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ANDY TOBIN



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Commissioner

## ARIZONA CORPORATION COMMISSION

October 5, 2016

Dear Chairman Little, Commissioners, and Other Interested Parties:

In May, I submitted to Docket No. W-00000C-16-0151 a comprehensive package of water policy statements that outlined my concern for Arizona's water future. I cited recent studies suggesting no relief from drought anytime soon. Incontinent weather combined with an over allocation of dwindling Colorado River water leave many tough choices looming large for the Desert Southwest.<sup>1</sup>

In 2015, Arizona's economy produced \$290 billion.<sup>2</sup> Phoenix proudly ranks as the sixth most populous city nationwide. The state of our state did not happen by accident. To transform a desolate desert into a bustling center of commerce and industry required deliberate and methodical planning of Arizona's forebears, especially when it came to water. Certainly planning continues today, and the Arizona Corporation Commission should play an important role by further investigating the issue of water loss as part of a multi-prong solution to water conservation.

In August, I attended a Colorado River Briefing hosted by the Central Arizona Project (CAP) and the Arizona Department of Water Resources (ADWR). CAP reported that in 2000, Lake Mead was 91% full. That elevation has plummeted to 37%.<sup>3</sup> When, not if, Lake Mead drops below certain elevations, significant reductions in Colorado River water deliveries to Arizona will be triggered.

CAP also reported a similar trajectory in the elevation of Lake Powell. In 2000, the lake was 87% full. It now resides at 55%.<sup>4</sup> While in a better position relative to Lake Mead, stark challenges face Powell. An article published recently in the *Arizona Daily Star* raises the possibility of Powell drying up in as few as six years if extremely dry weather returns to the

<sup>1</sup> Miscellaneous Filing from Commissioner Andy Tobin (May 17, 2016). Arizona Corporation Commission Investigation Into Potential Improvements to its Water Policies, (pp. 1-2). Docket No. W-00000C-16-0151.

<sup>2</sup> U.S. Department of Commerce: Bureau of Economic Analysis. 2016. Gross domestic product (GDP) by state. Retrieved September 23, 2016 from <http://www.bea.gov>.

<sup>3</sup> Cooke, Ted and Thomas Buschatzke. (August 22, 2016). Colorado River Shortage Update and Colorado River Drought Contingency Proposal. p. 3. Presentation at the Colorado River Briefing, Phoenix. Retrieved September 5, 2016 from <http://www.cap-az.com/documents/shortage/August-22-Colorado-River-Briefing.pdf>.

<sup>4</sup> *Ibid.*

Page 2

region. The levels at Mead, which receives water deliveries from Powell, would take a nose dive and add more water woes to our state.<sup>5</sup>

ADWR shared that this reality has reconvened conservation talks among states reliant upon the Colorado River: Arizona, Nevada, and California. Under the operative 2007 agreement, Arizona and Nevada would shoulder nearly all of the cuts in water supplies to protect Mead's water elevations. Held harmless, California may continue to take its full allocation until Mead is empty. The proposal under consideration envisions all Colorado River water recipients taking water reductions at differing lake elevations. In exchange for California taking slight cuts several years in the future at lower Mead elevations, Arizona and Nevada would begin taking steeper reductions now.<sup>6</sup>

ADWR estimates that Arizona obtains approximately 40% of its total water supply from the Colorado River each year. Fortunately, Arizona has laid the groundwork to keep the water flowing in the event this supply is limited. Over the last twenty years, Arizona has anticipated drier times, storing underground over 3.2 million acre feet (MAF) of Colorado River water deliveries, double the amount Central Arizona receives from the river annually.<sup>7</sup> The state has also adopted innovative and impactful water policies to match population growth with assured water supplies and impose mandatory water conservation requirements on water systems within the state's Active Management Areas (AMAs).

One conservation requirement of particular note is the 10% and 15% limitations on lost and unaccounted water for large and small municipalities, respectively, based on the total volume of water pumped.<sup>8</sup> This metric reflects the proportion a water system delivers to customers compared to the amount of water the system pumps, receives, diverts, etc. Leaky lines, malfunctioning meters, and evaporation are just a few of the factors that contribute to water loss.

To be consistent with ADWR standards, Commission Staff recommends a 10% water loss figure for all companies regardless of whether they are located in an AMA. If water loss exceeds the 10% threshold, then the company must either reduce the loss or provide a cost-benefit analysis demonstrating that lowering water loss would be cost prohibitive. The Commission does not permit under any circumstance, however, a loss ratio in excess of 15%.

There is, of course, a problem with calculating water loss as a percentage of total gallons pumped. For instance, suppose a company has a water loss ratio of 10%. If the volume of total water pumped declines as a result of lower consumer demand (perhaps more customers

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<sup>5</sup> Davis, Tony (September 16, 2016). Lake Powell could dry up in as little as six years, study says. *Arizona Daily Star*. Retrieved September 19, 2016 from <http://www.tucson.com>.

<sup>6</sup> Cooke and Buschatzke. Colorado River Briefing (see footnote 2). p. 18.

<sup>7</sup> Cooke and Buschatzke. Colorado River Briefing (see footnote 2). p. 7.

<sup>8</sup> Arizona Department of Water Resources (2010). Third Management Plan; and Arizona Administrative Code. R12-15-1003.

purchase low-flow toilets) while the volume of water loss remains constant, then the water loss percentage will actually increase as a total share of water pumped without any material change in the actual amount of water being lost from the system. Conversely, if consumer demand increases (such as a function of population growth), and water loss remains virtually constant, then the water loss percentage will fall and suggests that the system is losing “less” water. In both cases, the amount of lost water is the same. The focus here at the Commission should be preserving every drop of water possible and that requires a better representation of water loss.

The American Water Works Association (AWWA) suggests different metrics for calculating water loss: expressing losses as gallons per service connection per day.<sup>9</sup> This approach allows for benchmarking water loss and meaningfully showing improvements in system efficiency. Other methods that display leakage per inch per mile per day may be more appropriate depending on certain attributes of the system. For a more “apples to apples” approach in comparing water loss among differing utilities, AWWA created the Infrastructure Leakage Index (ILI).<sup>10</sup> This index can also help capture the financial implications of reducing water loss. A comprehensive water audit is a natural first step in helping water utilities determine the magnitude of water loss and the cost to reduce it. Any further investigation into new loss calculations should contemplate adopting such a policy.

To be sure, addressing water loss can be costly. I recognize that every water utility must consider the return on investment (ROI) when pricing infrastructure improvements. But the cost to consumers of doing nothing should not be overlooked. In the United States, leaking pipes lose 2.6 trillion gallon of total water annually (approximately 17% of the total water our country consumes)—costing consumers \$4.1 billion in additional electricity costs to pump water out of the ground that will never be used.<sup>11</sup> Faced with a challenging water future, water utilities must urgently begin water infrastructure improvements. This posture might lead to narrower ROIs today but will certainly pay dividends in the future.

Adopting other approaches to water loss calculations need not displace the current volume-ratio method altogether, especially as the industry transitions to better metrics. The current approach is simple and straightforward. It can help regulators triage their focus on troubled systems and determine the frequency of performing water audits or other water loss detection surveys.

Water companies regulated by the Commission must submit annual reports that include the volume-ratio water loss data. My office has reviewed the annual reports. In doing so, I am troubled to learn that there is no consolidated database for water loss reporting at the

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<sup>9</sup> American Water Works Association. 2016. Conducting the Water Audit. In *Water Audits and Loss Control Programs (M36): AWWA Manual of Practice*. (4<sup>th</sup> ed.). Denver, CO: American Water Works Association.

<sup>10</sup> *Ibid.*

<sup>11</sup> Ress, Erin and J. Alan Roberson. 2016. The Financial and Policy Implications of Water Loss, *Journal AWWA*, 108(2), E77-E86, doi: <http://dx.doi.org/10.5942/jawwa.2016.108.0026>.

Page 4

Commission. This should be remedied immediately in order to keep better accounting of which systems need our support to improve efficiency.

Of the 342 water systems that submitted their annual reports, 50 provided incomplete data or none at all, causing the total water loss data to be understated. Further, water loss reporting is not audited by the Commission for veracity. Of the remaining 292 water systems, 110, or 38%, reported water loss in excess of 10% of total water pumped. Of those 110, 73 experienced water loss of 15% or more.

The available water loss data indicates an annual loss of 5.42 billion gallons of water, which represents about 9% of total water pumped or purchased, and is also equivalent to 16,600 acre feet of water. If one compares that figure to the proposed 2017 cuts in Colorado River water of approximately 192,000 AF, the water loss may seem trivial. Keep in mind, however, that Commission-regulated water systems represent less than 25% of all of the water systems across the state. There is vast opportunity for water savings.

Yes, Arizona has stored up enough Colorado River to hold us harmless—for now. We still must make serious decisions about our state's water future. In the face of continued drought, Arizona must roll up her sleeves again, put on her hard hat and rebuild a water infrastructure for 21<sup>st</sup>-century realities.

The Commission should investigate the matter of water loss. Specifically, the Commission should evaluate 1) The appropriate water loss calculation methodology; 2) Water systems' compliance with water loss reports, including their veracity; 3) Potential Commission policies that could induce more supply-side conservation efforts. I welcome interested parties to submit their reactions and recommendations. I also urge ADWR to reexamine its rules for AMA water loss and engage the Commission as we explore new possibilities to save more water.

The cost of keeping the status quo carries a price tag that stretches far beyond the imaginable. Either we invest now and expand Arizona's horizon or defer needed maintenance, dispose more money on unused water and deprive our posterity a place to call home. The choice is clear to this commissioner.

Sincerely,



Andy Tobin  
Commissioner