Direct Potable Reuse in Colorado:
Regulatory Framework and the
PureWater Colorado Demonstration

Water Resources Review Committee
June 19, 2018 – Denver, Colorado

John Rehring, P.E.
Carollo Engineers/
WateReuse Colorado

Ron Falco, P.E.
CDPHE WQCD
Some quick* definitions

Non-potable reuse (Reg. 84)

Indirect potable reuse (IPR)

Direct potable reuse (DPR)

* DPR regulatory effort will add specificity!
What's the role of reuse in Colorado?

- Non-potable reuse
- Some surface water IPR
- No DPR projects in place or imminent

"... potable reuse will be an important facet of closing the... gap"

2050 Population

~2X M&I Supply Gap

560K AC-FT/Year
Why is interest in DPR growing in Colorado?

- Year-round supply
- Year-round demand
- No dual distribution
- Others have “gone first”
- Increasingly cost-competitive vs. traditional supplies
Two quotes help us put potable reuse in context

It “rains” every day at the wastewater treatment plant!
Two quotes help us put potable reuse in context

Water should be judged by its quality – not its history!
WateReuse Colorado Project proactively supports DPR implementation in Colorado
WateReuse Colorado DPR project collaborators included leading utilities and organizations:

- Colorado Water Conservation Board
- Water Supply Reserve Account Grant
- CDPHE
- Denver Water
- City of Aurora
- Centennial
- SMWSA
- PCWRA
- Town of Castle Rock
- Colorado Springs Utilities
- Consultants & NGOs
- Water Industry Associations
WateReuse DPR Project Workgroups Tackled Regulatory and Outreach Topics
Regulatory Development
Why develop DPR regulations?

DPR Regs

- **Confidence** in public health protection
- **Certainty** in planning for Utilities / Water Providers
- Public **Acceptance**

**ALIGNMENT**

`Water Providers CDPHE WQCD Stakeholders`
When is the right time to develop DPR regulations?

- Before a DPR project is proposed
- Concurrent with a project’s design
- During or after startup of a project
Flexibility and adaptability through Colorado’s established reg structure

- Regulation: Fundamental, enforceable requirements
- Policy: Interprets the Regulation
- Guidance: Best practices

Fosters public confidence
Path from framework to regulation

Early 2018:
- WaterReuse Colorado

Reg / Policy / Guidance Framework

Develop Treatment and Monitoring Standards

Develop Implementation Programs

Unresolved Issues:
- Timeline
- Resources

Water Quality Control Commission Rulemaking

Independent Advisory Panel

CWCB grant and in-kind contributions
Future Efforts and Water Quality Commission Role

• Secure funding/resources for rulemaking and implementation in 2019 or 202_?
  – Staff (FTE)
  – Expenses for operating and A.G. support ($)
  – Database ($)

• Division-led stakeholder effort

• Division develops regulatory proposal

• Formal rulemaking to address DPR

• Flesh out the framework with completed policies and guidance
Outreach at the PureWater Colorado Demonstration Project
### PureWater Colorado Demonstration Basics

| Who | • WateReuse Colorado, Carollo Engineers, and Denver Water  
• Plus many project partners collaborating to make this happen! |
| What | • Purifying secondary treated wastewater to drinking water standards |
| When | • January through mid-April 2018 |
| Where | • Hosted at Denver Water Recycling Plant |
| Why | • Provide physical context to DPR regulatory and public outreach work and demonstrate the ability to purify recycled water |
PureWater Colorado Demonstration Processes

Barrier 1: Ozonation

Barrier 2: Biofiltration

Barrier 3: Microfiltration

Barrier 4: Granular Activated Carbon

Barrier 5: UV/Advanced Oxidation
Tours Reached a Wide Audience

- State legislators (WRRC/staff)
- State agencies – CDPHE, CWCB
- Chamber of Commerce
- Water utility managers
- Bureau of Reclamation
- University students and faculty
- AWWA and WateReuse Colorado
The Project Received Broad Media Coverage

- Coverage on all major Denver TV networks as well as print/social media
Ongoing Outreach from the PureWater Colorado project

Outreach Events and Scholarships

Materials Available for Future Outreach
Takeaways

Significant progress in preparing Colorado to implement DPR projects

Still some needs for regulatory development

Model of success – partnerships and collaboration between utilities, CDPHE, and engineering firms

Outreach, regulatory development, and public confidence are all interlinked
Direct Potable Reuse in Colorado:
Regulatory Framework and the PureWater Colorado Demonstration

Water Resources Review Committee
June 19, 2018 – Denver, Colorado

John Rehring, P.E.
Carollo Engineers/
WateReuse Colorado

Ron Falco, P.E.
CDPHE WQCD