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

AFFIDAVIT OF RYAN ROWNEY

THE STATE OF TEXAS	§	
	§	
COUNTY OF TRAVIS	§	

Before me, the undersigned authority, personally appeared Ryan Rowney, a person known by me to be competent and qualified in all respects to make this affidavit, who being by me first duly sworn, deposed as follows:

1. I am over 21 years of age, of sound mind, and have never been convicted of a felony or crime of moral turpitude. I am fully competent and qualified in all respects to make this affidavit.

2. The facts stated in this affidavit are within my personal knowledge and are true and correct.

3. I, Ryan Rowney, am an individual residing in Burnet, Texas.

4. A true and correct copy of my resume, detailing my prior work history, is attached hereto under Tab 1.

5. I have worked for the LCRA for 30 years. For the last 30 years, I have worked in LCRA's Water Operations. My current title is Vice President, Water Operations.

6. As part of my duties at the LCRA, my department provides planning services for the water utility and I am responsible for all operations within Water Operations including operations of the dams forming the Highland Lakes and operations of LCRA's Gulf Coast, Lakeside, and Garwood Irrigation divisions.

7. My opinions stated herein are based on my familiarity with LCRA's operations, as well as my understanding of LCRA's contractual obligations to the farmers within LCRA's Garwood division and to Pierce Ranch, a wholesale interruptible irrigation customer. I also have a general familiarity with LCRA's firm customers' operations. I have also relied upon a variety of information provided to me by LCRA staff, which is of a nature typically relied upon in my profession, as described below and for which true and correct copies are either attached or referenced to other portions of LCRA's emergency request and incorporated by reference herein:

    a. Affidavit of Ron Anderson, including attachments

b. Affidavit of Bob Rose, including attachments

c. Affidavit of David Wheelock, including attachments

d. Affidavit of Nora Mullarkey Miller, including attachments

8. IMPACTS OF DROUGHT ON IRRIGATION OPERATIONS.

a. If LCRA had followed the 2010 WMP this year based on a January 1, 2014 combined storage of approximately 764,3000 acre-feet, LCRA would have made available up to about 178,600 acre-feet for the downstream irrigation operations at diversion points from the river. To make such water available, assuming an additional 20 percent would need to be released to account for losses in delivering water from Lake Travis to the irrigation operations, following the 2010 WMP could have resulted in the need to release up to about 214,000 acre-feet of water for interruptible customers.

b. Within LCRA's Gulf Coast irrigation operation, a very limited portion of the canal system has been operated in 2014 using run-of-river water to meet demands of firm customers. No surface water has been delivered to customers in the Lakeside irrigation operation this year.

c. If LCRA were to provide interruptible stored water to customers in the Gulf Coast and Lakeside operations, a significant amount of water would first be necessary simply to charge or fill the canals between the river and the customers' delivery points.

d. Some farmers within the Lakeside and Gulf Coast service areas who are normally served by LCRA are using groundwater to irrigate rice this year. To the best of my knowledge, the customers who have started a rice crop using groundwater will be able to complete the crop using groundwater (and do not need LCRA-supplied surface water to avoid potentially losing a crop).

9. IMPACTS OF DROUGHT ON FIRM WATER CUSTOMERS.

a. Ensuring adequate firm supply for LCRA's firm customers is critical. The maximum historical annual amount of reported water use to meet firm customer demands from the firm supplies of lakes Buchanan and Travis during 2000 through 2011 was about 247,000 acre-feet in 2011. In addition, about 33,000 acre-feet of firm water was supplied to help meet environmental flow needs in 2011. The maximum interruptible 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; 31,000 acre-feet was supplied to help meet environmental flow needs; and about 9,000 acre-feet of interruptible water was supplied for 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 173,500 acre-feet; about 33,500 acre-feet was supplied to help meet environmental flow needs; and about 22,000 acre-feet of interruptible 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.

b. LCRA owns four water treatment plants whose raw water supply is Lake Travis or Lake Buchanan as noted in the following table.

System Name	Intake Location	Estimated Population Served	Service Area
Paradise Point Water System	Lake Buchanan	350	Paradise Point
Lake Buchanan Water System	Lake Buchanan	1,410	Service area around the south and west sides of Lake Buchanan
Smithwick Mills Water System	Lake Travis	160	Smithwick Mills
Ridge Harbor Water System	Lake Travis	400	Ridge Harbor

c. LCRA also operates the Spicewood Beach water system. This groundwater-based system is influenced by the water levels in Lake Travis. As a result of the low lake levels, production of the groundwater wells has diminished significantly. As a result, LCRA trucked water for Spicewood Beach over a period of about 30 months at a cost of about $ 1 million. New intakes for diverting water from the lakes have recently been completed.

d. Based on my knowledge of the treatment systems in and around lakes Buchanan and Travis, LCRA's water systems are representative of the types of potable water systems that obtain raw water from the lakes.

e. The attached table under Tab 2 shows the various lowest elevations that LCRA's raw water intakes can currently draw from Lake Buchanan or Lake Travis. The table also shows the approximate amounts spent over the past few years to make adjustments to reach those elevations. In addition, the table provides information regarding the lowest intake elevation planned to date and the estimated costs for achieving those elevations. In some cases, lower elevations might be achieved at significantly greater costs, or LCRA may resort to hauling water for essential drinking and sanitation purposes for the smaller systems.

f. I have reviewed information relating to our raw water customers that take water from Lake Travis. LCRA has 15 customers that currently take raw water for

municipal purposes from Lake Travis that are not a part of LCRA's utility facilities. I reviewed information maintained by the LCRA that identifies what LCRA believes to be the elevations of our customers' intake structures. The depths of those intakes range from 545 feet mean sea level (msl) to 645 feet msl on Lake Travis.

g. If the levels in Lake Travis or Lake Buchanan drop below the current lowest pumping elevations as indicated in the chart attached under Tab 2, LCRA must take actions to either lower the pumping elevation, or must find alternative supplies for the LCRA water utility systems described in this affidavit. For smaller systems such as Paradise Point, Smithwick Mills, or Ridge Harbor, the alternative is likely to be to haul water from a water utility with a viable source. Temporary measures would likely need to be taken by LCRA's raw water customers that have their own intake facilities to extend the facilities to reach water at lower elevations. It is my understanding 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.

h. Based on this information, it is my opinion that the current drought presents an imminent threat to public health and safety for the LCRA water systems if the lake levels or releases drop more quickly than arrangements for alternative intakes or supplies can be implemented. This is also likely the case for several of LCRA's raw water customers on Lake Travis.

i. It is further my opinion that not releasing the amount of interruptible water to supply the four LCRA irrigation operations as required by the 2010 Water Management Plan provides additional time for LCRA and its raw water customers to evaluate options and construct any required improvements to intake structures.

j. In addition to the water systems described above that draw surface water from lakes Buchanan or Travis, LCRA also owns one retail system that draws supply water from one of the pass-through lakes between Lake Buchanan and Lady Bird Lake. That system, Sandy Harbor Water System, is supplied from Lake LBJ via the City of Horseshoe Bay treatment plant facilities and serves a population of approximately 245. This system, because of its location on a pass-through lake, is protected from the need to move their intakes unless the releases through the system are stopped.

10. IMPACT OF DROUGHT ON HIGHLAND LAKES INFLOWS.

a. Inflows to the Highland Lakes continue at low levels. Inflows for the first six months of 2014 of 134,286 acre-feet were only 18.9 percent of the historical average inflows for that period. This six-month total inflow is the fifth lowest January-June inflow ever recorded for the Highland Lakes and is lower than any January-June period during the drought of the 1950s. Although the last two months have included rainfall that in some areas was closer to normal, the

inflows into lakes Buchanan and Travis have still been well below normal. Monthly inflows have been below average in 49 of the past 50 months.

b. Shown in the table below is a comparison of the lowest ten years of inflows into lakes Buchanan and Travis with the 2014 year-to-date inflows through June and the average annual inflows since 1942. Inflows for 2011 into the lakes were the lowest annual inflows on record, about 10% of average inflows. Calendar years 2008, 2009, 2011, 2012, and 2013 are all among the lowest 10 years of inflows to the Highland Lakes. Inflows from just one year from the historic Drought of Record (1950) fall within the 10 years of lowest inflows.

Month	Inflows (acre-feet)	Percent of Monthly Average
May 2010	95,821	46.8%
June 2010	33,517	20.3%
July 2010	59,905	69.8%
Aug 2010	10,783	16.8%
Sept 2010	86,952	84.7%
Oct 2010	14,385	11.8%
Nov 2010	13,899	19.8%
Dec 2010	16,845	24.7%
Jan 2011	21,158	32.6%
Feb 2011	16,306	19.3%
Mar 2011	13,811	15.3%
Apr 2011	9,175	8.9%
May 2011	11,182	5.5%
June 2011	1,340	0.8%
July 2011	734	0.9%
Aug 2011	403	0.6%
Sept 2011	922	0.9%
Oct 2011	29,927	24.5%
Nov 2011	6,874	9.8%
Dec 2011	15,969	23.4%
Jan 2012	35,178	54.2%
Feb 2012	74,699	88.2%
Mar 2012	112,517	124.7%
Apr 2012	19,477	18.8%
May 2012	83,699	40.9%

Month	Inflows (acre-feet)	Percent of Monthly Average
June 2012	12,599	7.6%
July 2012	8,712	10.2%
Aug 2012	2,041	3.2%
Sept 2012	12,006	11.7%
Oct 2012	19,338	15.8%
Nov 2012	6,042	8.6%
Dec 2012	6,854	10.0%
Jan 2013	15,117	23.3%
Feb 2013	8,792	10.4%
Mar 2013	10,741	11.9%
Apr 2013	11,127	10.7%
May 2013	29,265	14.3%
June 2013	5,608	3.4%
July 2013	17,423	20.3%
Aug 2013	1,593	2.5%
Sept 2013	30,161	29.4%
Oct 2013	48,444	39.6%
Nov 2013	18,092	25.8%
Dec 2013	18,775	27.5%
Jan 2014	12,270	18.9%
Feb 2014	9,505	11.2%
Mar 2014	8,376	9.3%
Apr 2014	6,183	6.0%
May 2014	74,237	36.6%
June 2014	23,716	14.6%

c. Annual inflows into the Highland Lakes in six of the last nine years are among the lowest on record.

Ten Lowest Annual Inflows into the Highland Lakes (acre-feet)

Year	Amount
2011	127,802
2013	215,138
2008	284,462
2006	285,229
1963	392,589
2012	393,426
1983	433,312
1999	448,162
2009	499,732
1950	501,926
Average (1942-2013)	1.24 million

d. Inflows into lakes Buchanan and Travis in the current drought include the lowest inflows over a various time periods ranging from 12 months to 72 months; lower than for any similar time periods in the historic record, including the 1950s. The 72 month-inflow total for the period through April 2014 was less than half of the lowest inflows in any 72-month period in the Drought of Record.

Comparison of 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	393,300	Mar. 1952	1,006,681
36 months	Sept. 2013	695,099	Aug. 1952	1,636,088
48 months	June 2014	1,073,158	Aug. 1952	3,035,846
60 months	Apr. 2014	2,129,132	Aug. 1952	4,128,806
72 months	Apr. 2014	2,374,126	Apr. 1955	5,193,016

e. As a result of extremely low inflows into the lakes, record high temperatures, high evaporation rates, and higher than anticipated interruptible demands, the combined storage in the lakes dropped significantly in 2011, and in a very short timeframe. In 2012 and 2013, and the first six months of 2014, even with interruptible stored water cut off from the Gulf Coast and Lakeside irrigation division, the lake levels have not recovered. The combined storage in lakes Buchanan and Travis was about 795,400 acre-feet, or 39.6 percent of capacity, on July 1, 2014. (*See* Tab 3.) The combined

storage on February 26, 2014 was about 762,000 acre-feet or 38 percent of capacity. The last time both lakes Buchanan and Travis were simultaneously at their maximum allowable conservation storage was February 13, 2005.

11. EFFICIENCY IMPROVEMENTS. In 2012, LCRA implemented process improvements that have improved the efficiency of releases from the Highland Lakes for downstream water needs. These include: 1) a smaller increment of instantaneous releases from Tom Miller Dam, which allows for more precisely meeting instream flow requirements as well as other demands; and 2) improvements to models and procedures for determining the downstream demand and the estimated amount of flows originating downstream.

12. Emergency relief approved by TCEQ in April 2014 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 requirement. As a result of the emergency relief and inflows from rain events below Lake Travis during the six-week period, LCRA released only about 4,000 acre-feet from storage for the requirement.

13. LCRA has temporary permits in place that allow LCRA to use a downstream water right (14-5476) to meet some of the needs of customers located downstream of the Highland Lakes to the extent of availability of run-of-river flows and subject to environmental flow requirements. In the first six months of 2014, LCRA has supplied approximately 3,200 acre-feet under the temporary permits.

14. If the emergency relief related to interruptible water the Gulf Coast, Lakeside and Pierce Ranch irrigation operations expires, rice crops that were started with groundwater could be switched to surface water. LCRA could also receive requests for water for supplemental uses such as row crops and, later in the year, wildlife management. Those uses are secondary to rice and, during a curtailment year, requests for such uses are only considered if water is available in the canal system.

15. The current drought continues to present an imminent threat to public health and safety if the lake levels drop more quickly than arrangements can be made to extend intakes or obtain alternate water supplies. In light of the ongoing drought conditions and lack of recovery in the Highland Lakes, I believe that it is prudent to extend the suspension of interruptible stored water supply to customers in the Gulf Coast, Lakeside, and Pierce Ranch irrigation operations for an additional 120 days to cover the remainder of the 2014 irrigation season consistent with the emergency relief granted to date.

Further affiant sayeth not.

RYAN ROWNEY, AFFIANT

SWORN TO AND SUBSCRIBED before me on the 2nd day of July, 2014.

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

Notary Public in and for the State of Texas

My Commission Expires: 1-11-2018

Tab 1

Ryan B. Rowney
P.O. Box 220
Austin, TX 78767
(512)730-6874

EXPERIENCE

LOWER COLORADO RIVER AUTHORITY, Austin, TX **October 1983 to Present**

Vice President, Water Operations (Sept. 2011 to Present)

Responsible for all areas of Water Operations including Hydro Operations, Irrigation Operations, River Operations, Water and Wastewater Operations, Water Surface Management and Water Customer Support. Provides safety oversight for Water Operations and reports directly to the Executive Vice President of Water.

Responsible for the operations and maintenance of LCRA's six dam and 13 hydroelectric (hydro) generation units, 1,100 miles of irrigation canals, nine irrigation pump stations, LCRA's system of rain and stream gauges, and LCRA water and wastewater systems.

Responsible for the development and reporting of drought and lake conditions to the General Manager and the LCRA Board of Directors on a monthly basis.

Manager of Dam & Hydroelectric Operations (Mar. 2004 to Sept. 2011)

Operate and maintain LCRA's network of dam and hydro generating assets while providing leadership and direction to staff. Manage flood operations. Develop strategic and operating goals and objectives in line with LCRA's overall goals and objectives. Ensure adherence to safety procedures and policies. Provide leadership and direction to dam and hydro related utility maintenance activities.

Superintendent of Dam & Hydroelectric Operations (May 2001 to Mar. 2004)

Supervise, coordinate and direct activities of dam and hydro staff. Act as liaison with the LCRA River Operations Center (ROC), LCRA Generation Desk (GenDesk) and LCRA System Operations Control Center (SOCC) to ensure the most efficient use of Hydro unit operations and flood management. Supervise the overall maintenance of the six Highland Lakes dams, the Lometa reservoir and pump station, thirteen hydroelectric turbine generators and all WWW treatment plants and associated water lines. Supervise the overall maintenance of all LCRA floodgates and related equipment.

Area Supervisor, Wirtz and Starcke Dams (Feb. 1997 to May 2001)
Supervise, coordinate and direct overall activities of staff responsible for monitoring and operating all LCRA dams and hydro generators. Lead and ensure communication and coordination of work activities with LCRA's Generation Desk (GenDesk) and the River Operations Center (ROC) to meet generation demand load requirements. Lead and ensure communication and coordination with the ROC to manage the lake levels of the six Highland Lakes, during normal, emergency and flood conditions.

Planner / Scheduler, Dam & Hydroelectric Operations (Aug. 1994 to Feb. 1997)
Develop and maintain departmental work plan and project schedules, time and cost estimates, work orders, work authorizations, requisitions, bid evaluations, pertinent records and logs, including ProCard documentation.

Electrician, Dam & Hydroelectric Operations (Oct. 1983 to Aug. 1994)
Responsible for repair, installation, replacement and testing electrical circuits, equipment and appliances in a facilities or other non-energy services environment. Isolate defects in wiring, switches, motors and other electrical equipment using testing instrument. Replace faulty switches, sockets and other elements of electrical systems. Dismantle electrical machinery and replaces defective electrical or mechanical parts such as gears, brushes and armatures. Mount motors, transformers and lighting fixtures into position and completes circuits according to diagram specifications.

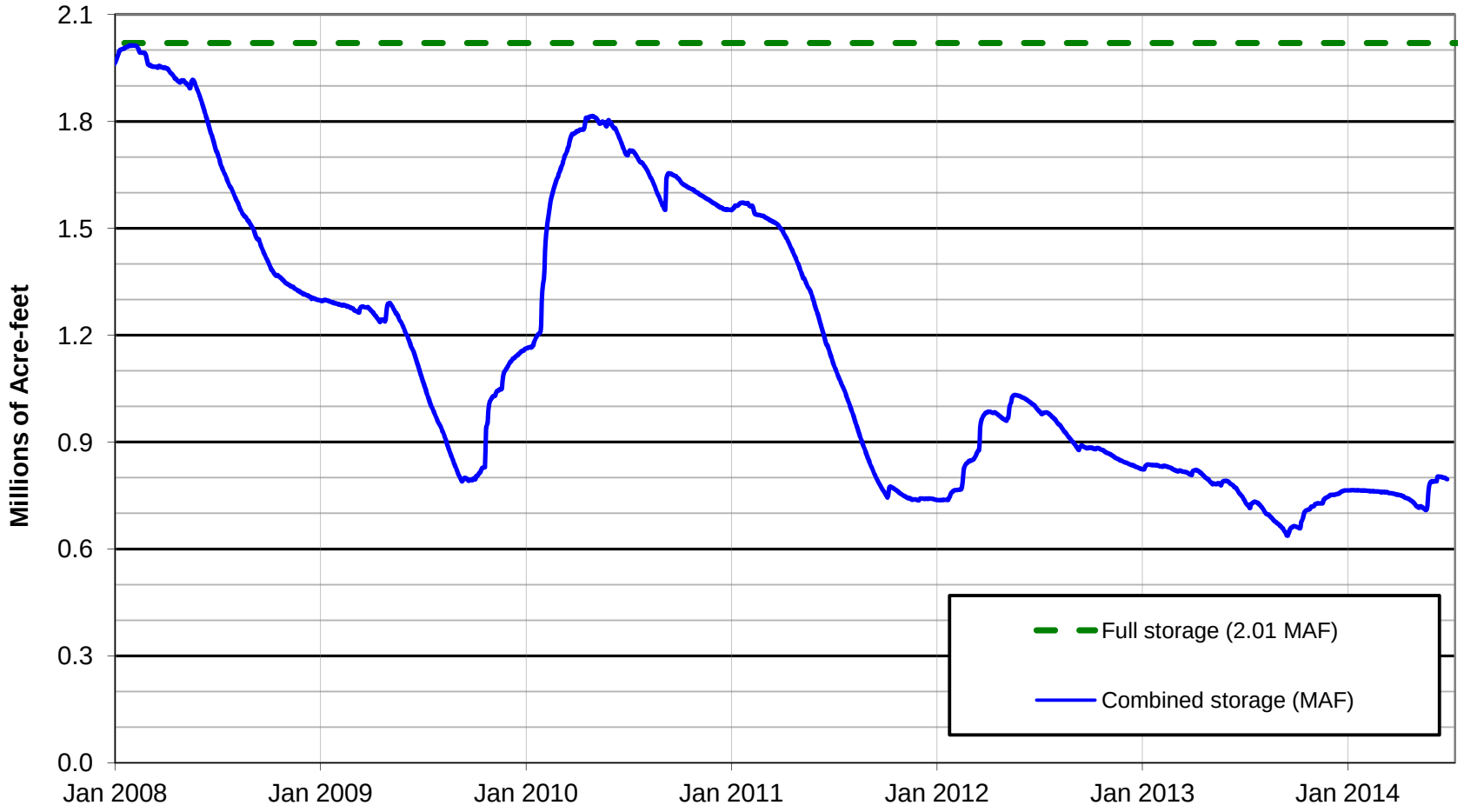
Tab 2

LCRA Water Utility Intake Drought Response Summary

System Name	Intake Location	Current Lowest Pumping Elevation	Next Planned Lowest Pumping Elevation	Approximate Cost to Further Move Intakes/New Sources	Additional Comments
Paradise Point Water System	Upstream third of Lake Buchanan	985 ft msl	975 ft msl	= $50,000	A new intake will need to be constructed when lake levels drop to about 985. The solution will likely include new submersible pumps enclosed in a screened intake pipe. Additional raw water piping and electrical work will be required.
Lake Buchanan Water System	Buchanan Dam	981 ft msl	940 ft msl	= $10,000	Spent approximately $60,000 in 2009 to add a new intake location. Treatment plant can be supplied provided there is water in the Buchanan Dam penstock. Additional costs will be incurred to add rails and pipe needed to lower the intake if Lake Buchanan drops below 981 ft msl.
Smithwick Mills Water System	Far upstream reach of Lake Travis	645 ft msl			Plant intake is located in a low spot that can continue to draw water as long as sufficient periodic releases are made from Starke Dam. Plan to truck water if necessary.
Spicewood Beach Regional Water System	Groundwater / Lake Travis	Well bottom elevation of 630 ft msl / 605 ft msl for lake intake		$30,000 to $35,000 per month for water contract hauling / > $1.0MM for new surface water plant	Aquifer level is somewhat correlated to the level of Lake Travis adjacent to Spicewood. As of June 22, 2014, a new water treatment plant and infiltration gallery on Lake Travis are operational.
Ridge Harbor Water System	Upstream third of Lake Travis	625 to 627 ft msl	622 to 625 ft msl	= $50,000	LCRA will need to construct a second intake when the lake levels drop to around 625 ft msl. The solution will likely include a new submersible pump with additional raw water piping and electrical work

Tab 3

Total Combined Storage in Lakes Buchanan and Travis



January 1, 2008 to July 1, 2014