

# Updates on the Recent Per- and Polyfluoroalkyl Substances (PFAS) Regulatory Standards, Investigations, and Orange County Water District (OCWD) Response to PFAS in the Orange County Groundwater Basin

Maile Gee, P.G.

Santa Ana Regional Water Quality Control Board  
(Santa Ana Water Board)

Daniel Newton, P.E.

Assistant Deputy Director

Division of Drinking Water (DDW)

Jason Dadakis, P.G., C.HG,

Executive Director of Water Quality & Technical Resources

OCWD



May 5, 2023 - Santa Ana Water Board Meeting

# Overview

- PFAS Background
- DDW Update on Statewide PFAS Sampling Orders and Regulatory Standards
- OCWD Update on Response to PFAS in the Orange County Groundwater Basin
- Next Steps



PFAS

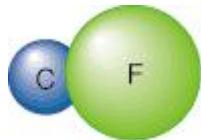
per- and polyfluoroalkyl substances

# PFAS Background

## Per- and Polyfluoroalkyl Substances (PFAS)

- Group of man-made chemicals resistant to heat, water, and oil
- Thousands of compounds including the two sub-categories:
  - Perfluorooctanoic acid (**PFOA**)
  - Perfluorooctanesulfonic acid (**PFOS**)

One of the strongest bonds in chemistry, leads to **environmental persistence**



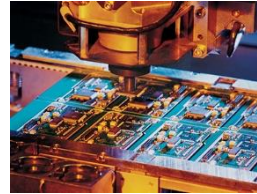
# Uses

- Products that resist grease, water, and oil
- Non-stick cookware
- Food packaging
- Stain resistant fabrics
- Textiles and carpets
- Some cosmetics
- Roofing materials
- Lubricants
- Adhesives
- Water-repellent clothing

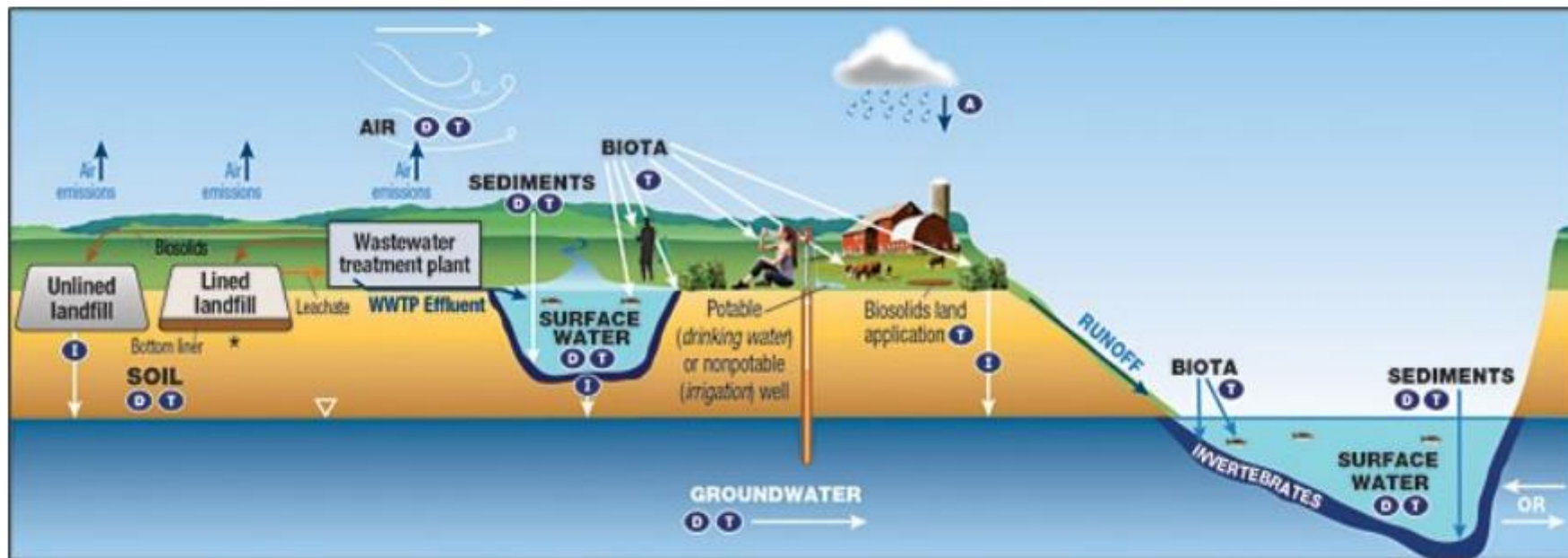


# Uses (continued)

- Paints, varnishes, sealants, dyes, and inks
- Personal care products (shampoo, hair conditioners, sunscreen, toothpaste, dental floss)
- Some cleaning products
- Pesticides, herbicides
- Some garden fertilizers containing biosolids
- Aqueous film forming foams (AFFF)
- Metal electro-plating
- Aerospace, medical, and automotive applications
- Semiconductor industries



# Fate and Transport



\*Leachate release from lined landfills could occur in the event of a liner leak

**KEY** (A) Atmospheric Deposition (D) Diffusion/Dispersion/Advection (I) Infiltration (T) Transformation of precursors (abiotic/biotic)

ITRC Fact sheet “Environmental Fate and Transport of Per- and Polyfluoroalkyl Substances”, Oct. 20, 2022.

# Health Effects

- Liver (cholesterol)
- Immunological (decreased vaccination response, asthma)
- Developmental (birth weight)
- Thyroid
- Reproductive (decreased fertility)
- Cardiovascular
- Cancer (testicular, kidney)



# Federal PFAS News Update

## ➤ December 2022

- EPA announced a proposed rule to enhance reporting of PFAS data to the Toxics Release Inventory under the Emergency Planning and Community Right to Know Act (EPCRA)
  - Adds PFAS to list of chemicals of special concern
  - Eliminates an exemption for facilities to avoid reporting small, or de minimis, use of PFAS
- EPA removed 12 PFAS chemicals from the list of approved inert ingredients in pesticides
- EPA issued guidance to states addressing PFAS Discharges in National Pollutant Discharge Elimination System (NPDES) Permits and pretreatment and monitoring programs

## ➤ January 2023

- EPA proposed a significant new use rule (SNUR) that would strengthen the regulation of PFAS by preventing anyone from resuming use of inactive PFAS without EPA review.
- EPA Issues Test Order for PFAS used in plastics and chemical manufacturing as part of the PFAS national testing strategy under the Toxic Substances Control Act (TSCA)
- EPA released Effluent Guidelines Program Plan 15 with a focus on evaluating the extent and nature of nutrient and PFAS discharges
- Department of Defense (DoD) released a military specification for the purchasing and use of fluorine-free foam.



# Federal PFAS News Update

## ➤ February 2023

- EPA announced \$2 Billion of funding, from the Bipartisan Infrastructure Law, to address Emerging Contaminants, including PFAS, in Drinking Water through the Emerging Contaminants in Small or Disadvantaged Communities (EC-SDC) Grant Program. California is allocated over \$169 million of this funding

## ➤ March 2023

- EPA announced proposed maximum contaminant level goals (MCLGs) and maximum contaminant levels (MCLs) for 6 PFAS chemicals

## ➤ April 2023

- EPA issued Advance Notice of Proposed Rulemaking to inform future hazardous substance designations of PFAS under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA; aka, Superfund)
  - Requests public comment on the addition of 7 more PFAS to be listed as hazardous substances under CERCLA

# State PFAS News Update

## ➤ **Effective January 1, 2023**

- Sale of plant-based food packaging containing regulated PFAS, at levels higher than 100 parts per million (ppm) total organic fluorine, is prohibited. (AB 1200, 2021; Health and Safety Code, Section 109000)

## ➤ **Effective July 1, 2023**

- Sale/distribution of new juvenile (under 12 years) products containing regulated PFAS, at levels higher than 100 ppm total organic fluorine, is prohibited (AB 652, 2021; Health and Safety Code, Sections 108945 - 108947)

# Characterizing PFAS in California

May 5, 2023 | Regional Water Board Meeting

Dan Newton – Assistant Deputy Director



Division of Drinking Water

# Division of Drinking Water General Orders

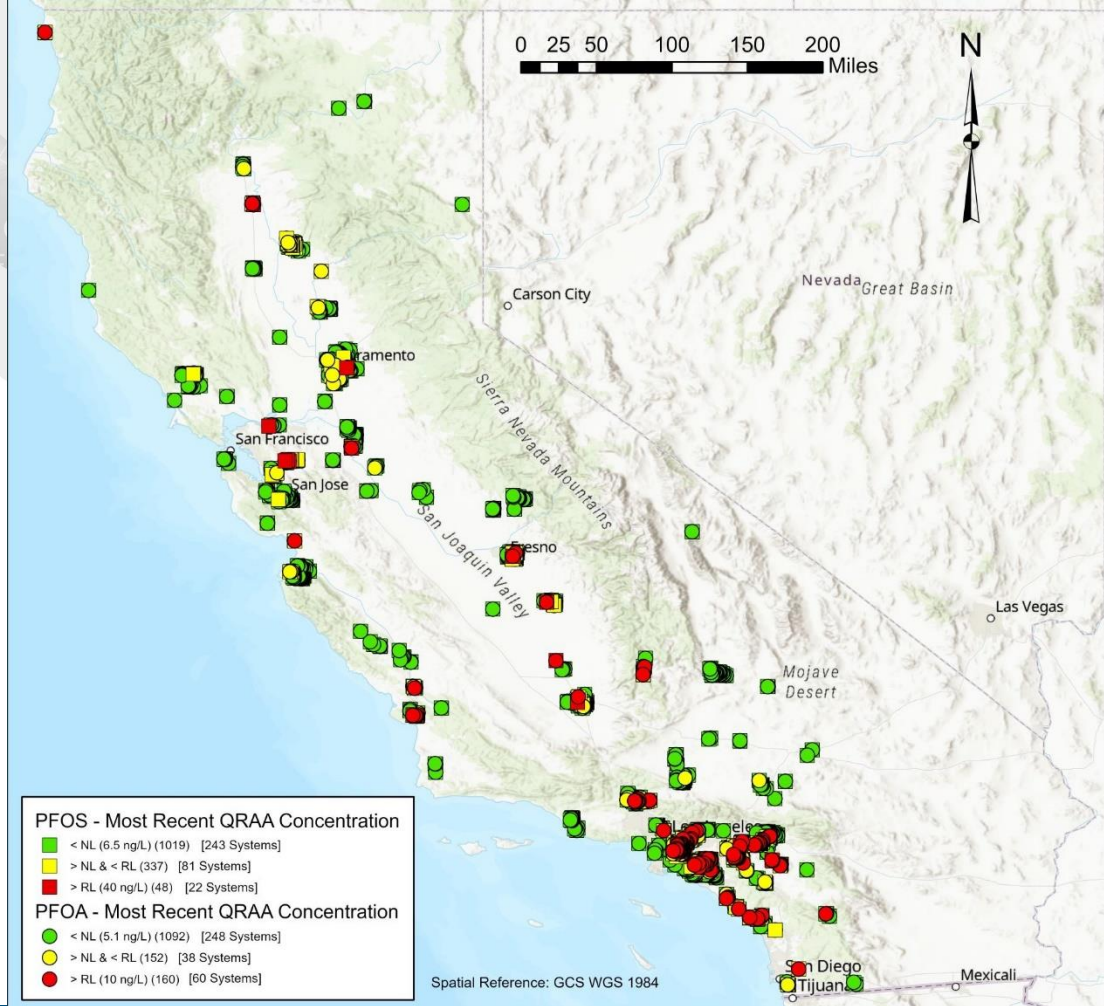
PREVIOUS	March 2019 (~600 wells)	September 2020 (~900 wells)	March 2021 (~off base 340 wells)
	<ul style="list-style-type: none"><li>• Adjacent to March 2019 DWQ orders (landfills and airports)</li><li>• Resampled wells based on EPA's UCMR3 detections</li><li>• 4 quarters of sample by EPA Method 537.1 (18 analytes)</li></ul>	<ul style="list-style-type: none"><li>• Expands outward from previous detections</li><li>• Incorporates AB756 H&amp;S Code 116378 requirements</li><li>• Ongoing quarterly sampling (started 4Q2020)</li></ul>	<ul style="list-style-type: none"><li>• Adjacent to DoD bases (military is sampling military owned wells)</li><li>• Ongoing quarterly sampling (started 2Q2021)</li></ul>
	October 2022 (1,296 wells)		
CURRENT	<ul style="list-style-type: none"><li>• Replaces previously issued Orders</li><li>• Switches to a broader suite of PFAS analytes (EPA Method 533 – 25 analytes)</li><li>• Expands outward from detections in previous Orders</li><li>• Includes wells in the vicinity of chrome platers, bulk fuel terminals, refineries, fire training areas</li><li>• Includes surface intakes along 2 major rivers and near selected bio-spreading areas</li><li>• Requires ongoing quarterly sampling (starting 1Q2023)</li></ul>		

# Regulatory Alignment: EPA and State Water Board

PFAS IN DRINKING WATER (ppt)						
	US EPA			CA State Water Board		
	Health Advisory Level (HAL)	Maximum Contaminant Level Goal	Maximum Contaminant Level	Public Health Goals	Notification Level	Response Level
<b>PFOA</b>	0.004 (interim)	Zero (proposed)	4.0 (proposed)	0.007 (proposed)	5.1	10
<b>PFOS</b>	0.02 (interim)	Zero (proposed)	4.0 (proposed)	1.0 (proposed)	6.5	40
<b>PFBS</b>	2,000	1.0 Hazard Index (proposed)	1.0 Hazard Index (proposed)	-	500	5,000
<b>PFHxS</b>	-			-	3	20
<b>GEN-X</b>	10			-	-	-
<b>PFNA</b>	-			-	-	-
<b>12,000 PFAS</b>	-	-	-	Under development		

# 2021 PFOA/PFOS - Drinking Water Supply Wells

Data downloaded in February 2022 – raw water results  
 NL = Notification Level; QRAA = Quarterly Running Annual Average  
 RL = Response Level  
 PFOA and PFOS analyzed using EPA Method 537.1  
 PFOA: = NL = 5.1 ng/L, RL = 10 ng/L | PFOS: NL = 6.5 ng/L, RL = 40 ng/L



# Orange County Water District

## PFAS Update



**Santa Ana Regional Water Quality Control Board**  
**May 5, 2023**

# Outline

- Current OCWD Service Area PFAS Impacts
- Projected Impacts of EPA Proposed PFAS Regulation
- Next Steps



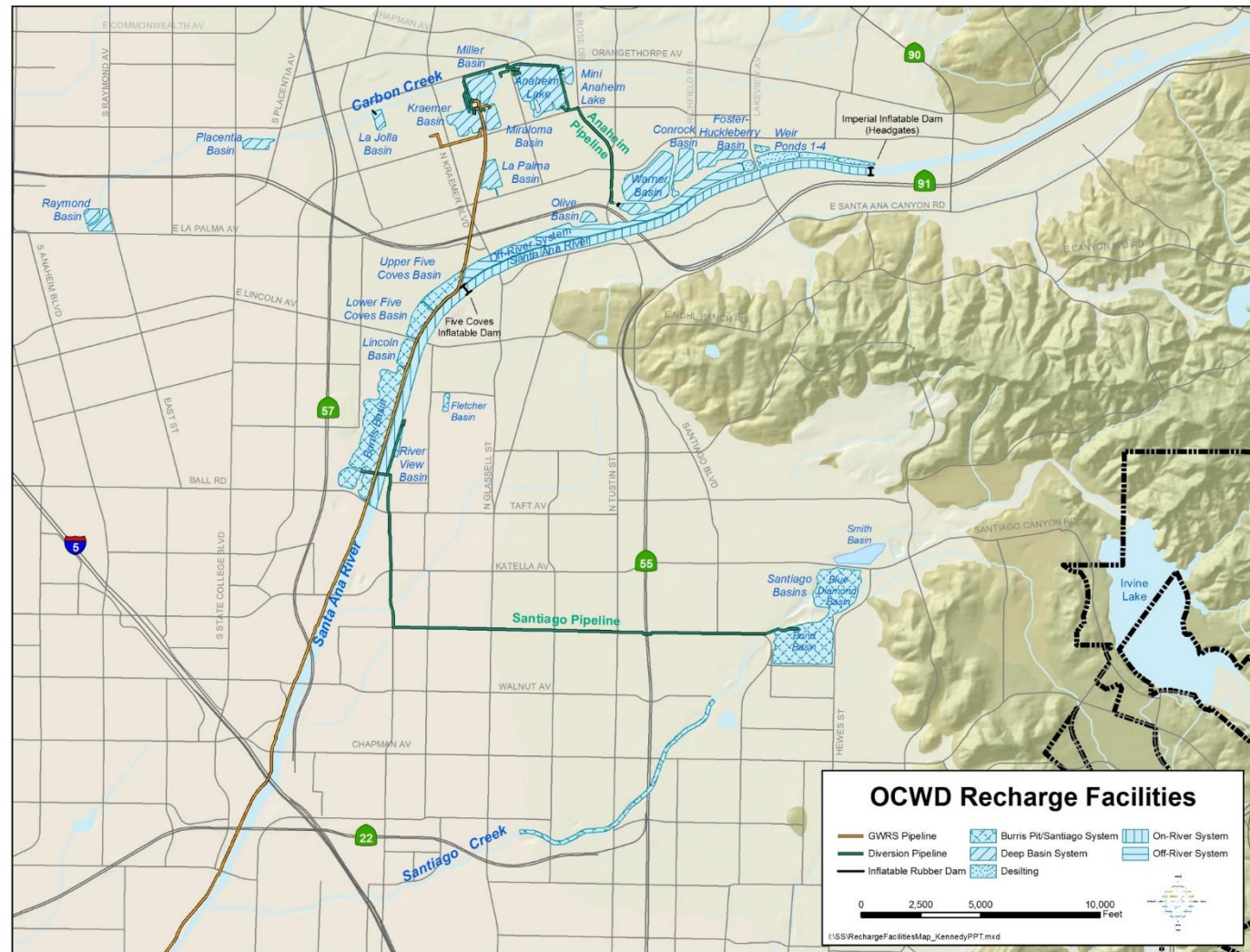


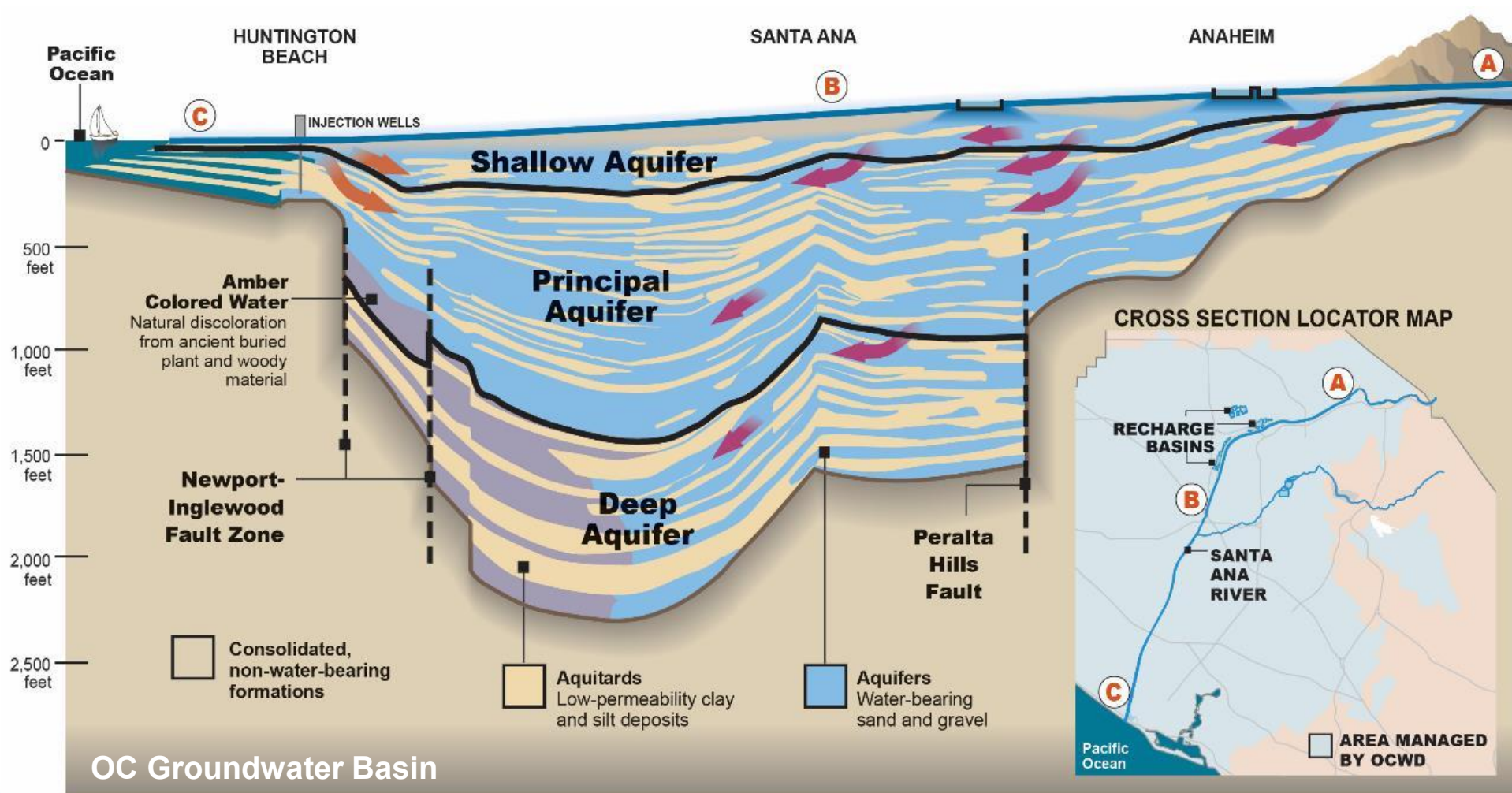
# Orange County Water District

- Formed in 1933
- Sustainably manage local GW basin
- Groundwater = 85% of local supply
- 19 cities & special water districts represent 95% of pumping
- 2.5 million residents

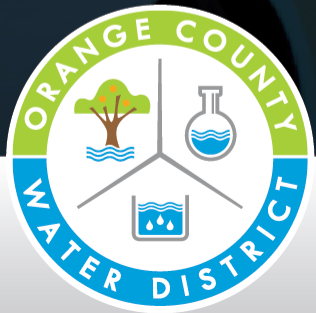


# OCWD Groundwater Recharge Facilities





# Current OCWD Service Area Impacts



# OCWD Laboratory PFAS Testing

- CA ELAP and USEPA certified for 29 individual PFAS for drinking water
- Instrumentation
  - Four automated extraction/prep units
  - Three LC-MS/MS instruments
- Monitoring programs supported
  - Municipal Drinking Water Testing
  - GWRs recycled water compliance
  - Basinwide groundwater monitoring
  - Surface water monitoring
- 2300+ samples analyzed in 2022



# California PFAS Drinking Water Advisories

PFAS Compound	Health Effect	Notification Level (ppt)	Response Level (ppt)
PFOA	Cancer (Pancreatic + Liver)	5.1	10
PFOS	Cancer (Liver)	6.5	40
PFBS	Thyroid Effects	500	5000
PFHxS	Thyroid Effects	3	20

\*Additional NLs/RLs anticipated for PFHxA, PFHpA, PFNA, PFDA, ADONA

# OCWD PFAS Policy Summary

(approved on November 20, 2019)

- OCWD to finance, design and construct PFAS treatment systems for large retail agencies' ("Producer") impacted wells
- O&M cost to be shared 50/50 between OCWD & retailer
- Producer owns, maintains and operates the well + treatment
- PFAS concentration must be greater than applicable Response Level or Maximum Contaminant Level
- Have executed agreements with 11 out of 19 Producers – *Huntington Beach (12) being processed*

# Groundwater Producers in PFAS Program

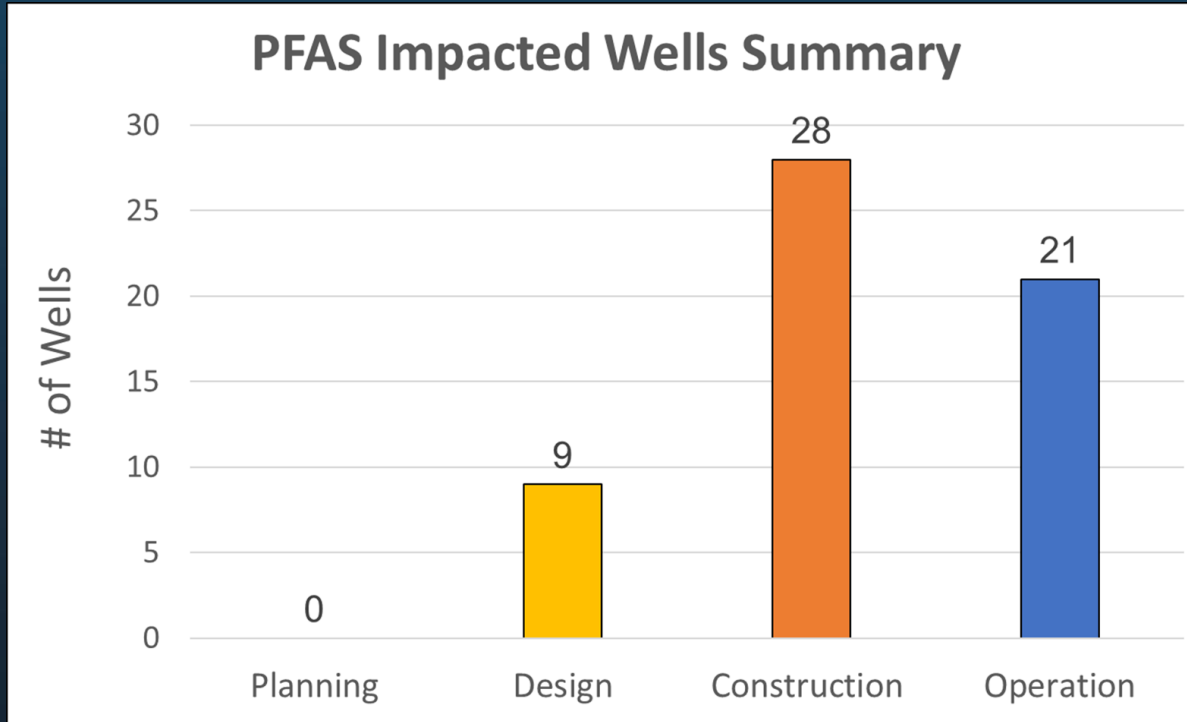
Producer	# of Wells
Anaheim	14
Buena Park	
EOCWD	2
Fullerton	3
Fountain Valley	
Garden Grove	6
GSWC	3
Huntington Beach	0
IRWD	1
La Palma	

Producer	# of Wells
Mesa Water	
Newport Beach	
Orange	9
Serrano Water	2
Seal Beach	
Santa Ana	4
Tustin	4
Westminster	
Yorba Linda WD	<u>10</u>
Total	58



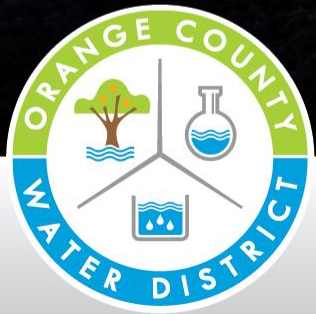
# Current PFAS Impacts in OCWD Service Area

58 wells taken out of service for exceeding CA Response Level(s)



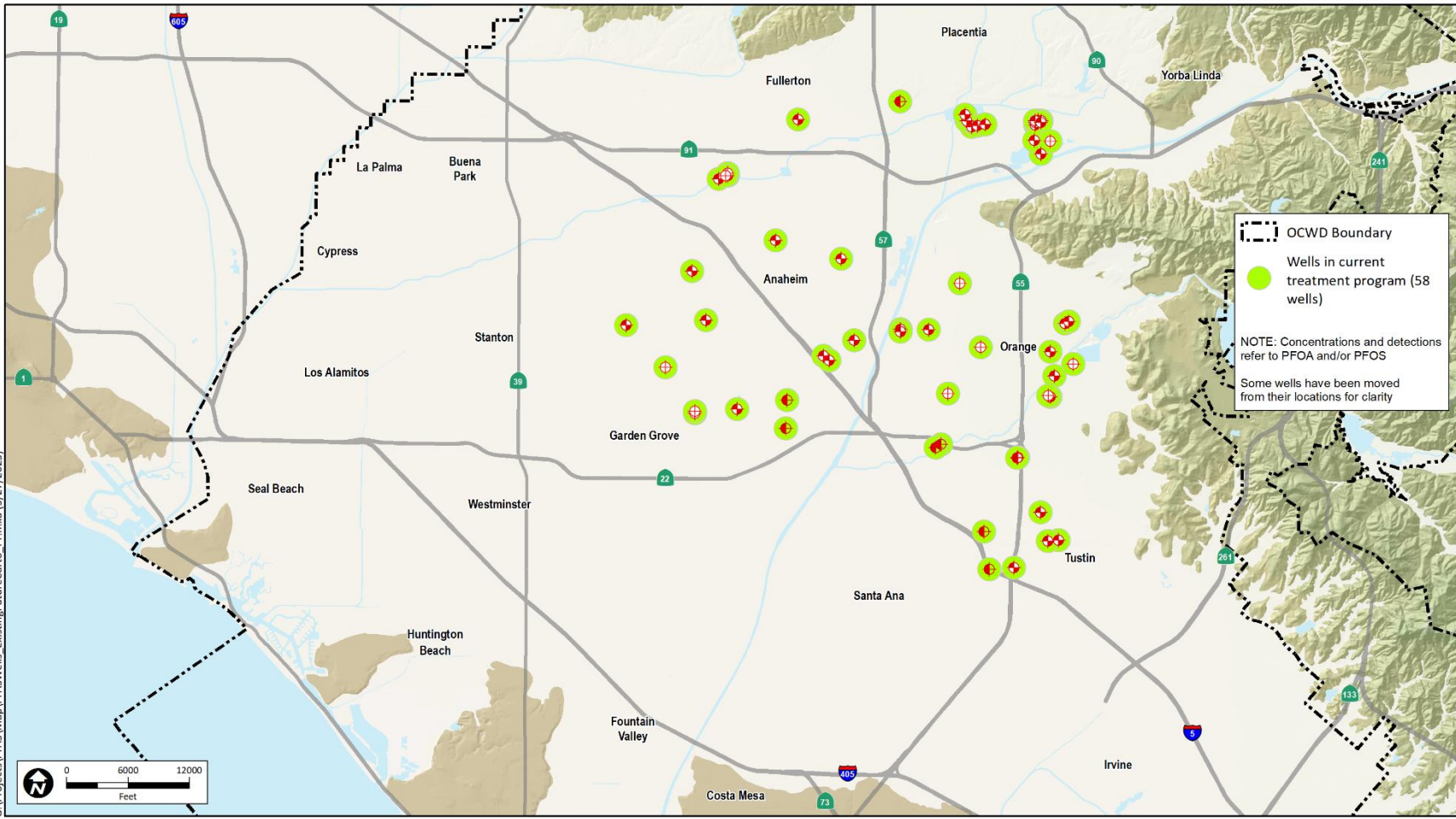
- Current capital budget = \$288 million
- Groundwater pumping temporarily ▼ / imported water use temporarily ▲

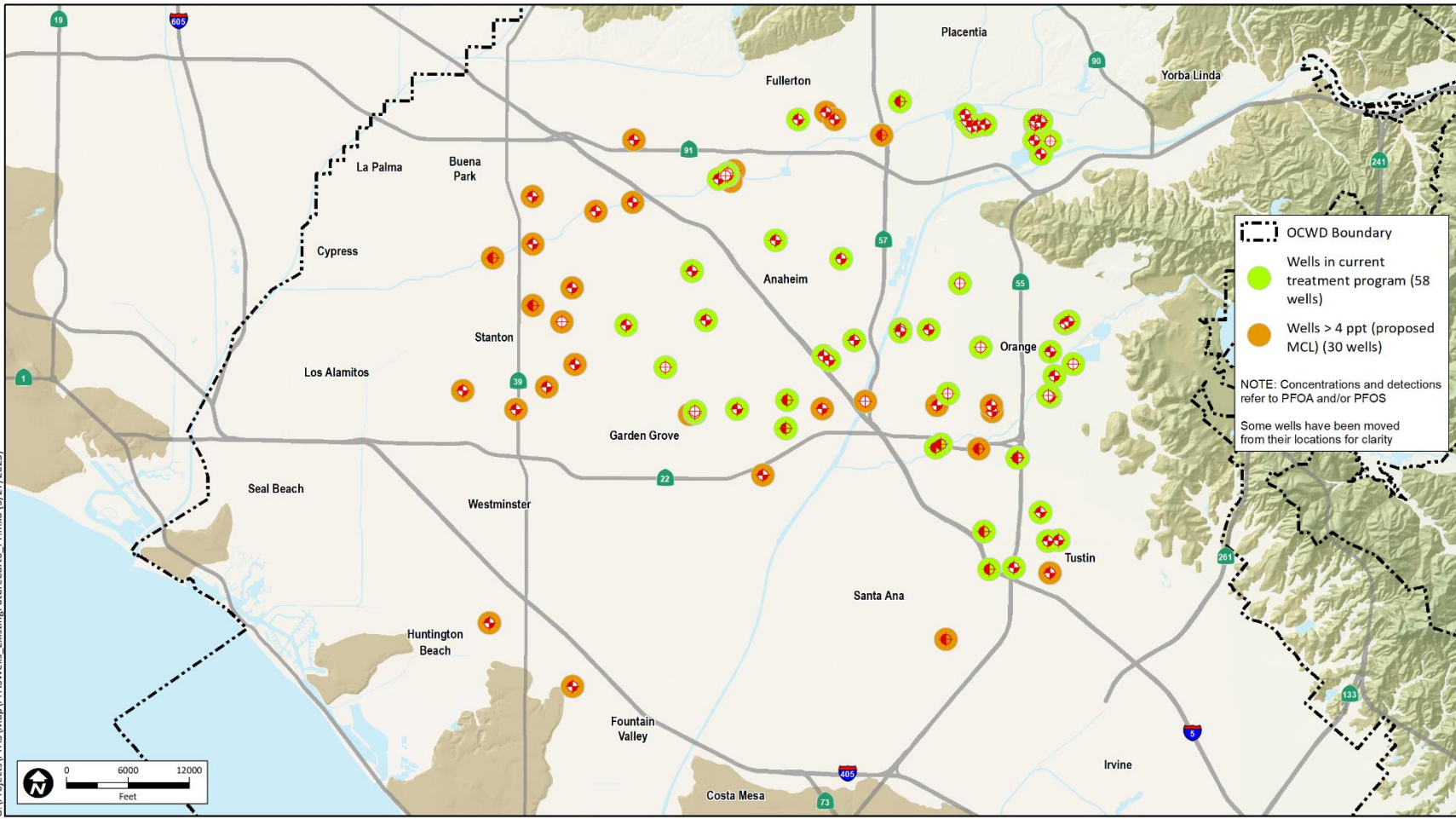
# Projected Impacts under USEPA Proposed PFAS Regulation

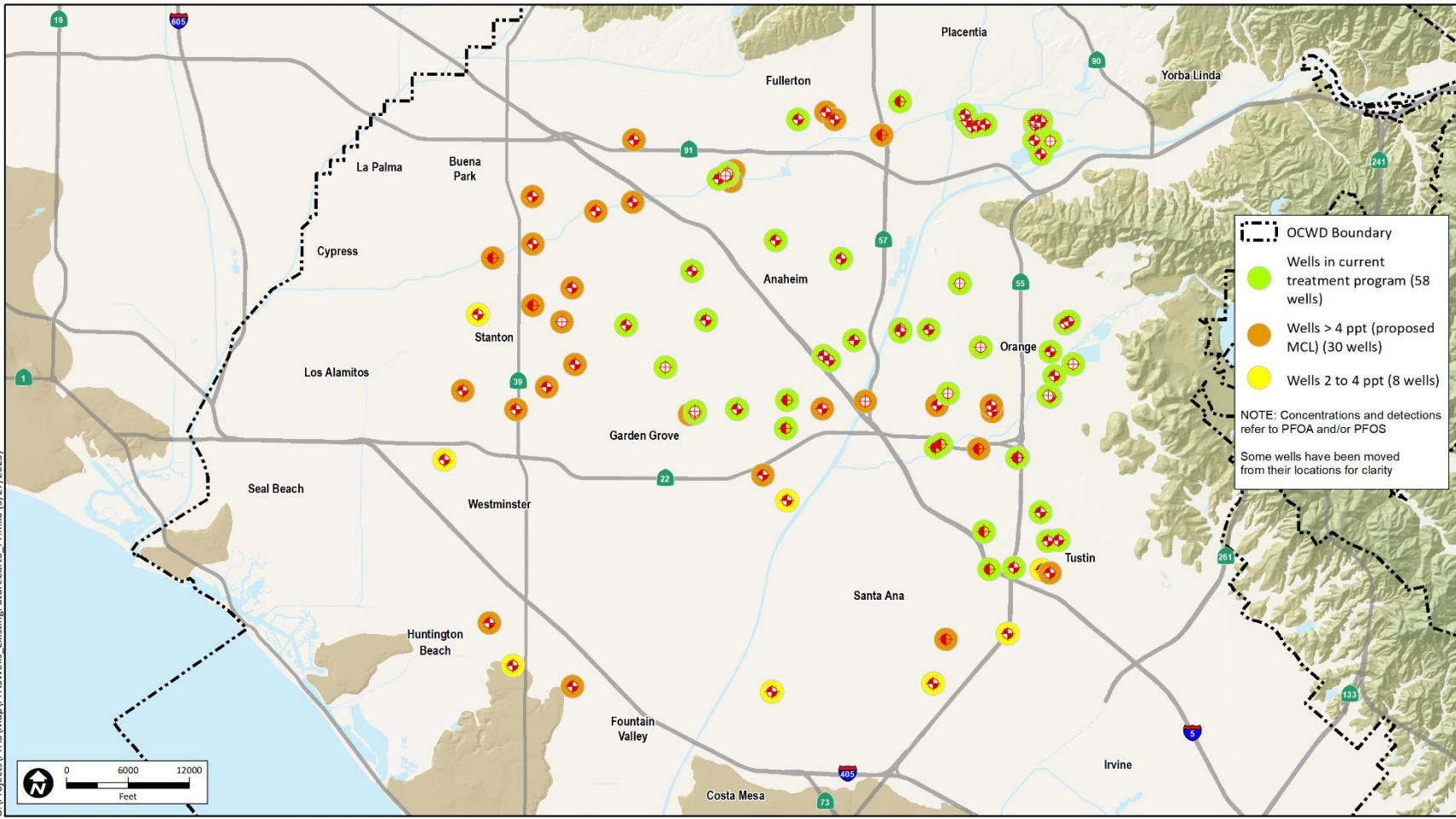


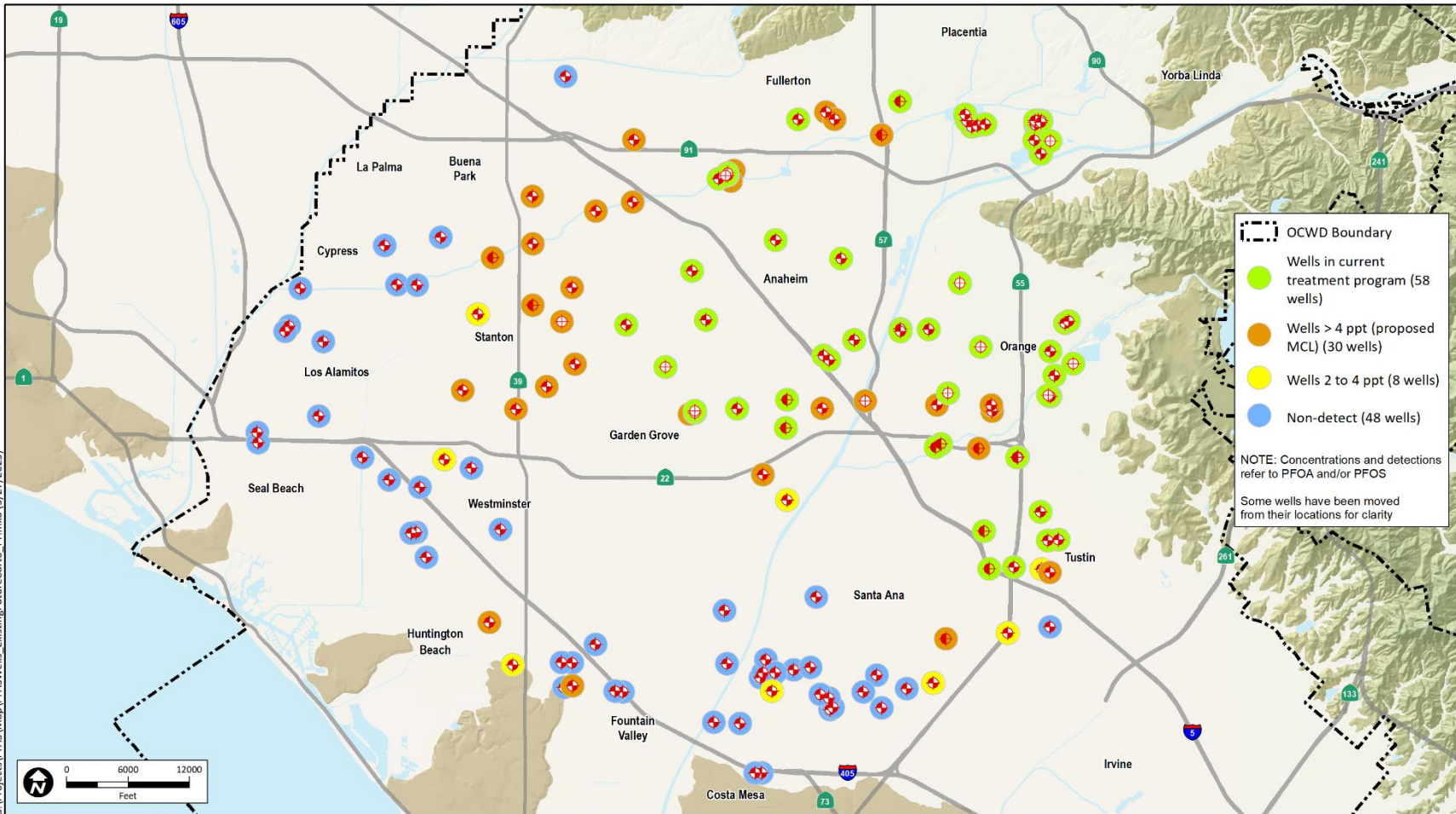
# USEPA's Proposed PFAS National Primary Drinking Water Regulation

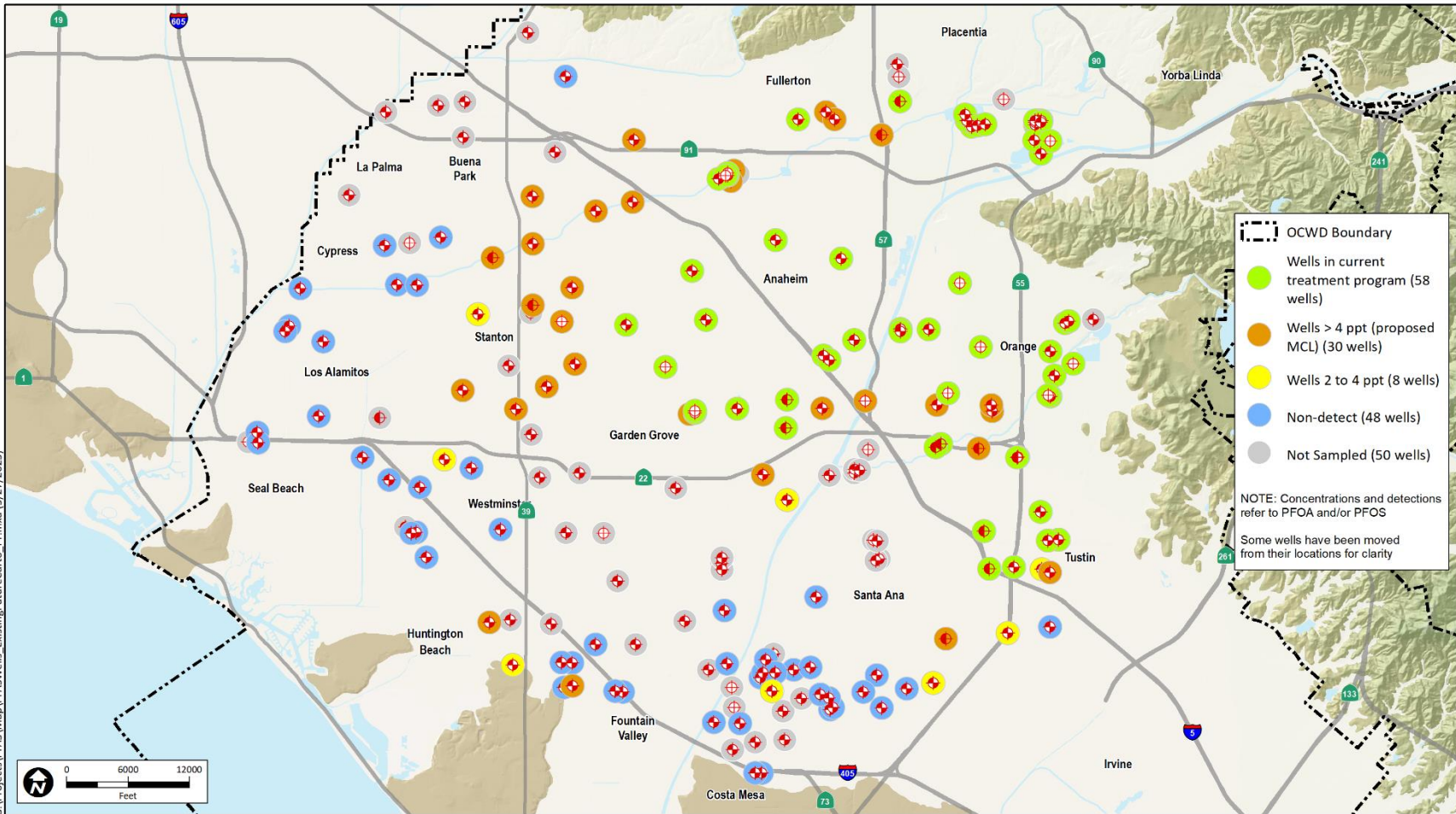
Compound	Health Effect	MCLG	MCL
PFOA	Cancer	0 ppt	4.0 ppt
PFOS	Cancer	0 ppt	4.0 ppt
PFHxS	Thyroid Effects	Hazard Index 1.0	
PFNA	Developmental Effects		
GenX	Liver Effects		
PFBS	Thyroid Effects		



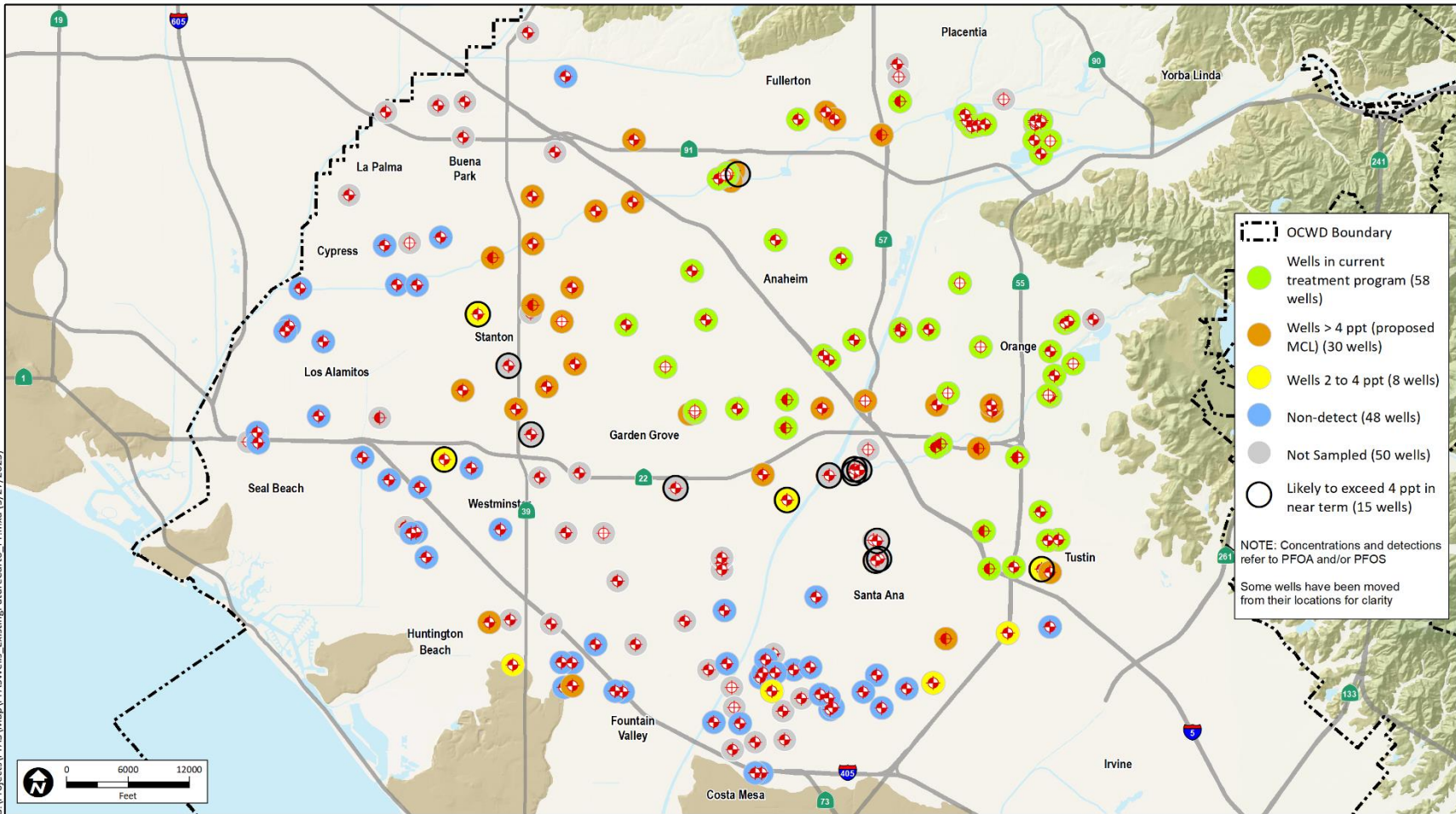












# Summary of Projected Impacts under EPA Proposed Regulations

- Based on testing results to date, 30 more wells would require treatment
- Estimate 15 additional wells likely to exceed proposed MCLs in near term
- Initial projection of 8-15% four-year annual OCWD RA rate increases to fund additional treatment under OCWD's current program with Retail/Producer agencies

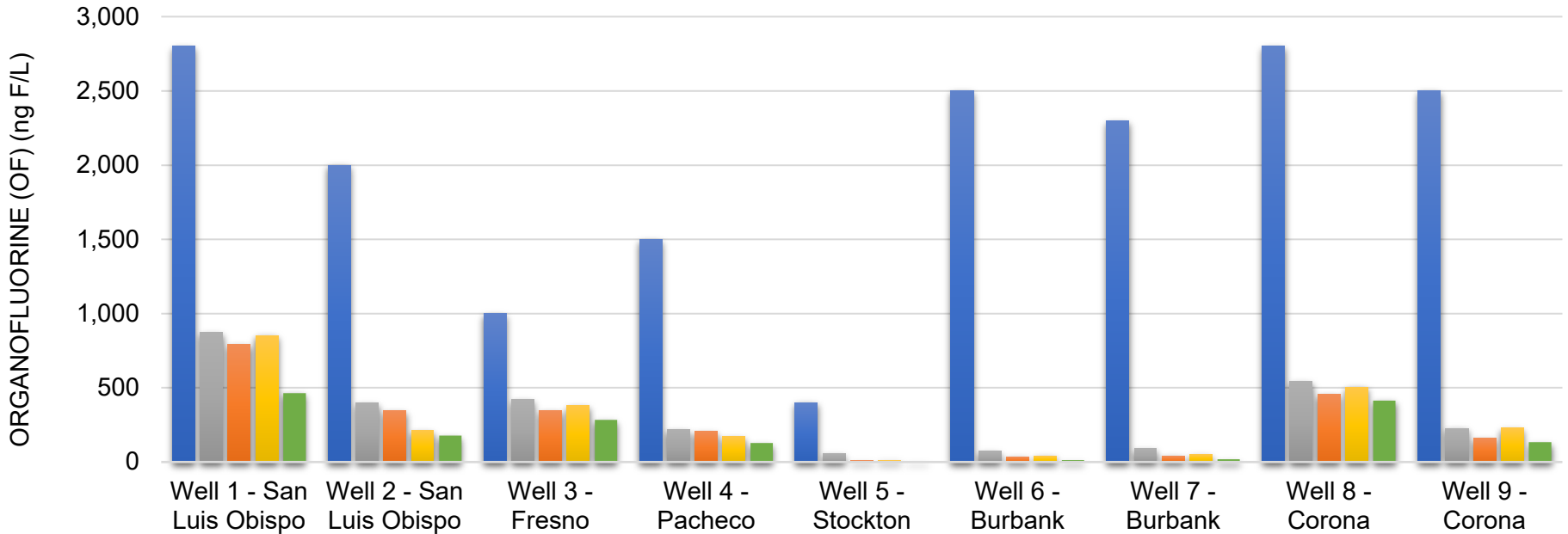
# Next Steps for OCWD

- **Public Comment on USEPA Proposed Regulation/MCLs through May 30<sup>th</sup>**
- **Testing**
  - Complete State Ordered Testing & Treatment System Monitoring
  - Complete USEPA UCMR5 testing (2023-2025)
- **Treatment Systems**
  - Complete existing phase of design & construction by 2024 (58 wells)
  - Planning for next phase for additional wells impacted by USEPA Proposed MCLs
- **Monitor State DDW future NL/RL and enforceable MCL development**
- **Continue pursuit of state and federal grants to offset treatment costs**
- **Continue cost-recovery litigation**

# Division of Drinking Water Next Steps

# There is more PFAS in our drinking water than conventional targeted approaches can report.

- Adsorbable OF (ng F/L)
- Method 533 (ng F/L) (25 analytes)
- DoD QSM (ng F/L) (38 analytes)
- Method 537.1 (ng F/L) (18 analytes)
- Total Oxidizable Precursor Assay (ng F/L) (12 analytes)



# AB-178 (Budget Act of 2022)

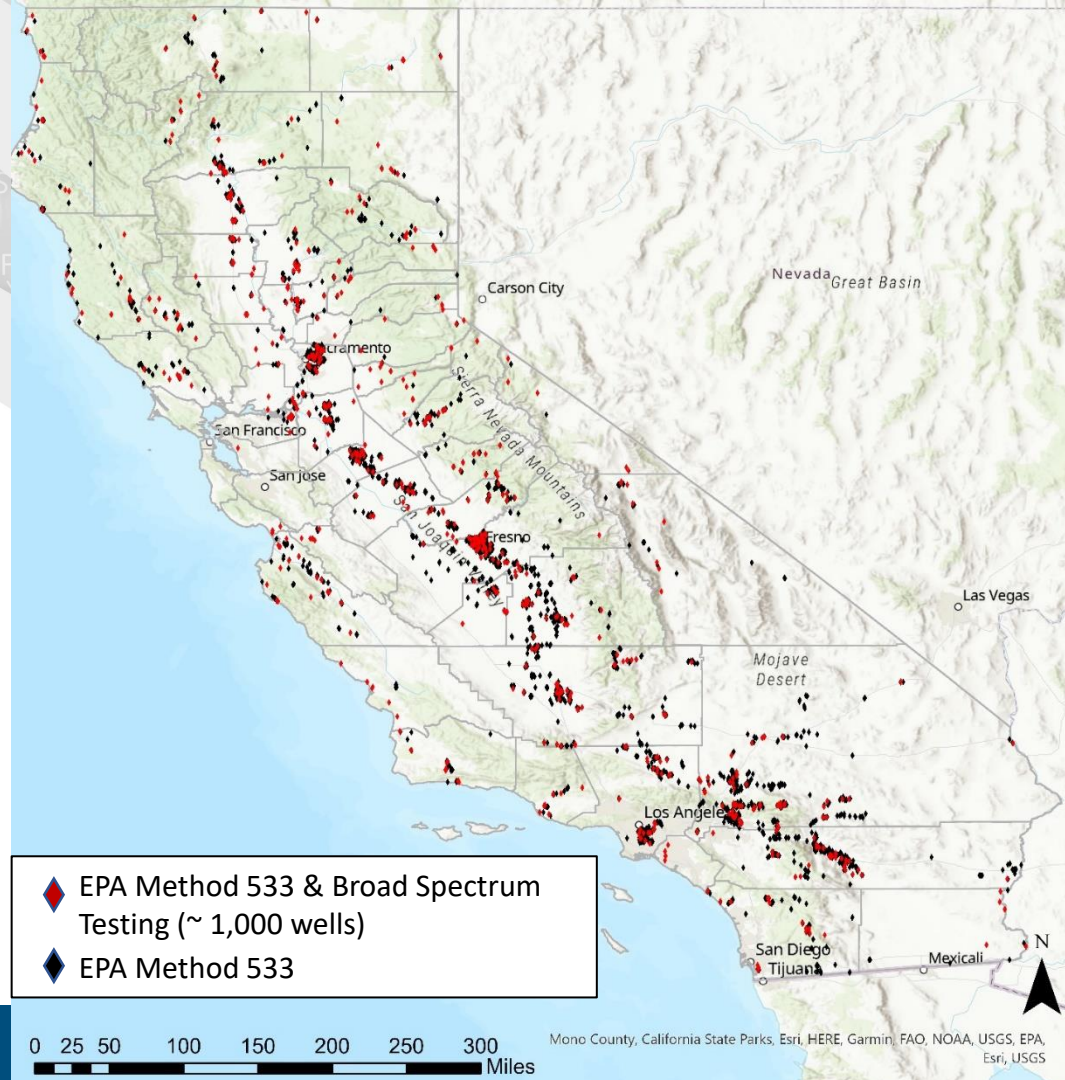
1. Develop and validate a **broad-spectrum test method** for the class of PFAS
2. Monitor all community public water systems in the state at least once, with state funding directed to accomplish **PFAS testing** of community public water systems serving disadvantaged and severally disadvantaged communities\*
3. Develop a **treatment-based regulation** for the entire class of PFAS

\*Approximately 4,000 wells in California

# AB-178 Proposed Sampling Locations

Approximately 4,000 SDAC/DAC wells total

May 2023



Mono County, California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, Esri, USGS

# Next Steps

- Continue following technical and toxicological findings related to PFAS
- Continue following the federal and statewide regulatory developments related to PFAS
- Continue to monitor the State Water Board database for PFAS detections in drinking water supply wells in our region and identify potential sources of impact for investigation
- Continue to improve inter-agency collaboration for identifying PFAS sources and transport pathways and potential impacts to our watershed
- Continue review of work plans, monitoring reports, and investigation results produced in response to the statewide and regional Investigation Orders.
- Provide another update later in 2023 on the PFAS investigation and monitoring efforts within the Santa Ana Region



# Questions/Comments

**Dan Newton, P.E.**

[Daniel.Newton@waterboards.ca.gov](mailto:Daniel.Newton@waterboards.ca.gov)

**Jason Dadakis, P.G., C.HG**

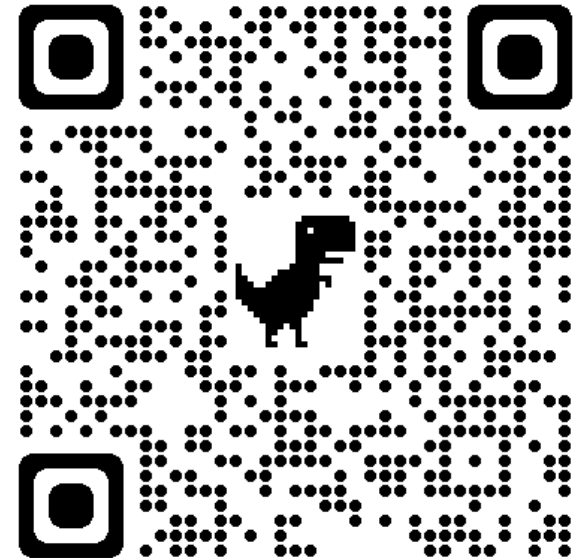
[JDadakis@ocwd.com](mailto:JDadakis@ocwd.com)

**Maile Gee, P.G.**

[Maile.Gee@waterboards.ca.gov](mailto:Maile.Gee@waterboards.ca.gov)

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**Water Boards' PFAS Website**