To: Governor's Water Augmentation, Conservation and Innovation Council – Desalination Committee

From: Chuck Cullom and Orestes Morfin – CAWCD Colorado River Programs

Date: 01/16/2020

Re: ***Evaluation of Potential Impacts of Operating the Yuma Desalting Plant on 2020 Colorado River Operations and Resulting Water Supply Impacts to CAWCD***

Background:

With the implementation of the *2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead*, the annual operating condition for Lower Basin Colorado River operations is set in the August 24 Month Study. The August 24 Month Study ***projects*** the end of year elevation for Lake Mead. The projected elevation is used to determine the operating tier for water supplies from Lake Mead in the coming year. In May 2019, the *Lower Basin Drought Contingency Plan* and the *Agreement Regarding Lower Basin Drought Contingency Plan Obligations* were implemented. These agreements added additional operating tiers for Lake Mead operations, specifically creating the so-called Tier Zero – 1090' to 1075' for Lake Mead. Tier Zero operations require 192,000 acre-feet contribution from Arizona to Lake Mead. Per the agreements, the Tier Zero reductions will be met by CAWCD.

August 2019 24 Month Study Results:

The August 2019 24 Month Study resulted in a projection of Lake Mead elevation of 1089.4'. The projected elevation of Lake Mead triggered a Tier Zero condition for 2020 Lake Mead operations. The result is that CAWCD is required to reduce its diversion of Colorado River water by 192,000 acre-feet as a contribution to Lake Mead.

Potential Impact of Operation of the Yuma Desalting Plant:

The intent and purpose of the operation of the Yuma Desalting Plant (YDP) is outlined in the Colorado River Basin Salinity Control Act of 1974. Title I of the act authorized the Secretary of the Interior to construct and operate the Yuma Desalting Plant to improve water quality. The water management intent was to conserve and reuse agricultural drainage water as part of the Colorado River deliveries to Mexico. The has operated for three short periods since construction was completed in 1992. The YDP is currently not operating.

To determine the potential impact of the operation of the YDP on 2020 Colorado River operations, CAWCD – Colorado River Programs staff, re-operated the August 2019 24 Month Study, and inserted the operation of the Yuma Desalting Plant at full operating capacity (~84 MGD) for 2019. The resulting projected Lake Mead elevation due to the insertion of the **full operation of the YDP in 2019 would have been 1090.2'**.

The potential impact of the full operation of YDP in 2019 as shown in the reoperation of the August 24 Month Study model is Lake Mead moving from Tier Zero to Normal operations. The water supply impact is that 2.8 million acre-feet of Colorado River water supply would have been available to Arizona, with CAWCD receiving an additional 192,000 acre-feet of supply available for delivery to water users in central Arizona.

The estimated financial impact is evaluated in terms of replacement cost and economic value. The replacement cost of 192,000 acre-feet is based on the comparison to the cost for conservation and ICS creation in the CAP system. Currently, conservation is $247.20/acre-foot for 2020 as identified in the CAP NIA Mitigation Agreement. Therefore, the **replacement cost of 192,000 acre-feet is estimated to be $47.462 million**.

The W.P Carey School of Business at Arizona State University has estimated the value of CAP water delivered to central Arizona in a recent study. Their study showed that the CAP water deliveries generate almost half of the State's domestic product (~$130 billion of Arizona economic activity related to CAP deliveries). The impact of a reduction of 192,000 acre-feet represents a significant impact to the economic potential generated by CAP water deliveries.