



City of Phoenix

WATER SERVICES DEPARTMENT
Quality Reliability Value

December 6, 2023
Trevor Baggione
Water Quality Division Director
Arizona Department of Environmental Quality
1110 W Washington Street
Phoenix, AZ 85007

Delivered via Electronic Mail

RE: Arizona Department of Environmental Quality Advanced Water Purification Roadmap

Dear Mr. Baggione,

I am writing on behalf of the City of Phoenix to express our appreciation for the opportunity to provide feedback on the Arizona Department of Environmental Quality (ADEQ) Advanced Water Purification Roadmap. We recognize and share ADEQ's dedication to develop rules that pay heed to the impact those rules will have on safeguarding public health and economic viability; and that allow for the permitting, operation, and direct use of Advanced Purified Water.

We also recognize the shared understanding that this new source water will significantly contribute to providing sustainable water resources across Arizona and Phoenix. However, when it comes to the approval of what is essentially a new drinking water source, we have identified areas of concern that, in our view, exceed the economic and health-risk based standards as defined by the Environmental Protection Agency (EPA) and the Safe Drinking Water Act (SDWA). Ultimately, the beneficial use of this new source water will be regulated by the SDWA and as such, new rules proposed by ADEQ should not intentionally or unintentionally create standards or requirements that exceed the scope of the SDWA. Additional standards and requirements, if not based on sound science to protect public health, will unnecessarily drive-up water rates paid by our customers. The goal of sustainable water resources is defeated if our customers cannot afford the water.

1. Tier 2 Unregulated Chemicals. These constituents are not regulated by the SDWA and therefore should not be regulated by the proposed Advanced Water Purification rules. The use of this new source water will ultimately be regulated under the SDWA, therefore requiring the monitoring, reporting, and treatment of non-regulated SDWA constituents that have not gone through EPA's rigorous health-risk based evaluations is unsupported; and may not result in improved health outcomes while creating an undue economic burden on ratepayers. Furthermore, no maximum contaminant level (MCL) or health-risk based standards have been established for these constituents by EPA or the SDWA.

The proposed monitoring and reporting of these non-regulated constituents will put ADEQ and utilities in an unnecessary position to explain the impact of these constituents on the safety of the drinking water. Instead of building confidence in Advanced Water

Purification, this could create public concern over the safety of this water due to the arbitrary monitoring and reporting of constituents not regulated by the SDWA. Additionally, if ADEQ or a utility receives a public records request, this data would be required to be reported and have no associated context related to public health.

Additionally, laboratory capacity, holding times, and expense for this level of monitoring is uncertain. Adding to this uncertainty is the potential need for new approved testing methods, qualified laboratory staff, and equipment. Instead, it is more appropriate to use the concept of surrogate monitoring as discussed below for Tier 3.

2. Total Dissolved Solids. Regulation of Total Dissolved Solids (TDS) by the State of Arizona (State), beyond the SDWA, is not recommended. Our recommendation is that the Advanced Purified Water, like any other new source water, meet the SDWA and secondary drinking water regulations. This recommendation is based on EPA's determination, under the SDWA, that TDS does not present a risk to human health, but rather an aesthetic (taste) and/or technical (hardness/scaling) effect (US EPA, 2023).

Regulating TDS by establishing a de facto MCL for a non-health-based constituents, such as, but not limited to, TDS, creates regulatory challenges for the State to show beneficial economic and health-based outcomes. Additionally, it creates burdensome technical and economic impact to the utility and their ratepayers (customers). For these reasons, decisions regarding TDS and salinity management, beyond the SDWA, should remain with the utility and its ratepayers and should not be regulated by the State of Arizona (State).

3. Total Organic Carbon. Regulation of Total Organic Carbon (TOC) by the State, beyond the SDWA and the disinfection by-products rules is not recommended. Establishing a target TOC value of 2 mg/l in the finished water of the Advanced Water Treatment Facility to control disinfection by-products (DBP) creates a de-facto TOC MCL of 2 mg/l. Including additional regulatory constraints in the Advanced Water Purification rules to control TOC and DBP beyond the SDWA is overly burdensome, costly, and provides no increased public health-risk benefit. Furthermore, additional controls are not required, EPA has already specified TOC removal requirements as part of the SDWA and the disinfection by-products rules which are designed to provide public health protection by minimizing DBP precursors (DBPPs) and thus the production of all DBPs (US EPA Disinfectants and Disinfection Byproducts Rules, Office of Water (4606M), EPA 815-R-20-005, June 2020). The decision to remove TOC beyond the SDWA and disinfection by-products rules should remain with the utility and their rate payers.

We support providing continuous TOC data, as part of Tier 3 Performance Based Indicators, to ADEQ upon request and with reporting the monthly TOC minimum, maximum, and average. Advanced Water Purification, just like any new source water, should meet the SDWA and the disinfection by-product rules.

4. Tier 3 Performance-based Indicators. We support the proposed monitoring of Tier 3 constituents as process (performance) based indicators/surrogates and the use of online monitoring at critical control points throughout the Advanced Water Treatment Facility. This information will provide a robust process control system and support public confidence.

5. Pathogen Removal Standards. We support the standard log reduction approach of 13-log for virus, 10-log for Giardia cyst, and 10-log for Cryptosporidium oocyst with no site-specific pathogen monitoring or characterization.

Additionally, we support the site-specific log reduction approach of performing a QMRA study to achieve a minimum reduction of not less than 8-log for virus, 6-log for Giardia cyst, and 5.5-log Cryptosporidium oocyst. For clarification purposes, the QMRA study would establish baseline pathogen log reductions by quantifying “raw wastewater” (from the sewershed) to the finished water at the Advanced Water Purification Facility. The reason for the clarification is that throughout Section 3.1.1 Pathogen Removal Standards associated with QMRA studies reference the use of “raw wastewater”, however, in Section 3.1.1(i) there is what we believe to be an incorrect reference to pathogen reductions based on “treated wastewater”. When characterizing virus reduction, we recommend allowing for the flexibility to use Coliphage or Norovirus as an indicator of enteric virus reduction.

6. Operator Certification. We disagree with the recommendation to adopt the California-Nevada Section Advanced Water Treatment Operator (AWTO) certification program and to require the Advanced Water Treatment Facility operator of record to possess not only an AWTO certification (issued by the States of California and Nevada), but, a Grade 4 Water Treatment Operator certification, Grade 4 Wastewater Treatment Operator certification, and a Grade 4 Wastewater Collection System Operator certification issued by the State of Arizona. Excessive requirements for operators will impose un-needed burden on an already stressed labor force.

We disagree with the assertion that traditional certifications for drinking water and wastewater operators leave “...a noticeable void in addressing the specific operational demands of advanced water treatment.” Fundamentally, no new treatment technologies are needed for advanced water treatment, and utilities and certified operators across Arizona and the US are already successfully using advanced water treatment technologies, including, filtration (e.g., MF, UF, NF, RO), UV, advanced oxidation process (e.g., ozone, hydrogen peroxide, chlorine), granular activated carbon, and other related technologies. To this point, since 2007 Grade 4 Water Treatment operators have successfully operated the City of Phoenix Lake Pleasant Water Treatment Plant which treats surface water, under the influence of wastewater, using filtration, UV, ozone, and granular activated carbon. The same can also be said for wastewater treatment plants, using BNR and MBR. Since operators across Arizona and the US are already certified to operate treatment plants using these technologies, the existing ADEQ operator certifications program in AAC Title 18, Chapter 5, and the Association of Board of Certification (ABC) is more than sufficient for Advanced Water Treatment Facilities.

7. Enhanced Source Control. Advanced Water Purification should include a source water control program, but that source water control should be limited to Significant Industrial Users (SIU) as required by the General Pretreatment Regulations of the National Pretreatment Program (40 CFR Part 403). Further, the program should be limited to regulated SDWA constituents. As previously stated, the use of this new source water will ultimately be regulated under the SDWA; therefore, requiring the monitoring, reporting, and treatment of non-regulated SDWA constituents that have not gone through EPAs rigorous health-risk based evaluations is unsupported; and may not result in improved health outcomes, while creating an undue economic burden on ratepayers. To this point,

we do not agree with regulating proposed Tier 2 chemicals, unregulated constituents of concerns (COC), constituents listed in the EPA's drinking water health advisories, constituents listed in the EPA IRIS database, or any other chemicals not currently regulated by the SDWA.

8. Advanced Water Purification rules should align with the standards and requirements of the SDWA, the National Pretreatment Program, and the proposed Roadmap recommendations for pathogen control and log removal values. Adhering to these requirements will ensure the provision of affordable, safe, and highly treated drinking water for public consumption. We believe that ADEQ should refrain from regulating non-regulated drinking water constituents in the source water and finished water of the Advanced Water Treatment Facility.

The City of Phoenix is committed to working collaboratively with ADEQ on the development and eventual approval of Advanced Water Purification rules. We strive to achieve a regulatory framework that provides ADEQ with the appropriate level of oversight, while also affording utilities the flexibility to design and operate facilities in a manner that aligns with the health-risk based requirements of the SDWA and offers economically viable options for our ratepayers.

We look forward to continuing our dialogue with ADEQ and finding mutually agreeable solutions that uphold our shared commitment to providing safe, affordable, and sustainable water for Phoenix and communities across Arizona.



Troy Hayes
Water Services Director
City of Phoenix

cc: Randy Matas, Water Quality Division Deputy Director, ADEQ
Karthik Kumarasamy, ADEQ