# **Chapter Meeting**

October 15, 2024 | San Diego Public Utilities Department

Thank you to our sponsor!

































































Welcome to our members! Please remember to sign-in!

## **Agenda**

1

Welcome to San Diego Public Utilities Department!

## Chapter Updates

2

5

- Sponsor Spotlight
- •Funding & Leg/Reg Update
- •Recent and Upcoming Events

3

WateReuse Scholarships

GSDSEF Winner Presentation

4

Making Conservation a California Way of Life

San Diego County Water Authority Panel: Operator Staffing

for Potable Reuse

City of San Diego, East County AWP, and City of Oceanside **Closing Remarks** 

6



Thank you to our sponsor!

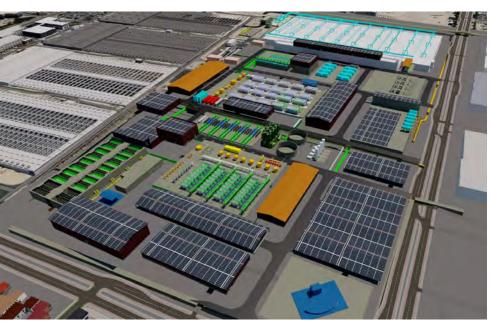


Advanced Water Treatment for Potable Reuse





## **Pure Water Southern California**



Potential 150-MGD Advanced Water Treatment Facility – Conceptual Design by Stantec and its Partners

- Collaboration between Metropolitan Water District of Southern California and Los Angeles County Sanitation Districts
- Up to150 MGD of product water will be used for indirect and direct potable reuse
- Product water will be used to recharge four groundwater basins across Los Angeles and Orange counties



**0.5-MGD Napolitano Innovation Center (AWT Demonstration Facility)**Designed by Stantec and its partners – Carollo Engineers and Trussell Technologies



The Napolitano Innovation Center also serves as a public outreach tool

**Napolitano Innovation Center** 





- The Napolitano Innovation Center includes MBR, RO and advanced oxidation processes for IPR demonstration
- DPR processes are being added for future testing

**Napolitano Innovation Center** 

## 0

## **Pure Water Los Angeles**



Hyperion Water Reclamation Plant, El Segundo, CA

Courtesy: City of Los Angeles

- Joint effort between City of Los Angeles' Bureau of Sanitation (LASAN) and Department of Water and Power (LADWP)
- The Program aims to meet Mayor's goal to recycle 100% of City's wastewater by 2035
- Implement new treatment infrastructure for recycling all Hyperion flows and produce up to 210 MGD of product water

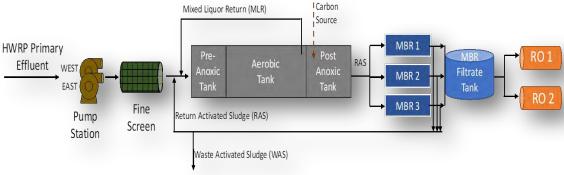




- Partnership between LASAN and LADWP
- The 1.0-MGD Hyperion MBR Pilot Facility consists of MBR and RO processes to:
  - Guide the design of the full-scale advanced water treatment facility
  - Achieve regulatory approval of treatment train

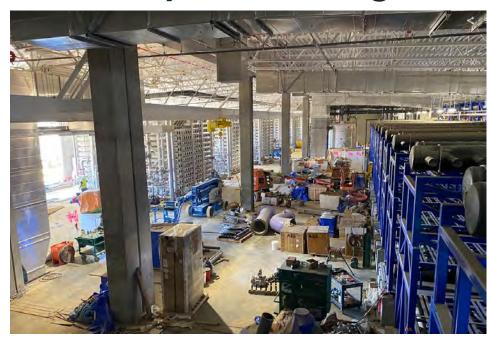
**Hyperion MBR Pilot Facility Designed by Stantec and its Partner Carollo Engineers** 

Courtesy: City of Los Angeles



## 0

## City of San Diego's Pure Water Program



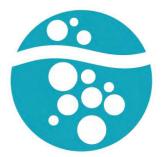


**30-MGD Phase 1 North City Advanced Water Purification Facility under Construction**Stantec is serving as the Program Manager with its partners including Brown & Caldwell, Trussell Technologies, and West Coast Civil

Courtesy: City of San Diego



## North City Pure Water Facility Process



**Ozonation** 



Biological Activated Carbon Filters



Membrane Filtration



Reverse Osmosis



Ultraviolet
Disinfection
/Advanced
Oxidation



## City of San Diego's Pure Water Program

#### Phase 2:

- Up to 53 mgd in Central Area
- Central Area PWF to Murray or San Vicente Reservoirs
- Evaluating changed conditions since 2012 Clean Water Program



#### Pure Water Program Phase 2 – In Early Conceptual Planning Stage

Stantec is serving as the Program Manager with its partners including Brown & Caldwell, Trussell Technologies, West Coast Civil, Hoch Consulting

Courtesy: City of San Diego





## **Advanced Water Treatment** for Potable Reuse

**Stantec** 



## Chapter Updates

WateReuse San Diego Officers



## 2024 Officers



Past-President Lindsey Stephenson Olivenhain MWD



**President**Rosalyn Prickett
Rincon Consultants



President-Elect
Mitch Bartolo
Trussell Technologies



**Treasurer**Aaron Cook
Fallbrook PUD



**Secretary**Jesica Cleaver
San Diego CWA



**Director of PR**Antonia Estevez-Olea
West Coast Civil



Newsletter Editor Megan Drummy Hazen and Sawyer



Chapter Representative
Tom Falk
San Elijo JPA



## 2025 Proposed Slate



**Past-President** 



**President**Rosalyn Prickett
Rincon Consultants



President-Elect
Mitch Bartolo
Trussell Technologies



**Treasurer**Aaron Cook
Fallbrook PUD



**Secretary**Jesica Cleaver
San Diego CWA



**Director of PR**Antonia Estevez-Olea
West Coast Civil



Newsletter Editor Megan Drummy Hazen and Sawyer



Chapter Representative Lindsey Stephenson Olivenhain MWD



## Leg/Reg Update

## New/Increased Permit Fees

- •Recycled Water Fee
  - 2023 budget change proposal
  - Production
    - Potable \$16,000
    - Non-potable \$2,800
  - Distribution/Use
    - •\$1,500
- Water Quality Program
  - NPDES 1 1.5%
  - ○WDR 1 5.3%

## Direct Potable Reuse

- Adopted by State Water Board December 19, 2023
- •Effective October 1, 2024

## Proposition 4 (Climate Bond)

\$10 Billion for water, wildfire prevention, and climate risk protection

- •\$386 Million for water recycling
- •WRCA board adopted support position

# Cross Connection Control Policy Handbook

- •Adopted December 19, 2023
- •Effective July 1, 2024

#### **USBR WaterSMART**

Water & Energy Efficiency (WEEG)

•Second round applications due November 13, 2024



## WateReuse Events

## WateReuse California 2024



Ramona Municipal Water District Small Recycled Water Agency



City of Escondido Recycled Water Project



**WRSD Chapter Officers** 



## WateReuse Events

# 2025 Conferences We are hosting - located in San Diego!

#### 2025 WateReuse California

- September 7-9, 2025
- Town & Country Hotel
- Call for abstracts to open in late January.

Please let us know (<u>WateReuseSD@gmail.com</u>) if you are interested in volunteering for conference committees!

#### 2025 WateReuse National

- March 16-19, Tampa FL
- Call for abstracts is closed





## Upcoming Events

## Save the Date! WRSD Q4 Chapter Meeting

- •2025 Chapter Elections
- Networking
- •Thursday
  November 21, 2024
  4:00-7:00 pm
- Location TBD

## WateReuse California Committees

- •CalVal (California Validation)
  Committee Antonia
- •Legislative & Regulatory Committee
- Jesica
- •Potable Reuse Permitting & Regulatory Committee Antonia & Rosalyn
- Communications Collaborative
- Megan





# Making Conservation a California Way of Life

Elizabeth Lovsted, Water Resources Manager, SDCWA







Update on Long-Term Water Use Efficiency Standards

October 15, 2024
WateReuse San Diego Chapter

Elizabeth Lovsted
Water Resources Manager

## **Timeline**

2009 Senate Bill X7-7 (20% by 2020)

## 2016 **Executive Order**

B-3716 entitled "Making Conservation A California Way of Life"

#### 2022

**DWR** recommendations released













Final regulation adopted on July 3, 2024

#### 2014

California Water Plan Update – "Make Conservation a California Way of Life"

#### 2018

Implementation **Legislation Senate** Bill 606/Assembly Bill 1668

#### 2023

Indoor legislation approved; water loss regulation adopted; **SWRCB** released draft regulation



## **Urban Water Use Objective**

### Providers cannot exceed the SUM of the standards



<sup>\*</sup>Agriculture and indoor CII are not part of objective, though indoor CII is covered by Performance Measures.



### **Indoor Residential Standards**

Effective Date	Gallons per Capita per Day (GPCD) Standard
Until January 1, 2025	55
January 1, 2025 - January 1, 2030	47
January 1, 2030, on	42

- Indoor standards established by SB 1157
- DWR to conduct studies to quantify impacts on water, wastewater and recycled water systems by Oct 2028



## **Outdoor Standards**

	Residential Standard	Commercial, Industrial and Institutional with Dedicated Irrigation Meters Standards
Through June 2035	0.8	Equivalent to active reported deliveries
July 2035 – June 2040	0.63	0.63
July 2040 on	0.55	0.45
Special Landscape Area Irrigated with Recycled Water	1.0	
Variance for High TDS	✓	<b>✓</b>
New Construction	0.55 Post DWR data release	0.45 Post July 1, 2028



### **Potable Reuse Bonus Incentive**

- Provides a bonus for potable reuse that is added to the Water Use Objective
- Based on how much potable reuse is within the potable deliveries associated with the Water Use Objective
- Existing facilities capped at 15% of the Water Use Objective
  - Certified environmental documents before January 1, 2019
  - Producing and delivering potable reuse water on or before January 1, 2022
  - Uses microfiltration and reverse osmosis technologies
- Other facilities capped at 10% of the Water Use Objective





## **Impacts**



Water use objective will be set based on the <u>overall</u> water use of urban water suppliers.

Suppliers do not have to meet each standard individually (except for water loss)

Budgets not set for individual customers



## **Commercial, Industrial and Institutional**



Even if a supplier is meeting its Urban Water Use Objective, it will ALSO need to comply with the Commercial, Industrial, and Institutional (CII) performance measures and reporting requirements.



## **Compliance and Enforcement**



The State Water Board regulation defers compliance with the objectives until 2027.



## **Enforcement Glidepath**

#### YEAR 1

 The State Board may issue informational orders pertaining to water production, water use, and water conservation to an urban retail supplier that does not meet its Urban Water Use Objective (UWUO).

#### YEAR 2

• The State Board may issue *written notices* to an urban retail supplier that does not meet its UWUO. May request that the supplier address areas of concern in its next annual report.

#### YEAR 3

 The State Board may issue a conservation order to an urban retail supplier that does not meet its UWUO.

#### YEAR 4

The State Board may impose civil liability (fine) for a violation of the regulation.



## **Thank You!**





# WateReuse Scholarships Greater San Diego Science & Engineering Fair



## WateReuse Scholarships

- Thank you to our volunteer judges!!
- 6 scholarships -3 senior and 3 junior
- \$200 each
- Project Highlight -Sanya Kapoor







# Panel: Operator Staffing for Potable Reuse

Doug Campbell, City of San Diego

Seval Sen & Ryan Hughes, Padre Dam MWD (on behalf of East County AWP)

Rudy Guzman, City of Oceanside



## **Pure Water San Diego**

# Phase 1 Operator Staffing WateReuse San Diego

Doug Campbell dacampbell@sandiego.gov



Pure Water will produce nearly

1/2
of the City's water locally

#### Phase 2

- Up to 53 mgd
- Central Area PWF to San Vicente or Lake Murray

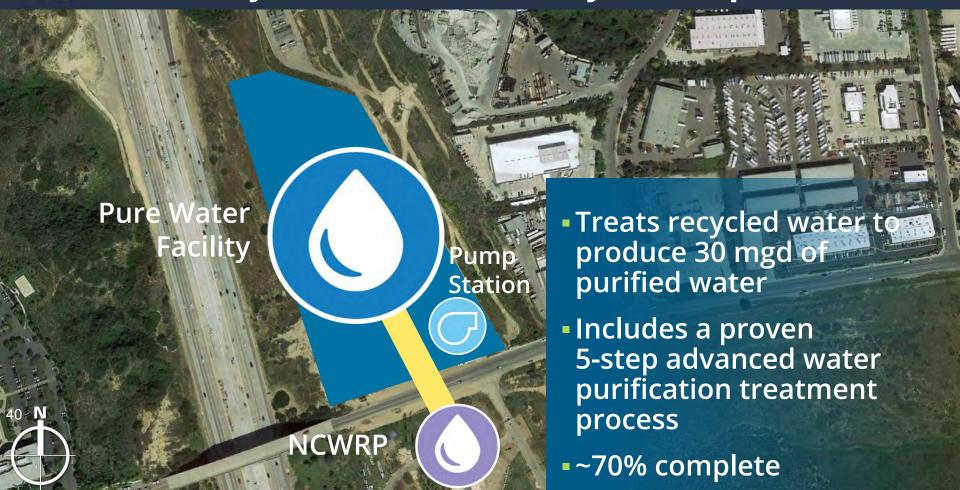




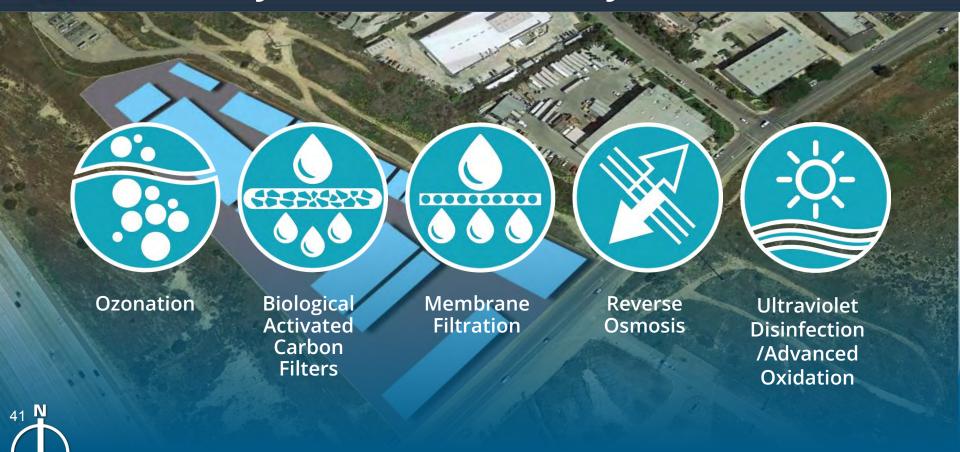
# Pure Water Infrastructure



## North City Pure Water Facility & Pump Station



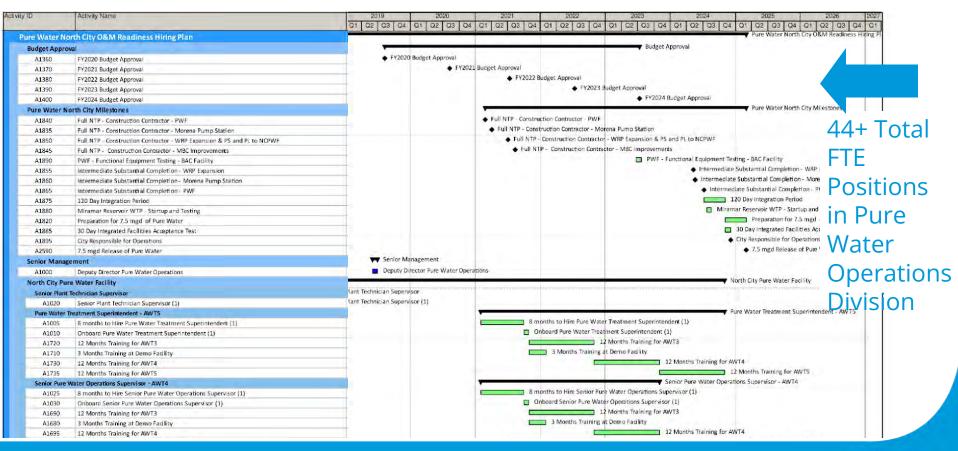
## North City Pure Water Facility





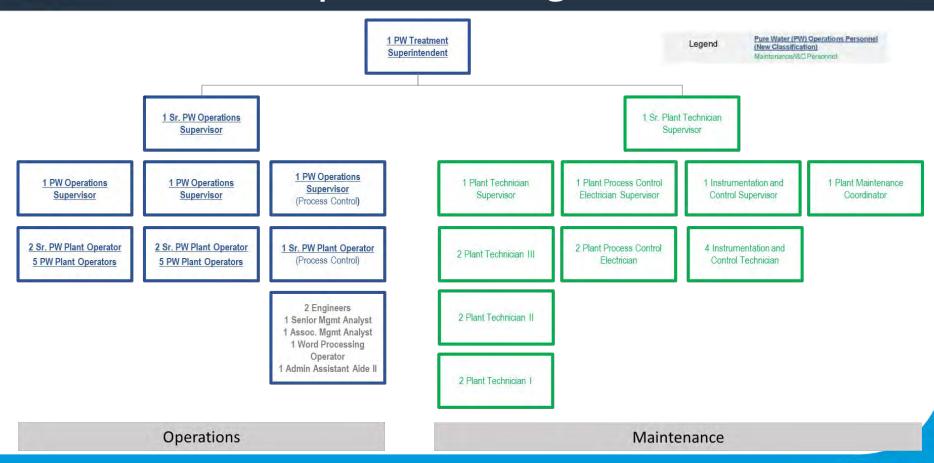
## North City Pure Water Facility







## Pure Water Operations: Organizational Chart



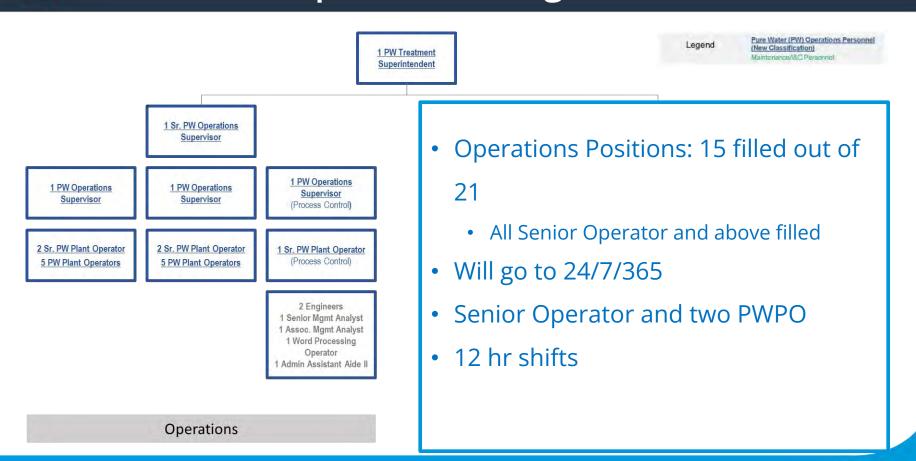


## Operator Certifications: PW Operator Series

NCPWF Operator Position	Wastewater or Water Certification Requirement	AWTO Certification (Desired Prior to NCPWF Operation)
Pure Water Treatment Superintendent	• Grade V or T5	• AWT 5
Senior Pure Water Operations Supervisor	Grade IV or T4	• AWT 4
Pure Water Operations Supervisor	Grade III or T3	• AWT 3
Senior Pure Water Plant Operator	Grade III or T3	• AWT 3
Pure Water Plant Operator	Grade II or T2	· N/A



## Pure Water Operations: Organizational Chart





## **Ops Plan: On-going Training Program**



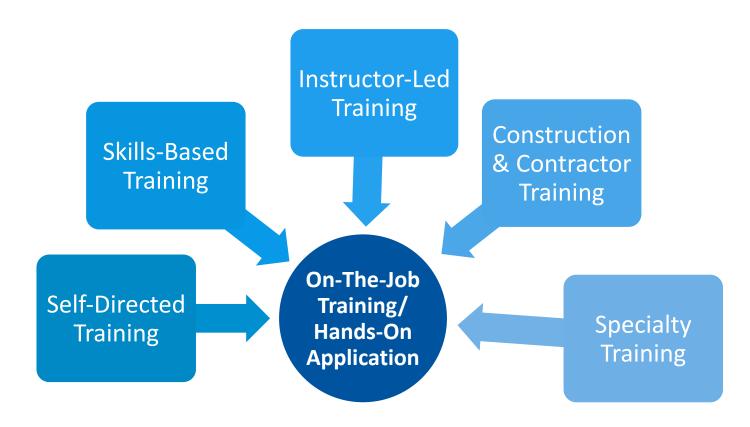
#### **Required Topics**

- a) The proper operation of all **treatment**processes utilized to achieve pathogen
  and chemical reduction
- b) Maintenance, calibration, and verification of instrumentation & analyzers
- c) Control systems, data trending, and control strategy of plant systems
- d) Incident response and investigation
- e) Hazard Analysis Critical Control Point system approach
- f) Regulations
- g) Potential adverse health effects associated with consumption of off-spec water

\$3 sandiego.gov



## **NCPWF Operator Training Program Overview**

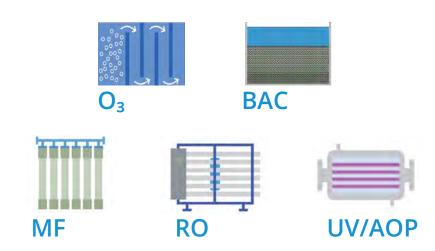




## **AWT Academy**

### **Instructor-Led Training Modules**





- Held annually
- Up to 30 attendees
- Transitioning to City-led





Field Experience helps translate knowledge to practical skills

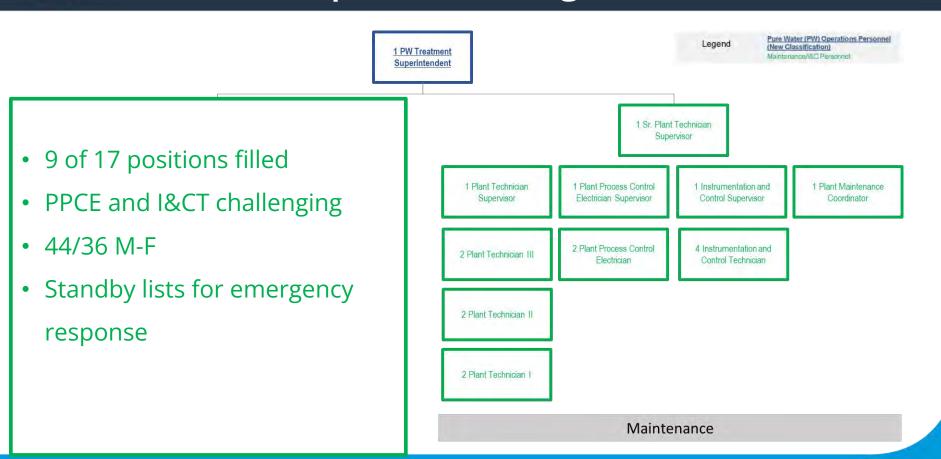








## Pure Water Operations: Organizational Chart



## What do staff do until facility commissioning?

- Submittals
- Regulatory Preparedness
  - Operations Plan, Joint Plan, Ramp Up Plan
  - Commissioning sampling and monitoring plan
  - Miramar Reservoir tracer study plan
  - Regulatory requirements and reporting procedures
- Contracts
  - Chemical and service contracts
  - Subaqueous Pipeline inspection and maintenance
- Coordination
  - EAM / Maintenance planning
  - Pure Water Pipeline operations and maintenance



- PUD IT (SanNet wiring, conference rooms, computers, phones)
- General Services contracts and Fleet vehicles

52

• Pure Water Pipeline operations and maintenance

What do staff do until facility commissioning?



53 sandiego.gov

phones)



### **SOLUTION** Learned



#### **Start Early**

**Develop staffing plan** Get key O&M input regularly



#### Personnel & Hiring Schedule

Pay Incentives & Disincentives **Use Industry Job Boards Integrate Flexibility (Cross-Training)** 



An Operator Training Program can help now





#### EAST COUNTY ADVANCED WATER PURIFICATION



#### **GOVERNANCE STRUCTURE**

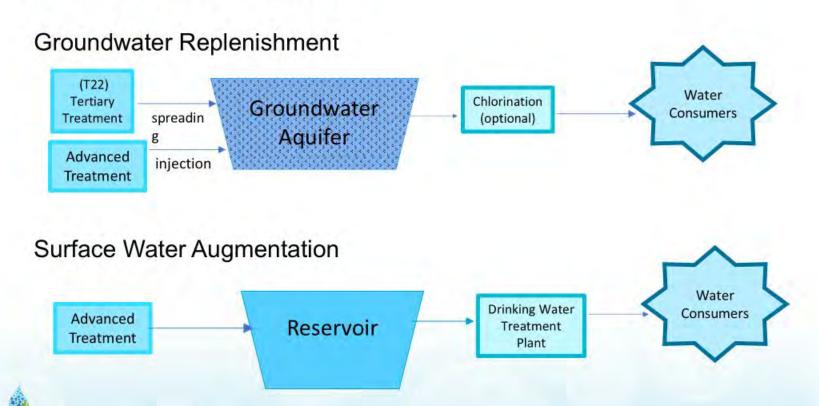




### PROGRAM COST UP TO COMMERCIAL OPERATIONS



### **INDIRECT POTABLE REUSE**

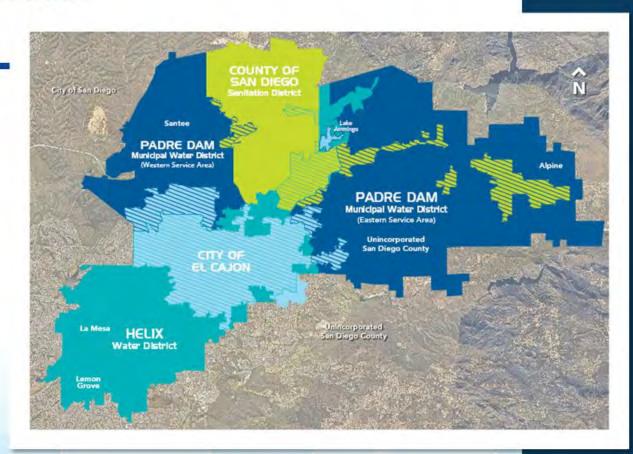


#### PROGRAM SERVICE AREA

Purified water from this project will also be delivered to customers in the **Otay** and **Lakeside Water Districts**.

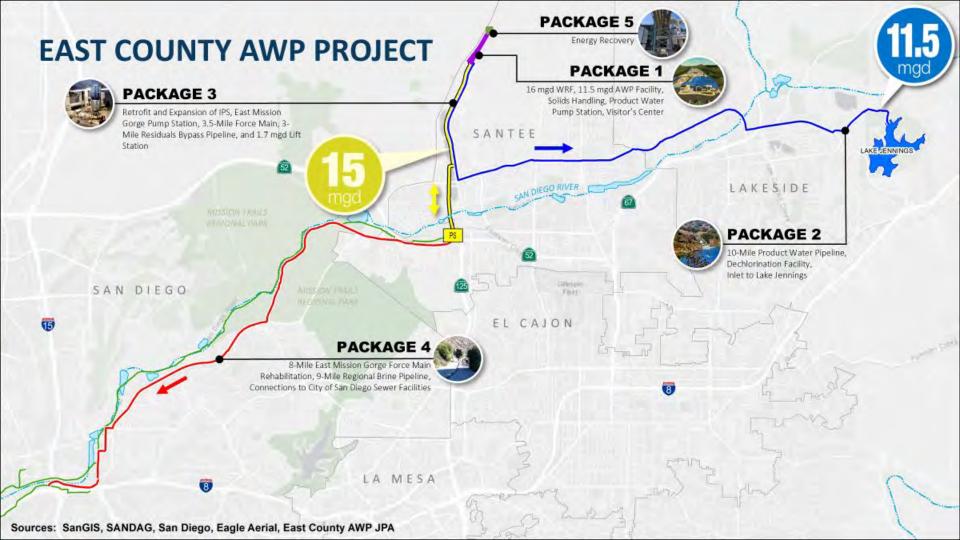
Additionally, all of San Diego County will benefit through increased water reliability for the region.





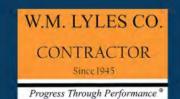


### **EAST COUNTY ADVANCED WATER PURIFICATION VISION** Eucalyptus Hills SAN DIEGO RIVER PURIFIED WATER PIPELINE Advanced Water Purification Santee LAKE JENNINGS Lakeside 52 Winter 30% 🖢 Gardens of East San Diego County's Bostonia Gliespie drinking water will be created Field LOCALLY! El Cajon



# CONSTRUCTION STATUS PACKAGE 1

## **AECOM**



- Mass grading completed
- Early design work packages completed to support construction
- Working towards final design documents
- Started structural concrete work with digesters, aeration basins, secondary clarifiers
- · Major equipment procurement in progress











# **CONSTRUCTION STATUS**PACKAGE 2







- · Pipeline construction began April 4, 2023.
- Over 5,000 feet of 24-inch CML&C Steel pipe has been fabricated and delivered to the site
- Final permit applications have been submitted and are being reviewed – County of San Diego, City of Santee, Caltrans and San Diego County Water Authority



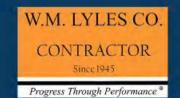






# CONSTRUCTION STATUS PACKAGE 3

## **AECOM**



- Caltrans Encroachment Permit Obtained
- SDG&E Consent Agreements for HDD Obtained
- · Early Work Package 2 Design Complete
- · HDD Pilot Bore in Progress
- City of Santee Encroachment Permit for Open Cut in Progress
- Pump Station Major Equipment Procurement in Progress









## PROJECT STATUS PACKAGE 4 & 5







#### PACKAGE 4:

- CEQA document completed
- Condition assessment of the East Mission Gorge Force Main
- In Design Phase

#### PACKAGE 5:

- Contract awarded to Anaergia Technologies
- In initial stages of Environmental Phase



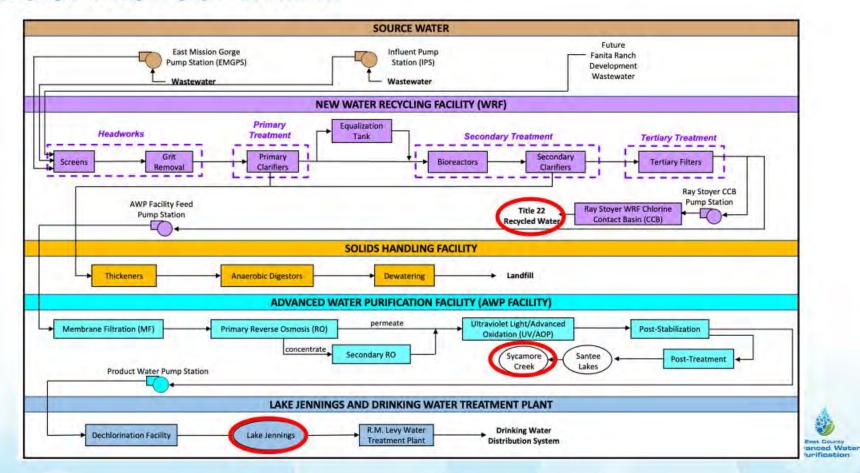
Regulatory
Permitting &
Operational
Readiness



Seval Sen, P.E.

AWP Engineering Manager

#### **USES OF PRODUCT WATER**



#### REUSE PERMITS INVOLVED

- DDW requirements
  - · Pathogen removal credits
  - Lake modeling
  - Residence time
- RWQCB requirements
  - Basin Plan
  - CA Toxic Rule
  - Monitoring and Reporting Plan
  - Report of Waste Discharge

NPDES Permit for Lake Jennings

- RWQCB requirements
  - Renewal of existing permit with different source water
  - Flow and nutrient loading limitations
  - Report of Waste Discharge

NPDES Permit for Sycamore Creek

- RWQCB requirements
  - Renewal of existing permit with different source water
  - Title 22 Engineering Report
  - Report of Waste Discharge

Non-Potable Reuse Permit

#### REGULATORY PERMITTING ASPECTS OF THE PROJECT



- · Free chlorination
- · Brine minimization
- Pre-formed chloraminationation
- Online strontium analyzer
- · Lime dosing strategy



**Lake Jennings Tracer Study** 

DDW Conceptual Approval for the project





Start of Project Permits

#### Independent Advisory Panel Engagement

- Pathogen log removal credits
- Lake Jennings modeling
- · Operations plan

Title 22 Engineering Report Approval

Monitoring and Reporting Plan

**2023** 

Santee Lakes and Lake Jennings NPDES Permit

Non-potable Reuse Permit

(

**2024** 

2016-now



### **AWP DEMO PLANT OPERATION**

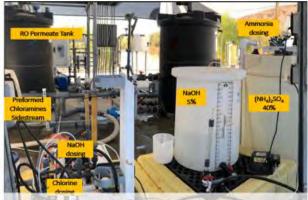


Free chlorine pathogen credits testing





Desalitech as brine minimization technology



Pre-formed chloramination testing

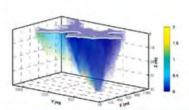


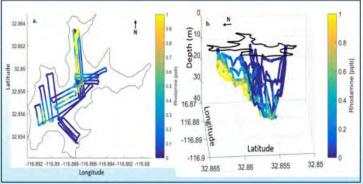
Online strontium analyzer

#### **LAKE JENNINGS TRACER STUDY**

- · Rhodamine WT Dye used
- Performed by Scripps Institution of Oceanography
- · Measured online using fluorometer

Simulation









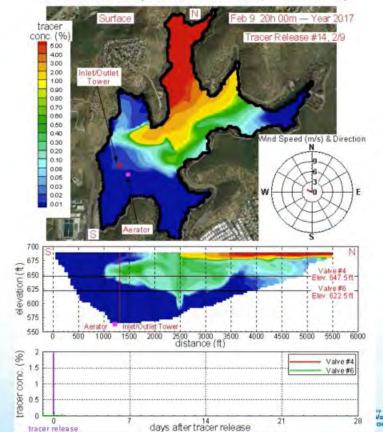


#### LAKE JENNINGS TRACER STUDY

- · 35+ lake modeling completed
- Providing engineered mixing to assure dilution requirements all times



Lake Jennings Hydrodynamics Modeling - AWP Water Tracer Scenario: Run#12 (12.5 MGD AWP Water, WSEL = 690 ft)



#### PATHOGENIC MICROOGANISM CONTROL



Pathogen	MF	RO	UV/AOP	Pipeline Cl <sub>2</sub>	Required Prior to Discharge to Lake Jennings	Total Prior to Discharge to Lake Jennings	Redundancy
Virus	0	3	6	6	8	15	7
Giardia	4	3	6	1	7	14	8
Crypto	4	3	6	0	8	13	7

- Turbidity
- Strontium
- UVT, UVI
- Chlorine Residual

- Pressure Decay
- TOC
- · UV Dose
- Flow Rate

- Test Conductivity
- vity Flow Rate
- Temp, pH



**OPERATIONS INTEGRATION** 

Padre Dam's operators have been involved in the project from **concept to construction** and will be **hands on** during startup, testing, and commissioning.

- Pilot Plant
- Regulatory Permitting
- ⇔ SCADA
- Design
- Construction
- Training & Certification







#### **OPERATIONAL READINESS**



- √ Gained 6 yrs of operational experience
- ✓ Currently have two AWTO Grade 5 certified operators and growing!
- ✓ Creating opportunities for hands on training for new hires
- √ Focus training classes by vendors and consultants
- ✓ Growing from 9 operations staff to 34 staff at 8-12 hr
  shifts
- Decommission Ray Stoyer WRF earlier to allow staff to get trained ahead

# 

THANK YOU

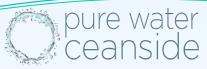


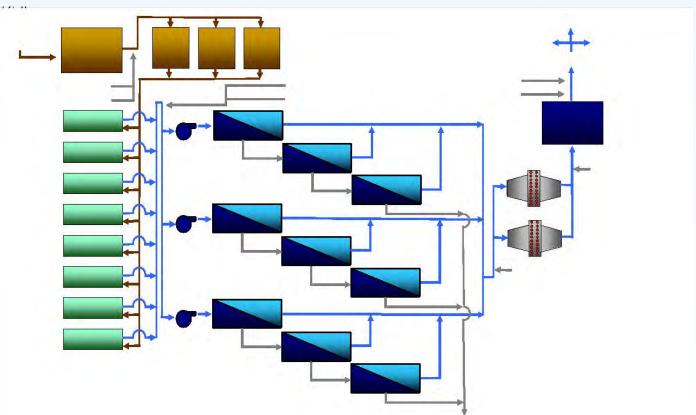
## Staffing: Looking Behind and Ahead October 15, 2024

Rudy Guzman

Division Manager

City of Oceanside



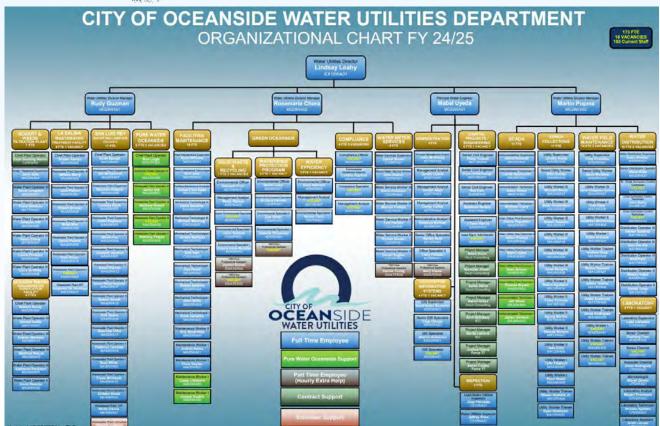




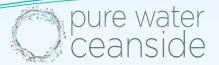


Task	2020	2021	2022	2023	2024
Draft 22 Engineering Report					
Review Period					
Public Hearing					
DDW Approval					
RWQCB Approval					
Construction					
Staffing/Training					
Start of Operation		<u> </u>			
Optimization					
Tracer Study Started					
Operation					





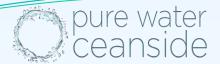




CPO (AWT 5)

Operator (AWT 3)

2 Mechanics 2 Mechanics 2 Mechanics 2 Mechanics



#### **Looking Behind**

- Needed 6 PW positions
- "One Team" doomed.
- Learning the plant not difficult
- Certification not difficult

#### **Looking Ahead**

- Run the Plant!
- Optimization
- Dedicated Staff
- Leads/Seniors/Superintendent

# Panel Discussion: Operator Staffing for Potable Reuse





Next: Join us for a tour of San Diego's Pure Water Facility or Demonstration Facility!



### North City Pure Water Facility Tour

If you have preregistered to tour North City PWF, meet Rosalyn in front of SDPUD bldg.

4949 Eastgate Mall Directions: 52W to 805N, exit Nobel Dr (25A), right on Miramar Rd, left on Eastgate Mall

## **Pure Water Demonstration Facility Tour**

If you have preregistered to tour the demo facility, meet Jesica in front of SDPUD bldg.

