



Agenda Number 2.




Water Quality Standards for Non-project Water

A Stakeholder Proposal
September 12, 2017
Presented to CAWCD Water Quality Task Force



Credit: City of Phoenix



Credit: CAP

Proposal Participants



Overview

Our Proposal accomplishes the following -

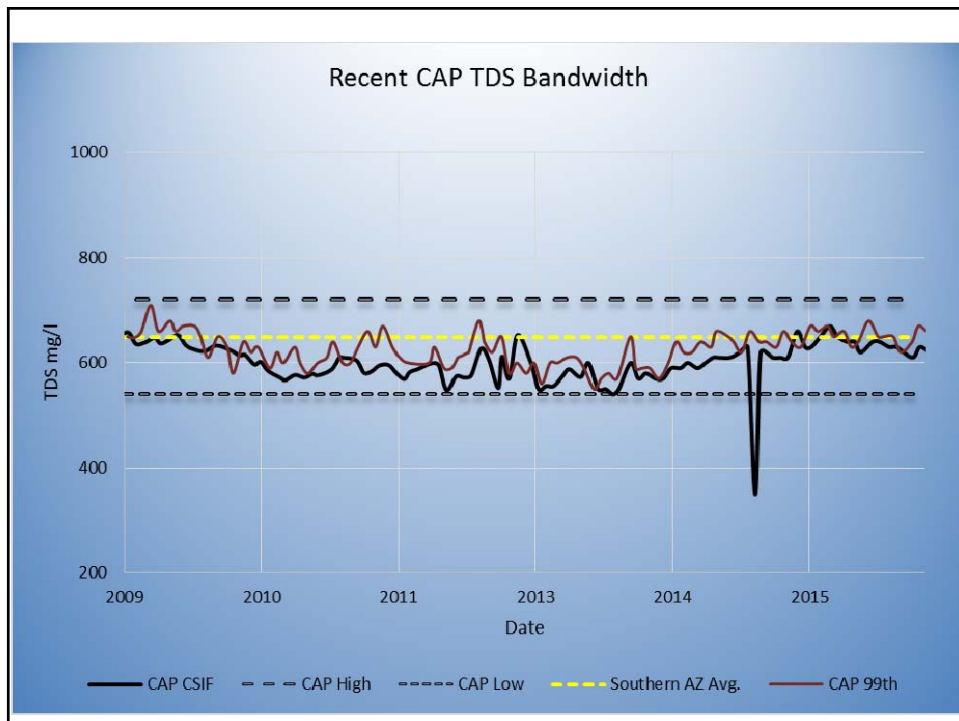
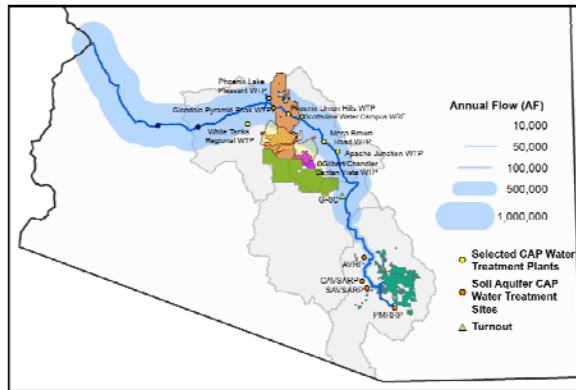
- Allows for wheeling of non-project water
- Maintains the quality of water within Project water's historical ranges
- Avoids impacts to current treatment operations
- Measures in-canal water quality standard at diversion points through a modeling that includes in-canal blending to determine discharge limits to best protect users.
- Southern Arizona entities assert an additional "Not-to-Exceed" discharge parameters for constituents are needed
- Addresses current situation. While it does not consider deep shortage situations, the concept can apply to shortage scenarios

Treatment Plants, Agriculture, & Soil Aquifer Treatment



Sustaining Water Quality

- Downstream Users Must Be Protected
- Standards are Needed
- Project Water quality, with minor exceptions, is historically consistent



Maximum Containment Level (MCL) Discharge Standard Will Not Work



- For several constituents, raw Colorado River water is below the EPA's MCLs.
- There are potential negative impacts of multiple MCL-compliant discharges.
- There are some constituents without primary MCLs
- Examples...

Blending



- Blending is the combination of two separate water sources
- Blending can be used to maintain quality within historical ranges
- Use of blending is a best management practice to protect the uses of a surface water supply (e.g. Clean Water Act)



Proposed Concept

- **Principle:** Wheeling can be done while not significantly changing the quality of Project Water
- **Standard:** Introduced water may not raise Project Water quality to levels outside its natural historical ranges



Equity of Proposal



- Protecting downstream users is highest priority
- Standards that cap constituent levels best protect downstream users. This ensures all users are equally protected.
- Proposal may result in different discharge operational limits for different wheeling parties (e.g. timing of project, discharge volumes, partners, etc.)
- Precedent for this approach under the Clean Water Act

CAWCD Staff Questions

- Which constituents are included?
- Are standards based on existing programs or standards?
- Where are the standards enforced or measured?
- Can the CAP aqueduct be used for dilution or mixing?
- Are standards affected by shortage?
- Are the standards affected by the size of the project?
- Do early projects affect later projects?
- Do upstream projects affect downstream projects?



Which Constituents are Included?

- This proposed concept looks at:
 - Nitrate
 - Fluoride
 - Total Organic Carbon
 - Total Dissolved Solids
 - Turbidity
 - Arsenic
- **Final Future Proposal:** Will include EPA primary constituents, relevant secondary constituents, emerging contaminants, health advisory standards, and surface water use standards.



Are Standards Based on Existing Programs or Standards?



- Standards are primarily based on historical ranges of Project Water
- Applicable EPA & regulatory standards
- Modeling shows historical water quality ranges can be maintained while wheeling by using **"Operational Maximums"** and best management practices

Operational Maximums

- **"Operational Maximums"** are in-canal water quality standards that must be met at turnouts. These values are based on historical water quality ranges and downstream treatment capabilities.
- Operational Maximums will be maintained by discharge limits assigned by CAWCD's water quality model. The model's assigned discharge limits for various projects may vary based on the location of the discharge, loading from other discharges, discharge volumes, and proximity to turnouts.
- **"Not-to Exceed"** parameters is a proposal currently being evaluated by the workgroup.

Water Quality Standards Workgroup Proposed Limits Raw CAP Water Blends DRAFT		
Priority Constituents	In-Canal Operational Maximums	Not-to-Exceed Model Parameters
Arsenic ug/l	5	
Fluoride mg/l	0.7	
Nitrate mg/l	1	
TDS mg/l	723	
TOC mg/l ¹	4	
Turbidity NTU ¹	6	

* Based on CAP treatability and the historical naturally occurring upper limit. Operational constraints to be in place to maintain actual concentrations below these levels.

¹ TOC and Turbidity are event dependent and can, at times, naturally exceed their respective values for short durations

Additional Protection

- A final proposal will include a list of constituents that are not allowed at any level, for example:
 - 1,4 Dioxane
 - Benzene
 - PFOS/PFOA
 - Cyanide
- Certain categories of water will not be allowed into the canal, including liquid waste from mining, energy, or oil and gas operations, and untreated water from a Superfund or WQARF site.
- As the state moves toward a “one Water” approach that recognizes the value of all water sources, a re-evaluation of prohibitions will be warranted



Wheeling Parties Have the Responsibility

- Wheeling parties are responsible to discharge non-project water that maintains water quality below “Operational Maximums” in the canal
- Wheeling parties will be required to show compliance using a master water quality model operated by CAWCD before and after the project is operational

Where are the Standards Enforced or Measured?

- Point of compliance at diversion points
- Monitoring:
 - (1) Upstream and downstream of discharge points
 - (2) Diversion points



Can the CAP Aqueduct be used for Dilution or Mixing?

- Yes
- Key is to maintain quality below Operational Maximums to stay within historical ranges



Are Standards Affected by Shortage?



- Operational Maximums apply regardless of shortage
- If Operational Maximums are reached in shortage, additional treatment or curtailment of discharge volumes may be required

Are the Standards Affected by the Size of the Project?

- All projects discharging water into the canal must be operated in concert to ensure the Operational Maximums are not exceeded
- Different projects may have different operational constraints



Do Early Projects Affect Later Projects?

- Operational constraints for projects will be different based on in-canal impacts and the order of implemented projects
- This proposal shifts the burden to wheeling parties collectively



Do Upstream Projects Affect Downstream Projects?



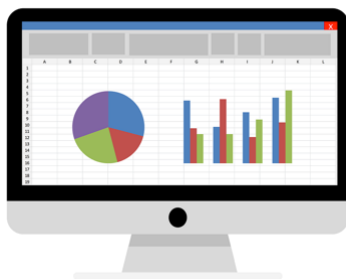
- What matters is that Operational Maximums at all diversion points are maintained
- Wheeling Projects can be managed conjunctively to optimize quality

Monitoring & Oversight



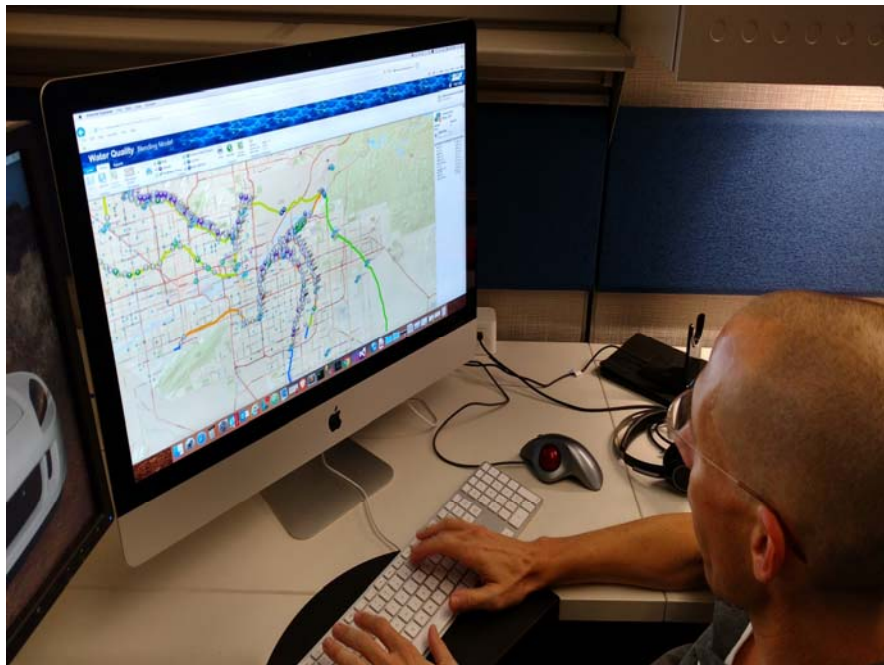
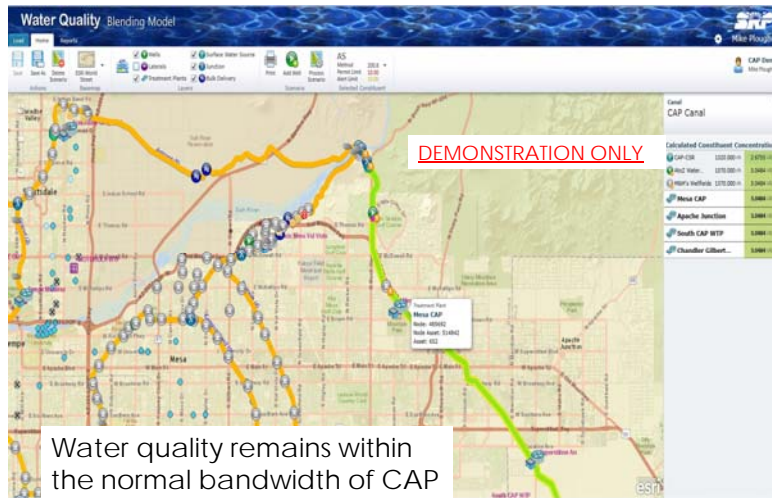
- Proposal requires:
 - Increased baseline and project-specific monitoring, including real time as applicable
 - Water quality & modeling expertise
 - Policies for shutting off non-compliant discharges
- Stakeholders recognize CAWCD will need to hire staff with water quality expertise to do this monitoring and oversight
- Entities wheeling Non-project Water should bear the burden of costs

Master Model



- Need for standard water quality model operated by CAWCD
- Model will aid in determining operational constraints or treatment requirements, as needed

Modeling for Proposal



Periodic Review



- Review of Operational Maximums every 5 years to consider changes in
 - Background water quality
 - EPA constituents
- Consider operational constraints for projects if there are
 - New discharges
 - Changes in canal volumes
- Canal water quality baseline will be based on a rolling mean

Next Steps



- Clarify water quality proposal for non-project water with CAWCD
- Recommend forwarding this proposal to BoR so BoR can work with water users and CAWCD to finalize the proposal

