



# **Groundwater Replenishment System Final Expansion (GWRSFE) Project**

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# OCSD/OCWD Reuse Projects

- Water Factory – 21 (1975 - 2007)
- GWRS Project (Completed 2008)
  - Construction of 70 MGD Treatment Facility **with future expansion capacities**, Injection Wells, and Pipeline
- GWRS Initial Expansion (Completed 2015)
  - Expansion of 70 MGD Treatment Facility to 100 MGD including SEFE pump station & storage tanks
- GWRS Final Expansion (Completion 2023)
  - Expansion of 100 MGD Treatment Facility to 130 MGD including water supply pipeline, EQ tank, pump station & treatment process reconfigurations at OCSD



# Potable Reuse – Treatment Perspective

- OCSD/OCWD Successful Potable Reuse
  - OCSD/Wastewater Treatment Agency
    - Source Control Program
    - High Quality Secondary Effluent
  - OCWD/Water Reuse Treatment Agency
    - Proven Treatment Reliability
    - Stabilized Influent Flowrates



# GWRS Treatment Process



G | W | R | S  
GROUNDWATER REPLENISHMENT SYSTEM



Microfiltration (MF)

Reverse Osmosis (RO)

Ultraviolet Light (UV)  
with Hydrogen Peroxide

Seawater  
Barrier  
(36 well sites)

OCSD  
Secondary  
Effluent



Backwash  
Sent to OCSD



Brine Treated  
in OCSD Outfall

Recharge  
Basins in  
Anaheim



# GWRS FINAL EXPANSION OVERVIEW

## Current GWRS Operations

- All secondary effluent from Plant No. 1 (~125 MGD)

## GWRSFE Operations

- Additional secondary effluent required from Plant No. 2 (~125+50 MGD)





# OCSD Wastewater Treatment Plants

- OCSD Plant No. 1 (P1) – GWRS source water
  - Primary Clarifiers
  - Trickling Filter (TF)
  - Advanced Secondary West - NDN (AS1)
  - Advanced Secondary – NDN (AS2)
- OCSD Plant No. 2 (P2)
  - Primary Clarifiers
  - Trickling Filter Solids Contact (TF/SC)
  - Oxygen Activated Sludge (OAS)



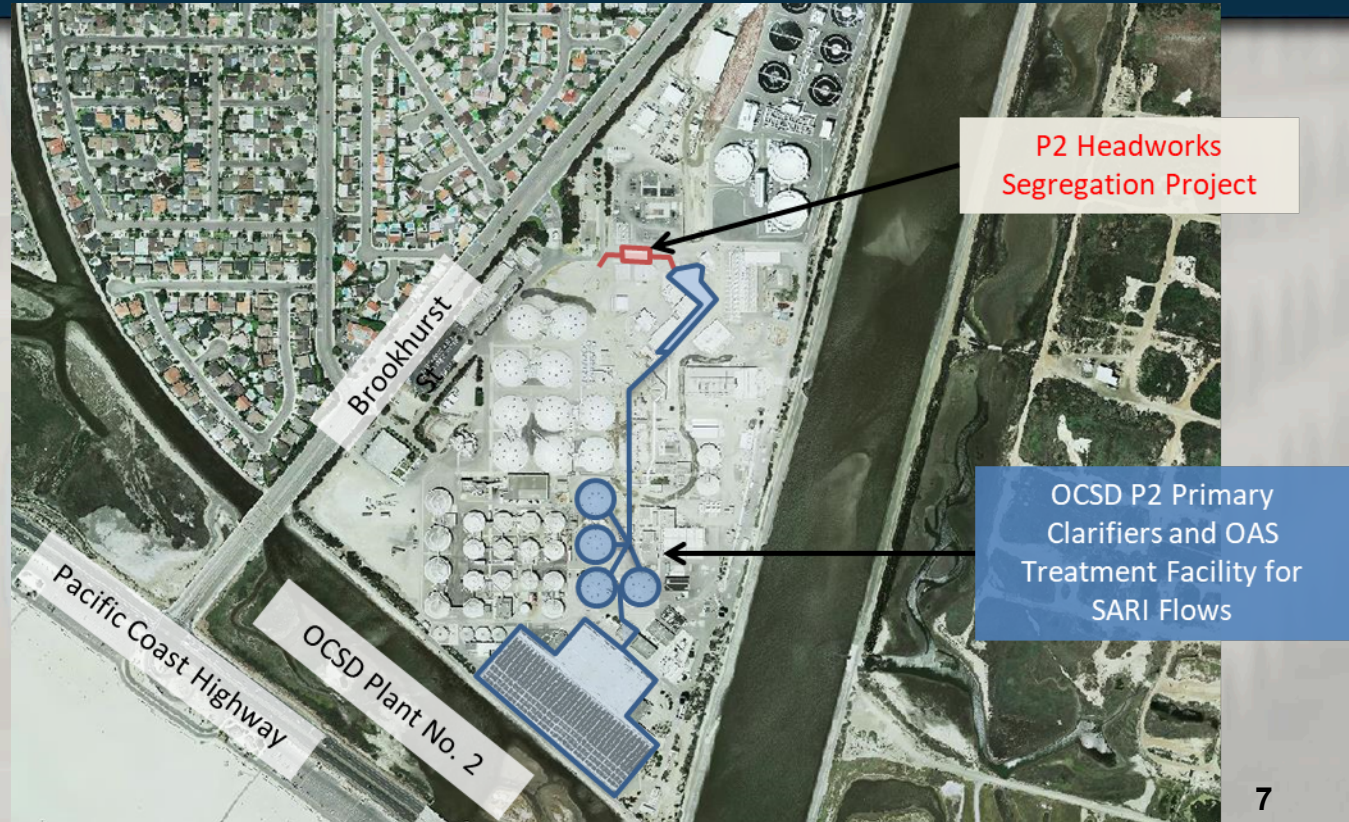


# OCSD Separate SARI Treatment

Santa Ana Regional Interceptor (SARI) – brines; treatment discharges

GWRS not permitted to accept these flows

OCSD managing project/OCWD reimbursing costs





# Water Quality Differences

- GWRS influent currently 75% NDN AS effluent and 25% trickling filter effluent
- GWRSFE influent will be 50% NDN AS effluent and 50% trickling filter effluent
- Ammonia, TSS, Turbidity, TDS will be evaluated with current GWRS treatment processes





# GWRSFE Alignment of Goals

- OCSD/OCWD joint board meetings/joint staff meetings
- OCSD/Wastewater Treatment Agency
  - Ocean Discharge Permit Requirements
    - Treatment Processes Impact Potable Reuse
    - Reduce Ocean Discharge
  - Segregation of Plant No. 2 Headworks Facilities
- OCWD/Water Reuse Treatment Agency
  - Maintain Peak Wet Weather Relief
  - Detailed Evaluation of Treatment Processes/Implement Improvements
    - Pilot testing of new influent



# GWRSFE Project Status

- OCSD/OCWD established GWRSFE project feasible and beneficial
  - Total Project Budget: \$253 million
- OCSD/OCWD approved joint agreement
- Currently in Design of GWRSFE
  - OCSD Headworks Mod Project (SARI segregation)
  - OCWD Plant Expansion & Conveyance Facilities
- Design Phase scheduled to be complete in 2019
- Construction scheduled to be complete in 2023

# GWRS Bottled Water

GWRS water is first reused water to be bottled with AB 2022

- co-sponsored by OCWD, OCSD and the WaterReuse Association California

Why?

- Educational Outreach
  - Allows people to taste/see the final product
  - increases acceptance of potable reuse



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# End of Presentation