



# WATER REUSE

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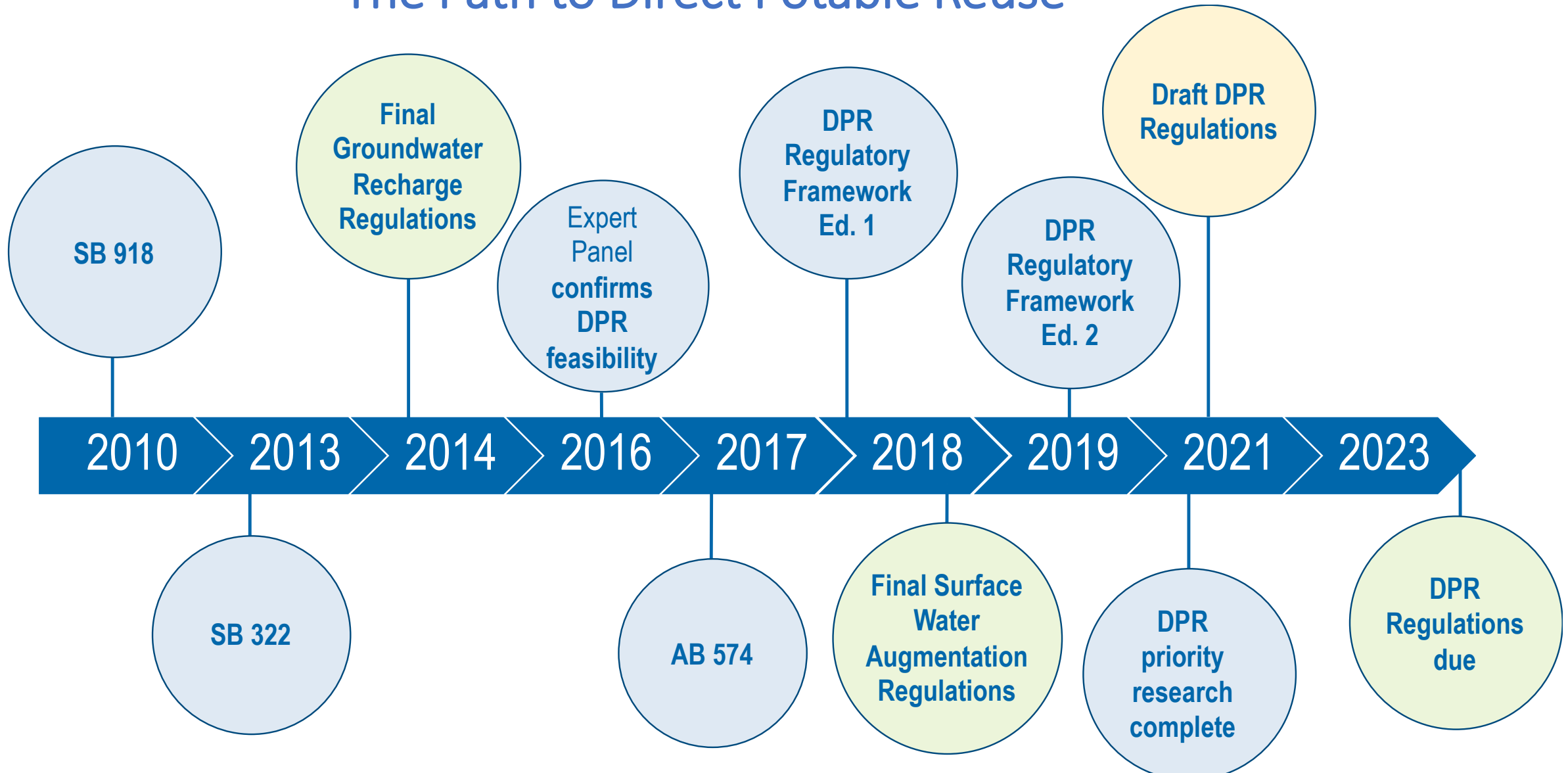
## CALIFORNIA

### Direct Potable Reuse

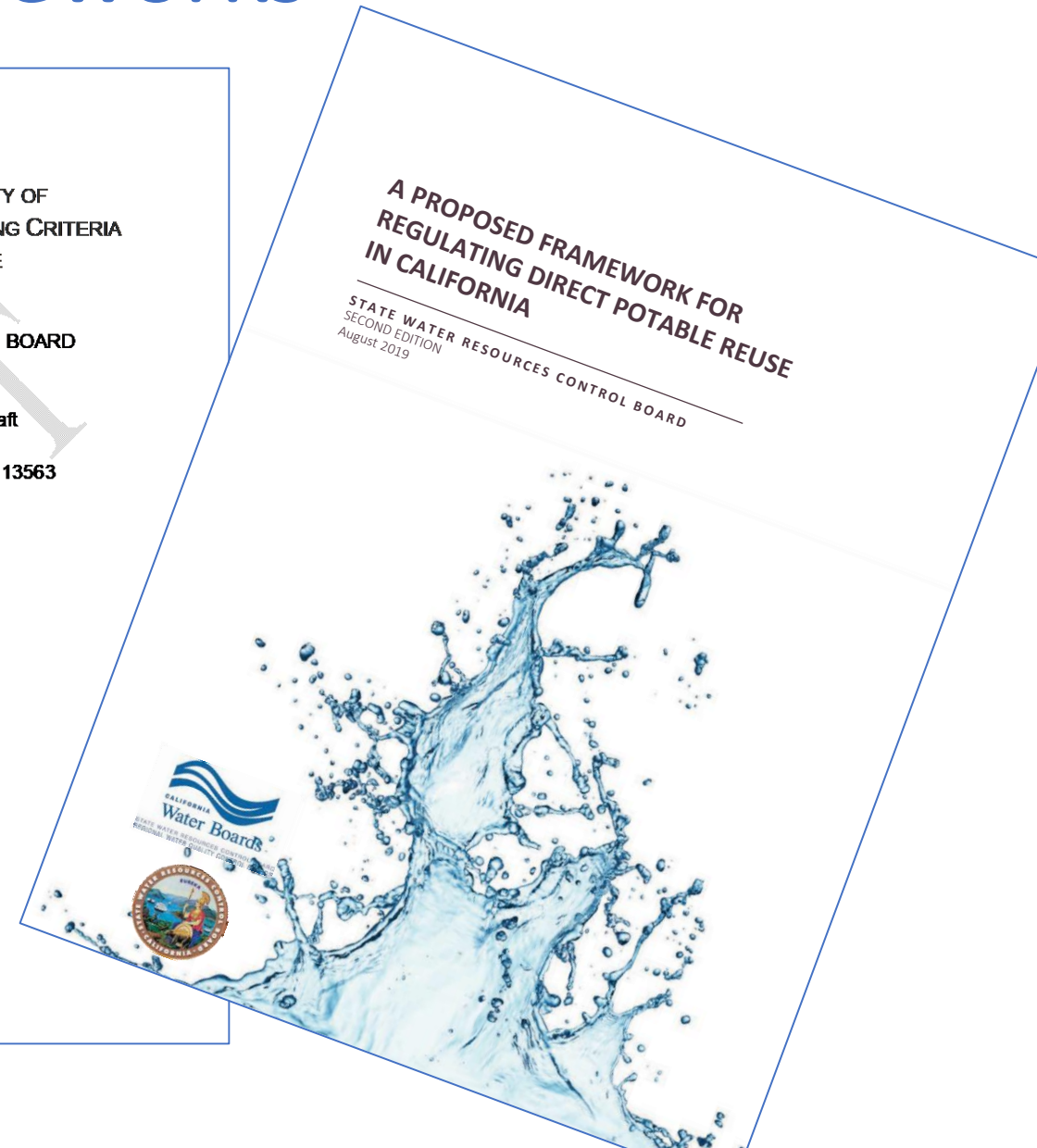
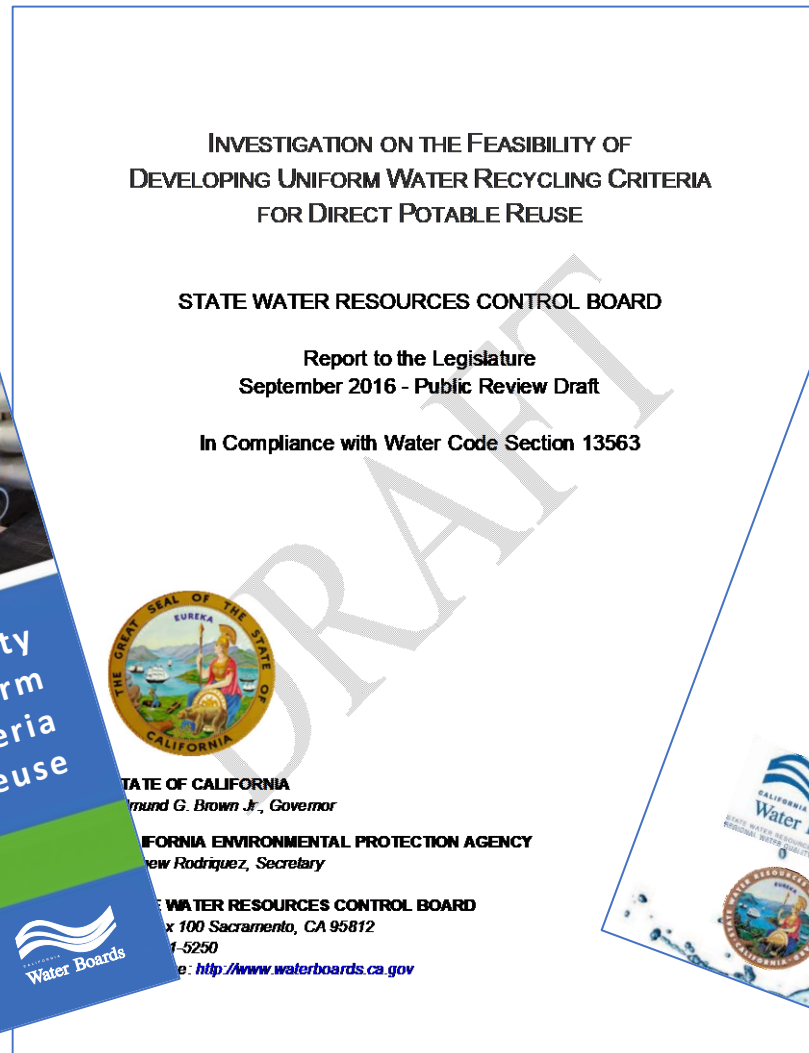
Inland Empire Chapter

Jennifer West  
Managing Director  
*December 15, 2021*

## The Path to Direct Potable Reuse



# Regulations Based on Frameworks



# AB 574 DPR Expert Panel

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- **Co-Chair: James Crook, PhD, PE, Environmental Engineering Consultant**
- **Co-Chair: Adam Olivieri, DrPH, PE, EOA, Inc.**
- Richard Bull, PhD, Washington State University (Emeritus)
- Jörg E. Drewes, PhD, Technical University of Munich
- Charles Gerba, PhD, University of Arizona
- Charles Haas, PhD, Drexel University
- Amy Pruden, PhD, Virginia Tech
- Joan Rose, PhD, Michigan State University
- Shane Snyder, PhD, Nanyang Technological University
- Jacqueline E. Taylor, REHS, MPA, Director, Environmental Protection Branch, Los Angeles County Department of Public Health (Retired)
- George Tchobanoglous, PhD, PE, University of California, Davis (Emeritus)
- Michael P. Wehner, MPA, Orange County Water District (Retired)





# DPR Comments and SWB Responses

(August 2021 draft)

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**Differentiating between RWA and TWA**

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**Document/understand the need for the pathogen  
LRV requirements**

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

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**Streamline redundant plans**

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

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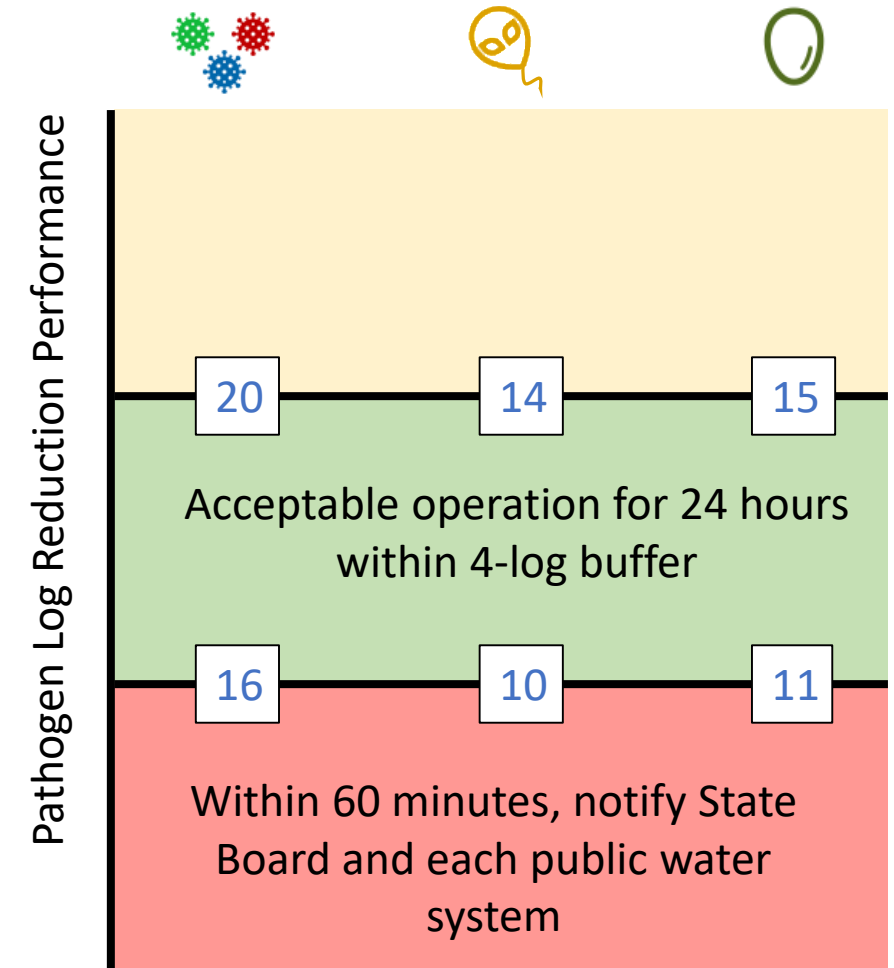
**Alternative Clause expand beyond just chemical  
control**

# Differentiating between RWA and TWA

- Blending to Eliminate Ozone/BAC
  - Ozone/BAC must be designed to reduce specified chemicals by 1-log. A 9:1 dilution eliminates the need for Ozone/BAC (64669.50 (b))
- Blending to allow higher TOC level in the permeate (64669.50 (l))
- Log removal validation recognizes Surface Water Treatment Rule approved validation methods for membranes and disinfection
- WRCA recommends additional benefits of RWA should extend to other elements of the regs – Ex. source control and staffing

# DPR Pathogen Control

|   | Groundwater<br>Recharge | Surface Water<br>Augmentation | Direct Potable<br>Reuse |
|---|-------------------------|-------------------------------|-------------------------|
| <b>Virus</b><br>             | 12                      | 12 to 14                      | 20                      |
| <b>Giardia</b><br>           | 10                      | 10 to 12                      | 14                      |
| <b>Cryptosporidium</b><br> | 10                      | 10 to 12                      | 15                      |

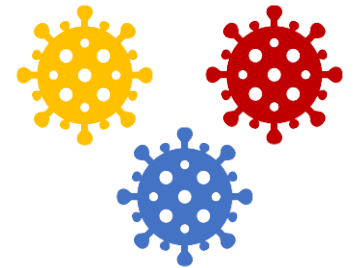


# Document/understand the need for the pathogen LRV requirements

- Water Board published an addendum explaining conservative approach.
- WRCA recommends the Expert Panel further review this justification since it seems that DDW did not use the information gathered in **DPR-2** on raw wastewater concentrations and did not follow the approach proposed in **DPR-1** for evaluating microbial risk.



*Virus*



*Cryptosporidium*

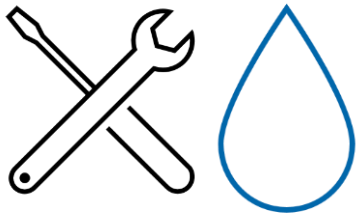


# Specify performance goals and reduce prescriptive design criteria

- New language allows greater flexibility for the location of the O3/BAC and included additional performance goals [with 1-log reduction of acetone, formaldehyde, and NDMA].
- WRCA recommends to further reduce the prescriptive design criteria in favor of the performance requirements for chemical control, similar to AOP in the groundwater regulations that did not specify a specific method.

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

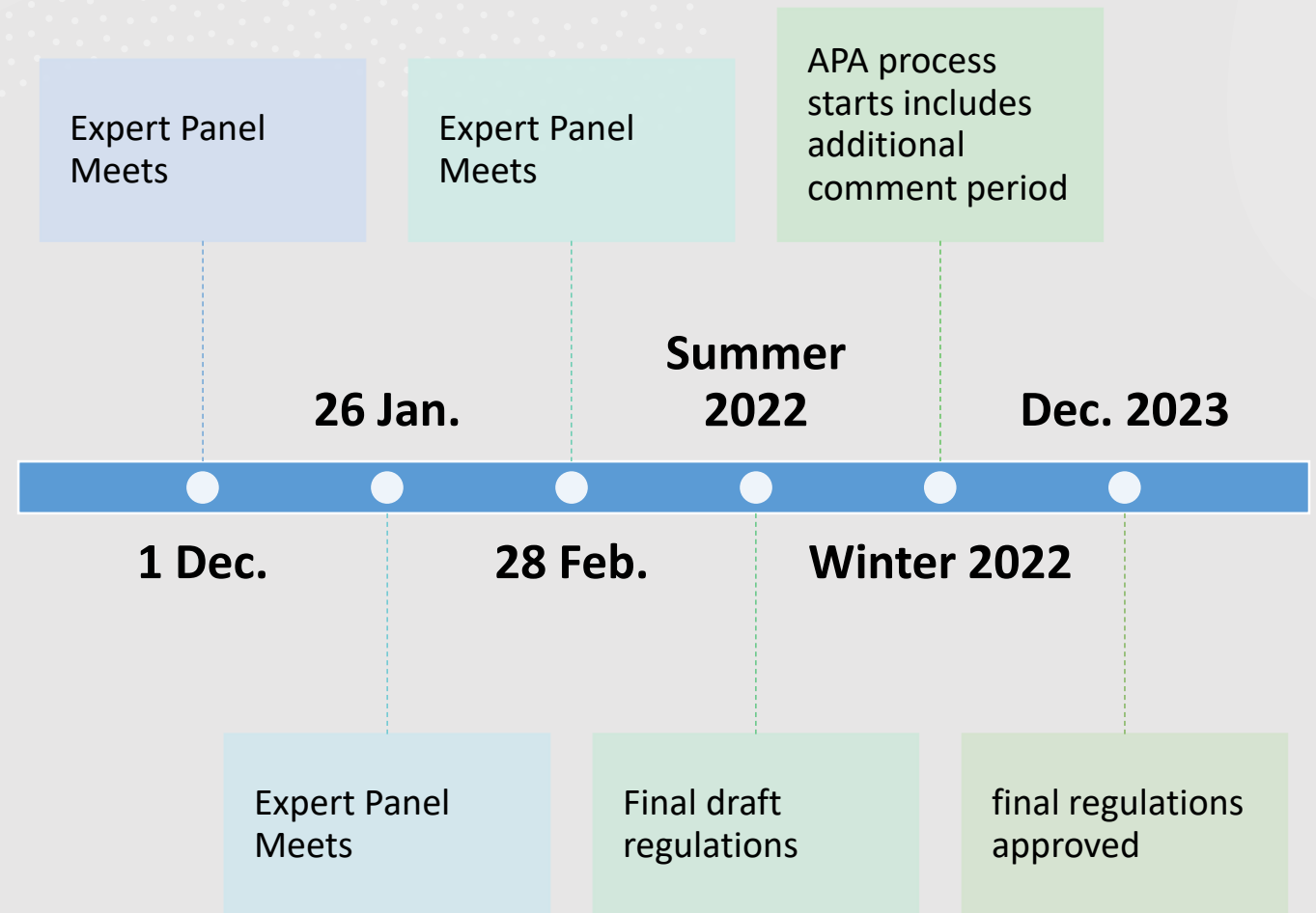
- New language allows project to demonstrate equivalent operations oversight Section 64669.35



# Alternative Clause expand beyond just chemical control

- WRCA recommends the scope of the clause extend beyond just chemical control (Section 64669.50) to entire regulations, similar to the alternative clause in groundwater recharge reg.

# 2022-23 DPR Regulations Timeline





# Questions?

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Jennifer West

[Jwest@watereuse.org](mailto:Jwest@watereuse.org)

(916) 496-1470