LCRA WATER QUALITY ADVISORY COMMITTEE MEETING

April 9, 2019

LCRA Redbud Center, 3601 Lake Austin Blvd, Austin, TX

Welcome and Introductions

The Middle Basin meeting of the Clean Rivers Program (CRP) Colorado River Basin Water Quality Advisory Committee (WQAC) was held April 9, 2019 at 10:00 a.m. at the Lower Colorado River Authority (LCRA) Redbud Center, 3601 Lake Austin Blvd., Austin. Lisa Benton, LCRA CRP coordinator, welcomed the 24 attendees, and asked them to introduce themselves and state their affiliations.

Clean Rivers Program Updates for Colorado River Basin – *Lisa Benton, LCRA*

Benton provided historical background information on the Clean Rivers Program and the roles of the various stakeholders, including the Upper Colorado River Authority (UCRA) and the City of Austin (CoA). She stressed the importance of data collection, quality assurance, and data management, and how the Water Quality Advisory Committee helps guide resources to gather and assess water quality information to identify and address water quality issues throughout the basin.

The Colorado River basin CRP program has received additional funds in the FY18-19 contract cycle, Benton explained. These funds will be used to increase the frequency of monitoring on the Highland Lakes over the next year and a half to improve the accuracy and predictable capabilities of the Colorado River Environmental Models (CREMs). CREMs models evaluate water quality trends and predict the water quality impacts of changes in land use, permitting or regulations in the Highland Lakes watershed. Benton then provided a list of online LCRA water quality resources that included waterquality.lcra.org, cms.lcra.org, crwn.lcra.org, and hydromet.lcra.org.

Overview of Fall 2018 Flood – *Lisa Benton, LCRA*

As an introduction to the next presentation, Benton provided a brief overview of the fall 2018 flood that impacted much of the basin. Inflows into the Highland Lakes in October of 2018 were at approximately 1,300,000 acre-feet. Compare this to the previous months where ~100,000 acre-feet of inflows were coming into the system. The equivalent of more than eight Lake LBJs passed through the Highland Lakes system during the October 15-23 time range. Benton explained that there was a big shift in turbidity due to the flooding. A turbidity measurement in Lake Austin on October 25 read at 175.6 NTU, which is nowhere near the <1 to ~11 NTU that is typically observed in the lake. At 60 meter depth in Lake Travis, turbidity was measuring 403 NTU. The huge amount of sediment that was being carried by the flood could by and large be attributed to the dry summer that was experienced in the Hill Country tributaries where a lot of vegetation withered and left bare soil. When the intense rains came, the soil was readily eroded.

Texas Floods and Austin's Boil Water Crisis – *Kevin Critendon, Assistant Director of Austin Water Utility*

Kevin Critendon provided a presentation to give specifics on the City of Austin's Boil Water Notice that took place following the fall 2018 flood. He showed a map of the Colorado River basin, explaining how the Llano River watershed experienced the most significant rainfall and flooding and how that impacted the Highland Lakes and Colorado River system as a whole downstream. Critendon then explained the water production capacity and demand within the city, with the three water treatment plants totaling approximately 335 million gallons per day (MGD) capacity for water treatment. This exceeds average October demand of 140 MGD by 195 MGD.

By October 18, 2018, Austin Water treatment plants began experiencing high turbidity levels, and two days later the levels were 80 to 100 times the normal levels, higher than the plants had ever experienced on a sustained basis. The unprecedented levels of sediment clogged filters and slowed water treatment production. A widespread announcement to citizens by Austin Water was made to reduce water use significantly, but production capacity still began to sink below demand. Austin Water officials became concerned that the plants could not supply enough water for maintaining enough flow, while also meeting turbidity standards. When this became clear, officials decided to issue a precautionary citywide boil water notice on October 22, which was the first in Austin Water's 100+ year history.

The City of Austin's Emergency Operations Center (EOC) had been activated days earlier to deal with the impacts of flooding, Critendon explained. They were about to shut down, but went back into action for the boiled water notice. Restaurants, schools, and hospitals/medical facilities were priorities to contact. The EOC also contacted bottled water suppliers and retailers. The Austin Water Director instituted emergency water conservation measures: no outdoor use of water; car washes and power washing was shut down. Austin Water also set-up a 24 hour Department Operations Center (DOC) with video hook-ups to plants every six hours.

On Tuesday, October 23 one of Austin's treatment plants exceeded official turbidity limits – as anticipated when the precautionary boil notice was issued. Austin Water issued a required boil water notice under state law. Austin Water provided support to Austin's wholesale customers to perform their own required sampling and provide other data TCEQ needed prior to lifting the boil water notice.

After repeated rounds of testing Austin Water met all standards and the Boil Water Notice was lifted on Sunday October 28 – with an announcement outside City Hall. Critendon explained that it is important to note that during the period of the boil water requirement, water sample testing revealed no presence of harmful bacteria in the water being produced. The issue was the inability to produce water that met the clarity requirements. Austin Water was able to maintain strong chlorine disinfection levels in the drinking water supply throughout the entire boil water event. There were no reported illnesses.

Although reviews are still underway, Critendon listed off some lessons learned from the experience. This event was consistent with climate change projections of more intense heat and more intense droughts, broken by more intense floods. We can do a good job of predicting the broad impacts of climate change, he stated, but it is harder to predict exact impacts. In the future, Austin Water will call for emergency reduction in water use earlier, and perhaps have a turbidity trigger to guide this decision. Austin Water is also considering a change in the treatment process, (i.e. chemical addition, possible capital investments to treat extremely high sediment water) and are considering the purchase of potable water tanker trucks.

Critendon answered several questions from the audience regarding information about the water treatment process.

Land Restoration for Increased Water Infiltration and Improved Water Quality – *Joseph Van Dyck, Drought Proof Texas*

Van Dyck opened up the presentation by stating the Drought Proof Texas mission: "Total rehydration of the entire state of Texas, built on the foundation of regenerative and biologically rich soils. By harvesting every drop of rainfall possible and storing in the soil we can recharge aquifers, revive springs, build high quality soils and keep our rivers flowing year round."

He then proceeded to talk about the history of drought and flooding in Central Texas over the past several decades, and how Texas can experience patterns of booms and busts- long periods of drought followed by flash flood events, then another stretch of dry weather patterns. Drought can be exacerbated by heavy soil erosion during flooding events, Van Dyck explained. Damage from the subsequent drought and flood cycles increasingly limits the soil's ability to absorb rainfall. This leads to worsening conditions during future cycles.

But the problem is the solution, he explained. "To mitigate drought we must be ready to harvest as much rainfall as possible during heavy downpours and store it in the soil as high in the landscape as possible." This enables the energy of the water flowing across the water's surface to be dissipated by slowing it down and soaking into the ground. "Every hill is full of fractured rock and like a sponge, can be filled with water that will slowly be released over time." Slowing, spreading and sinking water during rainstorms can lessen damages from floods and also raise the water table. We have plenty of rainfall, Van Dyck stated. It is just not being utilized effectively.

Healthy soils with high organic matter (>5%) are more capable of absorbing water than the thin rocky soils that we typically observe in the Hill Country. How do we get more organic matter in the soil? Having as many plants growing on the soils for as long as possible during the year, Van Dyck explained. "100% ground cover, 100% of the time. Bare soil is public enemy number one."

Soil fertility can be damaged a number of ways, including pesticides, herbicides and fungicides (including de-worming medicines); chemical fertilizers; tillage; overgrazing; clear-cutting and erosion.

Van Dyck emphasized the importance of cover crops, and grazing management that supports soil and water conservation. He concluded the presentation with a series of pictures showing how a landscape can be transformed from dry rocky slopes to absorbent sponges with high plant biodiversity and healthy soils. For more information visit DroughtProofTX.com.

Roundtable

Benton then opened up the meeting for stakeholders to discuss any additional topics, announcements or ask further questions to the presenters. There were several questions for Critendon regarding the Austin Water Utility.

The meeting concluded at 12:00 p.m.