34.

42 Attachment E – 2010 WMP at 4-34.

43 Attachment E – 2010 WMP at 4-24 & 4-26.

The only meaningful action that can be taken to preserve LCRA's firm water supplies is for LCRA to continue to seek and obtain the relief that has been granted in prior Commission Orders; namely, to allow LCRA to continue to suspend all releases of interruptible stored water to its interruptible stored water customers other than Garwood. *See* Amended Affidavit of Ron Anderson (Attachment K); Amended Affidavit of David Wheelock (Attachment M).

V. The Emergency Conditions Present an Imminent Threat to the Public Health and Safety.

LCRA provides raw water out of the combined firm yield of lakes Buchanan and Travis to over 60 retail and wholesale potable water suppliers that together serve over one million people. LCRA's municipal raw water customers include, but are not limited to, the Cities of Austin, Cedar Park, Leander, Burnet, Marble Falls, Pflugerville, Lakeway, Bee Cave, Horseshoe Bay, other Highland Lakes cities, water supply corporations, special districts, and investor-owned utilities. In addition, LCRA provides water to several electric utilities—LCRA, Bastrop Energy Partners, Austin Energy, Gen-Tex Corporation, and South Texas Project Nuclear Operating Company—from the firm water supply of lakes Buchanan and Travis. These electric utilities provide electricity into the electrical grid in Texas operated by the Electric Reliability Council of Texas (ERCOT) and provide electricity to customers in Texas. LCRA also provides firm raw water to several industries located downstream, including Oxea Chemical and Underground Services Markham. *See* Amended Affidavit of David Wheelock (Attachment M).

As discussed above, if LCRA were following the 2010 WMP this year, LCRA would be obligated to release significant quantities of water from lakes Buchanan and Travis for interruptible agriculture—as much as 210,000 acre-feet. *See* Amended Affidavit of Ryan Rowney (Attachment G). As the commission has repeatedly determined, such releases in light of the drought conditions this basin has been experiencing pose an imminent threat to public health and safety.[44] Now, midway through the crop season, even with an improvement in combined storage, it is not the time to resume releases of interruptible stored water to farmers in the Gulf Coast, Lakeside and Pierce Ranch agricultural operations. Such a release would only reverse the recent gains in storage and, if dry conditions return, once again unreasonably increase the chance that LCRA will have to curtail firm customers as a result of interruptible stored water releases this year.

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[44] Attachment A – March 2015 Emergency Order, Finding of Fact Nos. 15-16, 20, 24-30, 32, 35, Conclusion of Law No.2; August 2014 Emergency Order, Finding of Fact Nos. 12-14, 20, 24-27, 32, 34, Conclusion of Law No. 2; 2014 Emergency Order Extension, Finding of Fact No. 3, 12, Conclusion of Law No. 4; 2014 Emergency Order, Finding of Fact Nos. 18-22, 28, 30, 31, 33-36, 45, 60, 61, Conclusion of Law 4; *see also* 2013 Emergency Order, Finding of Fact Nos. 18, 20, 22, 27, 31-33, Conclusion of Law 2; 2013 Emergency Order Extension, Finding of Fact Nos. 9, 10, 16, 17, Conclusion of Law 4; July 2013 Emergency Order, Finding of Fact Nos. 21, 23, 26, 28, Conclusion of Law 2; 2011 Emergency Order, Finding of Fact Nos. 20, 21, 25, 30, 31, Conclusion of Law 2.

As noted above, although the above-average May 2015 inflows are a marked improvement, the water supply continues to suffer the effects of a multi-year drought in which gauged inflows to the Highland Lakes were below average in 59 of the past 61 months. *See* Amended Affidavit of Ryan Rowney (Attachment G). The conditions once again support the conclusion that following the 2010 WMP under these conditions poses an imminent threat to firm customers served by LCRA.[45] As the drought has continued, LCRA and its firm customers are actively exploring ways to acquire or develop alternative water supplies to meet essential needs of their respective potable water systems. However, it takes many years to develop significant additional new water supplies. As the Commission recognized in prior emergency orders, the sheer length of time that it takes to develop or conserve significant quantities of water supply means that a water supply emergency arises well before a reservoir goes dry.[46] Releasing interruptible stored water based on the 2010 WMP further increases the amount of water for essential needs that will need to be acquired elsewhere should the drought continue. For the most part, although LCRA's firm customers are working on plans to implement curtailment and secure alternate supplies (such as local groundwater), most have not secured any readily available sources of water supply that could substitute for their reliance on the Colorado River. *See* Amended Affidavit of Ryan Rowney (Attachment G); Amended Affidavit of David Wheelock (Attachment M).

Moreover, as the lake levels drop, it becomes more difficult and expensive for the retail water suppliers to pump water from lakes Buchanan and Travis.. LCRA has 18 customers that actively take raw water for municipal purposes from Lake Travis. The lowest pumping elevations of the intakes range from about 545 feet mean sea level (msl) to 645 feet msl on Lake Travis. If the levels in Lake Travis or Lake Buchanan drop below the current lowest pumping elevations, LCRA and its wholesale raw water customers must take action to either lower their pumping elevation or find alternative supplies. For smaller systems, the alternative is likely hauling water from a water utility with a viable source. For larger systems, temporary measures must be implemented to extend the intake capabilities to reach lower elevation water. Similar measures would likely be needed by LCRA's raw water customers that have their own intake facilities. Firm customers have indicated that they are actively spending or planning to spend funds to allow their intakes to operate at lower elevations. *See* Amended Affidavit of Ryan Rowney (Attachment G). Overall, over 40 public water systems that rely on the Highland Lakes or that draw from the tributaries that typically contribute significant inflow to the Highland Lakes are already in some form of drought restriction and are at risk of water supply shortages.[47]

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[45] *Id.*

[46] Attachment A - March 2015 Emergency Order, Finding of Fact Nos. 41-43; August 2014 Emergency Order, Findings of Fact Nos. 32, 34; 2014 Emergency Order, Finding of Fact Nos. 45, 60, 61; *see also* 2013 Emergency Order, Findings of Fact Nos. 32-33; 2013 Emergency Order Extension, Finding of Fact No. 16; July 2013 Emergency Order, Finding of Fact No. 28; 2011 Emergency Order, Findings of Fact Nos. 30-31.

[47] *See* Tex. Comm'n Envtl. Qual., *List of Texas PWSs Limiting Water Use to Avoid Shortages* at: http://www.tceq.texas.gov/drinkingwater/trot/droughtw.html (last updated on May 8, 2015) (last visited May

If the lake levels drop more quickly than arrangements for alternative intakes or supplies can be implemented, the current drought presents an imminent threat to public health and safety for the water systems of those customers. *See* Amended Affidavit of Ryan Rowney (Attachment G).

VI. The Threat to Public Health and Safety Override the Necessity to Comply with the Established Statutory Procedures.

Once again, allowing LCRA the flexibility to deviate from the requirements of the 2010 WMP, as requested by this application, provides LCRA with one of the very few opportunities it has to make a substantial difference in the amount of water available in the combined storage of the two lakes. *See* Amended Affidavit of David Wheelock (Attachment M).[48]

Because the WMP is required by, and incorporated into, LCRA's Certificates of Adjudication 14-5478 and 14-5482, the WMP may only be amended in the same manner and following the same procedures as one would amend any state-issued water right, which procedures for this type of amendment would require basin-wide 30-day public notice, likely public meetings, significant staff review, and presents the potential for a lengthy contested case hearing.

The time period in which LCRA must make decisions regarding its commitments of interruptible water occur long before there could be any decision on any amendments to the 2010 WMP if the regular TCEQ water rights permitting procedures are followed. Once interruptible stored water is released, the water cannot be brought back. Thus, the emergency authorization is the only means by which LCRA can obtain timely approval to make a significant impact on its supply remaining in storage.

VII. There are No Feasible Alternatives to the Emergency Authorization.

A. LCRA has implemented and will continue to implement its water conservation and drought plans.

LCRA has, to this point, fully implemented its Drought Contingency Plan. LCRA requires all of its customers that currently divert and purchase water from LCRA to have a drought contingency plan (DCP). As of May 1, 2015, 100 percent of those customers are covered by a DCP that is on file. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I). In August 2011, the combined storage of lakes Buchanan and Travis dropped below 900,000

11, 2015).

[48] *See also* Attachment A, March 2015 Emergency Order, Finding of Fact Nos.55-66; August 2014 Emergency Order, Findings of Fact 51-54, 57; 2014 Emergency Order Findings of Fact Nos. 66-69; July 2013 Emergency Order, Findings of Fact Nos. 26, 36-37, 39; 2013 Emergency Order Finding of Fact No. 44, 46, 48; 2011 Emergency Order, Finding of Fact No. 42.

acre-feet. LCRA called on its firm water customers to voluntarily implement mandatory water use restrictions under their individual DCPs to reduce their water use by 10 to 20 percent.[49] *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I). As lake conditions continued to deteriorate, LCRA's firm customers stepped up their efforts to extend the water supply. Since that time, most of LCRA's municipal customers have stayed in some form of mandatory water restrictions, significantly limiting landscape irrigation. LCRA industrial customers, who consist of power plants and a few large industries along the Gulf Coast, have also worked to reduce non-essential water uses. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I, Tab 2). As noted above, in November 2013 (and reaffirmed in November 2014), as part of LCRA's drought response, the LCRA Board approved a no more than once-per-week watering restriction that took effect in March 2014, which remained in effect until May 26, 2015, when combined storage finally topped 1.1 million acre-feet.[50] While many customers were already implementing once or twice per week watering restrictions, the LCRA Board action made the once per week restriction applicable across all LCRA customers. And although the mandatory action has been lifted, significant increases in landscape water use are not expected. Amended Affidavit of Nora Mullarkey (Exhibit I). Moreover, LCRA is requesting its customers to continue to follow the provisions of their DCPs that align with current storage conditions.

While water conservation is in the forefront of everyone's minds during times of drought, LCRA has on-going water conservation efforts that it has been implementing for many years. As detailed in the Amended Affidavit of Nora Mullarkey Miller (Attachment I, Tab 2), LCRA's commitment to water conservation is unwavering, and spans all user groups. Prior to any state requirement for water conservation plans, LCRA required its municipal customers to adopt such plans and has continued to strengthen the minimum requirements of those plans to further encourage wise water use. LCRA developed the Major Rivers fourth-grade curriculum in 1988, which has reached more than 1 million school children in Texas through a partnership with the Texas Water Development Board (TWDB). LCRA also provides significant conservation program planning support for its customers. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I, Tab 2). In 2012, LCRA began a rebate program for certain irrigation technologies, and a wholesale customer cost-share program focused on conservation. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I, Tab 2).

LCRA's conservation efforts have also supported significant improvements in irrigation water use efficiency in rice irrigation systems. Since the 1990s, volumetric pricing and canal rehabilitation are estimated to have saved approximately 13 percent, or about 41,500 acre-feet annually, of the projected water use that would have occurred without conservation practices in place. Between 2006 and 2013, LCRA provided up to 30 percent of the costs to the farmers for

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[49] The WMP does not allow LCRA to impose mandatory curtailments on its firm water customers until a drought worse than the Drought of Record is declared.

[50] *See* Attachments B-1 and B-2, November 2013 and November 2014 LCRA Board Resolutions.

the implementation of precision laser land leveling on more than 30,000 acres of land. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I, and Tab 2). Additional efforts implemented by LCRA to use water more efficiently in the irrigation operations are described in LCRA's Water Conservation Plan.

B. Requiring the firm water customers to curtail water use by up to 20 percent will take time and have a significant impact on these customers.

When LCRA declares a DWDR and releases of interruptible stored water cease, LCRA's DCP requires firm customers to implement measures to try to immediately reduce their water consumption by twenty percent (20%) as compared to a baseline water use.[51] In December 2011, LCRA obtained approval from the TCEQ of its Water Curtailment Plan for firm water customers.[52] Since that time, LCRA has worked with its firm customers on the development of their plans for drought response under a pro rata curtailment. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I).

Achievement of a twenty percent reduction in water use may require firm customers to implement fairly dramatic measures. Some municipal customers plan to eliminate all outdoor spray irrigation as a drought response measure under pro rata curtailment. Some of LCRA's customers, such as the City of Austin, have already achieved significant water savings through dramatic reductions in outdoor water use. While this could mean required reductions under pro rata curtailment for these customers may be a smaller incremental step initially, the practical matter is that, if water supplies continue to decline, customers will likely have to adopt water reductions that are more stringent than the initial twenty percent. Moreover, most industrial customers would have to implement the full twenty percent reduction more immediately. Reductions in use by industrial customers, including power plants, likely means a curtailment in annual production. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I, and Tab 2).

Reductions in water use by firm customers cannot prevent the emergency created by falling reservoir levels that would result from the level of irrigation releases required by the 2010 WMP. Firm customer water use reductions simply cannot be implemented fast enough once such a reduction is mandated by LCRA.[53] Extensive benchmarking research shows that these savings are achievable but that it will likely take water suppliers considerable time (up to a year) to implement drought restrictions that result in the level of water savings identified in LCRA's DCP. *See* Amended Affidavit of Nora Mullarkey Miller (Attachment I, Tab 3 and Tab 4).

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51 Attachment E – 2010 WMP at p. 4-32.

52 Attachment H, TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2097-WR, *Order Approving the Lower Colorado River Authority's Water Curtailment Plan for its Firm Water Customers* (Dec. 12, 2011).

53 *See* Attachment A – March 2015 Emergency Order, Finding of Fact Nos. 59-60; August 2014 Emergency Order, Finding of Fact No. 54; 2014 Emergency Order, Finding of Fact No. 69; *see also* 2013 Emergency Order, Finding of Fact No. 44; July 2013 Emergency Order, Finding of Fact No. 40; 2011 Emergency Order, Finding of Fact No. 39.

C. *The use of LCRA's downstream run-of-river water rights to meet firm customer needs provides an additional supply, but not a sufficient or predictable supply.*

In evaluating options to address the firm water needs of its customers, LCRA evaluated the possibility of using its downstream run-of-river rights to meet the needs of the firm water customers located downstream of Lake Travis. LCRA has obtained temporary permits since 2012 to use water under Certificate of Adjudication 14-5476 or Certificate of Adjudication 14-5475 at diversion points along the river downstream of Lady Bird Lake. These permits have allowed LCRA to meet some firm demands with run-of-river water rather than releasing water from lakes Buchanan and Travis to meet these demands.

By their very nature, the downstream run-of-river water rights are highly variable in terms of availability and quantity. LCRA's firm customers need to have certainty as to the quantity of water that will be available and when the water will be available for their operations. To make these rights sufficiently predictable without backup supply from lakes Buchanan and Travis, especially in times of severe drought, LCRA would need to construct small reservoirs for storage beyond those existing reservoirs that some of LCRA's customers own and operate. The normal permitting process for such facilities, at best, takes up to two years with approvals or permits required from, at a minimum, TCEQ and the United States Army Corps of Engineers. *See* Amended Affidavit of David Wheelock (Attachment M).

Finally, the downstream run-of-river water rights do not provide by themselves a sufficient quantity of water to eliminate the need for the emergency relief from the 2010 WMP as requested herein. LCRA using the downstream water rights to supply the downstream industrial and municipal users at diversion points for which LCRA does not have permanent authorizations kept about 7,000, 1,000 and 7,000 acre-feet of water in the reservoirs in 2012, 2013 and 2014 respectively. *See* Amended Affidavit of Ryan Rowney (Attachment G). These rights only serve to offset the amount of stored water required to be released for the downstream firm customers. While clearly beneficial, it is equally as clear that temporary permits to supply these firm customers are not a sufficient replacement for the water that could be lost if LCRA were required to follow the 2010 WMP. *See* Amended Affidavit of David Wheelock (Attachment M).

D. *LCRA obtained relief related to the Blue Sucker requirement but the savings achieved do not remove the need for the emergency authorization.*

The emergency relief approved by TCEQ in March 2015 reduced the instream flow requirement associated with the Blue Sucker from 500 cubic feet per second (cfs) to 300 cfs for a six-week period. LCRA previously estimated that without the emergency relief, up to about 21,000 acre-feet might be released from lakes Buchanan and Travis to meet the instream flow

requirement. As a result of the emergency relief and inflows from rain events below Lake Travis during the six-week period, LCRA did not release any water from storage for the instream flow requirement. *See* Amended Affidavit of Ryan Rowney (Attachment G). While the relief and rain events allowed LCRA to preserve some water in lakes Buchanan and Travis, the water savings do not remove the need for the emergency authorization sought herein.

E. LCRA has explored other alternatives for protecting firm supply, but they are not feasible or practicable alternatives to the emergency authorization.

LCRA has evaluated many other alternatives to address the emergency conditions that the drought presents. As was the case when LCRA sought emergency relief over the past three years, none of the alternatives identified would avert the projected water supply shortage because most of the supplies identified would produce insufficient or uncertain quantities of supply, would create other operational issues for customers, involve a lengthy permitting process (if not implemented on an emergency basis), or would take years to develop.[54] None of the alternatives identified are feasible or practicable alternatives to the emergency authorization. *See* Amended Affidavit of David Wheelock (Attachment M, Tab 3).

VIII. The Emergency Relief.

A. Proposed Relief – Allow curtailment of interruptible stored water to deviate from the TCEQ-approved 2010 WMP.

LCRA seeks this additional TCEQ order to make clear that for the remainder of the 2015 irrigation season, the 2010 WMP will not be effective and no interruptible stored water would be provided outside of the Garwood irrigation division. This deviation from the 2010 WMP would apply notwithstanding anything to the contrary in the 2010 WMP. LCRA requests that relief be granted pursuant to Texas Water Code §§ 5.501, 11.138, and 11.139. LCRA further requests that an order be issued by the Executive Director on or prior to June 18, but no earlier than June 11, 2015, so that this matter may be timely considered by the Commission at its July 1 agenda.

B. Proposed dates the authorization should begin and end.

LCRA requests that TCEQ process this request in a manner that allows LCRA to gain the benefit of the authorization for as long as may be needed to address this exceptional drought. To that end, LCRA requests that:

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[54] *See* Attachment A – March 2015 Emergency Order, Finding of Fact Nos.55-56; August 2014 Emergency Order, Finding of Fact No. 51; 2014 Emergency Order, Finding of Fact No. 66; *see also* 2013 Emergency Order Findings of Fact Nos. 47-48; 2013 Emergency Order Extension, Finding of Fact No. 15; July 2013 Emergency Order, Finding of Fact No. 37; 2011 Emergency Order, Findings of Fact Nos. 41-42.

1. The emergency authorization become effective upon expiration of the existing order (June 18, 2015); and

2. The emergency authorization continue through the initial 120 day period allowed by Texas Water Code § 11.139, and any extension thereof as allowed by Section 11.139.

Should this exceptional drought persist, LCRA will evaluate at the appropriate time whether any further relief from the Water Management Plan may be needed and seek such relief as the LCRA Board may deem necessary and appropriate at that time.

C. The requested relief will be effective by preserving stored water for firm customers and avoiding waste.

Continuing to deviate from the 2010 WMP avoids the possibility of interruptible releases reversing recent gains in combined storage and unreasonably amplifying the risk of triggering a DWDR should this wet period prove to be short-lived. *See* Amended Affidavit of David Wheelock (Attachment M); Amended Affidavit of Ron Anderson (Attachment K). If additional interruptible stored water were to be released, that water would be lost from the system, and no longer available to help meet the needs of LCRA's firm water customers in a prolonged drought.

IX. Conclusion.

It is clear the 2010 WMP puts at risk a significant quantity of stored water that may be needed to meet firm water commitments in this unprecedented drought. The drought and its effect on the water supply has created an emergency condition that presents an imminent threat to the public health and safety that has not been erased by very recent wet conditions. Authorizing a temporary deviation from the 2010 WMP will help preserve the water supply to help meet the critical needs of LCRA firm water customers. This application, in combination with actions LCRA has already taken related to use of its downstream water rights, presents the only feasible and practicable alternatives to addressing this exceptional drought in a timely manner. For these reasons, LCRA respectfully requests that TCEQ grant its application for an emergency authorization under Texas Water Code §§ 5.501, 11.138 and 11.139.

X. Certification.

"I, Phil Wilson, General Manager, Lower Colorado River Authority, certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Phil Wilson, General Manager
Lower Colorado River Authority

Date: 6-4-15

Subscribed and sworn to as being true and correct before me on this the 4th day of June 2015.

TABETHA JASKE
Notary Public, State of Texas
My Commission Expires
January 11, 2018

Notary Public of the State of Texas

XI. Attachments

Attachment A – TEX. COMM'N ENVTL. QUAL., Docket No. 2015-0220-WR, *Order Affirming with Modification an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority Amending the 2010 Water Management Plan* (March 24, 2015) (herein "March 2015 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-1044-WR, *Order Affirming an Order Granted by the Executive Director that Grants an Emergency Order Requested by the Lower Colorado River Authority* (August 15, 2014) (herein "August 2014 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, *Order Affirming an Order issued by the Executive Director that grants a renewal of the Emergency Order issued to the Lower Colorado River Authority* (June 17, 2014) (herein "2014 Emergency Order Extension"); TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, *Order Affirming in Part, and Modifying in Part, the Executive Director's Emergency Order Authorizing the Lower Colorado River Authority to Amend its Water Management Plan* (Feb. 27, 2014) (herein "2014 Emergency Order").

See also TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Granting an Emergency Authorization to the Lower Colorado River Authority* (July 26, 2013) (herein "July 2013 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Affirming, with Modification, an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (June 10, 2013) (herein "2013 Emergency Order Extension"); TEX. COMM'N ENVTL. QUAL., Docket No. 2013-0225-WR, *Order Affirming, with Modification, an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (Feb. 19, 2013) (herein "2013 Emergency Order"); TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2096-WR, *Order Affirming an Emergency Order Granted by the Executive Director to the Lower Colorado River Authority* (Dec. 12, 2011) (herein "2011 Emergency Order").

Attachment B - LCRA Board Resolutions Regarding Drought Management Actions

B-1: November 19, 2013 Resolution of the Board of Directors of the Lower Colorado River Authority Regarding Drought Management Actions in Response to Current Drought Conditions.

B-2: November 19, 2014 Resolution of the Board of Directors of the Lower Colorado River Authority Regarding Drought Management Actions in Response to Current Drought Conditions.

Attachment C – Certificate of Adjudication 14-5478, as amended

Attachment D – Certificate of Adjudication 14-5482, as amended

Attachment E – Excerpts from the 2010 Water Management Plan (2010 WMP) including:

Table of Contents and Preface;

Chapter 1 – Introduction to the Water Management Plan;

Chapter 3.C. – Annual Allocation of Firm and Interruptible Water;

Chapter 4 – Development of the Drought Management Plan;

September 20, 1989 Texas Water Commission Order approving LCRA's Water Management Plan (1989 WMP Order");

December 23, 1991 Texas Water Commission Order approving LCRA's Drought Management Plan (1991 WMP Order");

December 18, 1992 Texas Water Commission Order approving amendments to LCRA's Water Management Plan and Drought Management Plan (1992 WMP Order"); and

March 1, 1999 Texas Natural Resource Conservation Commission Order approving amendments to LCRA's Water Management Plan and Drought Contingency Plan (1999 WMP Order").

January 27, 2010 Texas Commission on Environmental Quality Agreed Order Approving Amendments to Lower Colorado River Authority's Water Management Plan (2010 WMP Order).

Attachment F – Excerpts from Order Adjudication LCRA's Water Rights for Lakes Buchanan and Travis, *In re The Exceptions of the Lower Colorado River Authority and the City of Austin to the Adjudication of Water Rights in the Lower Colorado River Segment of the Colorado River Basin*, No. 115, 414-A-1 (264th Dist. Ct., Bell County, Tex. April 20, 1988).

Attachment G – Amended Affidavit of Ryan Rowney

Tab 1 – Resume of Ryan Rowney

Tab 2 – Combined Storage in lakes Buchanan and Travis since Jan. 1, 2008

Attachment H – TEX. COMM'N ENVTL. QUAL., Docket No. 2011-2097-WR, *Order Approving the Lower Colorado River Authority's Water Curtailment Plan for its Firm Water Customers* (Dec. 12, 2011).

Attachment I – Amended Affidavit of Nora Mullarkey Miller

Tab 1 – Resume of Nora Mullarkey Miller

Tab 2 – LCRA's Ongoing Water Conservation Initiatives and Drought Response Efforts

Tab 3 – Benchmarking Research on Drought Restrictions implemented in other Communities (2011).

Tab 4 – Benchmarking Research on Mandatory Drought Restrictions implemented in other Communities (2013).

Attachment J – Proclamation by the Governor of the State of Texas (May 8, 2015)

Attachment K – Amended Affidavit of Ron Anderson

Tab 1 – Resume of Ron Anderson

Tab 2 – Summary of Inflow Deficit for lakes Buchanan and Travis

Tab 3 – Cumulative Historical Inflows to Lakes Travis and Buchanan

Tab 4 – Description of Stochastic Modeling

Tab 5 – Stochastic Outlook for Travis and Buchanan Combined Storage from June 2011 to Present Compared to Actual Storage (with Emergency Action from 2012 through 2015)

Attachment L – Amended Affidavit of Bob Rose

Tab 1 – Resume of Bob Rose

Attachment M – Amended Affidavit of David Wheelock

Tab 1 – Resume of David Wheelock

Tab 2 – Map of LCRA Water Service Area

Tab 3 – Summary of Water Supply Alternatives

Attachment N – LCRA Policies Regarding Delegation of Authority and Organizational Chart

The attachments to LCRA's Emergency Order application can be found at http://www.tceq.texas.gov/agency/lcra/lcra-emergency-order

Exhibit B

TCEQ Interoffice Memorandum

To: Commissioners **Date:** June 16, 2015

Thru: Bridget Bohac, Chief Clerk
Richard Hyde, P.E., Executive Director
L'Oreal W. Stepney, P.E., Deputy Director, Office of Water
Kevin McCalla, Acting Director, Water Availability Division

From: Kathy Alexander, Ph.D., Technical Specialist, Water Availability Division

Subject: Technical summary of the application by the Lower Colorado River Authority for an Emergency Order to amend its 2010 Water Management Plan, Permit No. 5838, Colorado River, Colorado River Basin, Travis, Burnet, and Llano Counties

Background

The Lower Colorado River Authority (LCRA) has received several emergency orders relating to its Water Management Plan (WMP). The Executive Director (ED) issued an order on February 18, 2015 allowing the LCRA to suspend the requirement in LCRA's WMP to make releases of interruptible stored water to customers in the Gulf Coast, Lakeside, and Pierce Ranch irrigation operations for the first part of the 2015 irrigation season. The Commission affirmed that order on March 4, 2015. That order will expire on June 18, 2015.

On May 15, 2015, LCRA filed a request for an emergency order (EO) to suspend any obligation LCRA might have under the 2010 WMP to release interruptible stored water to customers in the Gulf Coast, Lakeside, and Pierce Ranch irrigation operations for the remainder of the irrigation season. LCRA requested the EO due to persistent drought conditions in and around LCRA's five Highland Lakes (Lakes Buchanan, Inks, LBJ, Marble Falls, and Travis). On June 5, 2015 LCRA updated its EO request to address changed conditions.

LCRA's Certificates of Adjudication and WMP

LCRA has the right to divert and use up to 1.5 million acre feet (AF) from Lakes Buchanan and Travis under Certificate of Adjudication Nos. 14-5478 and 14-5482. By court order, LCRA has developed a WMP, currently dated 2010, which is part of these certificates yet identified by its own permit number (Permit No. 5838). The Certificates of Adjudication and the 2010 WMP govern LCRA's operation of Lakes Buchanan and Travis and dictate how LCRA makes water available from these lakes to help meet "firm" water customer needs, downstream interruptible irrigation demands, and environmental flow needs of the lower Colorado River and Matagorda Bay. Certificates of Adjudication 14-5478 and 14-5482 state that "LCRA shall interrupt or curtail the supply of water . . . pursuant to commitments that are specifically subject to interruption or curtailment, to the extent necessary to allow LCRA to satisfy all demand for water under such certificate pursuant to all firm, uninterruptible water commitments." The WMP further describes how LCRA will manage and curtail supplies from the lakes during times of drought including through a repeat of the Drought of Record.

As established in the 2010 WMP, the combined firm yield of Lakes Buchanan and Travis is 535,812 acre-feet per year (AFY). Of this amount, 90,546 AFY is committed to O.H. Ivie Reservoir, making 445,266 AFY of firm water supply available from Lakes Buchanan and Travis for LCRA to help meet the firm water needs of its customers. Under the WMP, until firm demand for water equals the combined firm yield, LCRA can supply water for irrigated agriculture on an interruptible basis.

The maximum historical annual amount of reported firm water use from the firm supplies of Lakes Buchanan and Travis from 2000 to 2011 was approximately 247,000 AF in 2011. The maximum interruptible water released from Lakes Buchanan and Travis during this same period occurred in 2011 and totaled about 433,000 AF. The maximum total amount released or used from the Highland Lakes, about 714,000 AF, occurred in 2011. The firm water use in 2012 from Lakes Buchanan and Travis was about 148,000 AF. An amount of 31,000 acre feet was supplied for the environment, and 9,000 AF feet of interruptible water was supplied to the Garwood Irrigation Division. The total use for 2012 was about 188,000 AF. The total use for 2013 was 228,959 AF. The total supply of water from the Lakes Buchanan and Travis in 2014 was about 149,000 AF (See LCRA's June 5, 2015 Amended Application, Attachment G, pp. 3-4).

The 2010 WMP was developed using a repetition of the hydrologic period from 1940-1965. The period includes the Drought of Record (DOR); however the current drought conditions are outside the range of hydrologic conditions considered during the formulation of the 2010 WMP.

To manage its water supply, LCRA's 2010 WMP imposes several trigger points based on the total combined storage capacity of Lakes Buchanan and Travis that are intended to ensure that firm water supply is protected during droughts. The 2010 WMP includes, in addition to others, the following triggers:

Combined Storage of Lakes Buchanan and Travis	**Date on Which Trigger is Decided**	**Action Taken**
1.4 MAF	At any time	Request firm customers to implement voluntary drought response measures.
1.4 MAF	On Jan. 1	Environmental releases for instream flows reduced to meet critical needs for ecosystems for following year. Begin gradual curtailment of interruptible supply to four major irrigation operations.
900,000 AF	At any time	Request firm customers to implement mandatory water restrictions; develop firm customer curtailment plan.
600,000 AF	At any time	If criteria indicate a Drought Worse than the Drought of Record, then cease interruptible supply and begin curtailment of firm supply.

*MAF = million acre-feet

LCRA's 2010 WMP defines "Drought of Record" as "the drought that occurred during the critical drought period." "The Critical Drought Period" is defined as "the period of time during which

the reservoir was last full and refilled, and the storage content was at its lowest minimum value." Under the 2010 WMP, the LCRA Board may declare a Drought Worse than the Drought of Record (DWDR) if it finds that the following three conditions are simultaneously met:

a. Duration of drought is more than 24 months, which is determined by counting the number of consecutive months since both Lakes Buchanan and Travis were last full;
b. Inflows to the lakes are less than inflows during the drought of record; and
c. Lakes Buchanan and Travis combined storage has less than 600,000 acre feet of water.

Under the 2010 WMP, once a drought has lasted more than 36 months and a DWDR has been declared by the LCRA Board, the interruptible stored water would be fully and immediately curtailed – making no stored water available for agricultural irrigation or other interruptible uses until lake levels recover or the inflows into the lakes increase substantially. Moreover, LCRA will implement pro rata curtailment of its firm water users once a DWDR is declared and after interruptible stored water (agriculture) uses have been curtailed.

Prior to a declaration of a DWDR, LCRA is obligated by the 2010 WMP to provide at least some interruptible water to its four major irrigation operations. Under the 2010 WMP, the LCRA Board would make a preliminary decision in November based on projections of storage on January 1 of the following year. The available amounts of interruptible stored water follow a curtailment curve ranging from 195,000 AF at a combined storage of 1.15 MAF to 172,000 AF at a combined storage just over 600,000 AF. Total curtailment of interruptible stored water would occur at 600,000 AF because the first and second criteria for a DWDR have been met.

Current Conditions in the Colorado Basin

LCRA's brief, supporting affidavits, and additional information show that:

- The combined storage of the Lakes Buchanan and Travis on June 16, 2015, was 1,377,689 AF, or 68% full;
- Even with interruptible stored water cut off for the Gulf Coast and Lakeside irrigation divisions, lake levels have not recovered (See LCRA's June 5, 2015 Amended Application, Attachment G, pg. 7);
- The inflows to the lakes over the past several years are among the lowest on record. Average annual inflows into Lakes Buchanan and Travis over the past seven years are around 32% of the long term average from 1942-2014. Inflows into the lakes in 2011 were the lowest on record. Inflows in 2012 were the seventh lowest on record, and inflows in 2013 were the third lowest on record. Inflows for 2014 were the second lowest on record. Inflows for the first four months of 2015 continued at low levels, being only 21% of the historical average inflows for that four month period. Inflows in May of 2015 were the highest monthly inflows since July of 2007; however, monthly inflows have been below average in 59 of the past 61 months (See LCRA's June 5, 2015 Amended Application, Attachment G, pg. 5);
- The total inflows for the past 84 months are less than half of the corresponding lowest inflows for periods of similar duration during the 1950s (See LCRA's June 5, 2015 Amended Application, Attachment G, pp. 6-7);
- Inflows into Lakes Travis and Buchanan during the current drought have been lower for time periods ranging from 12 months to 84 months than the lowest inflows during similar periods within the historical Drought of Record. A comparison of inflows in the current drought to inflows during the historical Drought of Record is shown below; (See LCRA's June 5, 2015 Amended Application, Attachment G, pg. 7);

	Lowest Inflows in Current Drought		Lowest Inflows in Historical Drought of Record	
Time Period (months)	Period Ending	Inflows (AF)	Period Ending	Inflows (AF)
12	September 2011	120,160	April 1951	408,784
24	May 2014	393,337	March 1952	1,006,681
36	March 2015	643,150	August 1952	1,636,088
48	February 2015	936,774	August 1952	3,035,846
60	April 2015	1,348,949	August 1952	4,128,806
72	April 2015	2,373,548	April 1955	5,193,016
84	April 2015	2,618,542	August 1952	6,050,804

- LCRA's most recent cumulative inflow deficit curve (Figure 1.) also indicates the magnitude of inflow deficits during this drought. (See LCRA's June 5, 2015 Amended Application, Attachment K, Tab.2).

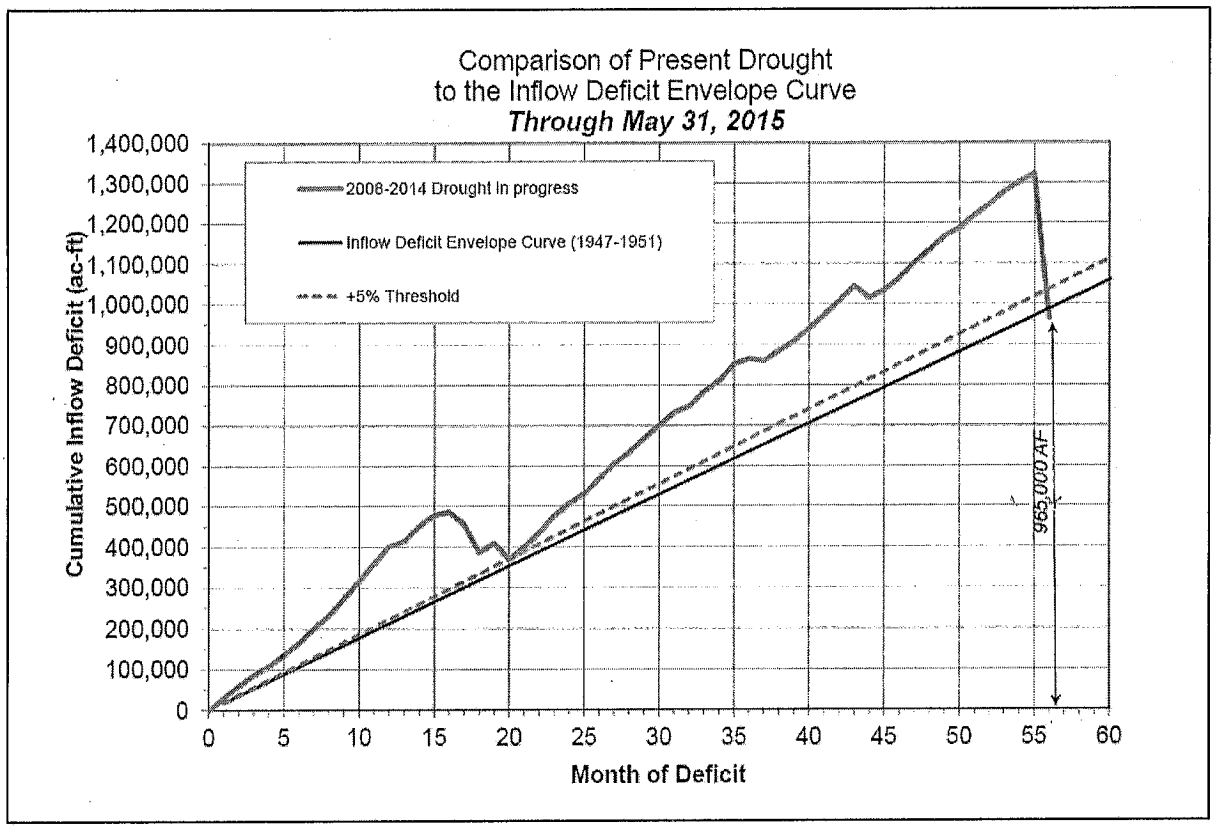

Figure 1. Comparison of Present Drought to the Inflow Deficit Envelope Curve through May 31, 2015

Extraordinary drought conditions in the form of rainfall and extreme heat have existed in much of Texas, including the Colorado River Basin for over four years. State Climatologist, Dr. John Nielsen-Gammon, recognized 2011 as the worst one year statewide drought on record and that rainfall during the period from October 2010 to September 2011 was the lowest recorded dating back to 1895 (See LCRA's June 5, 2015 Amended Application, Attachment L, pg. 2). The

summer of 2011 was the second hottest on record in Texas, and 2011 was the hottest on record in Austin (See LCRA's June 5, 2015 Amended Application, Attachment L, pg. 4). The summer of 2012 was the tenth hottest summer on record statewide and the 11th hottest summer on record for Austin. Statewide, 2012 tied with 1921 as the warmest year on record. Summer temperatures recorded for Austin in 2013 were the fifth warmest on record and those for 2014 were the 34th warmest on record (See LCRA's June 5, 2015 Amended Application, Attachment L, pg. 4).

Even with widespread rainfall events, low inflows in the period prior to May 2015 show the severity of the current drought that included dry soils which absorbed most of the rainfall that occurred. On September 19-20, 2013, the watershed upstream of Lakes Buchanan and Travis experienced a widespread event with rain totals averaging two to three inches, with some rain gages reporting as much as seven inches. Although the rainfall amounts were significant, the resulting inflows to Lakes Buchanan and Travis were very limited, totaling only about 24,000 AF. A rainfall event on November 4-6, 2014 included rainfall totals up to two to three inches but only resulted in about 4,000 AF of inflows to the lakes. A rainfall event above the lakes on November 21-22, 2014 only resulted in about 17,000 AF of inflows (See LCRA's June 5, 2015 Amended Application, Attachment G, pg. 8). A rainfall event on March 20-22, 2015 averaged 1 to 2.5 inches above Lakes Buchanan and Travis with heavier rainfall below the lakes. During 2014, rainfall across the Texas Hill Country was sporadic in nature, with long gaps of several weeks between most significant rainfall events. During this period there were very few intense rain events with totals of 2 inches or more within a 24-hour period. In early June, the U.S. National Drought Monitor indicated that the drought has ended across the majority of Texas due to the development of widespread and soaking rains in May of 2015 (See LCRA's June 5, 2015 Amended Application, Attachment L, pg. 4).

Recent weather forecasts call for continued drought improvement. The National Weather Service's precipitation outlook calls for above normal precipitation across Central and South Texas from June through August 2015 (See LCRA's June 5, 2015 Amended Application, Attachment L, pg. 6). El Niño conditions are expected to continue with sufficient strength into the wintertime to produce the typical precipitation impacts from an El Niño (See LCRA's June 5, 2015 Amended Application, Attachment L, pp. 7). A pattern of above normal rainfall will be in place across Central and South Texas this summer with an expected pattern of above normal rainfall this fall and winter which should cause continued drought improvement and drought elimination across the Colorado River Basin (See LCRA's June 5, 2015 Amended Application, Attachment L, pg. 9).

The U.S. Drought Monitor (June 9, 2015) shows that most of the Texas Hill Country is within the "abnormally dry" category and Central Texas and the coastal plains are not classified as being in drought conditions. The Drought Monitor does not specifically show hydrologic drought, which is worse than the depicted conditions.

The Governor of Texas issued an Emergency Disaster Proclamation on July 5, 2011, certifying that exceptional drought conditions posed a threat of imminent disaster in specified counties in Texas. This proclamation was renewed most recently on May 8, 2015, and included several counties that contribute inflow to the Highland Lakes. However, the most recent drought proclamation was not renewed in June, 2015.

The drought has lasted for more than 24 months. Duration of drought is determined by counting the number of consecutive months since both Lakes Buchanan and Travis were last full, which was February 13, 2005. As of June 1, 2015, the inflow deficit does not exceed the average inflow deficit over a similar period of time during the DOR for at least six months.

During the current drought, the inflow deficit has been as much as 90% more than the standard for the DOR for the lower Colorado River Basin, which occurred from 1947 to 1957. The inflow deficit was five percent worse than the DOR standard for 55 months from October 2010 until the recent rains in May of 2015 (See LCRA's June 5, 2015 Amended Application, Attachment K, pg. 2 and Tabs 2 and 3);

If severe drought conditions similar to those in place earlier in the ongoing drought resume, and LCRA follows the requirements in the 2010 WMP, the combined storage could drop to 600,000 AF as early as June 2016 (See LCRA's June 5, 2015 Amended Application, Attachment K, pg. 3)

Requested WMP Emergency Authorization

LCRA requests that TCEQ issue an emergency order amending LCRA's 2010 WMP to allow LCRA to suspend LCRA's obligation to release interruptible stored water to LCRA's Gulf Coast and Lakeside agricultural divisions and Pierce Ranch.

LCRA's Firm Customers

The 2010 WMP requires that firm customers (mainly cities and industries) be curtailed on a pro rata basis and that LCRA cease all releases of interruptible stored water (regardless of the impact on the crops) when a DWDR is declared. LCRA provides raw water from the firm supply of Lakes Buchanan and Travis to over 60 retail and wholesale potable water suppliers that together serve over one million people throughout the lower Colorado River Basin and LCRA's water service area. LCRA's municipal raw water customers include, but are not limited to, Austin, Cedar Park, Leander, Burnet, Marble Falls, Pflugerville, Lakeway, Bee Cave, Horseshoe Bay, other Highland Lakes municipalities; water supply corporations, special districts; and investor-owned utilities. In addition, LCRA provides water to several electric utilities-LCRA, Bastrop Energy Partners, Austin Energy, Gen-Tex Corporation, and South Texas Project Nuclear Operating Company-from the firm water supply of Lakes Buchanan and Travis. These utilities provide power into the electrical grid in Texas operated by the Electric Reliability Council of Texas (ERCOT) to meet the electrical needs of customers in Texas. LCRA also provides firm raw water to several industries located downstream, including Oxea Chemical and Underground Services Markham (See LCRA's June 5, 2015 Amended Application, Attachment M, pg. 2).

Currently, LCRA has 18 customers that actively take raw water for municipal purposes from Lake Travis. The lowest pumping elevations of the intakes range from 545 feet mean sea level (msl) to 645 feet msl on Lake Travis (See LCRA's June 5, 2015 Amended Application, Attachment G, pg. 4). The Commission's March 2015 Emergency Order found that as lake levels drop, retail water suppliers are unable to pump water from the lakes. This causes wholesale raw water customers to either move intakes to reach the water, or obtain alternative sources. Smaller systems will likely have to haul water from a water utility with a viable source. If the lake levels drop more quickly than arrangements for alternative intakes or supplies can be implemented, LCRA's customers' water systems will have difficulty in meeting firm customers' water needs. (See TEX. COMM'N ENVTL. QUAL., Docket No. 2015-0220-WR, Order affirming, with modification an Emergency Order granted by the Executive Director to the Lower Colorado River Authority amending the 2010 Water Management Plan (March 24, 2015)).

Water Conservation Plans and Drought Contingency Plans

LCRA's Raw Water Conservation Plan (WCP) and Drought Contingency Plan (DCP) comply with TCEQ rules and are contained in Chapter 4 of the 2010 WMP. LCRA was originally required to develop this part of the WMP as a direct result of the court order adjudicating LCRA's water rights and the Texas Water Commission's 1989 WMP Order, giving initial approval to LCRA of

an earlier version of the plan. When LCRA was required under the TCEQ's Chapter 288 rules to develop and implement a DCP, LCRA incorporated all of the same triggers and criteria from the approved WMP into its DCP. The 2010 WMP includes a requirement that LCRA develop a stored water curtailment plan to be approved by the LCRA Board and TCEQ in response to combined storage dropping below 900,000 AF. TCEQ approved LCRA's water curtailment plan for its firm customers in December 2011 (See TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, Order affirming in part and modifying in part the Executive Director's emergency order authorizing the Lower Colorado River Authority to amend its Water Management Plan, Permit 5838, pursuant to section 11.139 of the Texas Water Code (Feb. 27, 2014)).

LCRA's DCP establishes the measures LCRA will take in times of drought. LCRA's DCP includes the following: when the combined storage of Lakes Buchanan and Travis is at or below 1.4 MAF, LCRA encourages its customers to implement voluntary water conservation measures; when combined storage levels are at or below 900,000 AF, LCRA asks firm customers to implement their mandatory water use reduction measures, with a goal of reducing water use by 10-20%; and a mandatory pro rata curtailment of firm water supplies for customers of 20% or more will be implemented when combined storage levels fall below 600,000 AF and other criteria are met for a drought more severe than the DOR (See LCRA's June 5, 2015 Amended Application, Attachment I, pp. 1-2).

In August 2011, LCRA called on its firm water customers to voluntarily implement mandatory water use restrictions under their DCPs to reduce water use by 10 to 20%. LCRA has adopted additional changes to LCRA's raw water contract rules that include the procedures for implementing a pro rata curtailment of firm water customers. The rules also provide a surcharge to be set by the LCRA Board for unauthorized use of water (taking more water than authorized under a mandated curtailment of firm water supplies) and clarifying the drought contingency requirements related to golf course irrigation and recreational use (See TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, Order affirming in part and modifying in part the Executive Director's emergency order authorizing the Lower Colorado River Authority to amend its Water Management Plan, Permit 5838, pursuant to section 11.139 of the Texas Water Code (Feb. 27, 2014)).

LCRA has fully implemented its DCP. It requires all of its customers that currently divert and purchase water from LCRA to have a DCP. Currently, all customers have an approved DCP (See LCRA's June 5, 2015 Amended Application, Attachment I, pg. 2).

Alternatives to the Emergency Authorization

LCRA's application discusses alternatives that might be available to alleviate strain on LCRA's water supply reservoirs caused by persistent drought conditions. These alternatives include, among others (See LCRA's June 5, 2015 Amended Application, Attachment M, Tab 3):

1. Utilizing water from LCRA's other lakes;
2. Conservation initiatives and customer buyouts of nonessential uses;
3. Aggressive municipal conservation;
4. Groundwater;
5. Off-channel reservoir;
6. Wastewater reuse program in the Highland Lakes;
7. Lining or piping high loss canals utilized by industry;
8. Interbasin transfers and trucking in water from other sources; and
9. Desalination

LCRA states that none of the alternatives it identified would replace the volume of water LCRA might otherwise be required to release from Lakes Buchanan and Travis if the requested relief is not granted (175,000 AF under the 2010 WMP). Most of the alternative supplies identified would produce insufficient or uncertain quantities of supply, are constrained by existing contractual commitments, would create other operational issues for customers, involve a lengthy permitting process (if not implemented on an emergency basis), or would take years to develop. (See LCRA's June 5, 2015 Amended Application, Attachment M, pg. 4)

Amending downstream run-of-river rights to allow diversion for new uses and at new locations would provide some supply, but the use of these rights alone is not – by itself – a feasible and practicable alternative to the emergency relief related to the 2010 WMP. All of the rights would require amendments to add diversion points, additional places of use, and possible storage. Also, the downstream run-of-river water rights are highly variable in terms of availability and quantity, and do not provide by themselves a sufficient quantity of water to eliminate the need for the emergency relief from the 2010 WMP as requested herein. In 2012, 2013, and 2014, LCRA supplied about 7,000 AF, 1,000 AF, and 7,000 AF respectively, to firm customers downstream of Austin under temporary permits that would otherwise have been released from Lakes Buchanan and Travis. While this was beneficial, temporary permits are not sufficient replacement for water lost if releases are required (See LCRA's June 5, 2015 Amended Application, Attachment M, pg. 4).

There is no feasible practicable alternative for Austin on short order to replace its water supply should it be depleted to the point of drastic shortages. Although the City of Austin has made very earnest efforts to identify alternative water supplies, a replacement water supply for 1 million people cannot be identified and developed in a few years. The City of Austin has identified only very small amounts of water that may be able to be purchased for exorbitantly expensive prices. The small amounts do not sufficiently address the public health, safety, and welfare risks and the exorbitant prices do not make these practicable alternatives (See TEX. COMM'N ENVTL. QUAL., Docket No. 2014-0124-WR, Order affirming in part and modifying in part the Executive Director's emergency order authorizing the Lower Colorado River Authority to amend its Water Management Plan, Permit 5838, pursuant to section 11.139 of the Texas Water Code (Feb. 27, 2014)).

Although groundwater appears to be available in many areas, the uncertainty associated with the long-term availability of groundwater supplies makes this a high-risk alternative for water supply. Many areas have Groundwater Conservation Districts (GCD) that regulate use and permitting of groundwater. Obtaining written agreements with landowners takes approximately 9 to 12 months and obtaining permits often takes several years (See LCRA's June 5, 2015 Amended Application, Attachment M, Tab 3). LCRA has a permit for an off-channel reservoir in the lower basin that will add 90,000 AF of firm water for the region. LCRA is moving forward with constructing this reservoir, but it is not expected to be on-line until 2017 (See LCRA's June 5, 2015 Amended Application, Attachment M, Tab 3).

The use of other LCRA lakes is not a viable option at this time. Lakes Inks, LBJ and Marble Falls are not currently authorized for municipal use. If LCRA quit refilling these lakes but allowed the lakes to be maintained at levels that would not have significant impacts to cities and industries around them, it estimates that perhaps a one-time supply of about 34,000 AF could be made available. However, lowering the storage of these lakes could also significantly impact hydroelectric generation capabilities (See LCRA's June 5, 2015 Amended Application, Attachment M, Tab 3).

Amending the WMP is not a viable alternative because the WMP would have to be amended using regular procedures for amending a water right, which would require basin-wide 30 day notice and an opportunity for a hearing. LCRA has applied for formal amendment to its 2010 WMP. TCEQ is currently reviewing that application, which was amended in October 2014, but the process will not be completed in time to address LCRA's requested emergency relief.

Review and Conclusion

The affidavits submitted by LCRA in support of its request for an emergency order discussed and evaluated:

- current conditions and a comparison to historic droughts;
- LCRA's current water conservation efforts and LCRA's actions to implement their Drought Contingency Plan; and
- Hydrologic conditions, the potential impacts of compliance with the 2010 WMP trigger levels, and water supply alternatives.

Staff reviewed LCRA's application and affidavits. This review does not consider recreational uses of the Highland Lakes.

Comparison to Other Droughts

Inflows to Lakes Buchanan and Travis in September 1952 increased the combined storage by 970,000 AF, from 621,221 AF to 1,592,000 AF on October 1, 1952. At that time, storage in Lake Buchanan was 530,957 AF, or 61% full, and the storage in Lake Travis was 1,061,052 AF, or 94% full. The 1950's drought did not end until 1957. On September 10, 2009 combined storage in Lakes Buchanan and Travis was 789,357 AF, or 39% of capacity. By May 1, 2010, combined storage in the lakes increased to 1,815,264, or 90% of capacity, with Lake Buchanan at 77% of capacity and Lake Travis at 100% of capacity. The drought did not end in 2010 (See LCRA's June 5, 2015 Amended Application, Attachment G, pg. 8). The improved storage conditions in Lakes Buchanan and Travis fall short of the recoveries experienced in 1952 and 2010 (See LCRA's June 5, 2015 Amended Brief, pg. 2).

In river basins adjacent to the Colorado Basin, reservoirs in the Brazos Basin were 90% full as of June 1, 2015 and the two largest reservoirs have refilled. In the Guadalupe River Basin, reservoirs are 100% full. In the Colorado River Basin, reservoirs were 47% full on June 1, 2015 (with an increase to 49% full on June 16, 2015). No water supply reservoir in the Colorado Basin has refilled, indicating that the drought is not over. Although storage conditions have improved at Lakes Buchanan and Travis, storage conditions can return to dry conditions even after a flood (See LCRA's June 5, 2015 Amended Application, Attachment M, pg. 3).

LCRA's canals for the delivery of irrigation water have been shut down since 2012. It is likely that use of these canals will result in significant losses of water. If only a limited supply was made available, it would be difficult to decide how to efficiently use these canals. If water is delivered to Lakeside or Gulf Coast, significant amounts of water would be required to recharge and fill these canals to get the water to the delivery points (See LCRA's June 5, 2015 Amended Application, Attachment G, pg. 2).

Conclusion

Based on staff review of LCRA's application, current and forecasted hydrologic conditions, and models provided by LCRA and others, staff concludes that:

- Although recent rainfalls have resulted in increased storage in Lakes Buchanan and Travis, the lakes have not recovered;
- The Colorado River Basin historically has had periods of drought temporarily broken by floods, and then reverted to severe drought conditions;
- Water supply conditions in the Colorado River Basin significantly lag behind the recovery curve in other basins in Texas;
- If additional interruptible water is made available it could reverse the recent storage gains, and, if wet conditions above Lakes Buchanan and Travis do not continue, firm water supply could be at risk; and
- If water to LCRA's firm customers is reduced before arrangements for alternative supplies can be developed, LCRA will have difficulty in meeting its firm customers' water needs; hence the need for emergency relief.

LCRA's affidavits contained sufficient information regarding previous drought conditions, the impacts of recent rainfall, and the lack of complete recovery of Lakes Buchanan and Travis to show that conditions of emergency exist, justifying granting an emergency authorization. There are no practicable alternatives to this action.