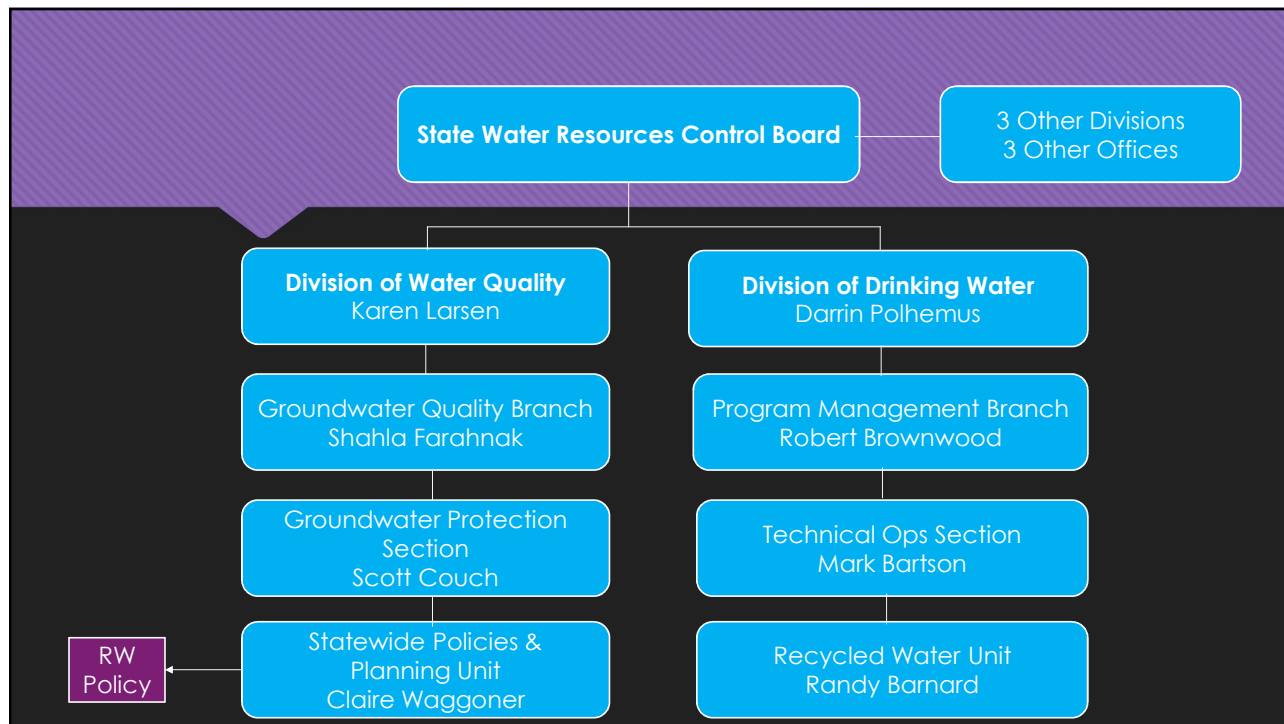


# Regulatory update May 8, 2018

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State Water Resources Control Board  
Division of Drinking Water – Recycled Water Unit

## Recycled Water Policy



## Recycled Water Policy

- CEC Report is finalized and published on website
- Policy draft expected to be released to public in May?
- [https://www.waterboards.ca.gov/water\\_issues/programs/water\\_recycling\\_policy/](https://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/)

### Recycled Water Policy

The State Water Board supports and encourages the sustainable use of recycled water to promote conservation of water resources. The Policy for Water Quality Control for Recycled Water (Recycled Water Policy) is an important element of the overall effort to encourage the safe use of recycled water in a manner that is protective of public health and the environment. The purpose of the Recycled Water Policy is to increase the use of recycled water from municipal wastewater sources that meets the definition in Water Code section 13050(n), in a manner that implements state and federal water quality laws. For the purpose of this Policy, recycled water refers to the reuse of treated wastewater derived from municipal sources, i.e., water that is covered under California Code of Regulations Title 22, Water Recycling Criteria. Other types of water reuse include greywater, agricultural return water, industrial wastewater, and water produced from oil field operations. These types of water reuse are regulated through other programs.

The Recycled Water Policy provides goals for recycled water use in California, guidance for use of recycled water that considers protection of water quality, criteria for streamlined permitting of recycled water projects, and requirements for monitoring recycled water for constituents of emerging concern (CECs).

The Recycled Water Policy was first adopted in 2009, and was amended in 2013 to specify monitoring requirements for CECs in recycled water for groundwater recharge projects based on recommendations from a 2010 Science Advisory Panel on CECs in recycled water. The Recycled Water Policy includes a provision to reconvene a Science Advisory Panel every five years to update its recommendations for CEC monitoring in recycled water.

[Subscribe directly to the Water Recycling Policy Email List](#)

## Potable Reuse

### Assembly Bill 574

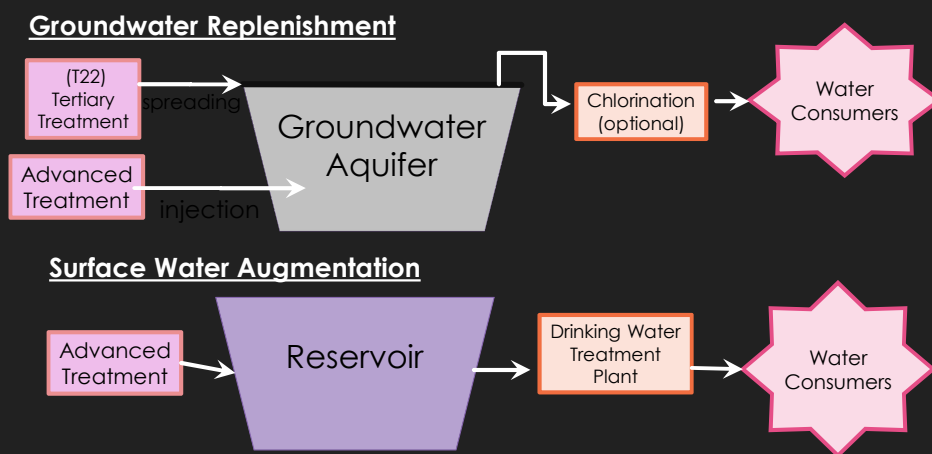
- Defines "raw water augmentation" and "treated water augmentation"
- Changed SWA definitions.
- Framework by June 1, 2018
- RWA by December 31, 2023





## Indirect Potable Reuse

## Indirect Potable Reuse

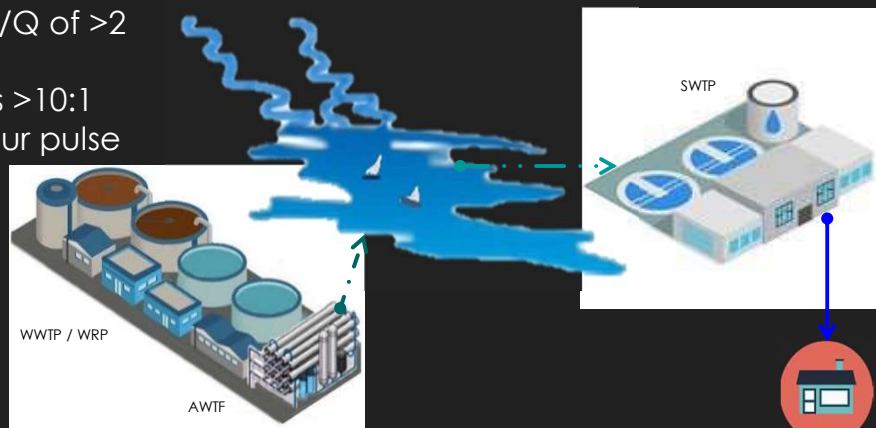


## Environmental Buffer

- Groundwater or surface water basin or reservoir
- Benefits
  - Provides some cushion for treatment fluctuations (attenuation)
  - Allows the water system to draw from the reservoir or aquifer when the recycled water flow is interrupted
  - Treatment in the buffer, but often hard to quantify
  - Residence time
  - Mixing
- **Enhances system reliability**

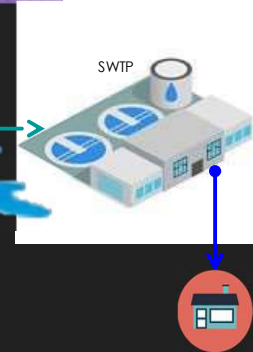
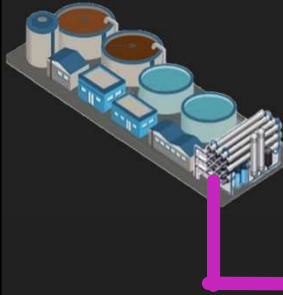
## Reservoir Water Augmentation

- Reservoir meets  $V/Q$  of  $>2$  months
- Reservoir provides  $>10:1$  dilution of a 24 hour pulse

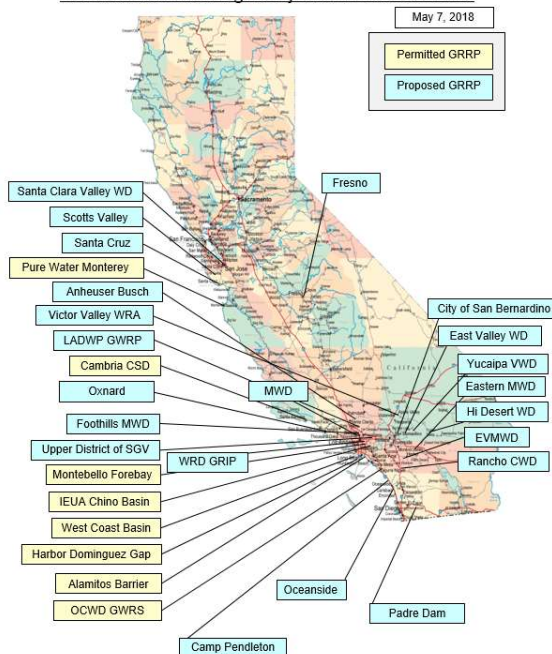


# New Reservoir Water Augmentation Definition

- All reservoirs served by the conveyance must meet criteria or will be considered "raw water augmentation"



## Groundwater Recharge Projects Across California



## Surface Water Augmentation Projects

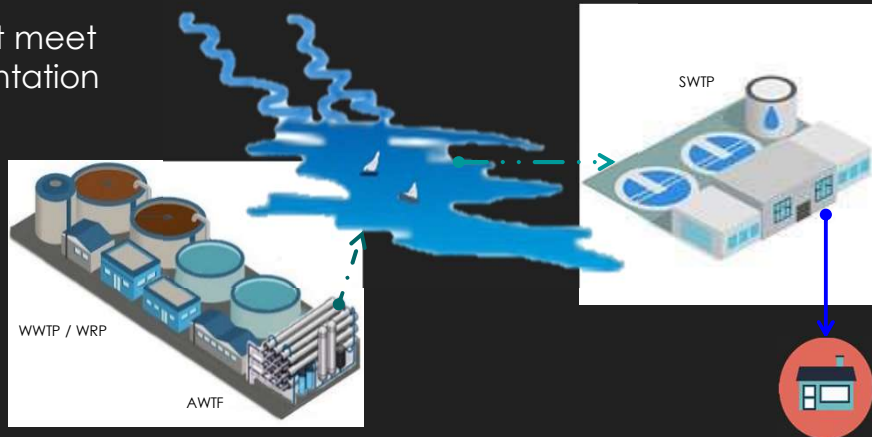




# Direct Potable Reuse

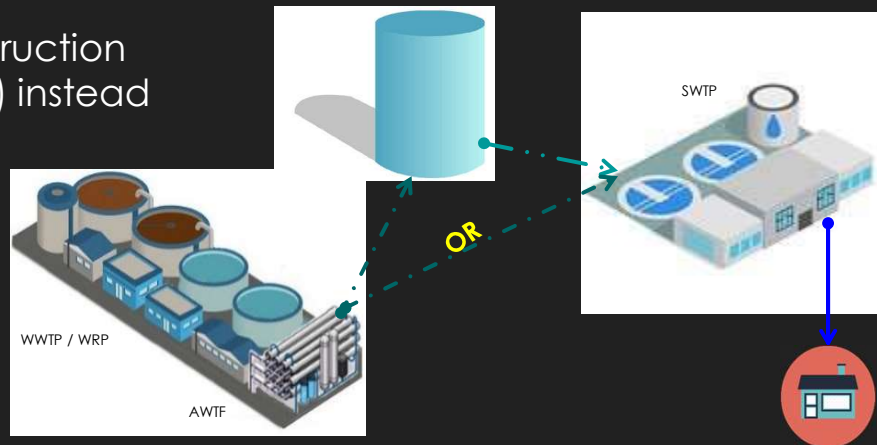
## DPR - Raw Water Augmentation

- Reservoir doesn't meet reservoir augmentation criteria
- $V/Q < 2$  months
- Dilution  $< 10:1$

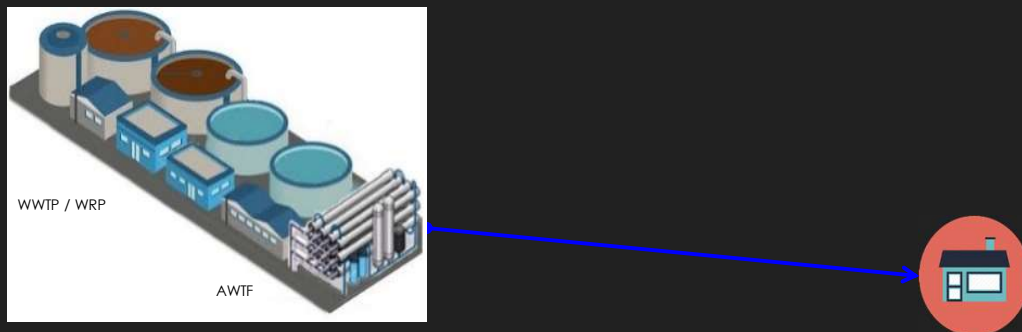


## DPR - Raw Water Augmentation

Manmade construction  
(tank or pipeline) instead  
of reservoir

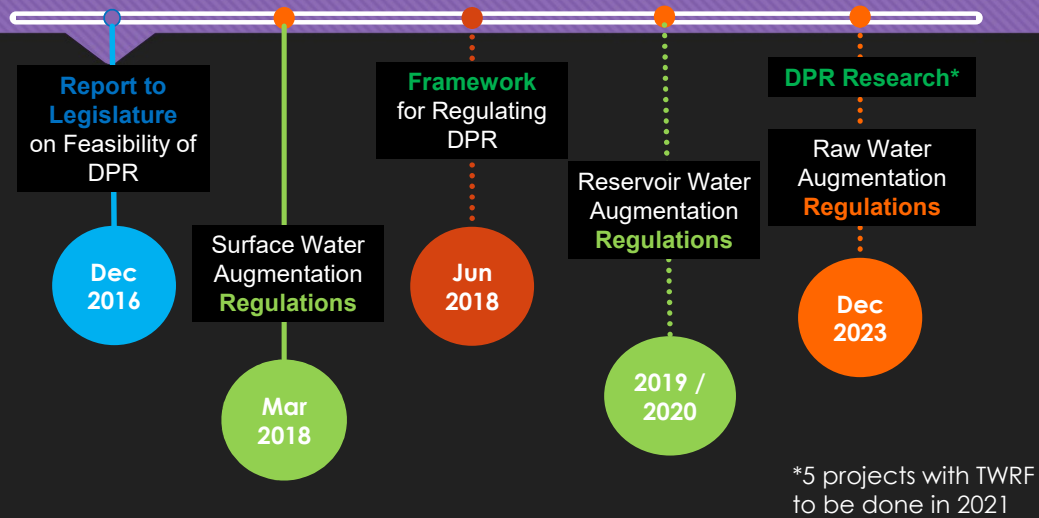


## DPR - Treated Water Augmentation

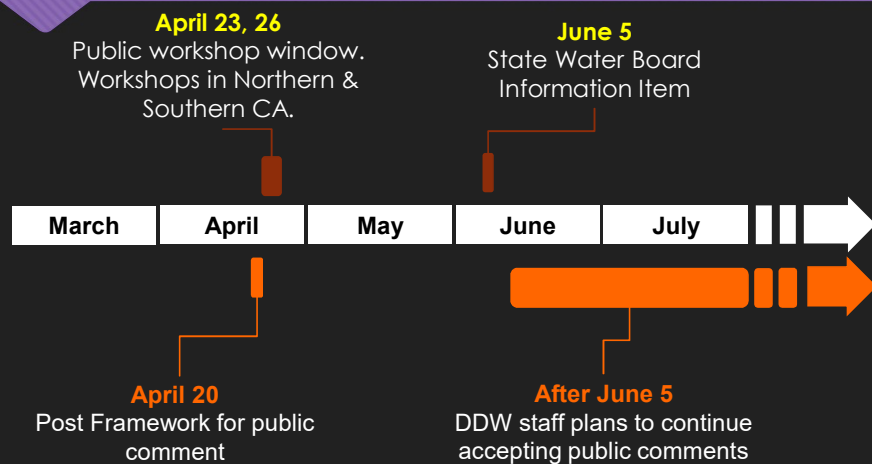




## Recent & Planned State Water Board Activities Related to Potable Reuse



## Tentative Schedule for the Framework for Regulating DPR



## Potable Reuse Criteria

### Common Elements to All Criteria

- Source Control
- Multi-barrier treatment
- Pathogen Control
  - Intent – ensure that pathogens will not exceed the tolerable risk dose in drinking water
  - Approach – set a log reduction requirement from raw sewage to use (e.g. extraction of groundwater)
  - 12/10/10 log removal for virus/Giardia and Crypto
  - Risk of  $10^{-4}$  (annual or daily?)

## Common Elements to All Criteria (cont'd)

- Chemical Control – both regulated and unregulated
  - FAT (RO + UV/AOP) or
  - Soil Aquifer Treatment and Dilution
- Monitoring and Reporting
- Public Hearing(s) during Permitting Process

## Groundwater Recharge Pathogenic Microorganism Control

- Requires a total of 12/10/10 LRV
- Tertiary treatment + minimum 6 months underground = full 10 log Giardia and Cryptosporidium credit
  - No C/G subsurface credit for projects with <6 months underground
- Virus credit = plant LRVs + 1 log credit per month retained underground
  - e.g. 7 months retention = 7 log virus credit
  - Max of 6 logs for plants discharging subsurface

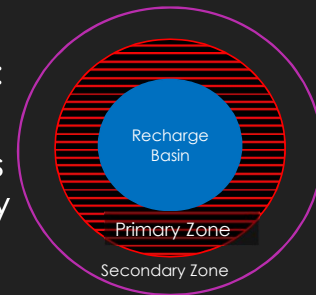
**Example spreading project <6 months**

Pathogen	Secondary Effluent	MF	Partial RO	UV	Free Cl2	Log Removal Credits		
						Retention Underground	Total	Required
Virus	1.9	0	0	3.6	4	4	13.5	12
Giardia	0.8	4	0	5	0.5	0	10.3	10
Crypto	1.2	4	0	5	0	0	10.2	10



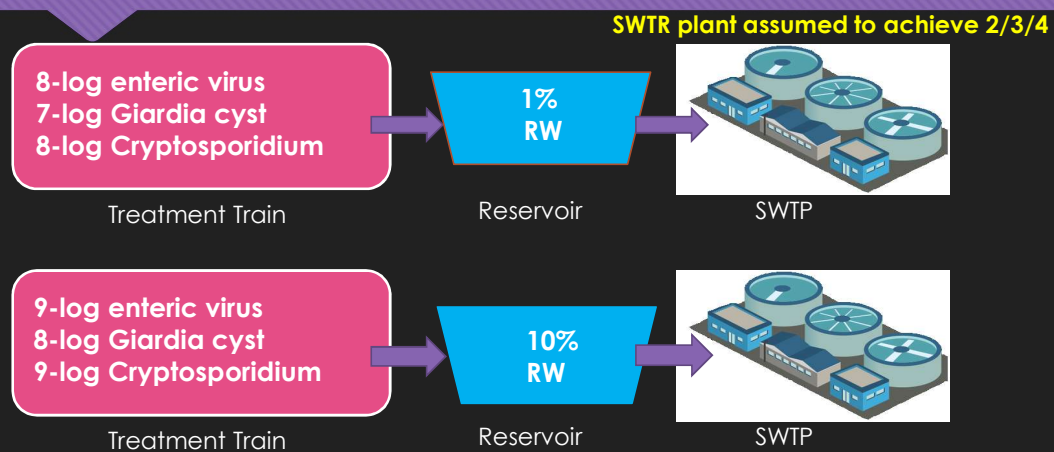
## Groundwater Recharge Well Control Boundaries

- **Primary Zone:** Drinking water well construction not allowed. All wells outside this zone will have met pathogen control and RWC requirements. Minimum: 2 months
- **Secondary Zone:** Zone in which if a potable well was constructed, would require evaluation of the primary zone
- "Drinking water wells" includes residential wells



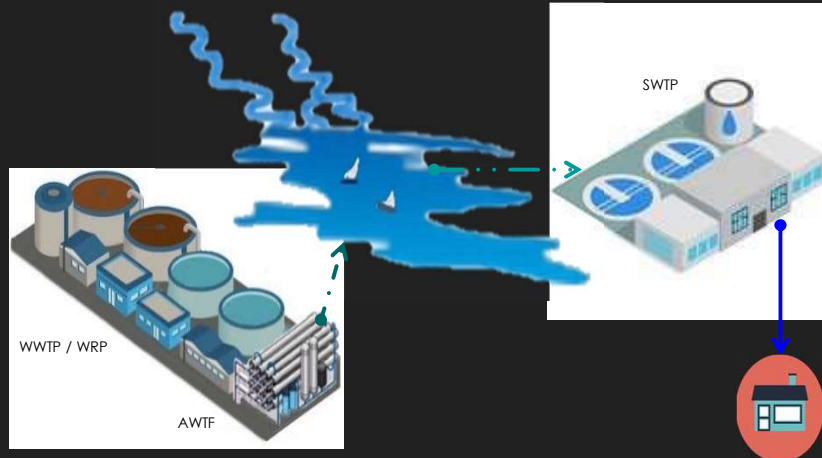
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## Reservoir Water Augmentation Pathogen Control



V/Q < 4 months requires + 1 LRV

## DPR Pathogen Control

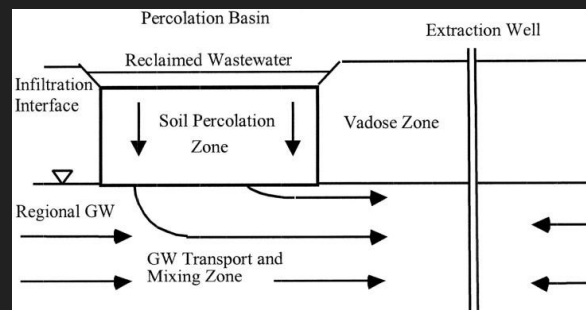


## Groundwater Recharge Chemical Control - Spreading

- TOC and SAT (§60320.118)
- Project required to assess performance via TOC monitoring on a weekly basis

$$TOC_{max} \leq \frac{0.5 \text{ mg/L}}{RWC}$$

- e.g. TOC max = 0.5 mg/L ÷ 20% RWC = 2.5 mg/L
- e.g. TOC max = 0.5 mg/L ÷ 50% RWC = 1.0 mg/L



## Groundwater Recharge Chemical Control – Spreading – SAT Performance

- Quarterly monitoring for at least 3 indicator compounds is required and must show 90% reduction through SAT (excluding dilution effects)
- Annual monitoring per 60320.120(d) (or 60320.220(d) for FAT)
- Do not have to use the ones in the RW Policy

Consituent	Constiuent Group	Relevance/ Indicator Type	Monitoring Trigger Level (µg/L)	Removal Percentages (%)*
17β-estradiol	Steroid hormones	Health	0.0009	N/A
Caffeine	Stimulant	Health & Performance	0.35	>90
N-nitrosodimethylamine (NDMA)	Disinfection Byproduct	Health	0.01	-
Triclosan	Antimicrobial	Health	0.35	-
Gemfibrozil	Pharmaceutical	Performance	-	>90
Iopromide	Pharmaceutical	Performance	-	>90
N,N-Diethyl-meta-toluamide (DEET)	Personal Care Product	Performance	-	>90
Sucralose	Food additive	Performance	-	<25**

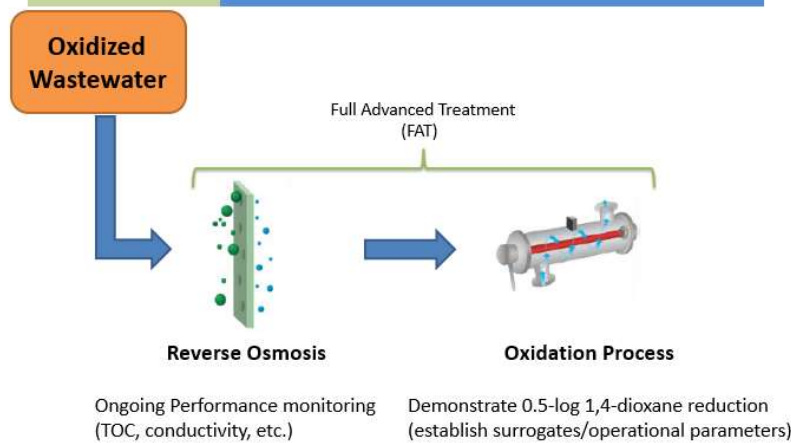
\*Project specific removal percentages will be developed

\*\*Poor removal through SAT. Used here as a tracer.

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## GW Recharge – Inj. & Res. Water Aug. Chemical Control – Full Advanced Treatment

### Advanced Treatment Criteria



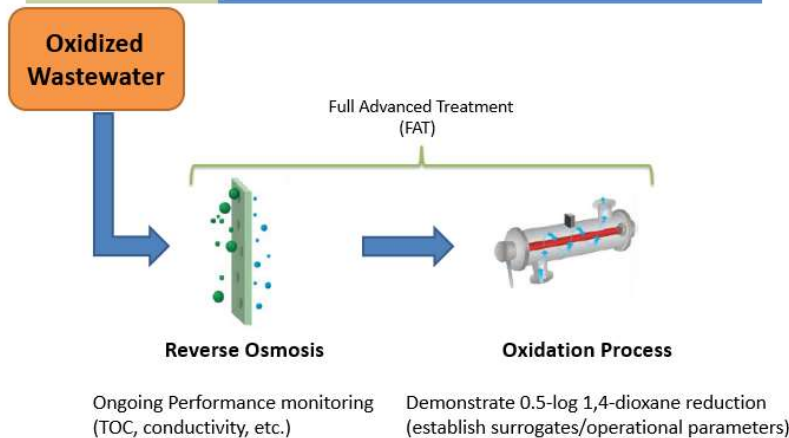
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## DPR

## Chemical Control – Full Advanced Treatment

## Advanced Treatment Criteria



- +**
- Engineered Storage Buffer?
  - Add'l Treatment?
  - TBD by research



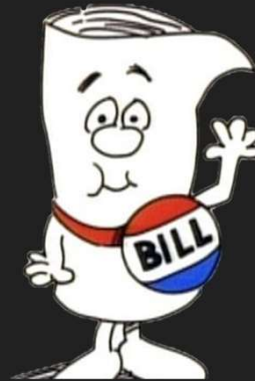
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## Onsite Reuse Regulations

SB-966 (was 740)

## Reason for the Bill

- No statewide regulations
  - Discourages local jurisdictions from proceeding with on-site programs
  - Would standardize local programs
- Title 22 is “too hard”
  - Example: daily coliform
- Protect Public Health



## Content of the Bill

- Adopt regs by Dec 1, 2022
  - Local jurisdictions would adopt ordinances based on the regs if they chose to have an on-site non-potable program
- Risk based log reduction targets
- Non-potable water sources: wastewater, graywater, storm water, & rainwater.
- Onsite treatment and reuse for non-potable end uses in multi-family residential, commercial, and mixed-use buildings
- Uses: toilet flushing, clothes washing, irrigation and dust control

## On-Site Resources

- <http://uswateralliance.org/initiatives/commission/resources>
  - Model State Regulation, Local Ordinances and Program Rules
  - Guidebook for Developing and Implementing Regulation
  - Risk-Based Framework for Development of Public Health Guidance
- CA jurisdictions that are implementing:
  - San Francisco, Los Angeles, Santa Monica



## Cross Connection Regulations



## Cross Connection Regulations

- Existing T17 regulations outdated
- Will be moved to guidelines instead for easier updating
- More information coming soon

### Subscribe to SWRCB listserve for updates:

[http://www.waterboards.ca.gov/resources/email\\_subscriptions/swrcb\\_subscribe.shtml](http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml)

Drinking Water → "Recycled Surface Water Augmentation & Direct Potable Reuse"

## Questions?

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619-525-4772