WATEREUSE ORANGE COUNTY

THANK YOU FOR JOINING US

WateReuse Orange County Chapter Meeting

WILL BEGIN SHORTLY

Agenda

- **Call to order** – 12:00 PM
- **Welcome:** Scott Lynch, Chapter President
- **State Section Update**: Joone Lopez, MNWD
- **Presentations**
  - —**Overview of Trabuco Canyon Water District's Recycled Water System**
    - Lorrie Lausten, SCWD District Engineer
    - Oscar Ulloa, SCWD Wastewater Superintendent
    - **Carpinteria Advanced Water Purification Project (CAPP)**
    - Justin Kraetsch, Woodard & Curran Deputy Project Manager & Lead Engineer
- **Standing Items**
  - —Regulatory Updates: DDW/OCHCA
  - —Legislative and Regulatory Matters:
    - Claire Johnson, OCWD
  - —Potential Funding for Projects
- **Conferences/Webcasts**
- **Other Announcements / Discussion Items**
  - —Roundtable: What's Going on?
- **Adjournment**

Presentations

- **Overview of Trabuco Canyon Water District's Recycled Water System**
  - —Lorrie Lausten, SCWD District Engineer
  - —Oscar Ulloa, SCWD Wastewater Superintendent

TRABUCO CANYON WATER DISTRICT

Overview of the Recycled Water System

WateReuse OC Chapter Meeting - 8/17/23

Dove Lake

DISTRICT SERVICES OVERVIEW

SYSTEM OVERVIEW

- Domestic Water Treatment (including Groundwater), Non-Domestic Water, Urban Runoff Collection & Sewer Service
- Providing Services Since 1962 (61 years)
- Population Served = 13,175
- Serving Communities in the Cities of Rancho Santa Margarita, Lake Forest, Mission Viejo, and Unincorporated Orange County

DISTRICT SERVICES OVERVIEW

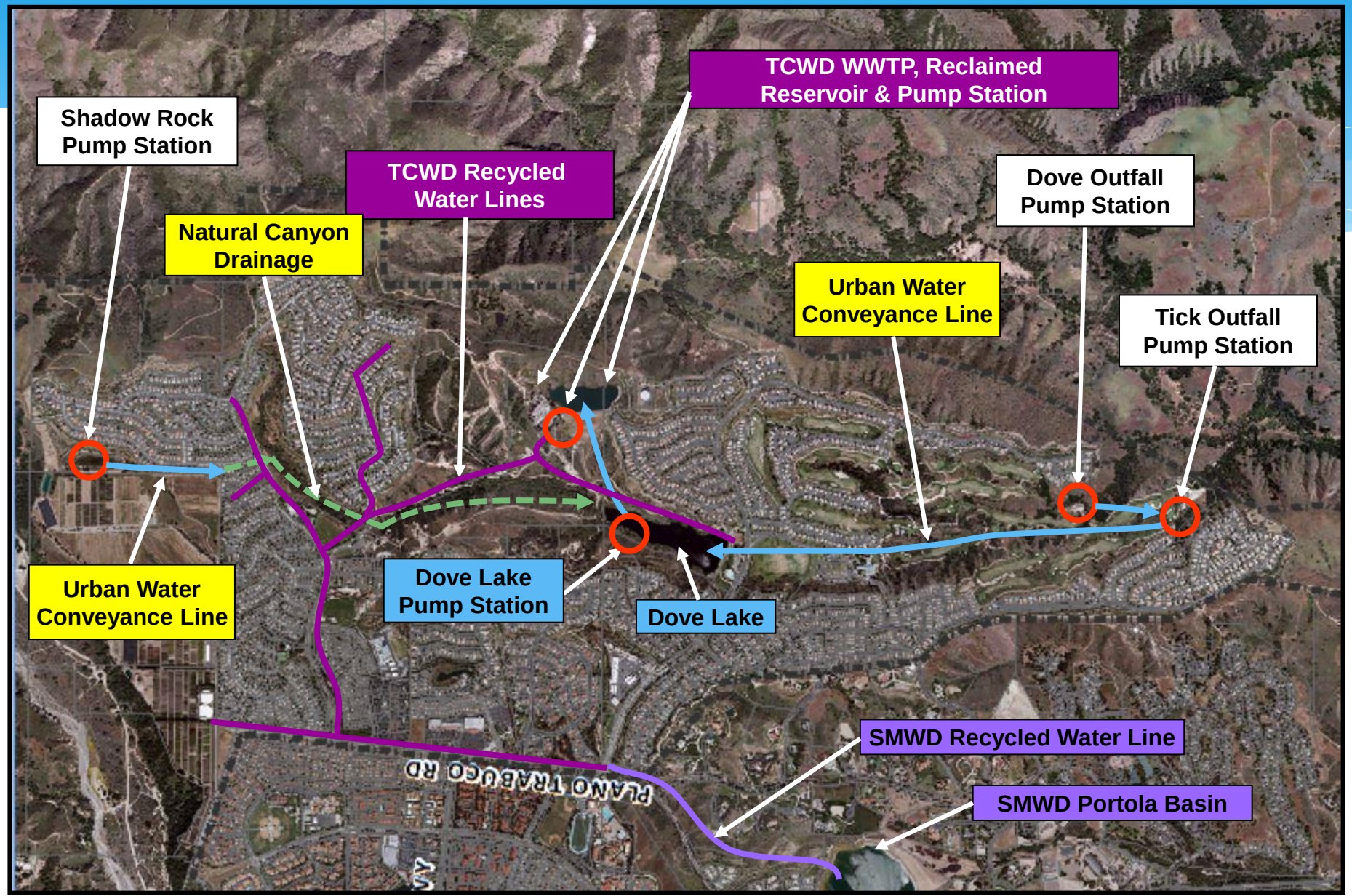
TREATMENT FACILITIES:

- Dimension Water Treatment in Lake Forest - 6 CFS
- Groundwater Treatment Facility in Trabuco Canyon - 2 CFS
- Baker Water Treatment Plant Partner - 2 CFS
- Robinson Ranch Wastewater Treatment Plant - 0.85 MGD
- Own/operate Dove Lake (supplement RW) - 331 AF (cap.)

SYSTEM DEMANDS:

- 2022 Domestic Water Demand - 2,257 AF
- 2022 Non-Domestic Demand - 774 AF

RECYCLED/RECLAIMED WATER SYSTEM



ROBINSON RANCH WASTEWATER TREATMENT PLANT

SYSTEM CHALLENGES

- Decreased wastewater flows / Increasing demand for non-domestic water
- Increased energy costs – aeration, pumping, etc.

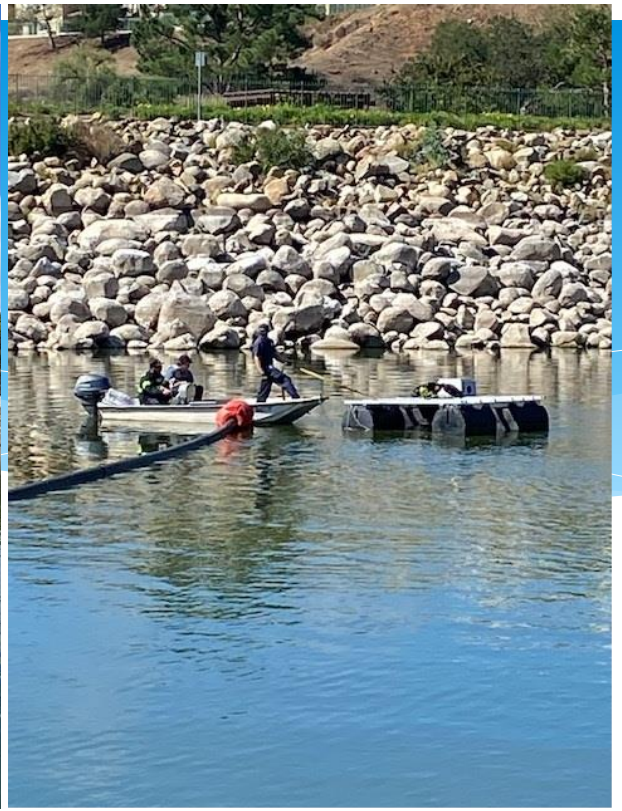
PLANNED IMPROVEMENT PROJECTS – TREATMENT

- Aeration System Improvements
- Sequencing Batch Reactor (SBR) Mixers
- Process Control Improvements

DOVE LAKE IMPROVEMENTS – SUPPLY

Barge Pump Installation

- Original usable capacity – 10’
- Increase useable capacity with installation of barge pump - 25’



South OC – PROP 1 IRWM Grant

Runoff Capture and Reuse Upgrades at Dove Canyon & Tick Creek Pump Stations

PURPOSE:

Expand and improve the Dove Outfall Pump Station and Tick Outfall Pump Station to increase capture of dry weather runoff and stormwater to produce at least 200 AFY of new non-potable water.

APPROVED FUNDING

South OC-Prop 1 IRWM Grant

Total Project Cost is $780,000 with a 50% Match

South OC – PROP 1 IRWM Grant

Runoff Capture and Reuse Upgrades at Dove Canyon & Tick Creek Pump Stations

PROJECT GOALS:

1. Improve ecosystem benefits to downstream native habitat in Audubon's Starr Ranch Sanctuary through water quality improvements and reducing transport of non-native plants and wildlife
2. Offset use of drinking water for irrigation purposes
3. Increase both the reliability and capacity of the pump stations
4. Address existing debris management challenges that result in frequent pump failures that require maintenance and cause system down-time

TRABUCO CANYON WATER DISTRICT

Presentations

- **Carpinteria Advanced Water Purification Project (CAPP)**
  - —Justin Kraetsch, Woodard & Curran Deputy Project Manager & Lead Engineer

Overview of Carpinteria's Advanced Purification Project

OC Reuse Chapter Meeting| August 17th, 2023

WateReuse Orange County

Woodard & Curran

carollo

PUEBLO water resources

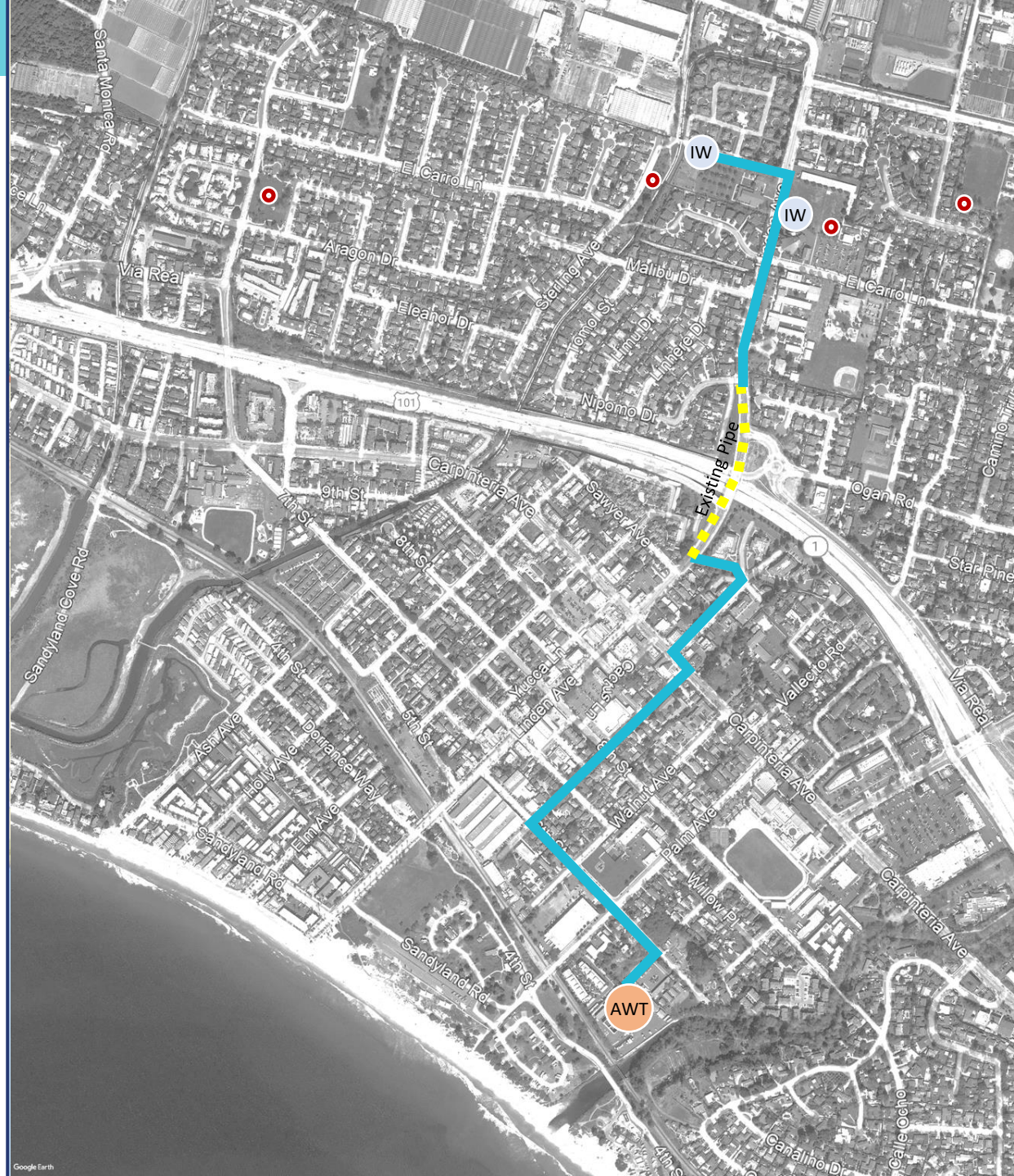
CAPP Replenishing Our Groundwater for the Future

Carpinteria Valley Water District Incorporated 1941

Carpinteria Sanitary District

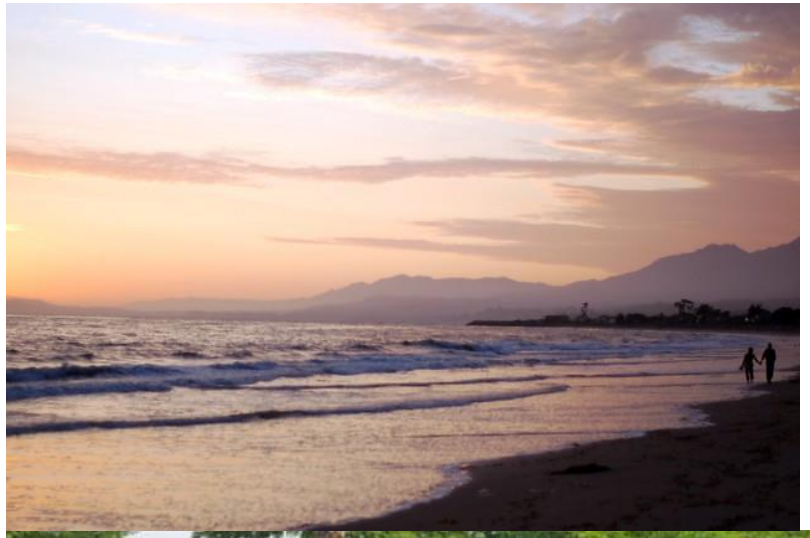
CAPP Replenishing Our Groundwater for the Future

- **AWPF**
  - Equalization Tank
  - 1.30 mgd UF/RO/UV-AOP
  - Clearwell & Pump Station
- **Conveyance**
  - 12” PVC 5,800-LF
  - Existing Caltrans crossing
- **Injection Wells (x2)**
- **Monitoring Wells (x4)**



CAPP Replenishing Our Groundwater for the Future

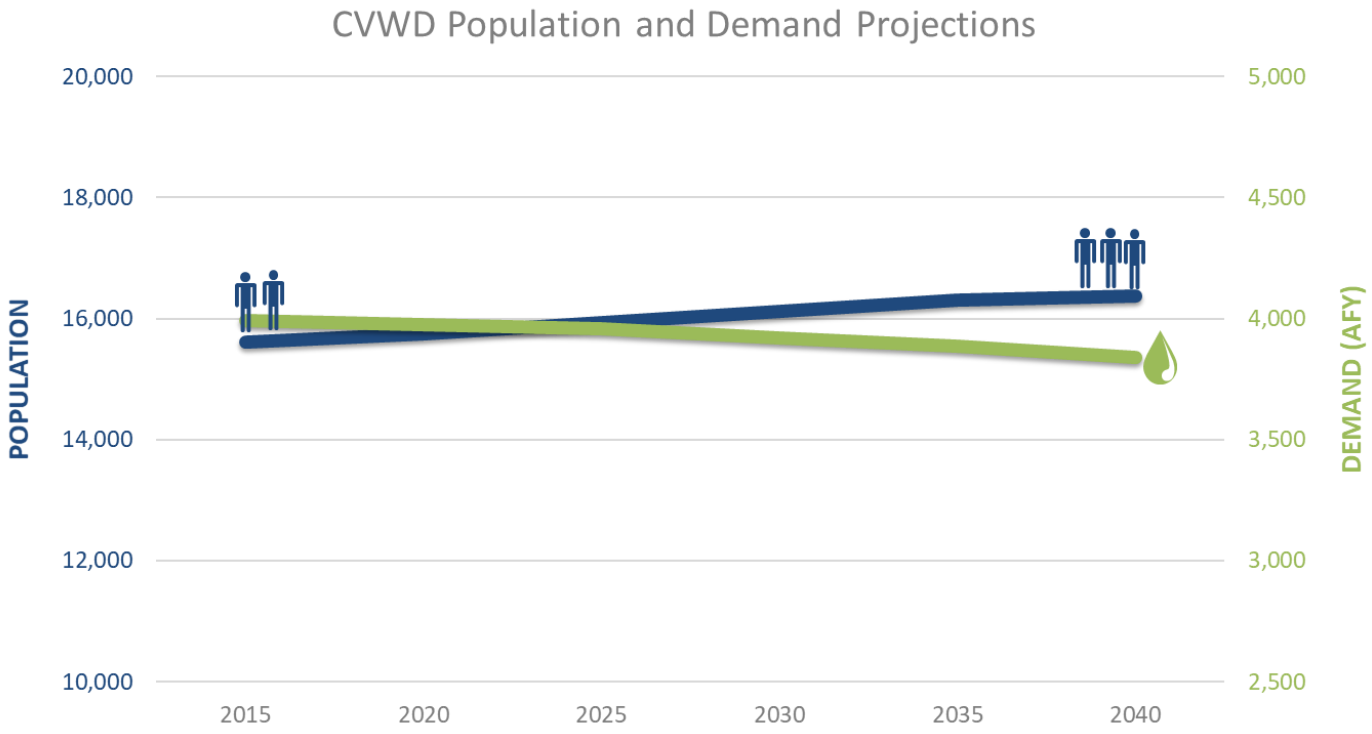
Where in the world is Carpinteria?



CAPP Replenishing Our Groundwater for the Future

Carpinteria Valley Water District

- Service area: 17.3 miles
- Population: 15,700
- Water Supplies
  - Carpinteria Groundwater Basin
    - 1,500 AFY via 5 wells
  - Surface water from Lake Cachuma in the Santa Ynez watershed
    - 2,250 AFY
  - Imported water from the State Water Project (SWP) delivered to Lake Cachuma
    - 1,200 AFY



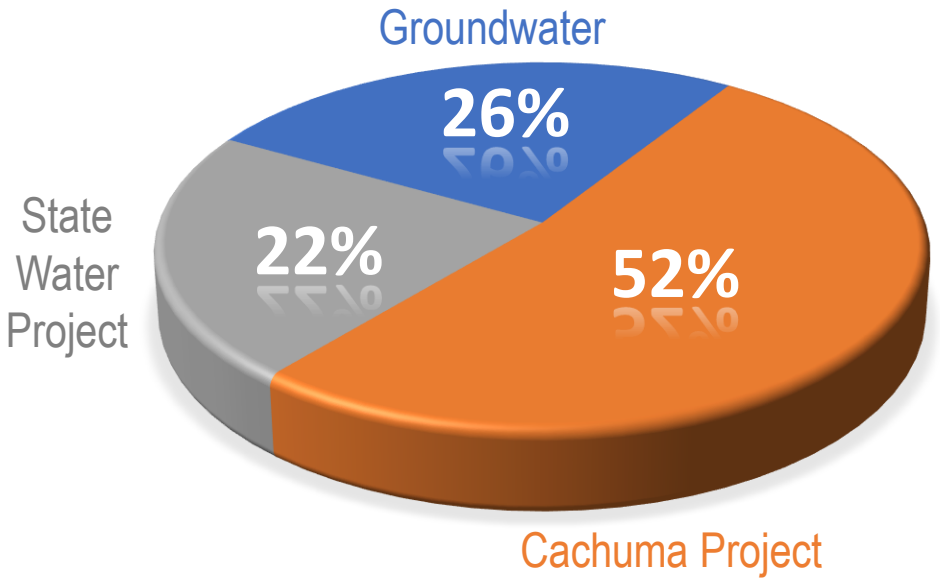
Slight population increases are projected but water demands are essentially flat due to conservation efforts by CVWD

Carpinteria Sanitary District

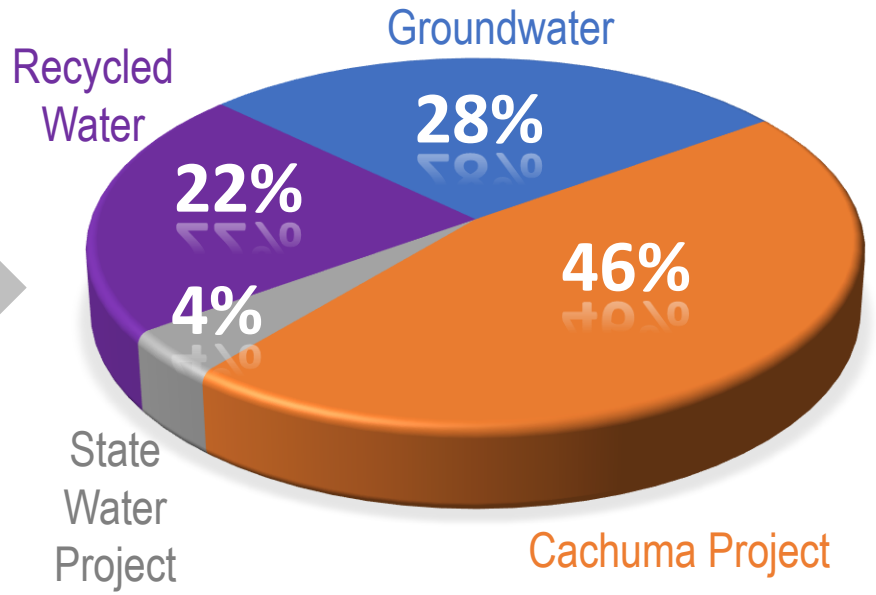
- Wastewater Reclamation Facility
  - 1.19 MGD average
    - 2.50 MGD design capacity
    - Residential and commercial customers
  - Mechanical screening, grit removal, primary clarification, aerated activated sludge tanks, secondary clarification, and chlorine disinfection
  - Dedicated ocean outfall
  - Effluent is fully nitrified
    - Low ammonia concentrations
    - Higher nitrate concentrations

Adding *recycled water* to the CVWD portfolio increases local supplies to 50 percent

CVWD Normal Year Supplies,
Existing



CVWD Normal Year Supplies,
with Recycled Water (1,000 AFY)



Woodard & Curran Projects → CAPP

- 2014: SWRCB Recycled Water Facilities Planning Grant
- 2016: Recycled Water Facilities Plan
  - Purple-Pipe vs GWR
- 2018: GWR Implementation Support
  - Community Outreach, Regs, Funding, MOU, Workshops
  - GW modeling & implementation approach
- 2020: GWR Pre-Design
  - Preliminary Design, CEQA, Permitting & SRF Funding, Easements
- 2023: CAPP Final Design & Construction Services

CAPP Project Team

CARPINTERIA Sanitary District

WSC
Program Manager

Final Design & Construction Services

Woodard & Curran

- Project Management
- EQ Tank
- Clearwell + Pump Station
- Yard Piping
- Conveyance
- Wellhead Equipping
- Electrical
- Instrumentation & Controls
- Structural
- EIR add. + NEPA

Earth Systems (Geotech)
Scott Foster (surge analysis)

4 Bid Packages in Design:

1. Injection Well Drilling
2. Monitoring Well Drilling
3. AWPF and Wellhead Equipping
4. Conveyance

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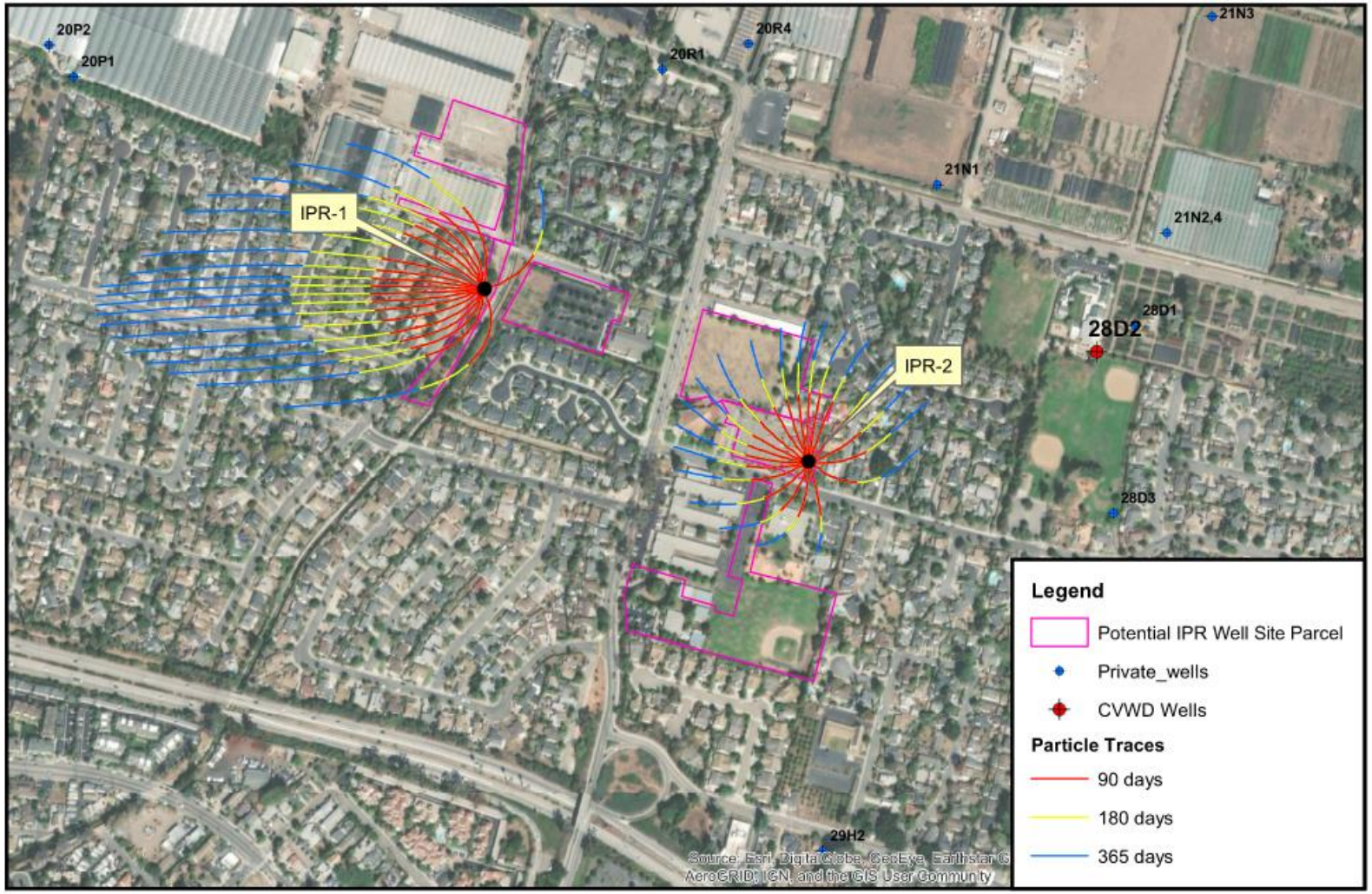
- MF, RO, UV-AOP
- Geochemical Analysis
- Membrane Pilot Testing
- Equipment Preselection

MWA (architects)

PUEBLO water resources

- Drilling Injection & Monitoring Well

Groundwater Modeling and Travel-Time



CAPP PUEBLO water resources

N W E S

1 inch = 500 feet

0 500 1,000 Feet

FIGURE 12. PARTICLE TRACES - SCENARIO 3, AQUIFER B
CAPP IPR Groundwater Modeling Assessment
Carpinteria Valley Water District

Groundwater Modeling and Travel-Time

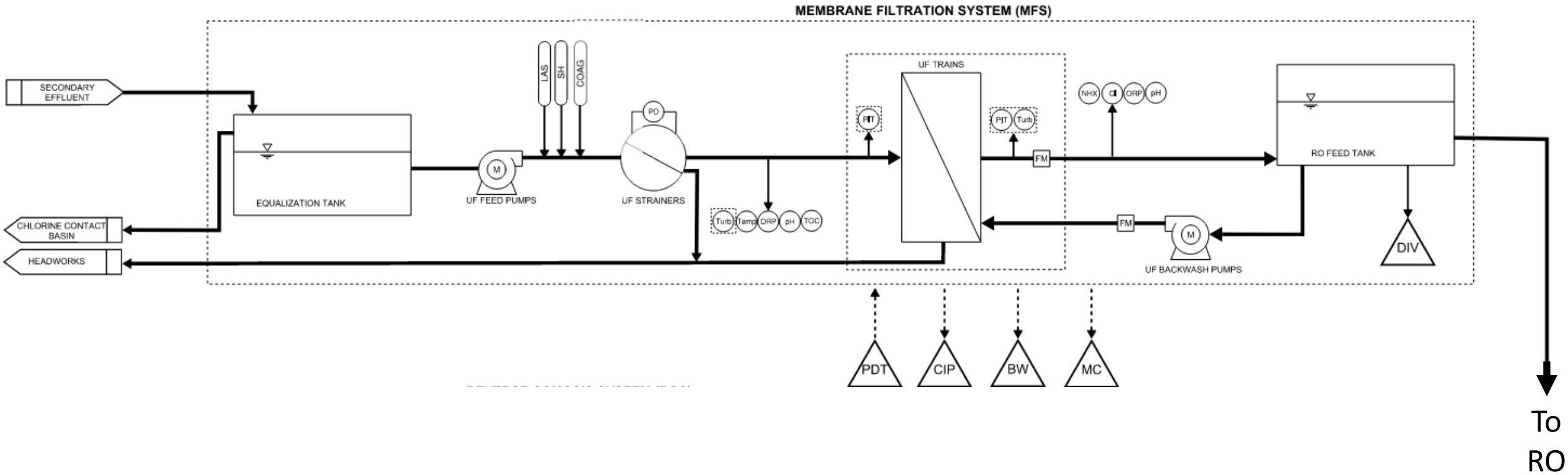
FIGURE 13. PARTICLE TRACES - SCENARIO 3, AQUIFER C
CAPP IPR Groundwater Modeling Assessment
Carpinteria Valley Water District

LRV Credits

Process	Validation	Expected Log Reduction Credit		
		Enteric Virus	*Giardia* cysts	*Crypto* oocysts
Primary and Secondary	N/A	N/A	N/A	N/A
Membrane Filtration	Daily calculations based on PDT and continuous filtrate turbidity monitoring	0	4	4
Reverse Osmosis	Online TOC monitoring [1]	1.5	1.5	1.5
UV/AOP	UV dose monitoring	6	6	6
Aquifer Retention	Numerical modeling and tracer study [2]	6	N/A	N/A
Total Expected Credit		**13.5**	**11.5**	**11.5**
Total Required Credit		**12**	**10**	**10**

- Exploring options to obtain LRV credits from free chlorine disinfection in clearwell.

Process Flow Diagram – Membrane Filtration System



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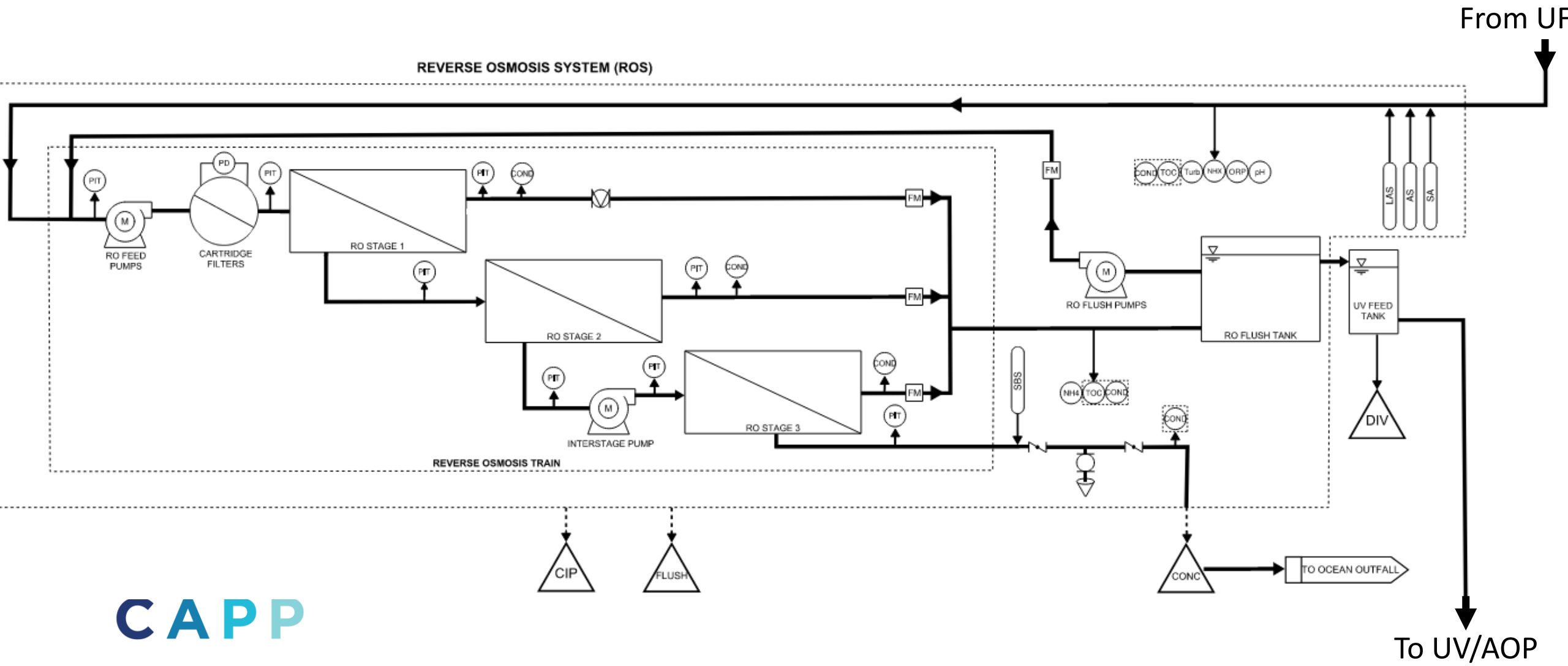
Process Flow Diagram – RO System



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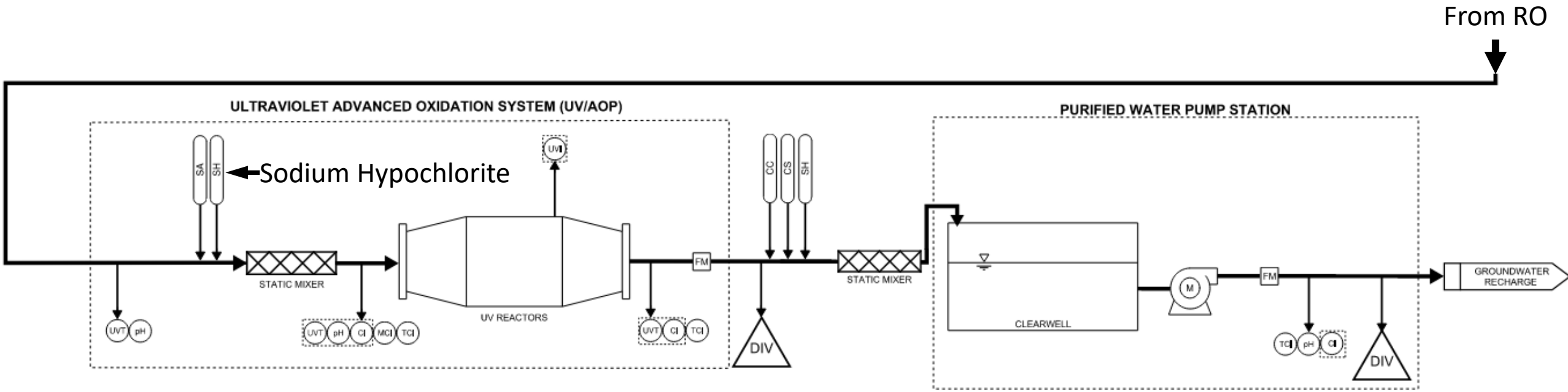
Process Flow Diagram – UV/AOP System and Purified Water Pump Station



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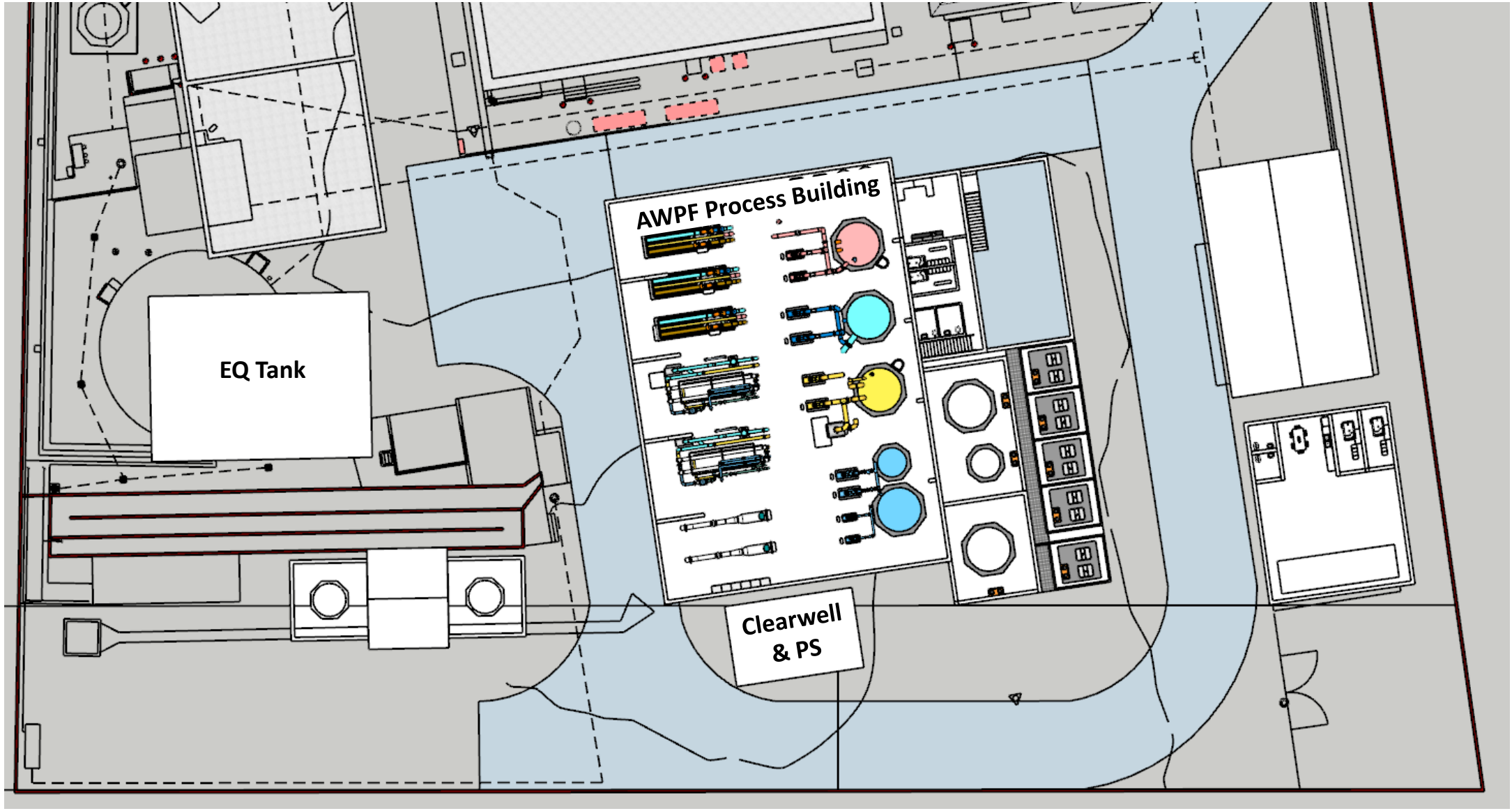
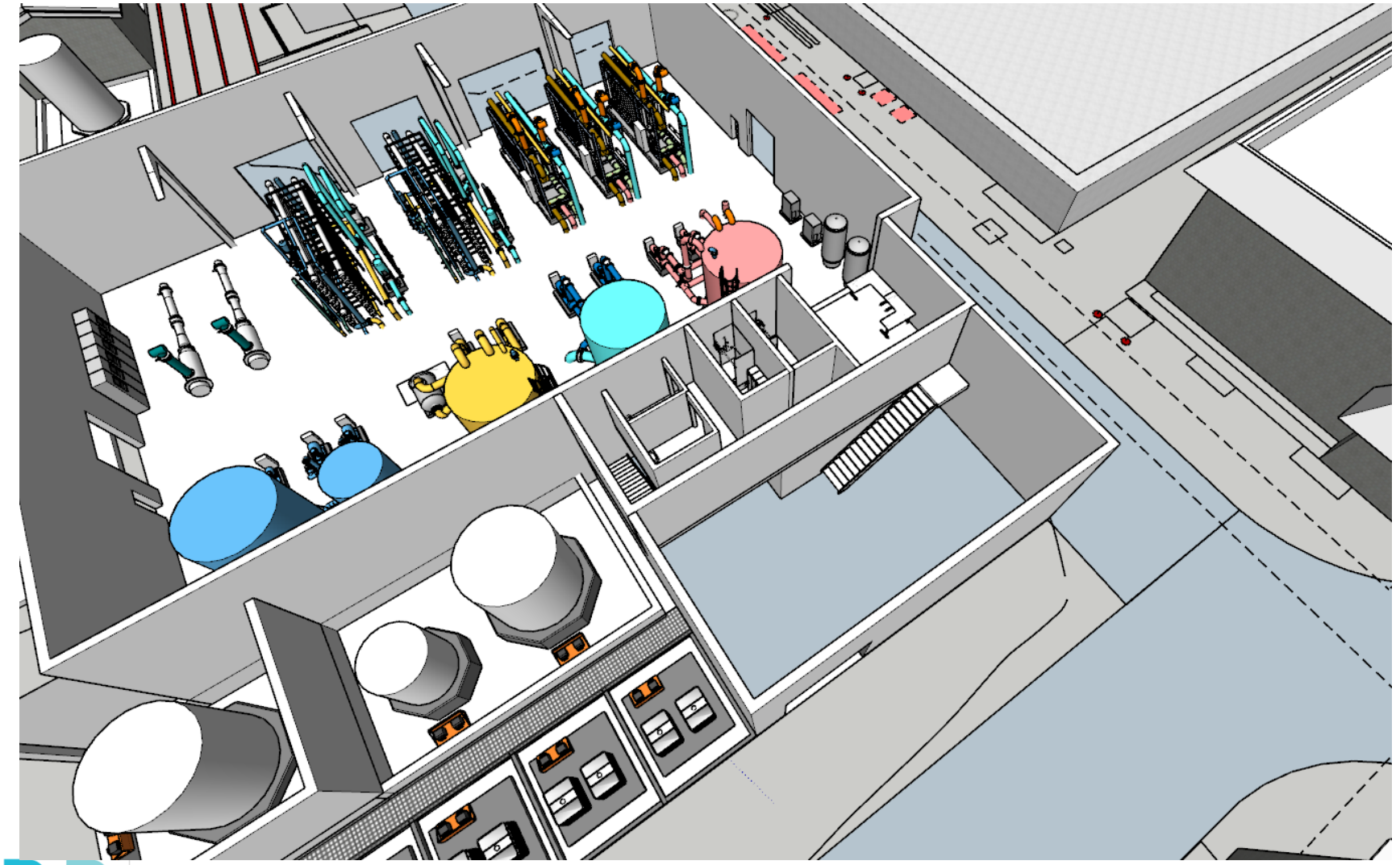
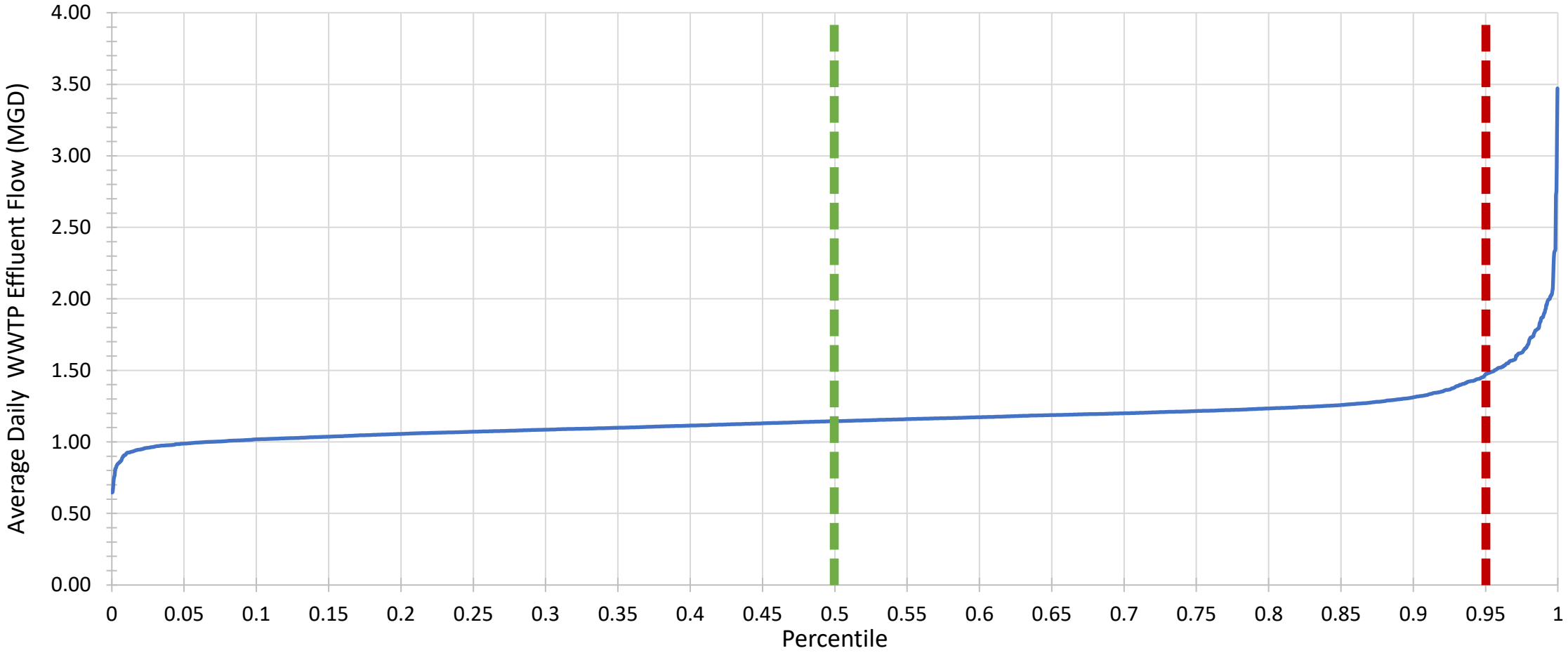
AWPF Process Building and Facilities



AWPF Process Building



CSD WWTP Flows – Flow Percentile Chart

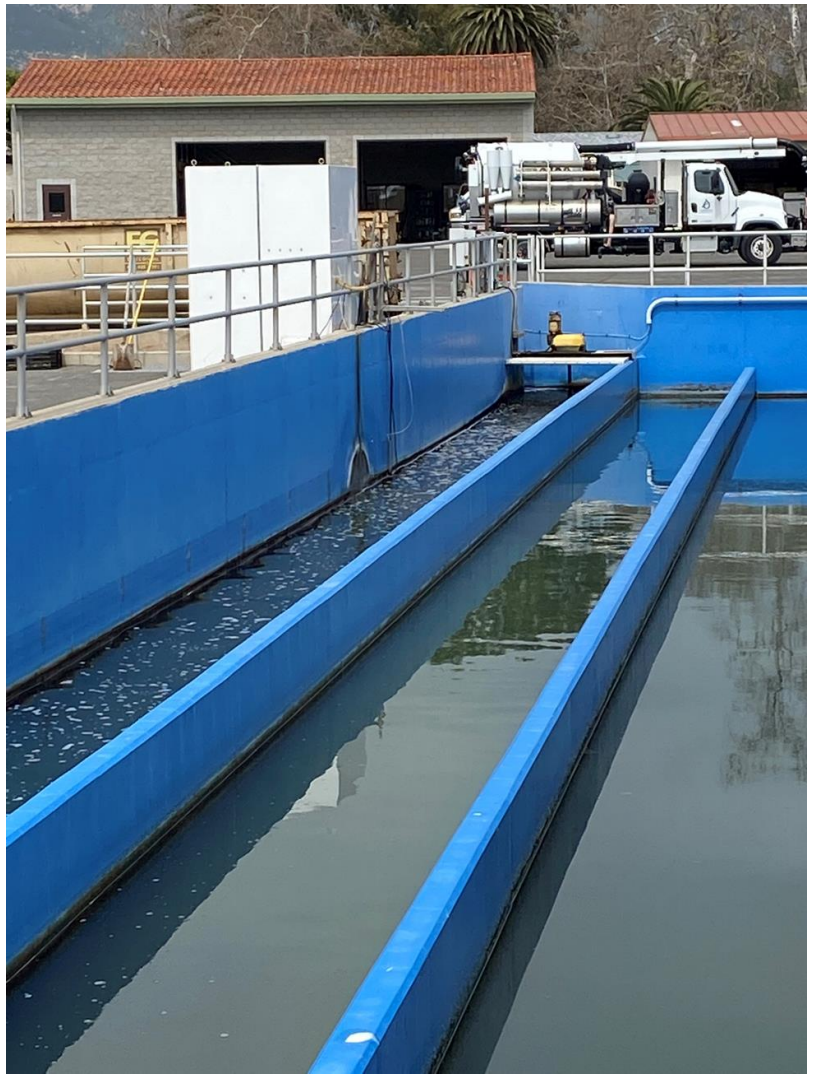


<u>50% Percentile:</u>
1.17 MGD AWPF Feed
1.00 MGD Produced Water
183 Overflow Days into CCB

<u>95% Percentile:</u>
1.54 MGD AWPF Feed
1.30 MGD Produced Water
18 Overflow Days into CCB

Chlorine Contact Basin (CCB)

- CCB will function as an overflow for the EQ Tank.
- Intended to be empty most of the time.
- Chlorine Dose at head of CCB will remain to allow for additional dosing.
- SBS Dose at end of CCB will remain for dechlorination.



Membrane Pilot Testing

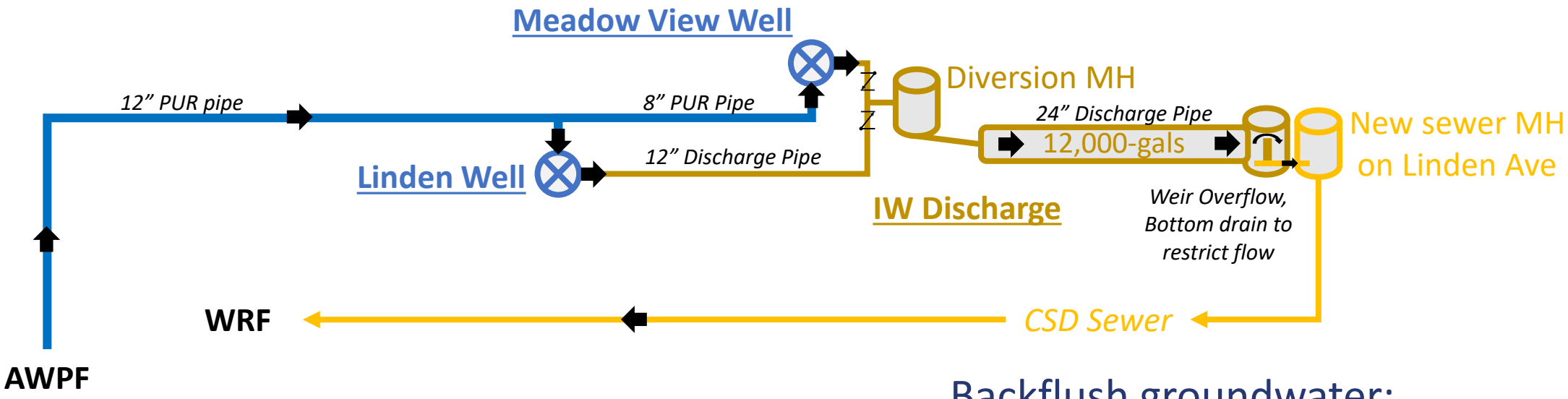
- Supports Design
- Supports Ops Training
- August 2023 - November 2023

Geochemical Analysis

- Driven by RWQCB
- Conduct batch leaching tests
  - 3 aquifers planned for injection
- Goal is to determine the risk of arsenic or other containments
  - Test the purified RW and GW from each aquifer for background water concentrations.
  - Test the soil from each aquifer for background soil concentrations.
  - Combine groundwater and soil from the aquifers with purified recycled water. Test supernatant water after prolonged exposure and mixing for leachate concentrations.

Injection Wells

Injection Well Maintenance Water Discharge

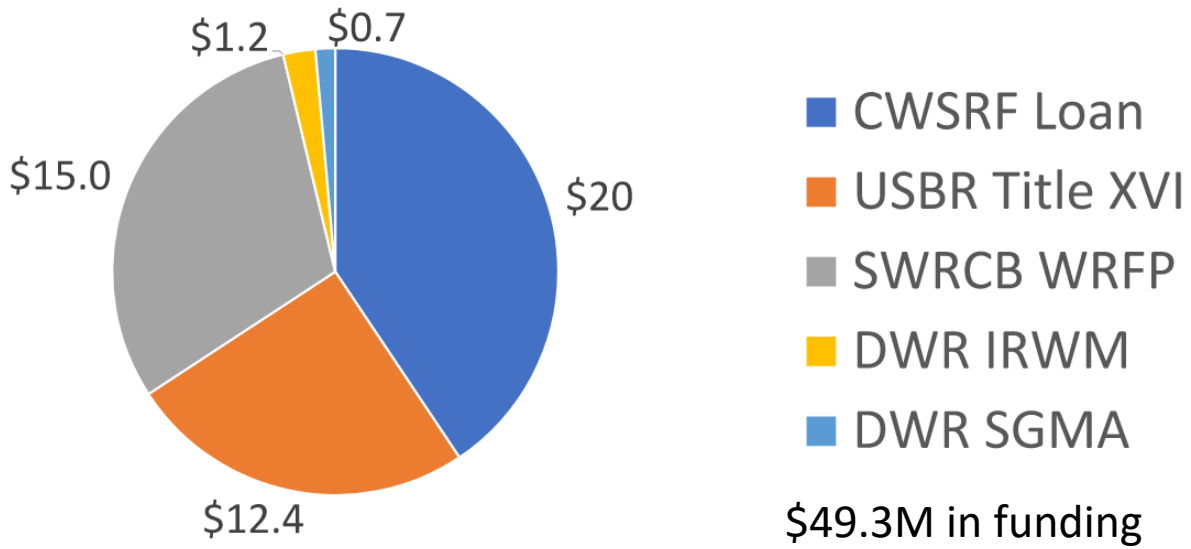


Backflush groundwater:

- 1 - 2 times / week for approx. 1 hour
- Reduced frequency in long-term
- 2x avg. injection rate (700-gpm)
  - 42,000 gallons per occurrence
  - 500-gpm to sewer (12,000 gals. needed)

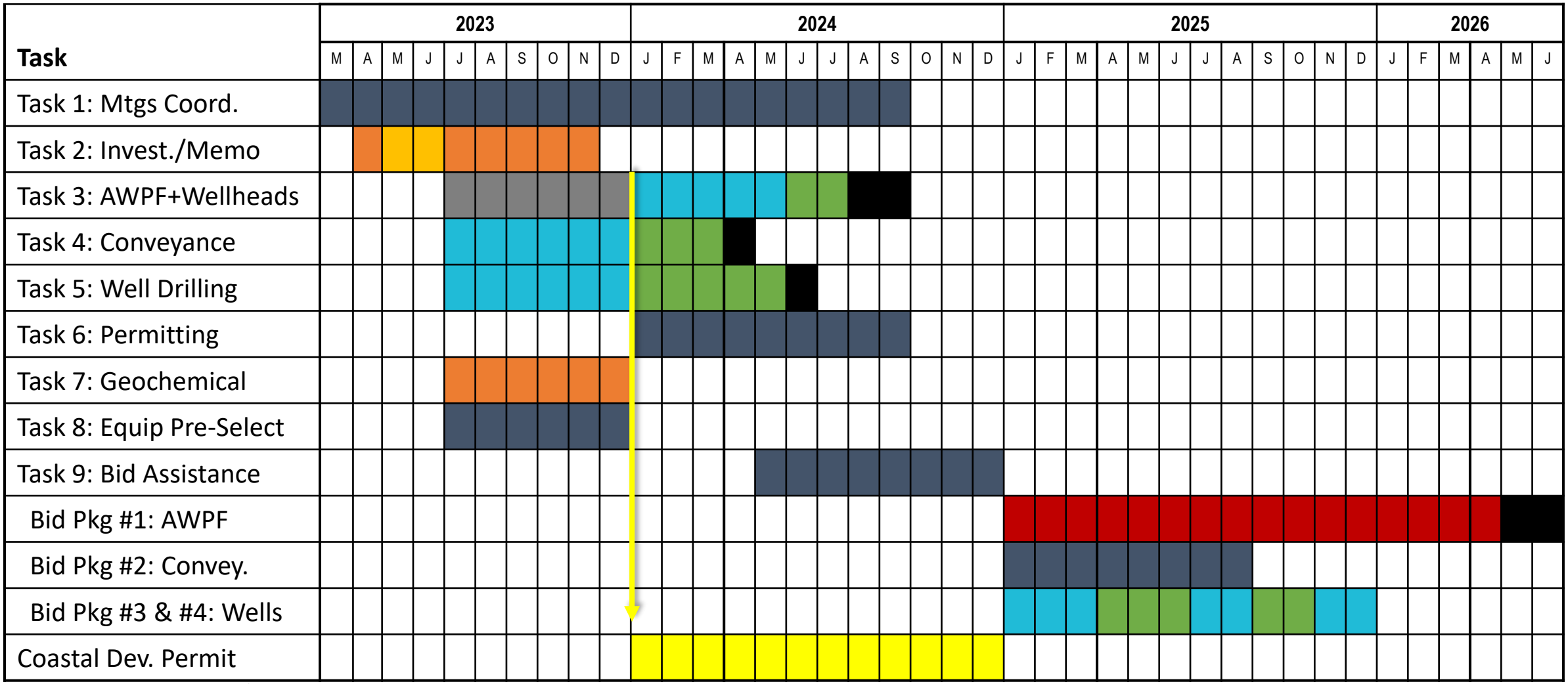
Project Costs and Funding

- **Predesign Phase: $2.0M**
- **Design Phase: $5.3M**
  - Project Management: $1.1M
  - Final Design: $3.8M
  - GW modeling: $0.1M
  - Community Outreach: $0.1M
  - Land Acquisition: $0.3M
- **Construction Phase: $43.3M**
  - Contractors (x4): $38.0M
  - Construction Mgmt: $2.3M
  - ESDC: $2.9M
  - Regulatory Compliance: $0.1M



$49.3M in funding

Schedule


Task
2023
2024
2025
2026
M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J
Task 1: Mtgs Coord.
Task 2: Invest./Memo
Task 3: AWPF+Wellheads
Task 4: Conveyance
Task 5: Well Drilling
Task 6: Permitting
Task 7: Geochemical
Task 8: Equip Pre-Select
Task 9: Bid Assistance
Bid Pkg #1: AWPF
Bid Pkg #2: Convey.
Bid Pkg #3 & #4: Wells
Coastal Dev. Permit

Thank you

CAPP | Replenishing Our Groundwater for the Future

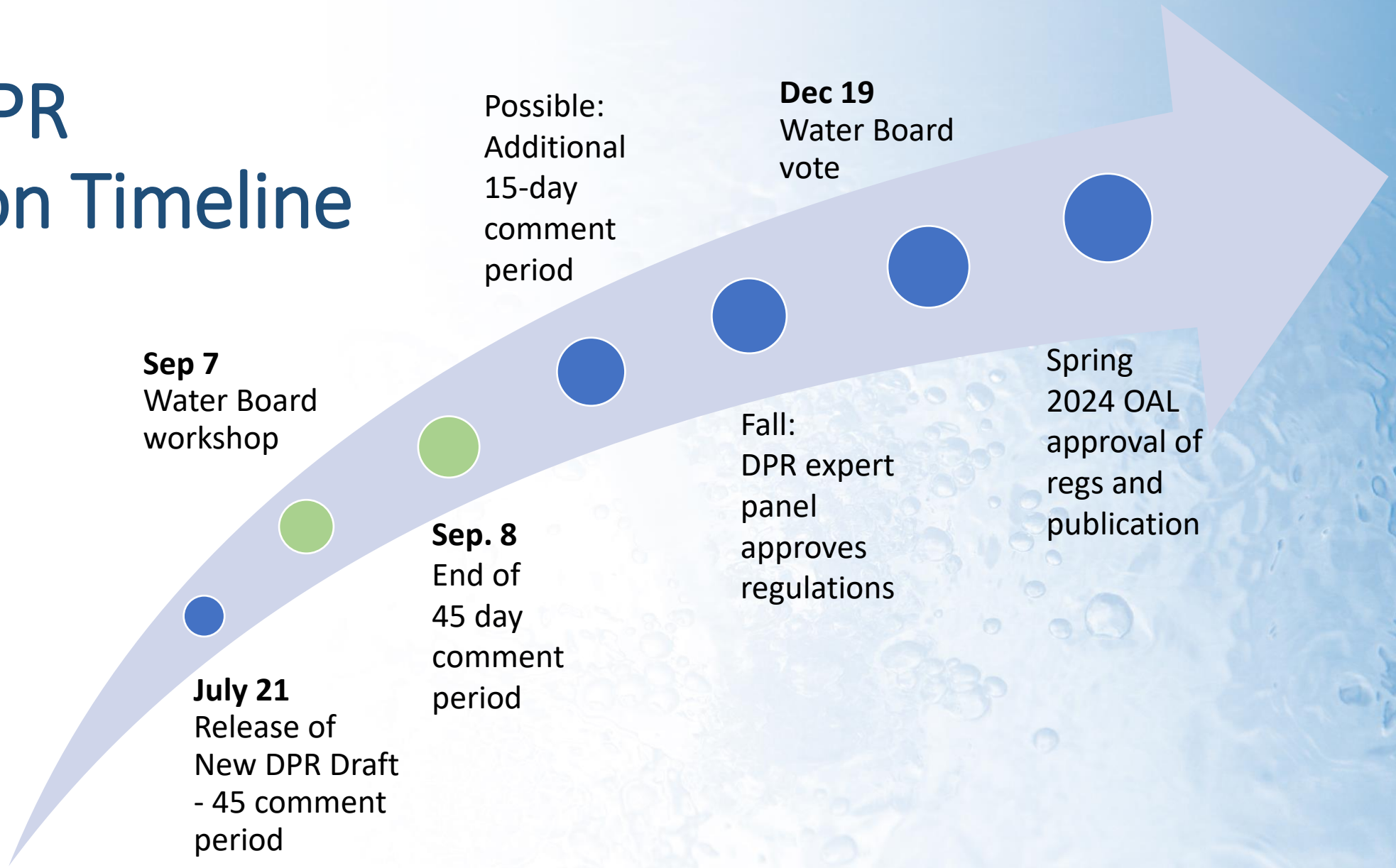
Standing Items

- **State Section Update**
  - —Joone Lopez, MNWD
- **Regulatory Updates**
  - —DDW
  - —OCHCA
- **Legislative and Regulatory Matters**
  - —Claire Johnson, OCWD (Regulatory)
- **Potential Funding for Projects**

Standing Item

- **Legislative and Regulatory Matters**
  - —Claire Johnson, OCWD (Regulatory)

2023 DPR Adoption Timeline



Guidelines for the Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water
(Nonpotable and indirect potable reuses only)

State Water Resources Control Board
Division of Drinking Water

June 2023

Credit: www.aquaoperations.com

California Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

- June 2023 DDW updated Guidelines for the Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water
- No opportunity for public feedback provided
- Summarizes preparation of T22ER for nonpotable & IPR
  - Focus → nonpotable
- Largely minor updates since March 2001 version

Legislative Update

- **Climate Bond:** WRCA is requesting $1.8 billion in the proposed 2024 Climate Bond & developing language to create a new project funding category for “large projects” with specific criteria.

- **Clean Water State Revolving Funding Plan:** WRCA worked with CASA to stop the adoption of the Water Board’s Intended Use Plan that contained retroactive reductions in approved loan funding for reuse and other water quality projects.
- Division of Finance is now proposing that back projects be funded, and new projects be capped at $50 million.
- The Water Board is proposing no loans or grants for 2025-2026 because the state’s federal capitalization grant has been reduced by 50% in the last two years.

Upcoming WRCA Conference

- Abstract submittal deadline has passed.
- Early Bird Registration deadline **September 8**

2023 WATEREUSE CALIFORNIA CONFERENCE

INDIAN WELLS, CA • NOV. 5-7

Standing Item

▶ Potential Funding for Projects

https://watereuse.org/wp-content/uploads/2023/07/Summary-of-Funding-Opportunities-as-of-08-01-23.pdf

—Integrated Climate Adaption & Resiliency Program
- Phase 1 request & intent survey is due 8/29/2023 & Phase 2

—WaterSmart Environmental Water Resource Projects
- FY 2023 coming soon

—WaterSmart Water Conservation Field Services Program
- Final closing date: 10/13/2023

—Title XVI WIIN Water Reclamation & Reuse Projects
- Next funding opportunity in Summer 2023

Upcoming Conferences, Webcasts & Meetings

- **Are we ready for Next Generation Potable Reuse projects?** | August 31 @ 10am
- **WateReuse Florida: Navigating the PFAS Waters from a Water Reuse Perspective** September 13 @ 9am
- **Pacific Northwest Track WateReuse** | September 11 - 13 | Tacoma
- **Texas WateReuse Conference** | September 20 - 22 | Frisco
- **2023 WateReuse CA Conference** | November 5 - 7|Indian Wells
- **2024 WateReuse Symposium** | March 10 - 13|Denver

Registration now open

See www.watereuse.org to register and for more information

Upcoming OC Chapter Meetings:

October 19 – IRWD

December 21 – TBD

Other Announcements/Discussion Items

- **Other announcements**
- **What's Going on? (All)**

THANK YOU

Meeting Adjourned