

# Chapter Meeting

December 14, 2021

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What are you most excited  
about for the holidays?

*Type your answer into the chat!*

# Agenda

- Chapter Updates
  - Regulatory & Legislative Update
  - Treasurer Update
- Regulatory Roundtable
  - Brian Bernados, State Water Resources Control Board, Division of Drinking Water
  - Jenna Lepore, San Diego County Dept of Environmental Health
  - Ben Neill, San Diego Regional Water Quality Control Board
- 2022 Officer Elections
- Adjourn

# Chapter Updates

WateReuse San Diego Officers



2021 WaterReuse California  
ANNUAL CONFERENCE  
SEPT 19-21, 2021 • LOS ANGELES

BUILDING A RESILIENT  
FUTURE TOGETHER

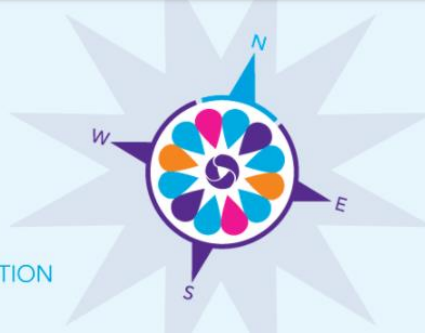
# WaterReuse CA Annual Conference 2021

- One of the first in-person water events in 2021
- Total attendance 590 – 390 in-person and 200 virtual
- \$50K additional in pandemic related expenses
- Net Revenue - **\$27,000**



# 2022 WaterReuse SYMPOSIUM

IN COLLABORATION WITH THE WATER RESEARCH FOUNDATION



SHAPING OUR PAST &  
CHARTING OUR FUTURE

MARCH 6-9, 2022 • SAN ANTONIO

- Early Registration Deadline: January 6, 2022
  - In-Person & On-Demand
- Hotel Reservation Deadline: February 18, 2022
  - San Antonio Marriott Rivercenter
- Sponsorship Open

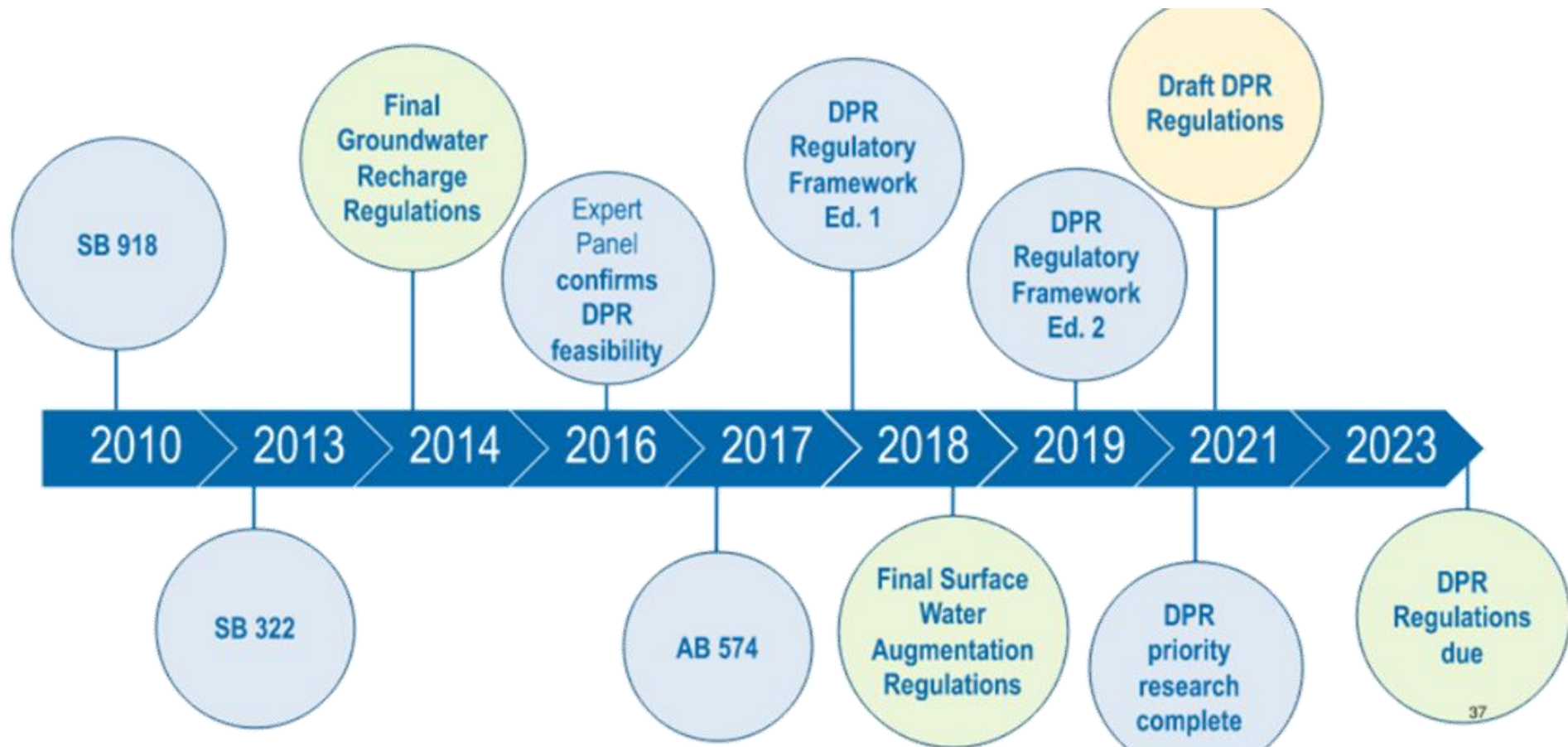
<https://watereuse.org/news-events/conferences/37th-annual-watereuse-symposium/>

# Recycled Water Funding Update

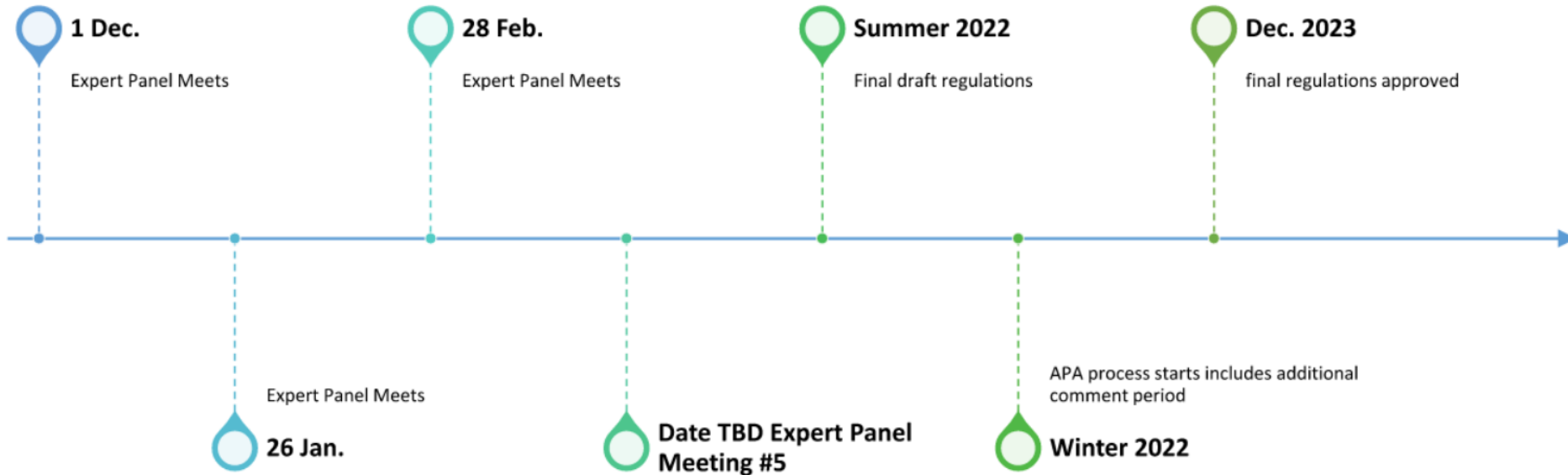
- September 2021 – California State Legislature: \$200M for recycled water and groundwater cleanup to be spent by 2024 (includes \$50M for San Diego Pure Water)
- Department of Finance funding outline indicates another \$200M for RW/GW between 2022-2024
- Water Board will receive \$650M for DAC SRF drinking water and \$650M for septic-to-sewer. Some discretion afforded Water Board in directing this money. WRCA will participate in workshop to discuss distribution of these funds.
- 2021 was focused on water revenues through COVID-19 relief stimulus and Surplus General Funds that must be spent promptly.
- Federal infrastructure stimulus...



# The Path to Direct Potable Reuse



# 2022-23 DPR Regulations Timeline





# DPR Comments and SWB Responses

## **WaterReuse California Focus**

*Generally pleased with progress on focus areas, dialog, and expectations for final regulations in 2023*

Differentiating between RWA and TWA

Understanding the Pathogen LRV Requirements

Specify performance goals and reduce prescriptive design criteria: Ex BAC/O3

Streamline redundant plans

AWT 5 Operators 24/7: revise to allow some flexibility

# Water Use Efficiency Standards

- Water Conservation Legislation AB 1668 and SB 606 (2018) requires DWR and Water Boards to adopt long-term WUE Standards and appropriate variances, guidelines, and methodologies for urban water use calculations, effective June 2022.
- Industry and WRCA have opposed AB 1434 which established arbitrarily low WUE objectives.
- DWR Statutorily-required report now complete requiring 55/47/42 gpcd.

RW Irrigation “consistent with MWELO” – Up to 1.0 ETO

- WRCA led MWELO recycled water committee in 2018-20 update to maintain RW 1.0 ETO

RW Variance for High TDS – Agency wide variance for TDS 1000+ -- up 0.2

- WRCA, UC Riverside, So. Cal Salinity Coalition developed white paper on high TDS RW

Potable Reuse Credit (10 to 15%)

- WRCA and environmentalists developed method for calculation

WaterReuse San Diego

# Friendly reminder on dues!

Only \$75/year! **To submit dues:** Complete the 2022 Membership Enrollment Form & submit check to Mahyar Navizi (Treasurer).



# Regulatory Roundtable

Jenna Lepore, County of San Diego

Ben Neill, San Diego Regional Water Quality Control Board

Brian Bernados, Division of Drinking Water

# Regulatory Panelists



**Jenna Lepore**

- County of San Diego
- Dept of Env Health & Quality
- Recycled Water Program



**Ben Neill, P.E.**

- San Diego Regional Water Quality Control Board
- Groundwater Sustainability & Protection Unit
- Recycled Water Regulatory Program



**Brian Bernados, P.E.**

- Division of Drinking Water
- California State Water Board



# Direct Potable Reuse Ten Minute Overview

Brian Bernados, PE, MSCE, T5  
Senior Sanitary Engineer  
Technical Operations Branch



Division of Drinking Water

# Pathogen Control Overview

- Pathogen reduction targets to achieve specific health risk goals
- Reliability - multi-barrier treatment, diverse mechanisms, redundant treatment
- Validate treatment trains to ensure pathogen removal targets can be met
- Real-time monitoring
- Pathogen control point critical limits
- Control system that responds appropriately



# Chemical Criteria Goal

- In addition to controlling pathogens the criteria must address toxic chemicals
- One goal of the criteria is to address the findings in the 2016 report by the
- *Expert Panel on the Feasibility of Developing Uniform Water Recycling Criteria for Direct Potable Reuse*



# 2016 Expert Panel Findings Summarized

DPR practices need to provide the following **features in addition** to the requirements already specified in IPR regulations for California

- The DPR system must be reliable
- Ensure the independent treatment barriers represent a diverse set of processes (i.e., robustness)
- Providing the ability to divert advanced treated water that does not meet specifications
- “averaging” of potential chemical peaks

# DPR Expert Panel Report (2016) & Research

- DPR-1 - Quantitative Microbial Risk Assessment (QMRA) Implementation
- DPR-2 - Measure Pathogens in Wastewater
- DPR-3 - Feasibility of Collecting Pathogens in Wastewater during Outbreaks
- DPR-4 - Treatment for Averaging Potential Chemical Peaks
- DPR-5 - Develop methods to identify low molecular weight unknown compounds

# Pathogen Control Operational Requirements

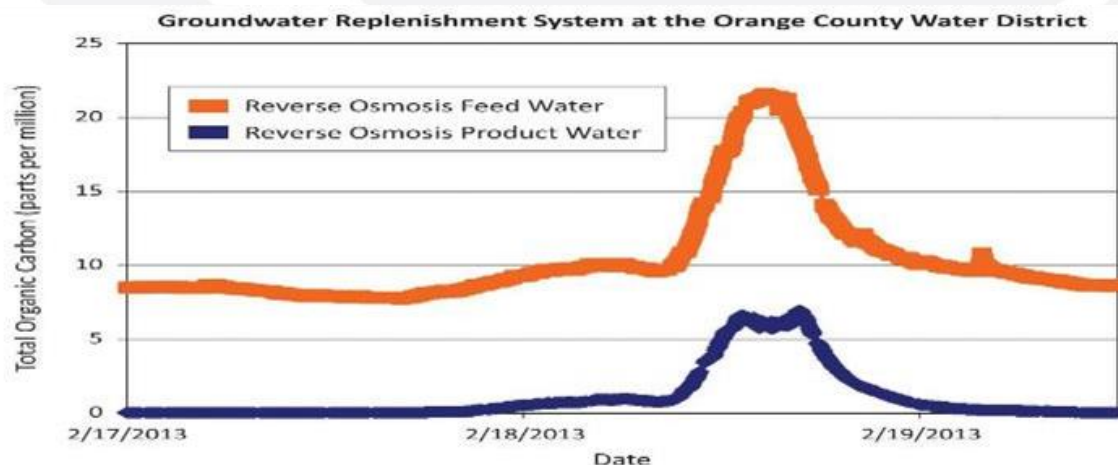
- Discontinue delivery if treatment train does not achieve 16 Virus, 10 Giardia and 11 Cryptosporidium Log Removal (LRV).
- Discontinue delivery if minimum # of treatment processes or treatment mechanisms are not provided.
- Discontinue delivery within 24 hours if treatment train does not achieve minimum design LRV 20/14/15.

# Pathogen Reduction - Reliability

- For each reference pathogen:
  - At least 4 pathogen treatment processes,
  - At least 3 mechanisms (physical separation, chemical disinfection, UV disinfection)
- Quantitative microbial risk assessment (QMRA) used to evaluate failure scenarios – DPR-1: QMRA “DPRisk” tool
- Critical failure scenario → +4 log reduction to achieve daily risk goal → treatment train designed to provide 20/14/15

# Chemical Control in DPR vs. IPR

..is different from IPR in two important ways:



- Without an environmental buffer, pulses of low molecular weight chemicals may pose an acute threat
- Without an environmental buffer the urgency of recognizing and responding to treatment deficiencies increases

# Chemical Control Approach

- The approach:
  - Enhanced source control and public education
  - Conformance with MCL and Notification Level (NL) requirements
  - Monitoring and development of additional NLs as appropriate
  - Multi-barrier advanced treatment
  - Criteria to address pulses of low molecular weight chemicals
  - Chemical control points and critical limits
  - Control systems and response plan



## 2016 Panel: “Rigorous Source Control”

- From 2016 Feasibility report
- “Implementing a rigorous source control program designed to control the discharge of toxic chemicals and other contaminants into the wastewater collection system that serves the DPR system. The source control program must include stringent sewer ordinances and ongoing surveillance.”
- Therefore,,

# Wastewater Source Control

## §64669.40

- “Rigorous Source Control” addressed in Draft Criteria, which includes the following:
  - A risk assessment
  - Ordinances that utilize “local limits” applied to dischargers that goes beyond the EPA pretreatment compounds to protect DPR
  - Audits
  - Early warning of potential peaks
  - Source control committee

# A Robust Third Chemical Process

## 2016 Expert Panel Findings

“DPR practices need to provide the following features **in addition to** the requirements already specified in IPR regulations for California

- “Ensuring the independent treatment barriers represent a diverse set of processes (i.e., robustness) in the treatment train that are capable of removing particular types of contaminants by different mechanisms.
- This diversity provides better assurance that if a currently unrecognized chemical or microbial contaminant is identified in the future, there is a greater degree of likelihood it will be removed effectively by the treatment train.”

# Chemical Control

## § 64669.50

- “A DPR project shall ensure that the municipal wastewater receives continuous treatment prior to its distribution as drinking water as follows:
- (a) The treatment train must consist of at least three separate treatment processes, using diverse treatment mechanisms, for chemical reduction. The treatment train shall include:
  - (1) An ozone/biological activated carbon (ozone/BAC) process that meets the criteria in this section;
  - (2) A reverse osmosis membrane process that meets the criteria in this section; and
  - (3) An advanced oxidation process that meets the criteria in this section.”

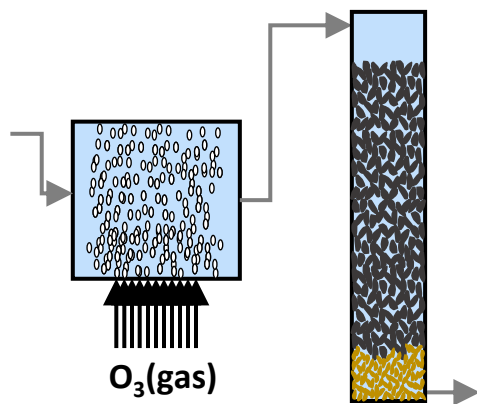
# Must Be Robust

- “To be feasible, DPR systems must meet or exceed the attributes of **robustness** . . defined as the presence of **different types** of treatment processes acting via **different mechanisms** such that a **yet-unknown pollutant** likely will be removed by multiple stages.”

biodegradation

separation

advanced oxidation



# Reliable Hazard Analysis Critical Control Point §64669.50 (c), (d), (f), (i), (j)

- Continuous performance monitoring: at least one surrogate or operational parameter that indicates when treatment is not performing as designed or integrity of the treatment has been compromised, such as:
  - **O3:TOC ratio**
  - **Online UVA**
  - **Online TOC**
  - **Continuously calculated UV dose or energy (EED in KWhr/1000gal)**
- Demonstrate treatment under normal full scale operating conditions

# 2022 Officer Elections

Lesley Dobalian, Past-President



# 2022 Officers

## Past-President



**Tom Falk, P.E.**

- CDM Smith
- Client Service Leader
- San Diego State University

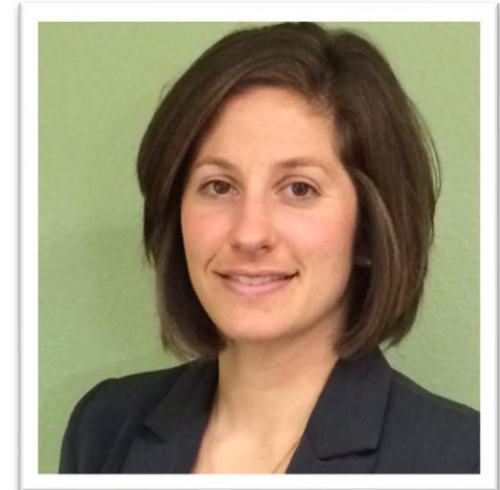
## President



**Jocelyn Lu, P.E.**

- Brown and Caldwell
- Environmental Engineer
- UC San Diego

## President-Elect (nominated)



**Lindsey Stephenson, P.E.**

- Encina Wastewater Authority
- Engineering Services Manager
- UC Davis, B.S.
- University of Florida, M.S.

# 2022 Officers

## Treasurer



**Mahyar Navizi, P.E.**

- City of San Diego
- Associated Engineer
- Asad University & Mazandaran  
S&R University, Iran

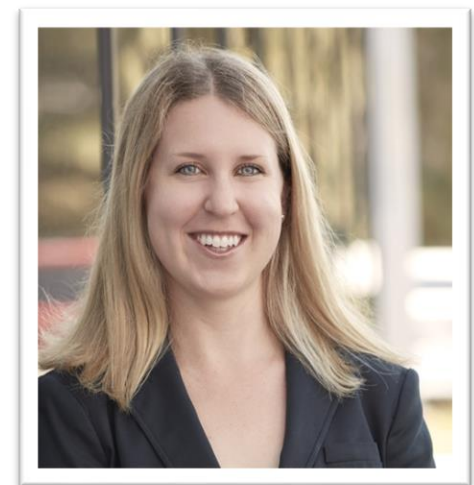
## Secretary



**Rosalyn Prickett**

- Woodard & Curran
- Sr. Water Resource Planner &  
Project Manager
- UC Berkeley

## Director of Public Relations & Membership Outreach (Nominated)



**Megan Drummy**

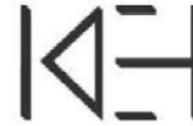
- Katz & Associates
- Account Supervisor
- UC Irvine

# 20<sup>th</sup> Anniversary Celebration

WateReuse San Diego Officers

WaterReuse San Diego

# Next Meeting, 20<sup>th</sup> Anniversary Celebration!



Thank you to the local membership for your continued financial support!