



MEETING MINUTES

WaterReuse Colorado / RMWEA/RMSAWWA Joint Water Reuse Committee

July 11, 2019
U.S. Bureau of Reclamation – Building 67, Rio Grande Room
111 S. Kipling St.
Denver, CO 80226

Join by phone

Dial-in number: 415-527-5035
Code: 906-656-989

Join by WebEx

<https://bor.webex.com/bor/j.php?MTID=m6059ac1f92553ef34375f09aaa71a6fb>

Meeting number: 906-656-989
Password: 8V3Q43Gv

9 – 11 am

WRCO Membership Meeting – open to all

11 am – 12 pm

USBR Lab Tour – open to all

Social Media Info:

<https://watereuse.org/sections/watereuse-colorado/>

Facebook: [watereusecolorado](#)

Twitter: [WateReuseCO](#)

Linkedin: [groups/8230476](#)

Membership Meeting

1) Introductions & Welcome

- a) New WRCO member – Geosyntec Consultants, Inc.
- b) Attendees: Saied Delagah, Catherine Hoffman, Bob Jurenka, Laura Belanger, Damian Higham, Liz Lemonds, Brandi Honeycutt, Shaun Thompson, Donene Dillow, Shannon Spurlock, Eric Peterson, Wes Martin, Alex Gerling, Judd Sundine, Michael Bourke, David Raff, Amanda Erath, Yuliana Porras-Mendoza, Austa Parker, Ty Long, Tyler Nading, Thomas Riggle
- c) Welcome by David Raff, USBR Science Advisor

2) USBR Presentations

- a) Funding programs relevant to WRCO
 - i) Reclamation partnerships for DWPR 2020 FOA in September – Yuliana Porras-Mendoza
 - ii) Title XVI and WaterSmart Programs availability/applicability to WRCO – Amanda Erath
 - iii) Reclamation test facilities (BGNDRF, Denver, Yuma) – Catherine Hoffman
- b) Water Treatment Group (Bob Jurenka)

3) WRCO Business Items (Jason)

- a) *July financials and May 2019 minutes could not be approved due to not enough Board members in attendance. Will put on September 2019 agenda for approval.*
- b) WRCO insurance policy renewal (\$500) – *an email will be sent for Board approval of funding*
- c) National Rep update (Donene Dillow)
 - i) Revised bylaws for leadership progression approved by WRA and signed by WRCO
 - ii) <https://watereuse.org/wp-content/uploads/2019/07/WRCO-Bylaw-Update-Signed-06292019.pdf>
- d) *Project WET volunteers needed for Leadership and Content committees. Contact Donene if you are interested.*
- e) Scholarships and awards – *subcommittee of Shannon Spurlock, James Rosenblum, Brandi Honeycutt, Jason Assouline formed to evaluate applications*
- f) Sponsorship Requests

- i) Regulator sponsorship for San Diego National (Donene) – *Brandi already has funding to attend the symposium and the group agreed that providing WRCO funding for regulators from other states was not a good use of WRCO funds.*
- ii) Joint Conference sponsorship request (Laura) – *It was agreed that WRCO would not provide sponsorship for the event.*
- iii) Additional sponsorship requests handled in September (WaterWise Conservation Symposium) – *there was brief discussion for the WaterWise symposium sponsorship. Since the \$250 sponsorship includes attendance for 2 people, it was preliminarily agreed that WRCO would sponsor the event if we can attend and present on the phases of DPR projects (potential attendees/presenters are Laura Belanger, Damian Higham, John Rehring).*

4) Engagement Opportunities (Laura)

- a) Joint Annual Conference Reuse Special Section
- b) Interim Water Resources Review Committee Presentation (tentatively 10/24)
- c) Ark, South Platte, and Metro Basin Roundtable DPR project updates (TBD- late November)
- d) Upper Colorado River Basin Forum DPR Project (November, abstract in)

5) CDPHE-WQCD Items

- a) Regulation 84 new uses update – *summary of updates was presented by Brandi Honeycutt. WRCO will submit for party status to current rulemaking hearings.*
- b) Edible crops ad-hoc subcommittee participation request – *Email to Shannon Spurlock to coordinate subcommittee participation.*

6) Conference events (Jason)

- a) Summary of ACE 2019 in Denver – *participation at the booth provided great exposure for WRA/WRCO at the event. Thank you to those that supported the effort to setup, staff, and breakdown the booth as well as planning and participation in the happy hour with DPR wine.*
- b) WRA Symposium 2020 – September 13-16
 - i) *Planning subcommittee formed: Laura Belanger, Damian Higham, Brandi Honeycutt, Tyler Nading, Donene Dillow, Shaun Thompson, Austa Parker, and Jason Assouline.*
 - (1) *WRA planning – Austa Parker and Donene Dillow will be primary contacts to interface with WRA planning committee*
 - ii) Initial to-do items for the host committee:
 - (1) *Recommend/coordinate ideas for after-hours event at the symposium with WRA.*

(a) Identifying venues for the Sunday 9/13 technical tours and the evening events. –
This has not happened yet and needs to happen ASAP.

(b) Also consider a separate WRCO event at the symposium.

7) Action Items, Next Meeting Date, and Adjourn

a) 2019 Meeting Dates and Locations

Date	Location & Time	Topic(s) and speaker(s)
Jan. 10	Denver Water Recycling Plant 10am to 12pm	Membership meeting
Mar. 7	PCWRA 10am to 12pm	Membership meeting—Presentation by Melanie Warren (2018 scholarship recipient)
May 2	Aurora Municipal Center—Aurora Room, 10am to 12pm	Membership meeting—Salinity management presentation/discussion
July 11	US Bureau of Reclamation 9am to 12pm	Membership meeting—presentation from USBR on research topics and funding and lab tour
Sept. 5	City of Westminster Water Reclamation Facility	Membership meeting and plant tour
Nov. 7	Castle Rock Water 8am to 2pm	Strategic Planning meeting & Membership meeting

8) Conferences (Alex Gerling)

Event	Organization	Location	Dates	Website
Membrane Technology Conference and Exposition	AWWA/ AMTA	New Orleans, LA	February 25-March 1, 2019	https://www.awwa.org/conferences-education/conferences/membrane-technology.aspx
Annual Salinity Summit	Multi-State Salinity Coalition	Las Vegas, NV	February 27-March 1, 2019	http://multi-statesalinitycoalition.com/events/
California Annual Conference	WRA	Garden Grove, California	March 17-19, 2019	https://watereuse.org/news-events/conferences/2019-watereuse-california-annual-conference/
Sustainable Water Management Conference	AWWA	Tucson, AZ	March 31- April 3, 2019	https://www.awwa.org/conferences-education/conferences/sustainable-water-management.aspx
Water Reuse in Texas Conference	WaterReuse	McAllen, TX	May 23-24, 2019	https://watereuse.org/event/8th-annual-water-reuse-in-texas-conference/
AWWA Annual Conference and Exposition	AWWA	Denver, CO	June 9-12, 2019	https://www.awwa.org/conferences-education/conferences/annual-conference.aspx
Arizona Water Reuse Symposium	WRAZ	Flagstaff, AZ	July 28-30, 2019	https://watereuse.org/event/save-the-date-arizona-water-reuse-symposium-in-flagstaff-az/?instance_id=503

Event	Organization	Location	Dates	Website
Annual WaterReuse Symposium	WaterReuse	San Diego, CA	September 8-11, 2019	https://watereuse.org/event/34th-annual-watereuse-symposium/
Rocky Mountain Joint Annual Conference	RMSAWWA and RMWEA	Keystone, CO	September 8-11, 2019	https://www.rmsawwa.org/events/EventDetails.aspx?id=1153968&group
WEFTEC	WEF	Chicago, IL	September 21-25, 2019	https://www.weftec.org/
AWRA Annual Conference	AWRA	Salt Lake City, UT	November 3-7, 2019	
Water Quality and Technology Conference	AWWA	Dallas, TX	November 3-7, 2019	https://www.awwa.org/Events-Education/Water-Quality-Technology
International Symposia on Potable Reuse and Biological Treatment	AWWA	Atlanta, GA	February 10-13, 2020	https://www.awwa.org/Events-Education/Potable-Reuse#8163251-attend

9) Topic carry-over from previous meetings

- a) WRCO apparel update (Kirk Watson)
- b) A 1-page fact sheet will be developed for state-wide water reuse – Members include Laura, John, Donene, Tyler. Reference/update <https://watereuse.org/wp-content/uploads/2015/05/TypesOfWaterReuseFINAL.pdf>
- c) Research plans for outreach and education at the National Western Center's Water Resources Center (Tyler Nading).
- d) WRCO communications consultant
- e) Outreach with other potential members and interested parties.
 - i) How can WRCO leverage Outreach and Education as a component of the Water Plan?
 - (1) Joint Event w/Water Education Colorado (WEco). Annual event w/ WRCO?

WaterReuse Association
WRCO Income Statement
January 1 through June 28, 2019

	Jan 1 - Jun 28, 19
Income	
4050 · Membership	
4300 · MEMBERSHIP DUES	
4311 · 30% of WaterReuse CO Dues	16,327.50
Total 4300 · MEMBERSHIP DUES	16,327.50
4325 · State Section Membership	
4325.60 · Colorado	2,100.00
Total 4325 · State Section Membership	2,100.00
Total 4050 · Membership	18,427.50
4400 · Product & Services	
4380.25 · Special Projects	21,556.00
Total 4400 · Product & Services	21,556.00
Total Income	39,983.50
Gross Profit	39,983.50
Expense	
6100 · Marketing and Communication	
6529 · Marketing & Communication	
6529.40 · Printing & Copies	145.00
Total 6529 · Marketing & Communication	145.00
Total 6100 · Marketing and Communication	145.00
6500 · Contract Services	
6552 · Contract Services	
6552.50 · Other	30,486.00
Total 6552 · Contract Services	30,486.00
Total 6500 · Contract Services	30,486.00
6510 · Administration	
6510.60 · Supplies	154.50
Total 6510 · Administration	154.50
6553 · Infrastructure	
6553.1 · Technology	80.00
Total 6553 · Infrastructure	80.00
6556 · Miscellaneous	2,500.00
6584 · Travel	
6584.20 · Travel - Non-Staff	1,166.19
Total 6584 · Travel	1,166.19
Total Expense	34,531.69
Net Income	5,451.81

WateReuse Association

WateReuse CO - Balance Sheet

As of February 28, 2019

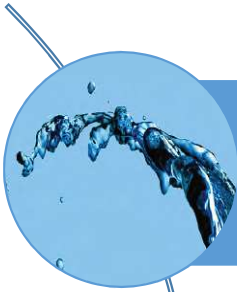
	June 28, 2019
ASSETS	
Current Assets	
Checking/Savings	
1112 · United Bank- 20173679	106,777.25
Total Checking/Savings	106,777.25
Other Current Assets	
1315 · Prepaid Expenses	
1323 · WateReuse CO - Prepaid Expense	291.65
Total 1315 · Prepaid Expenses	291.65
Total Other Current Assets	291.65
Total Current Assets	107,068.90
TOTAL ASSETS	107,068.90
LIABILITIES & EQUITY	
Liabilities	
Current Liabilities	
Accounts Payable	
2100 · Accounts Payable	
2111 · Accounts Payable - WateReuse CO	0.00
Total 2100 · Accounts Payable	0.00
Total Accounts Payable	0.00
Total Current Liabilities	0.00
Total Liabilities	0.00
Equity	
3210 · WateReuse CO Reserves	
3210.5 · WRCO - DPR Project	35,000.49
3210 · WateReuse CO Reserves - Other	66,616.60
Total 3210 · WateReuse CO Reserves	101,617.09
Net Income	5,451.81
Total Equity	107,068.90
TOTAL LIABILITIES & EQUITY	107,068.90

Bureau of Reclamation Programs

Yuliana Porras-Mendoza, Research & Development Office

Amanda Erath, Water Resources & Planning Office

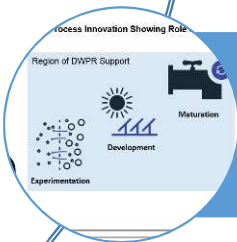
Research & Development Office



Science & Technology



Water Prize Competition Center



Desalination & Water Purification Research

Science & Technology Program

Reclamation-wide competitive research

Five key research areas

Seeking benefits to Reclamation and stakeholders

Key Research Areas

Water Infrastructure

Dams

Canals

Pipelines

Power and Energy

Hydro Powerplants
Pumping Plants

Energy Efficiency
Non-Hydropower Renewable

Environmental Issues

Water Delivery Reliability
Sediment Management

Invasive Species

Water Quality

River Habitat Restoration

Water Operations and Planning

Water Supply and Streamflow Forecasting
Climate Change

Open Data

Water Operations Models/Decision Support

Developing Water Supplies

Advanced Water Treatment

Groundwater Supplies

Agricultural & Municipal Water Supplies

System Water Losses

Science & Technology Funding Opportunity

- Annual call for proposals around the month of April
- Reclamation research submits proposal as lead principal investigator
- Partners can leverage in-kind and cash support

Example:

- Concentrate Management Toolbox – To be completed in 2019
- Engineering treatment objectives for DPR focused on small communities – Proposal submitted for FY2020

Water Prize Competition Center



Water Availability



Infrastructure Sustainability



Environmental Compliance

Water Prize Competition Center

- **New way to engage and seek solutions for critical challenges**

Examples:

- **Pathogen monitoring**
- **More Water, Less Concentrate**

Desalination & Water Purification Research

Goal is to augment water supplies

Reducing cost and environmental impact

Support laboratory and pilot scale projects

Desalination & Water Purification Research

Eligible Applicants

- Individuals, Academic institutions, Profit organizations, State and local governments, Non-Profit organizations, Federally-funded R&D centers, Indian tribal governments and organizations, and US-Mexico binational centers

Cost-Share

- Federal cost share is 25%, may increase up to 50%
- Academic Institutions up to 100% Federal cost share

Funding Levels

- Laboratory scale – up to \$150,000
- Pilot scale – up to \$400,000

Desalination & Water Purification Research

Fund projects with various types of impaired water sources to treat for a specified end-use



Inland
Desal

Seawater
Desal

Water
Reuse

Produced
Water

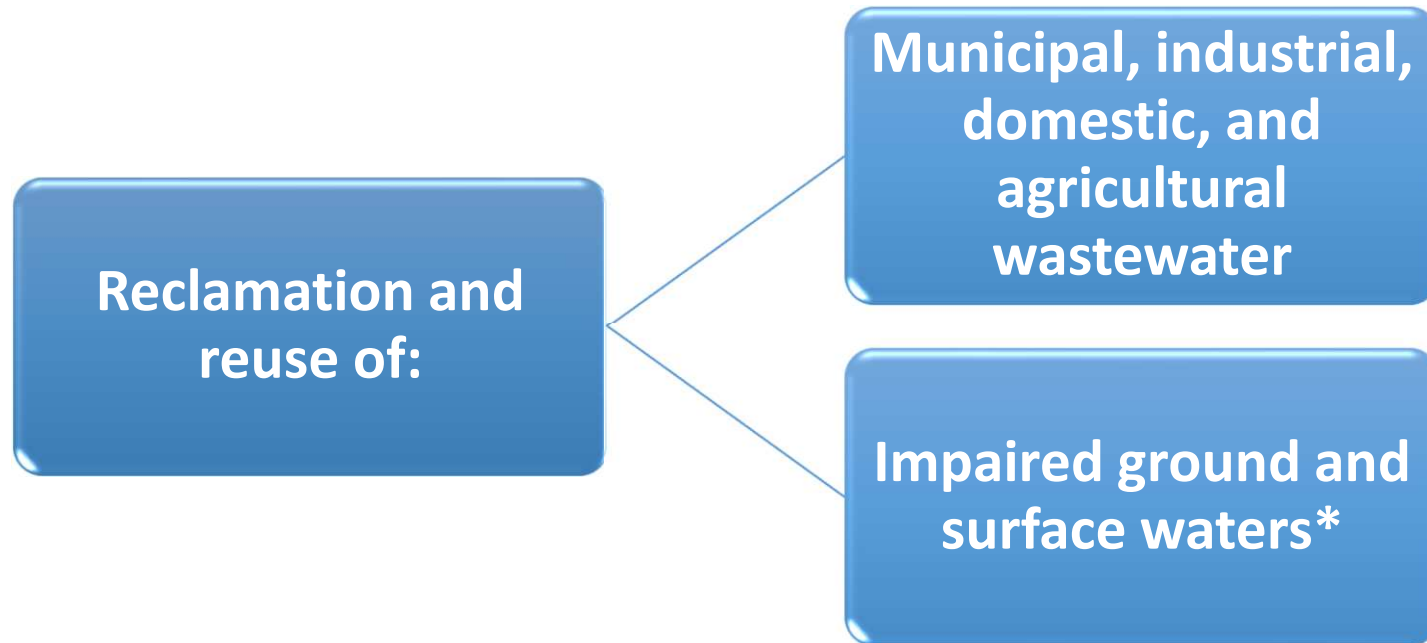
Fund technologies or processes that are innovative and will have an impact to the water industry

Funding for Reuse under the WaterSMART Program

- Title XVI Water Reclamation and Reuse Program
- Drought Response Program

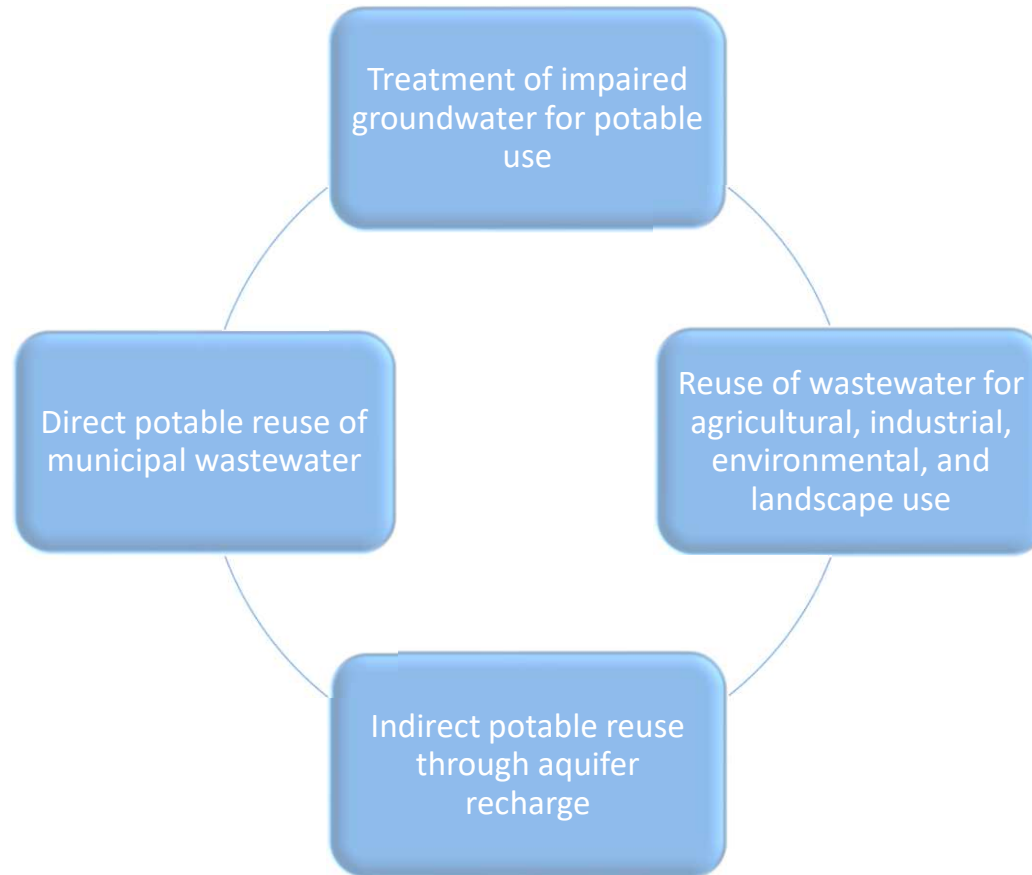


Title XVI Program



*Projects that are solely ocean water or brackish water desalination are not eligible under Title XVI unless they are specifically authorized

Types of Projects



Title XVI Funding Opportunities

(FY 2019 Appropriations \$58.6 million)

- **Maximum federal cost share – 25%**
 - **Can request up to 25% of the cost of work that will be completed over the next two years**
 - **Can reapply each year until Federal share reaches 25% of total project cost, up to \$20 million**
- **Pre-award costs are allowed**
 - **Authorized projects = date of congressional authorization**
 - **WIIN projects = date feasibility study findings are transmitted to Congress**
- **NEPA must be complete prior to the commencement of ground disturbing activities**
- **Research funding opportunity is also being offered in 2019**
 - **Proposals due September 23, 2019**

Title XVI Process

Submit Feasibility Study for Reclamation Review



Feasibility Study Review in Accordance with
Reclamation Manual Release WTR 11-01



Eligible to Apply for Funding Through the Competitive
Process



Transmittal of Feasibility Study Review Findings to
Congress



Results of Competitive Process Transmitted to Congress
for inclusion in Enacted Appropriation Legislation

Drought Response Program- Drought Resiliency Projects

Eligible Projects Include:

- Infrastructure Improvements
 - Modifying surface water intakes
 - New conveyance system components
 - Additional water storage
 - Recharge facilities
 - Capture and treat alternative supplies
- Decision Support Tools & Modeling
 - Tools to support water marketing
 - Tools to convey water supply information
 - Measurement
- Environmental Protection
 - Improve habitat
 - Install fish screens and ladders



Projects build resilience to drought



Projects supported by a drought plan are more competitive



Funding Level I: \$300k 2 years
Funding Level II: \$750k 3 years

Programs website links

Reclamation Program	Website	Contact
Desalination and Water Purification Research (DWPR)	www.usbr.gov/research/dwpr	Yuliana Porras-Mendoza, yporrasmendoza@usbr.gov
WaterSMART and Title XVI	www.usbr.gov/watersmart/	Amanda Erath, aerath@usbr.gov
Water Prize Competition Center	www.usbr.gov/research/challenges	Jennifer Beardsley, jbeardsley@usbr.gov
Science & Technology Program	www.usbr.gov/research/st	John Whitler, jwhitler@usbr.gov

Yuliana Porras-Mendoza

yporrasmendoza@usbr.gov

303-445-2265 office

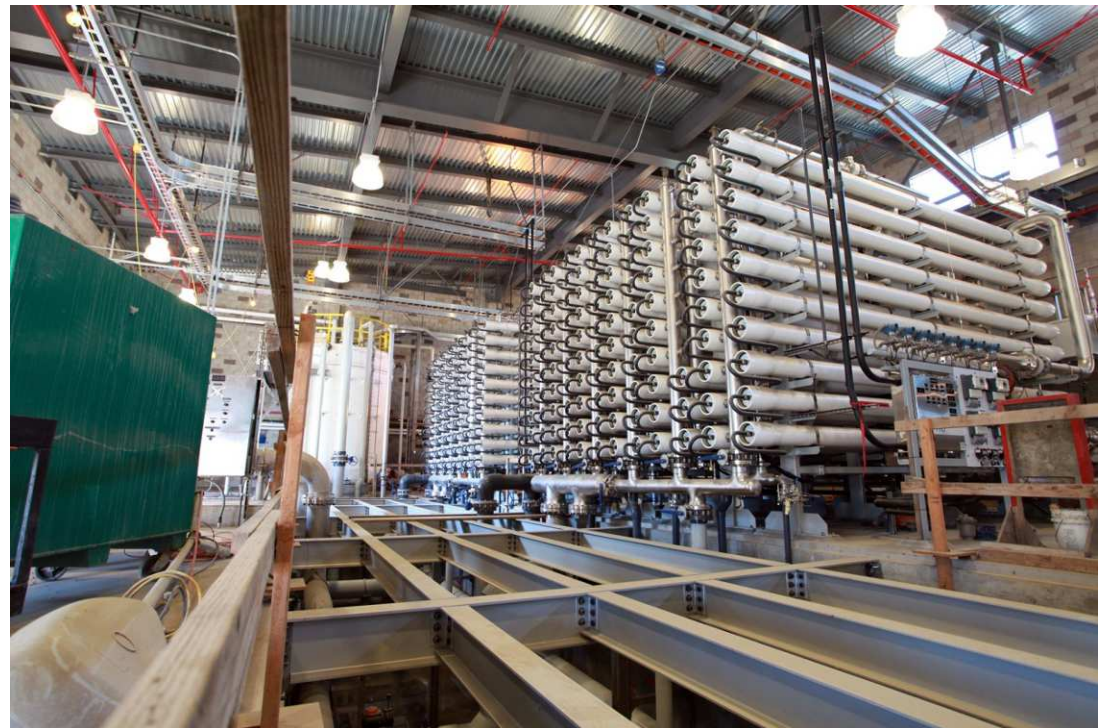
720-357-9974 cell

RECLAMATION
Managing Water in the West

Water Treatment Group

Bureau of Reclamation

Robert Jurenka, Group Manager



Mission and Vision

Mission Statement

Our mission is to improve water quality and increase water availability through research, design, and consultation.

Vision Statement

Our vision is to be Reclamation's primary technical resource and a national leader in advancing state-of-the-art water treatment for a sustainable water future.

Group Profile

- 16 Civil Engineers, 1 Mechanical Engineer, 1 Administrative Assistant
- We have the opportunity to work in both **research** and **design**, advancing the water treatment field based on the latest technological developments
- Work in a water lab & w/other disciplines such as Mechanical, Geotechnical, Civil/Structural and Electrical
- Work with all water and residual types from drinking water to wastewater treatment and reuse

Design

- Water Treatment Plant
Process Selection
- Planning Level Reports
- Construction Drawings and
Specifications for Final
Design
- Sustainable Building
Designs/LEED Certification
- Software Modeling
 - Reverse Osmosis Membrane
Designs
 - Corrosion modeling in
distribution systems
- Evaluate Regulations and
comply w/ all Permits



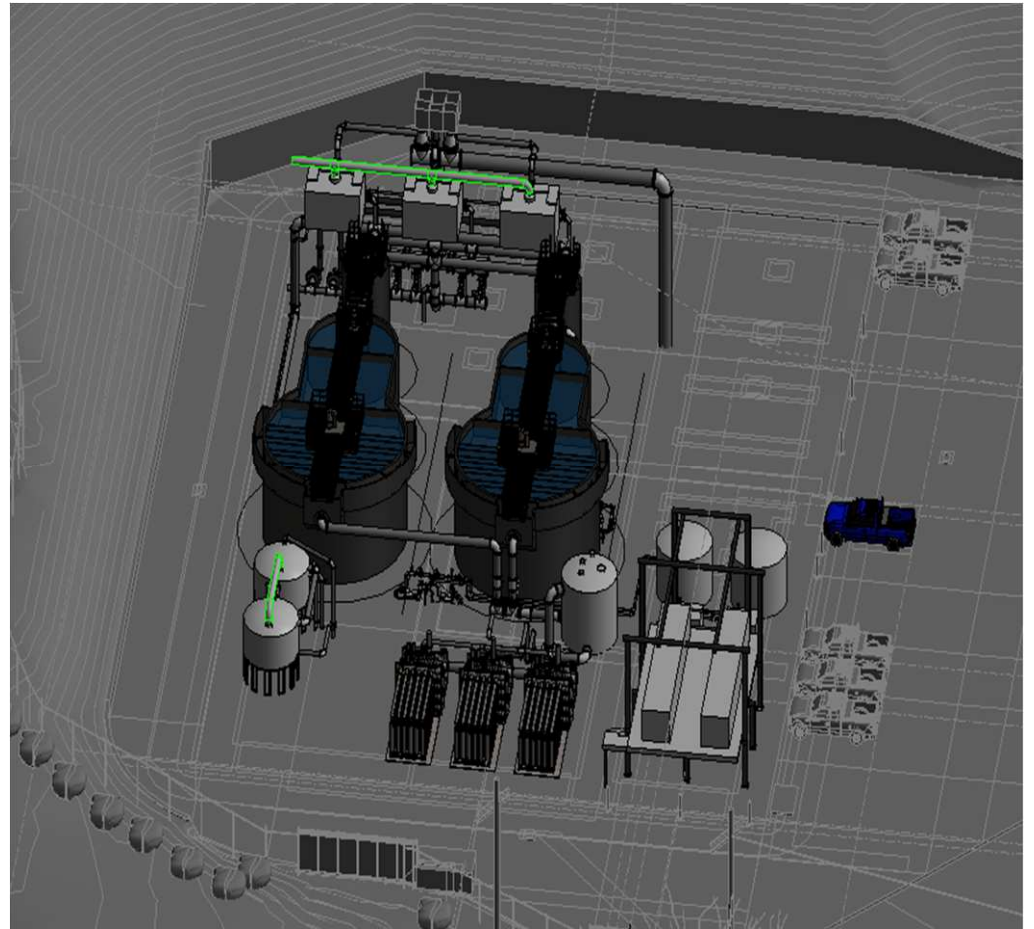
Research & Testing

- Goal is to lower treatment costs through testing innovative treatment ideas
- Bench, Pilot and Demonstration Testing
- Membrane Autopsies
- Water Quality Analysis and Sampling Plans



Key projects

- Leadville CO Water Treatment Plant Design
- Research Prize Competitions
- Scaling resistant RO/NF Membrane
- Navajo-Gallup WTP's
 - DPR Pilot Study
- Water and Energy Collaborations
- San Luis CA Irrigation Drainage Treatment & Demonstration Plant Operations Support
- Oxnard RO Concentrate Treatment Wetlands



Robert Jurenka, Group Manager

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RECLAMATION
Managing Water in the West

Use of Reclaimed Water for Hydrologic Fracturing

Water Quality Control Division, July
18, 2019



Water Quality Control Division Presentation

1. Basis for November 2018 Decision
Regarding Reg. 84's Non-Evaporative
Industrial Processes Use
2. Adding a New Use to Regulation 84:
Rulemaking
 - a. Stakeholder Participation
 - b. Issues to Consider



1. Basis for November 2018 Decision Regarding Reg. 84's Non-Evaporative Industrial Processes Use

WQCD November 2018 Decision Regarding Reg. 84's Non-Evaporative Industrial Processes Use

- WQCD determined that hydrologic fracturing was not within Reg. 84's Non-Evaporative Industrial Processes use in November 2018
 - A final agency action at that time
- Today ≠ debate, just additional explanation

Definition of Non-Evaporative Industrial Processes in Reg. 84

“the use of water in an industrial process where water is not evaporated in the process and is used within a contained system, where there is no public exposure to reclaimed water under normal operations and only limited and controlled contact with reclaimed water by trained workers.”

2013 Statement of Basis and Purpose Language

- Where water is used in an industrial process, is not evaporated in the process, is used within a contained system, and is either discharged to a sewer system as a blow down ... or is incorporated into a product that is not intended for personal contact or ingestion.
- Examples provided: closed loop cooling systems, concrete makeup water, boiler feed water, water for lime slaking, and industrial process makeup water.

2013 Statement of Basis and Purpose Language Cont.

- Highlighted these characteristics:
 - Low potential for human exposure
 - Low potential for releases to the environment
 - Low potential for cross connections
- “[N]o discharges to waters of the state shall be allowed with this use unless authorized via an approved permit under the CDPS (Colorado Discharge Permit).”

Examples of Current Non-Evaporative Industrial Processes

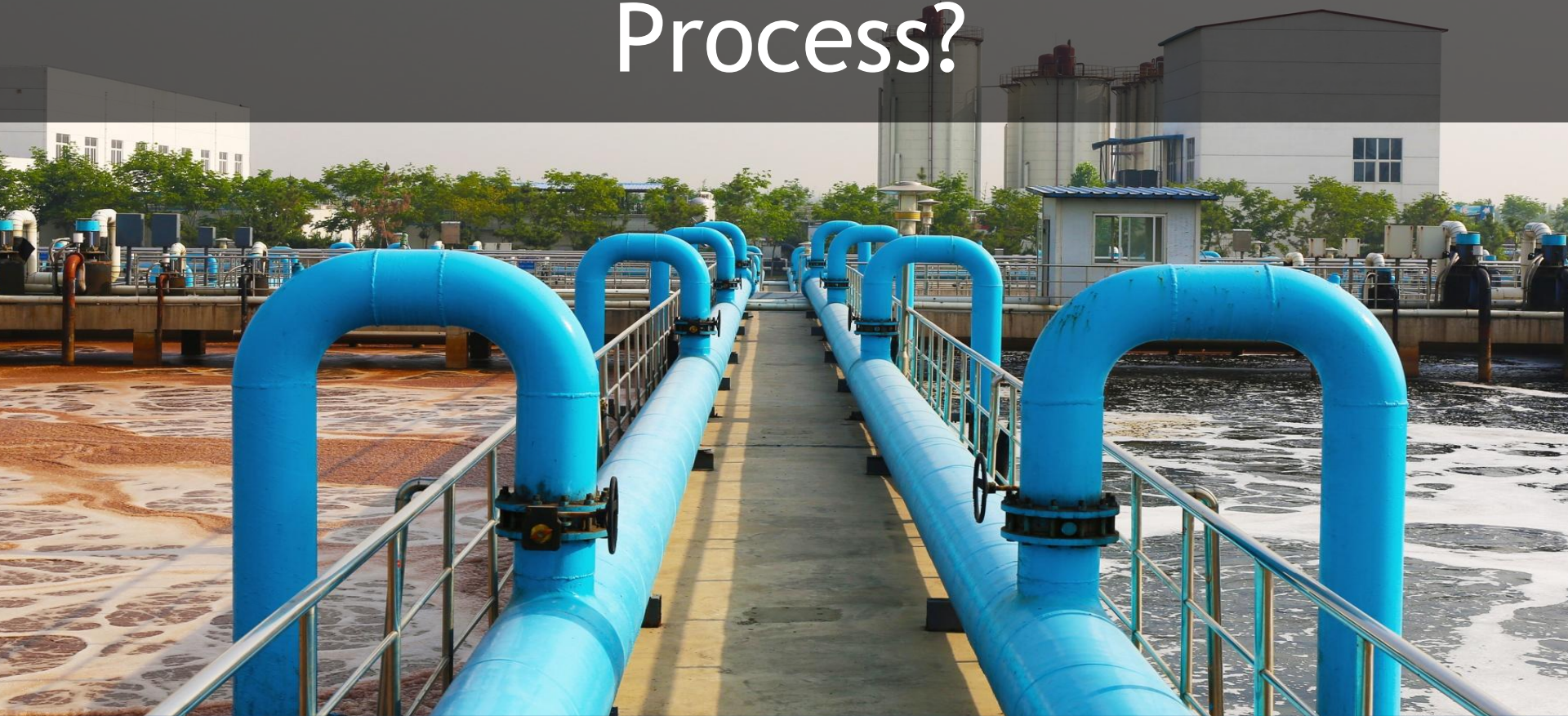
- Denver Zoo
- Museum of Nature and Science
 - Piped underground (closed loop system)
 - Heat exchangers, interior floor heating, exterior snow melt
 - Water returned to recycled water line



Examples of Current Non-Evaporative Industrial Processes

- Martin Drake Flue Gas Desulfurization
 - Zero discharge - all water is consumed in the process
 - Process removes SO_2
 - Water and lime addition turn SO_2 into CaSO_4
 - CaSO_4 precipitates and is disposed of as solid waste
 - Leftover water is returned back into the system for the desulfurization process
 - Closed loop process

Why Isn't Fracking a Non-Evaporative Industrial Process?



Key Elements of a Non-Evaporative Industrial Process under Reg. 84

1. Must be used within a contained system;
2. Must have a low potential to release to the environment;
3. Must have a low potential for human exposure;
4. Must have a low potential for cross-connection; and
5. Must not include any discharges to state water unless authorized under a separate CDPS permit.



Why Fracking Does not Meet These Criteria, 1

1. Fracking is not a contained system.
 - Numerous potential opportunities for leaks, spills or other discharges between the city tap or truck and the water going underground.
 - Significant portions of this fluid will remain underground.
2. Fracking has the potential to release to the environment.
 - Same

Why Fracking Does not Meet These Criteria, 2


3. The potential for human exposure may need more research.

4. There will be a discharge to state waters and it will not be authorized by a CDPS permit but by COGCC.

- Not anticipated in the current regulations
- Raises significant coordination issues

Other Factors

- Potential need for different BMPs
- Potential need for different compliance and enforcement processes
 - Example of current edible crop rulemaking



1. Adding a New Use to Regulation 84: Rulemaking Stakeholder Participation and Issues to Consider

Needed Stakeholder Participation for Water Quality Control Commission

“The Division and other impacted or relevant stakeholders and community members have been involved in discussions regarding the proposal with the proponents. This includes the meaningful involvement of a diverse group of people who are representative of the impacted or relevant stakeholders and community members. The dimensions of diversity to consider include race, color, national origin, income, age, gender, and sexual orientation.”

“Impacted or relevant stakeholders and community members” includes

- Nearby residents
- Other reclaimed water treaters considering the use
- Those concerned about hydraulic fracturing in Aurora
- Reclaimed water, COGCC stakeholder lists
- Conservation community

Issues to Consider in Stakeholder and Rulemaking Process

- The category of water for these uses
- Whether on-site monitoring for E. coli or any other constituents would be needed
- Systems for the state and treaters to ensure compliance at these sites
- Protecting groundwater from these discharges
- How spills, blow-outs, and other accidental discharges will be minimized and addressed
- Worker safety issues

Contact Information

Meg Parish	303.692.3419
Nicole Rowan	303.692.6392