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 January 27, 2014, the Executive Director of the Texas Commission on Environmental Quality (TCEQ) considered a request from the Lower Colorado River Authority (LCRA) for an emergency order to amend its 2010 Water Management Plan, Permit No. 5838, under Texas Water Code §§ 5.501, 11.138, and 11.139, and the Governor's Emergency Disaster Proclamation relating to drought.

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

FINDINGS OF FACT

1. On December 10, 2013, 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 2014 due to persistent drought conditions in LCRA's five Highland Lakes (Lakes Buchanan, Inks, LBJ, Marble Falls, and Travis). LCRA's application is attached hereto and incorporated herein as Attachment A. LCRA requests the authority to provide no interruptible stored water to Gulf Coast, Lakeside Division, and Pierce Ranch if the combined storage of Lakes Buchanan and Travis is below 1.1 million AF. Additionally, it requests the stored water releases be smaller for combined storage levels above 1.1 million AF than those set forth in the 2010 Water Management Plan.

LCRA'S Water Rights and 2010 Water Management Plan

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

3. 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.

4. 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.

5. 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.

6. As established in the 2010 WMP, so long as 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 during 2000 through 2010 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 about 433,000 AF. The maximum total amount released or used from the Highland Lakes, about 714,000 AF, occurred in 2011.

7. 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 interruptible was supplied to farmers in the Garwood Irrigation Division. The total use for 2012 was about 188,000 AF, and the total use in 2013 is expected to be similar.

8. 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.
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 indicates 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 Drought Worse than the Drought of Record (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.

Current Conditions

13. The combined storage of Lakes Buchanan and Travis on December 1, 2013, was 746,000 AF, or 37% full. On January 9, 2013, the combined storage was 764,420 AF, or 38% full. The combined storage fell to the lowest level in the current drought on September 19, 2013, which was 637,123 AF or 31.7% full.

14. The inflows in to the lakes are at record lows. Annual inflows into Lakes Buchanan and Travis in four of the last five years are 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 fifth lowest on record, and inflows in 2013 were the second lowest on record.

15. The inflows into Lakes Buchanan and Travis during the current drought have been lower for time periods ranging from 12 months to 72 months than the lowest inflows for periods of similar duration during the historic Drought of Record. The total inflows for the past 72 months were only about half of the lowest 72 month inflow period in the Drought of Record.

16. Extraordinary drought conditions in the form of rainfall and extreme heat have existed in much of Texas, including the Colorado River Basin for nearly three years. State Climatologist, Dr. John Nielsen-Gammon, recognized 2011 as the worst one year statewide drought on record. The summer of 2011 was the hottest on record in Texas, and 2011 was the hottest in Austin and second hottest statewide. Year 2012 tied with 1921 as the hottest on record statewide.

17. Annual evaporation from LCRA's five Highland Lakes plus Lake Austin for 2010 through 2013 is set forth below:

Year	Total Evaporation
2010	183,923 acre feet
2011	192,404 acre feet
2012	144,759 acre feet
2013	120,899 acre feet

18. Although there has been close to normal rainfall in some places in Central Texas since 2011, these events have failed to produce significant inflows into Lakes Buchanan and Travis. The rainfall has been sporadic, and the soils have not remained saturated enough to allow for runoff in substantial amounts. Widespread heavy rains in the past few months have failed to produce significant inflows into the lakes.

19. This low inflow total is symptomatic of the drought's severity, including dry soils that absorb most of the rainfall that does occur. For example, heavy, widespread rainfall in the Llano River and San Saba River watersheds above the Highland Lakes on September 19 and 20, 2013, averaged two to three inches with some rain gages reporting totals as high as six or seven inches. However, this rain event only yielded approximately 24,000 AF of inflow to the lakes. By comparison, an event in March 2007 with about 40% less rainfall yielded almost 100,000 AF of inflows to Lakes Buchanan and Travis.

20. The weather forecasts do not indicate significant rainfall in the near future. Recent atmospheric and oceanic observations continue to indicate ENSO-neutral conditions and the outlook calls for this to persist into summer of 2014. The latest National Weather Service precipitation forecast indicates that precipitation across the Texas Hill Country is likely to remain normal with equal chances for above, below, or near normal precipitation. These forecasts indicate that the western edge of a below-average precipitation forecast area encroaches on Central Texas. This boundary does not quite reach areas which could produce significant inflows to Lakes Buchanan and Travis. It is not expected that precipitation will be heavy enough to cause significant drought improvement.

21. The most recent U.S. Seasonal Drought Outlook indicates the persistence of drought conditions above Lakes Buchanan and Travis through the end of April 2014. It is not expected that precipitation will be heavy enough to cause significant drought improvement. Climatological outlooks also indicate that temperatures will trend above normal through the summer, which tends to correlate with higher evaporation rates and lower overall precipitation.

22. The hydroclimatic conditions outlined above have created a circumstance where Lakes Buchanan and Travis have been unable to recover in any significant manner, even with an emergency cutoff of nearly all water supply for downstream irrigation in 2012 and 2013.

23. The first and second criteria for a Drought Worse than the Drought of Record have 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 has also been met.

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

25. 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 has been renewed monthly, most recently on January 14, 2014, and includes nearly every county bordering or that contributes inflow to the Highland Lakes. These areas are in severe drought or worse. The Emergency Disaster Proclamation also states that "As provided in Section 418.016 of the code, all rules and regulations that may inhibit or prevent prompt response to this threat are suspended for the duration of the state of disaster."

LCRA's Firm Customers

26. 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.

27. 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.

28. If LCRA is required to follow the 2010 Water Management Plan 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.

29. If LCRA is required to follow the 2010 Water Management Plan and the drought continues, LCRA will almost certainly have to:

    a. Begin releases of interruptible stored water to meet demands in the four irrigation operations for the 2014 crop;

    b. Probably reach the third (and final) criteria for DWDR conditions;

    c. Declare a DWDR;

    d. Cut off stored water for interruptible contracts, thereby ruining the crop already planted; and

e. Curtail cities' and industries' water use by 20% or more.

30. Based on recent lake levels and the forecast, there is a chance of reaching conditions triggering a declaration of a DWDR as soon as April 2014 and an almost one in three chance by late August.

31. Currently, LCRA owns four systems that take raw water from Lakes Buchanan and Travis. LCRA also has 15 customers that actively take raw water for municipal purposes from Lake Travis that are not a part of LCRA's utility facilities. The lowest pumping elevations of the intakes range from 555 feet mean sea level (msl) to 650 feet msl on Lake Travis. On January 9, 2014, the lake level at Travis was 628.45 msl.

32. 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. If the lake levels drop more quickly than arrangements for alternative intakes or supplies can be implemented, LCRA water systems and its customers' water systems will have difficulty in meeting firm customers' water needs.

Conservation and Drought Contingency Plan

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

34. 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.

35. 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 1989 WMP Order.

36. 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 Rule 288 DCP. These DCPs were incorporated into Chapter 4 of the WMP.

37. LCRA adopted water use reduction targets including the following: water use reduction goals for firm water supply customers of 5 percent 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; ten to twenty percent 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 percent 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 Drought of Record.

38. 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 percent.

39. 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.

40. LCRA's WMP requires LCRA to 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 that plan for LCRA's firm customers in December of 2011.

41. LCRA has fully implemented its DCP. It requires all of its customers that currently divert and purchase water from LCRA to 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.

42. The LCRA Board approved a no more than once per week watering restriction that would take effect in March 2014 if combined storage is below 1.1 million AF and interruptible stored water has been cut off. LCRA has not requested TCEQ approval of this action and this order does not address such action.

Alternatives

43. 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, securing the Garwood right for purposes other than agriculture, interbasin transfers, and trucking in water from other sources. LCRA has evaluated many other alternatives to address the emergency conditions that the drought presents.

44. 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.

45. 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.

46. In 2012, LCRA supplied about 4,000 AF 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.

47. A twenty percent reduction in water use by firm customers will require some difficult measures. There may be dramatic reductions in outdoor water use. However, none of these measures will occur quickly enough to help lake levels. Some LCRA customers, such as the City of Austin, have achieved water savings through reductions in water use. Most industrial customers would have to implement the full twenty percent reduction more immediately and this likely means a curtailment in annual production.

48. 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 Water Management Plan 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 this time, and that his staff would be conducting further review on the application.

49. The emergency relief LCRA obtained in 2013 with an emergency order setting forth a trigger of 850,000 AF is not a reasonable alternative at this time because of the prolonged nature and persistence of the drought and the fact that the lakes have not recovered from this drought. If combined storage of the lakes recovers to 850,000 AF on March 1 and severe drought conditions return, combined storage could fall to 600,000 AF by the end of the first crop irrigation system, requiring declaration of a DWDR.

50. LCRA staff performed analyses to determine whether lesser amounts of combined stored water than 100,000 AF could be supplied to Gulf Coast, Lakeside and Pierce Ranch at lower combined storage trigger levels. The results showed that these alternatives were not practicable because the small amount of water that could be made available would result in significant losses and difficulties maintaining the canal water levels for the movement of water.

Relief Requested

51. LCRA's requested curtailment approach for 2014 is more restrictive than the curtailment triggers in emergency orders issued by the Commission in 2012 and 2013. The 850,000 AF trigger in effect in 2012 and 2013 was based on avoiding the potential for dropping below 600,000 AF during the first crop of the season. Under LCRA's current approach, before the releases for interruptible water users are made, LCRA requests a combined storage trigger increase to a level that puts off the possibility of storage falling below 600,000 AF until spring of 2015.

52. LCRA has determined that if the combined storage is less than 1.1 million AF, providing even some stored water releases to Gulf Coast, Lakeside and Pierce Ranch operations amplifies the risk of a DWDR declaration before spring 2015.

53. LCRA requests TCEQ to issue an emergency order to deviate from the 2010 WMP as it pertains to the determination of interruptible supply for 2014 and instead provide interruptible stored water based on the combined storage of Lakes Buchanan and Travis on March 1, 2014 at 11:59 p.m. as follows:

    a. Provide no interruptible stored water to customers within the LCRA Gulf Coast and Lakeside Divisions and Pierce Ranch if combined storage is below 1.1 million AF;

    b. Provide up to 100,000 AF of interruptible stored water for diversion by customers within LCRA's Gulf Coast and Lakeside Divisions and Pierce Ranch if combined storage is at or above 1.1 million AF but below 1.2 million AF;

    c. Provide up to 124,000 AF of interruptible stored water for diversion by customers with LCRA's Gulf Coast and Lakeside Divisions and Pierce Ranch if combined storage is at or above 1.2 million AF, but below 1.3 million AF;

    d. Provide up to 148,000 AF of interruptible stored water for diversion by customers within LCRA's Gulf Coast and Lakeside Divisions and Pierce Ranch if combined storage is at or above 1.3 million AF but below 1.4 million AF; and

e. Provide up to 172,000 AF of interruptible stored water for diversion by customers within LCRA's Gulf Coast and Lakeside Divisions and Pierce Ranch if combined storage is at or above 1.4 million AF.

54. LCRA will also provide interruptible stored water to the Garwood Irrigation Division and Pierce Ranch, to the extent required by their contracts.

Notice

55. Notice was provided to the Governor of Texas regarding the Executive Director's consideration of this emergency order. Notice of the hearing before the Commission to consider whether to affirm, modify, or set aside this order is included in this order under the Ordering Provisions. This order and notice of the Commission hearing will be mailed to all water right holders in the basin.

CONCLUSIONS OF LAW

1. The Executive Director may issue an emergency order under Texas Water Code § 11.139 to amend a certificate of adjudication after notice to the Governor if the Executive Director finds that emergency conditions exist which present an imminent threat to the public health and safety 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. Following the 2010 Water Management Plan 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. There are no practicable alternatives to this action.

3. The Executive Director of the Commission has the authority to issue this emergency order.

4. 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 may deviate from the 2010 WMP as it pertains to the determination of interruptible supply for 2014 and instead provide interruptible stored water based on the combined storage of Lakes Buchanan and Travis on March 1, 2014 at 11:59 p.m. as follows:

    a. If the combined storage in the lakes is below 1.1 million AF, provide no interruptible stored water to customers within the LCRA Gulf Coast and Lakeside Divisions and Pierce Ranch.

    b. If the combined storage in the lakes is at or above 1.1 million AF but below 1.2 million AF, provide up to 100,000 AF of interruptible stored water for diversion by customers within LCRA's Gulf Coast and Lakeside Division and Pierce Ranch.

    c. If the combined storage is at or above 1.2 million AF, but below 1.3 million AF, provide up to 124,000 AF of interruptible stored water for diversion by customers with LCRA's Gulf Coast and Lakeside Division and Pierce Ranch.

    d. If the combined storage is at or above 1.3 million AF but below 1.4 million AF, provide up to 148,000 AF of interruptible stored water for diversion by customers within LCRA's Gulf Coast and Lakeside Division and Pierce.

    e. If combined storage is at or above 1.4 million AF, provide up to 172,000 AF of interruptible stored water for diversion by customers within LCRA's Gulf Coast and Lakeside Divisions and Pierce Ranch.

2. LCRA may provide interruptible stored water to the Garwood Irrigation Division and Pierce Ranch, to the extent required by their contracts.

3. This emergency order is final and effective on January 27, 2014.

4. This emergency order terminates in 120 days (May 26, 2014). However, this emergency order may be renewed once for no more than 60 days. If the combined storage in Lakes Buchanan and Travis is below 1.1 million AF on May 26, 2014, this order is automatically renewed for another 60 days with no further action required by the LCRA or the TCEQ. With a 60-day extension, this emergency order terminates on July 25, 2014.

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 Wednesday, February 12, 2014, 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: January 27, 2014

TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

Richard A. Hyde, P.E.
Executive Director

Attachment A