

# Water Quality Committee Kick-off Meeting

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OCTOBER 18, 2023





# Agenda

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1. Introductions
2. Historical water quality management under the Chino Basin Optimum Basin Management Program (OBMP)
3. Current water quality management opportunities
4. Development of an initial Emerging Contaminants Monitoring Plan
5. Objectives for a Water Quality Management Plan (WQMP) and Water Quality Committee (WQC) meetings
6. Next steps

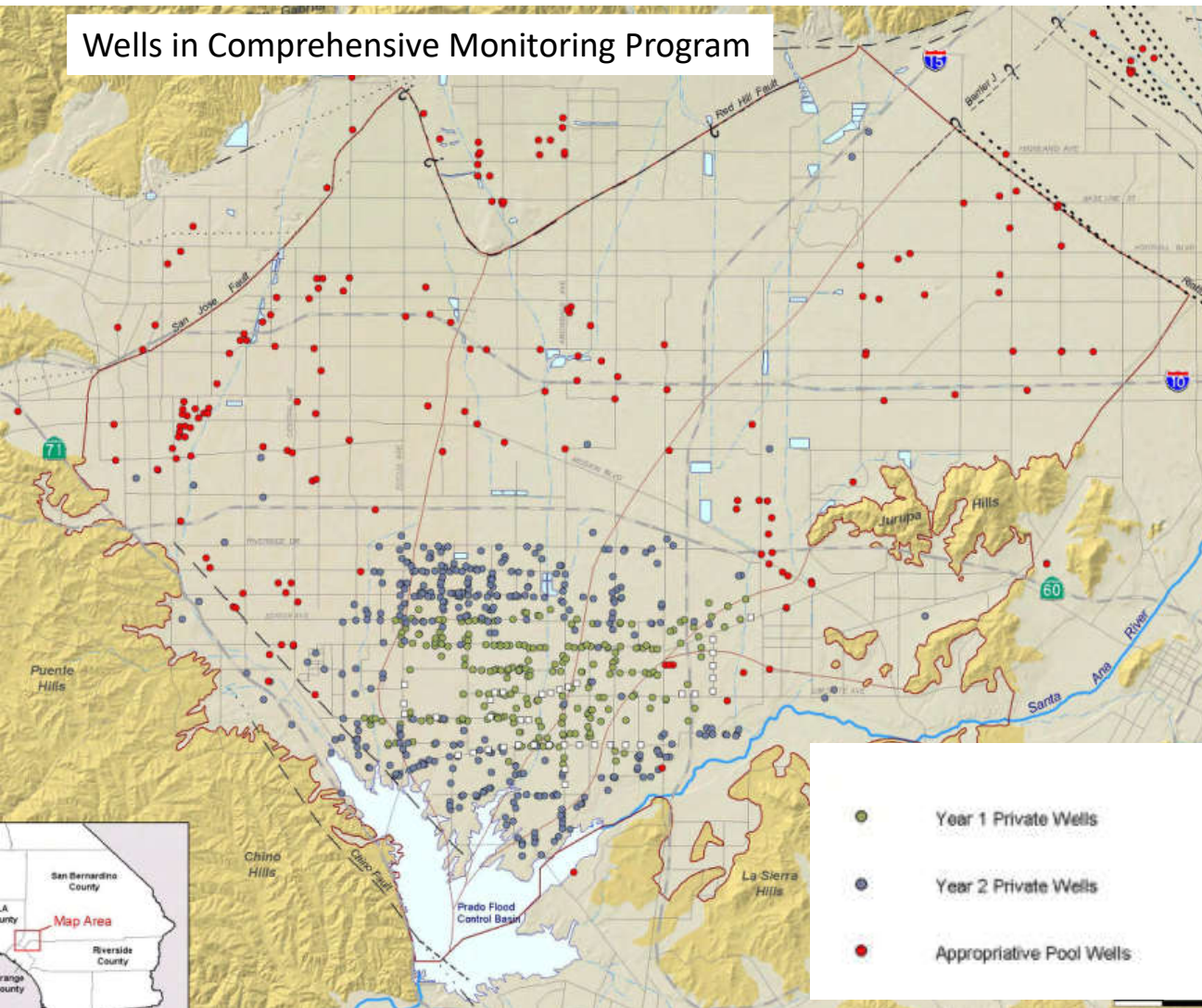


## Historical Water Quality Management under the 2000 Chino Basin OBMP

- Stakeholders established basin management goals, identified impediments to achieving goals, and necessary actions to remove impediments and achieve goals
- Goal #3: *“Protect and Enhance Water Quality”*
- Multiple Program Elements (PEs) to protect and enhance water quality



## Wells in Comprehensive Monitoring Program



## Comprehensive Basin-wide Water Quality Monitoring Program 1999-2001

- Compiling data from Appropriators and cooperators
- Sampling 602 private wells
- Established a baseline on state of groundwater quality at start of the OBMP
- Foundation of achieving PE 6 objectives

## 2000 OBMP PE 1

- Groundwater quality monitoring refined:
  - Assess trends over time for key constituents (TDS, nitrate)
  - Support the detection and delineation of water quality plumes
  - Define spatial distribution of contaminants of concern (perchlorate, hexavalent chromium, 1,2,3-TCP)
  - Collaborate with Santa Ana Water Board





## Historical Water Quality Management under the 2000 Chino Basin OBMP

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- ***PE 6—Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin Management***
- PE 6 was designed to:
  - Assess water quality trends in the basin
  - Evaluate the impact of OBMP implementation on water quality
  - Determine whether point and non-point contamination sources are being addressed by water quality regulators
  - Enable collaboration with water quality regulators to identify and facilitate the cleanup of soil and groundwater contamination



# Historical Water Quality Management Under PE 6

- 2003 **Water Quality Committee (WQC)** convened to coordinate PE 6 activities
  - Review water quality conditions in the Chino Basin
  - Develop cooperative strategies and plans to improve water quality in the basin in collaboration with the Santa Ana Water Board
- First meeting March 24, 2003

## Agenda for March 24 Meeting

1. Watermaster Monitoring of Water Quality
  - a. Existing Programs
  - b. Key Well Program
2. Assessment of Water Quality Conditions
3. Programs underway per OBMP Implementation Plan
  - a. Monitoring of Ground and Surface Water
  - b. Groundwater Model and Salt Budget Tools
4. Where do we go from [here](#)
  - a. Program Element 6 says Watermaster will:
    - i. Form an ad hoc Water Quality Committee that includes RWQCB and [others](#)
    - ii. Refine monitoring activities to support detection of water quality [anomalies](#)
    - iii. Conduct investigation to assist RWQCB for mutual [benefit](#)
    - iv. Seek funding sources from outside sources to accelerate detection and [cleanup](#)
  - b. There has been no activity in Program Element 6
  - c. Time for Watermaster to:
    - i. Review the activities described in Program Element 6
    - ii. Refine as [necessary](#)
    - iii. Implement
5. Develop List of Action Items and Responsibilities





# Historical Water Quality Management Under PE 6

## ■ WQC Scope of Work - September 2003:

1. Locate the leading edge of the total dissolved solids/total organic carbon/volatile organic chemicals (TDS/TOC/VOC) plume created by Kaiser Steel.
2. Identify the potential sources of perchlorate throughout the basin.
3. Identify the source(s) of the VOC anomaly located south of the Ontario Airport and north of the Chino-1 Desalter.
4. Identify source(s) of the Chino Airport VOC plume. The Regional Board has identified a PRP and a groundwater investigation to better characterize the plume prior to mitigation is already underway. Watermaster is tracking the progress of this investigation.

## NOTICE OF MEETING & AGENDA WATER QUALITY COMMITTEE

3:00 p.m. – September 24, 2003

AT

Chino Basin Watermaster  
9641 San Bernardino Road  
Rancho Cucamonga, CA 91730

*Please be advised that Joe Scalmanini, technical advisor to the Special Referee, will be in attendance at the Water Quality Committee meeting on September 24, 2003*

### AGENDA

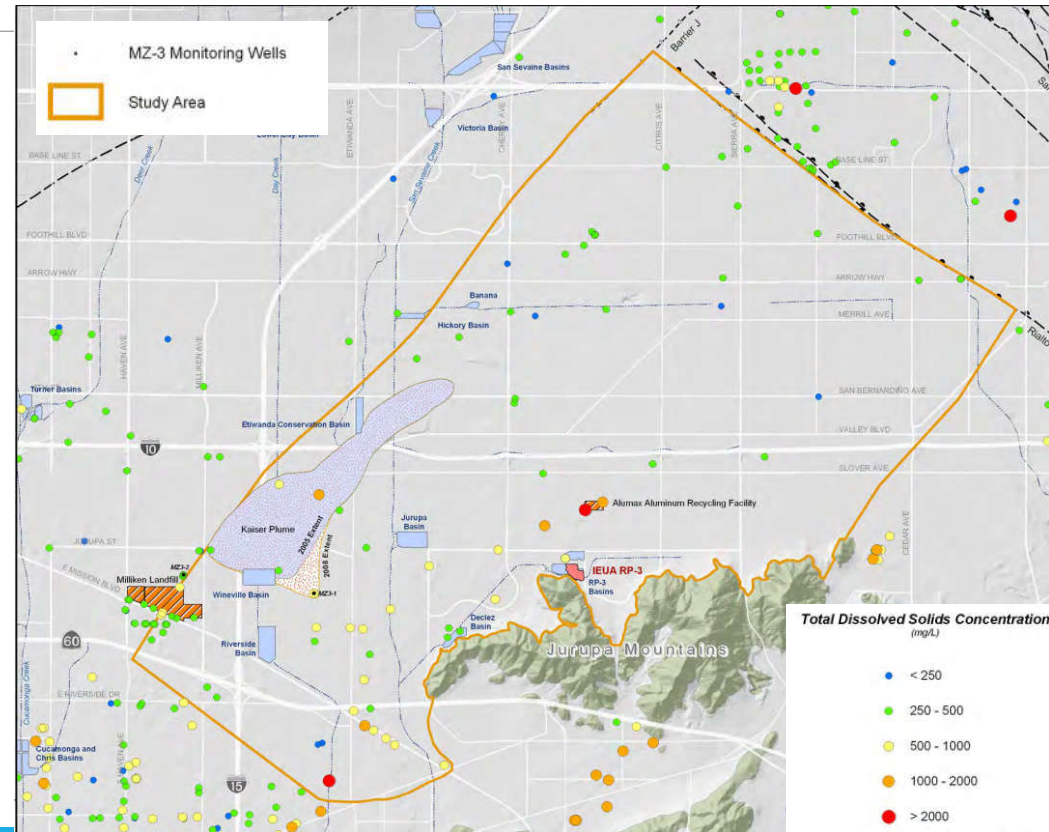
1. Review Meeting Notes from July 21, 2003 Meeting
2. Overview of Current Activities and Proposed Scope of Work
  - a. Kaiser Plume
    - Rehabilitation of Kaiser Monitoring Wells
    - Chemical Signature of Kaiser Plume and Potential Impacts to JCSD Wells
  - b. Perchlorate in Chino Basin
    - Assessing potential for introduction of perchlorate to Chino Basin via imported Colorado River water and wastewater percolated prior to 1975.
    - Backwards particle tracking modeling of perchlorate.
    - Performing an Environmental Records Search.
    - Working with the Regional Water Quality Control Board in identifying PRPs.
  - c. VOC Plume at Chino Airport - Update
  - d. VOC Plume South of the Ontario Airport
    - Backwards particle tracking modeling of VOC plume.
    - Performing an Environmental Records Search.
    - Working with the Regional Water Quality Control Board in identifying PRPs.
  - e. Implementation Schedule
3. Review Perchlorate Task Force Letter of Intent with Department of Defense
4. Review Action Items
5. Schedule Next Meeting



# Historical Water Quality Management Under PE 6

## ■ Kaiser Plume Investigation

- Characterization of groundwater contamination in OBMP management zone 3 (MZ-3), tributary to multiple municipal well fields, near the former Kaiser Steel Mill and Alumax facilities (TDS/TOC/perchlorate).
- Installed two multi-nested monitoring wells
- Delineated the Kaiser TDS Plume
- Developed a long-term monitoring program
- Obtained \$250 thousand in grant funds from DWR for investigation
- Chino Basin MZ-3 Monitoring Program Final Report



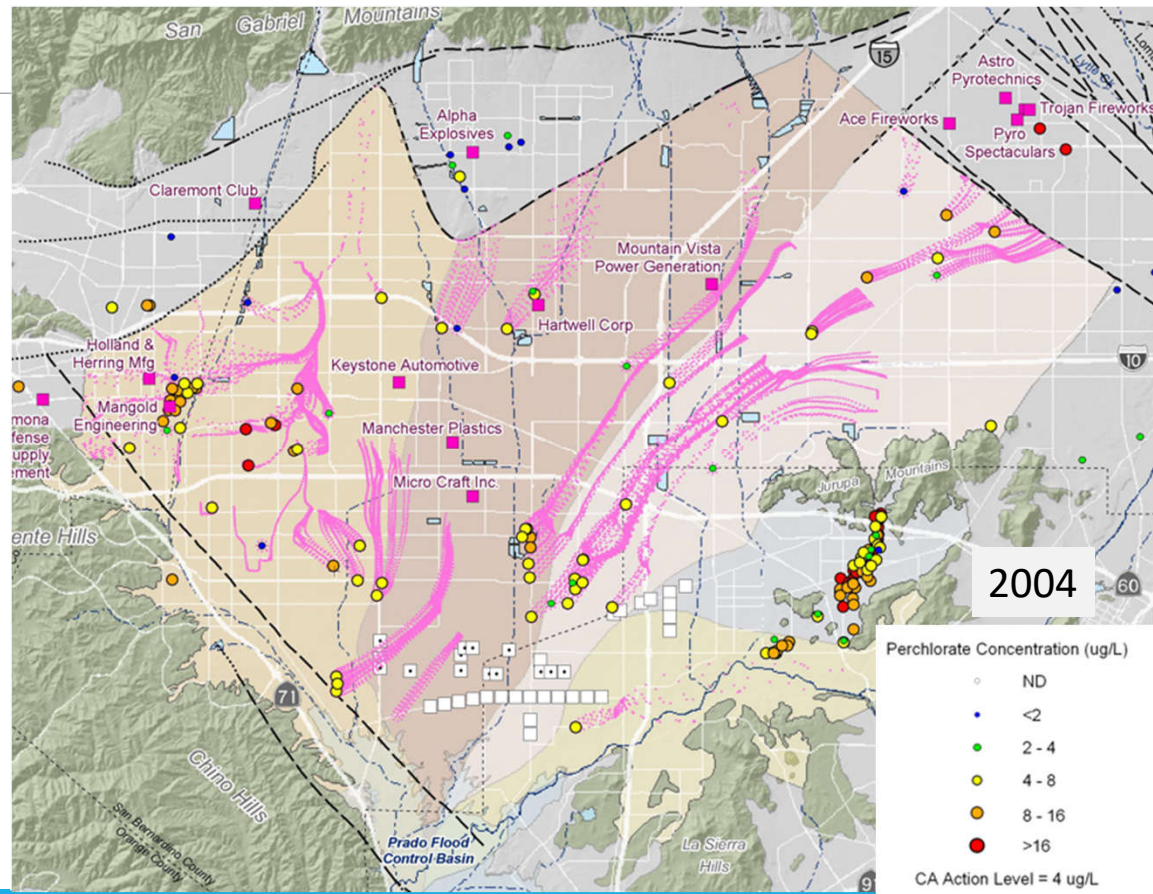




# Historical Water Quality Management Under PE 6

## ■ Perchlorate in Chino Basin

- Studies to identify sources and assist the Santa Ana Water Board with identifying PRPs
  - Environmental Records Search
  - Backwards particle tracking
  - Help narrow down sites that are PRPs, additional records and air photo review
- Monitoring in wells, surface water, and imported water
- Perchlorate isotope study - natural or anthropogenic source
- Tracking investigations in the Rialto-Colton basins where there were known PRPs

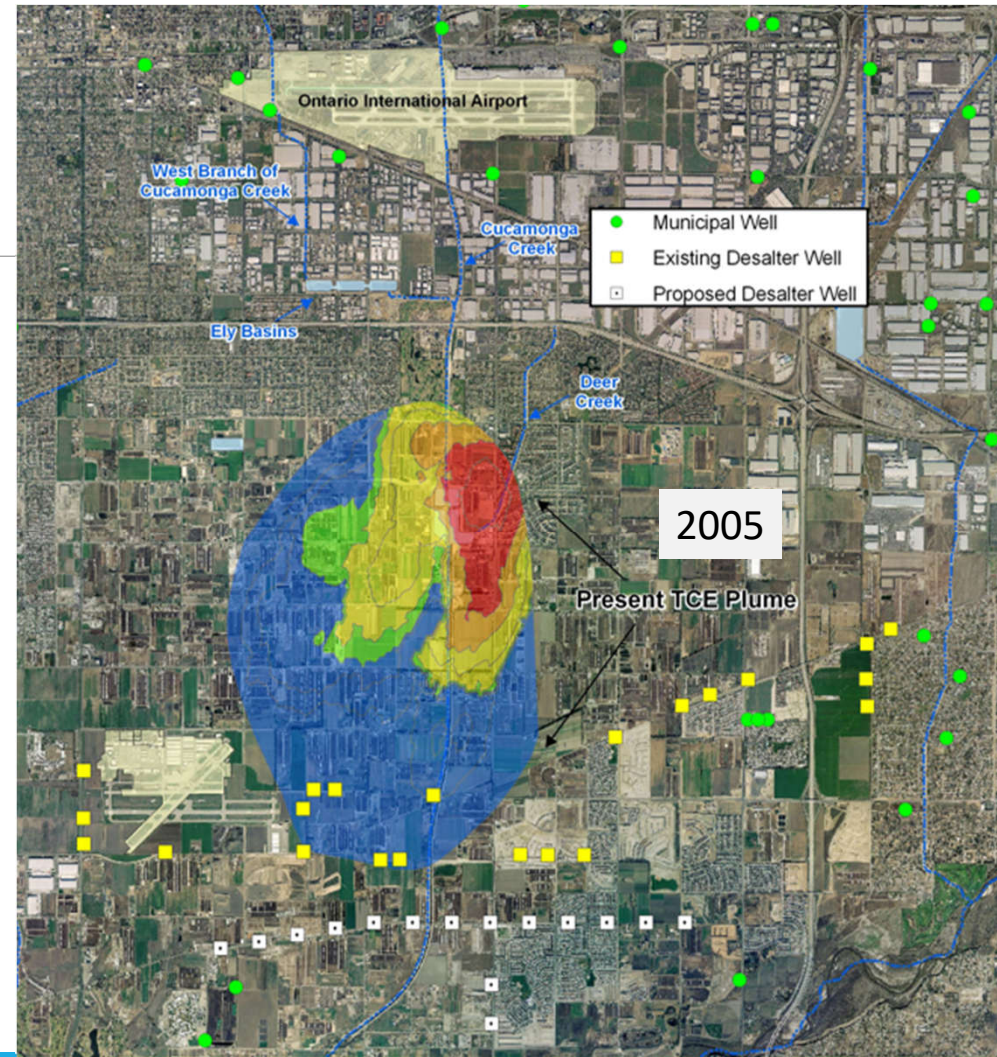




# Historical Water Quality Management Under PE 6

## ■ South Archibald Plume

- Tracking investigations and actions to define the source and responsible party of TCE plume
- Working with Santa Ana Water Board to identify PRP(s)
  - Performing Environmental Records Search
  - Historical air photo review
  - Monitoring and delineation of plume extent
- Modeling analyses:
  - Backwards particle tracking for source consideration
  - Potential remediation (pump/treat/inject) - included reconnaissance-level cost estimate analysis
- Eventually final PRPs identified



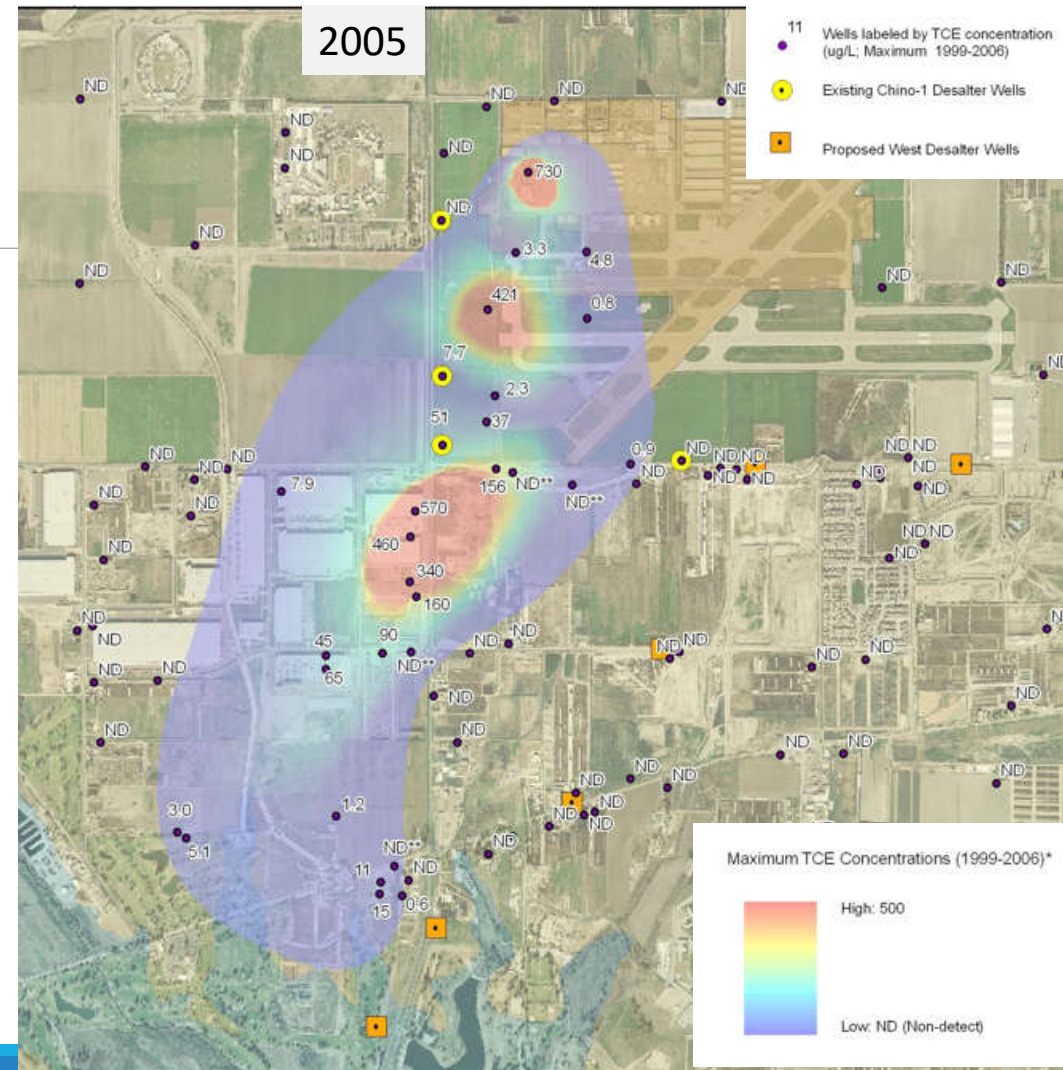




# Historical Water Quality Management Under PE 6

## ■ Chino Airport Plume

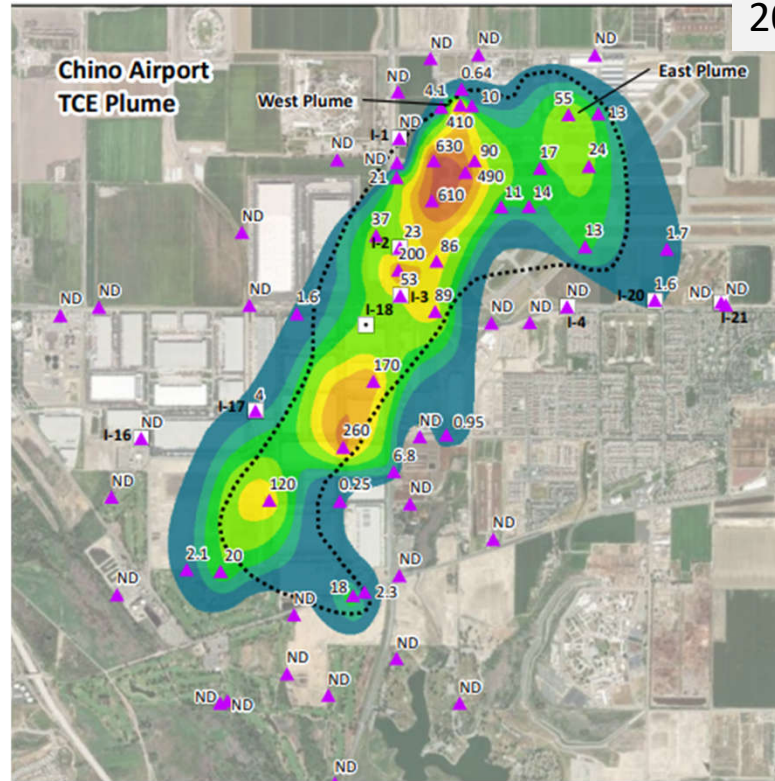
- Tracking investigation and actions to define the source, extent, and remediation of TCE plume. Primary Responsible Party (PRP) was identified.
- Using/sharing data collected through Watermaster monitoring program to help delineate the plume, and support the source was from the Chino Airport (not OIA or CIM)
  - PRP had not delineated the plume offsite.
  - PRP indicated potential connection to OIA and CIM plumes
- Identified that the proposed Chino Desalter wells could mitigate the plume (modeling performed)



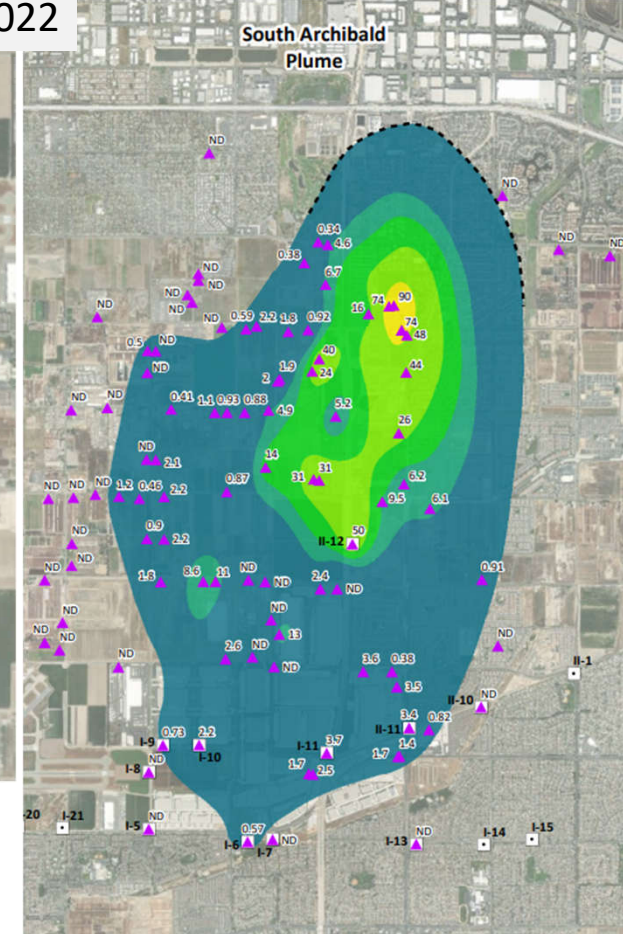
# Historical Water Quality Management Under PE 6

- WQC's investigations contributed to the definitive identification of responsible parties and the issuance of cleanup and abatement orders by the Santa Ana Water Board for Chino Airport and South Archibald plumes.

- Recently, the PRPs for the Chino Airport and South Archibald plumes have each initiated remedial strategies that use the Chino Basin Desalters, expanding the use of this water quality treatment program for multiple benefits and cost sharing for involved parties.



2022





# Historical Water Quality Management Under PE 6

*Excerpt from Optimum Basin Management Program Phase I Report – PE 6*

## **Cooperative Efforts with the Regional Water Quality Control Board**

Watermaster does not have sufficient information to determine whether point and non-point sources of groundwater contamination are being adequately addressed. Watermaster's past monitoring efforts have been largely confined to mineral constituents in the southern half of the Basin and to available monitoring data supplied by municipal and industrial producers. The Regional Water Quality Control Board (Regional Board) has limited resources to detect, monitor and cause the clean up of point and non-point water quality problems in the Chino Basin. The Regional Board commits its resources to enforce remedial actions when it has identified a potential responsible party. The Regional Board does not take action when the sources are not easily identified or when the sources are diffuse, such as non-point sources. Notable examples include the mercury problem in the east Ontario area and some solvent plumes in the lower Chino Basin. It is not a question of Regional Board willingness to in this area; it is the allocation of limited RWQCB resources. Watermaster can improve water quality management in the Basin by committing resources to:

- identify water quality anomalies through monitoring;
- assist the Regional Board in determining sources of the water quality anomalies;
- establish priorities for clean-up jointly with RWQCB; and
- remove organic contaminants through its regional groundwater treatment projects in the southern half of the Basin.

The last bulleted item requires some explanation. The well field for SAWPA desalter will eventually intercept a solvent plume of unknown origin that is emanating from the Chino airport area. There is a second solvent plume northeast of the Chino airport area that could be intercepted by the current desalter or another future desalter. This will require additional treatment for the water produced by the desalter. The desalter project can be used to clean up these plumes at some additional cost. The cost of cleaning up the solvent plumes at the desalters will be less than the cost of a dedicated solvent removal system. The additional cost should be paid for by the entity responsible for the solvent discharge. A similar process was used by the Regional Board and Kaiser Steel Corporation to mitigate a TDS plume in the north half of the Chino Basin.

- The potential to use the Chino Basin Desalters to support cleanup of additional contaminants was first recognized as a management strategy in the 2000 OBMP.
- Due in part to the coordinated efforts of the WQC, grant funding was secured for water quality implementation actions of the 2000 OBMP.
  - \$85 million in grant funds for the Chino Basin Desalter expansion project that is being used for portions of the remediation of the plumes





# Historical Water Quality Management Under PE 6

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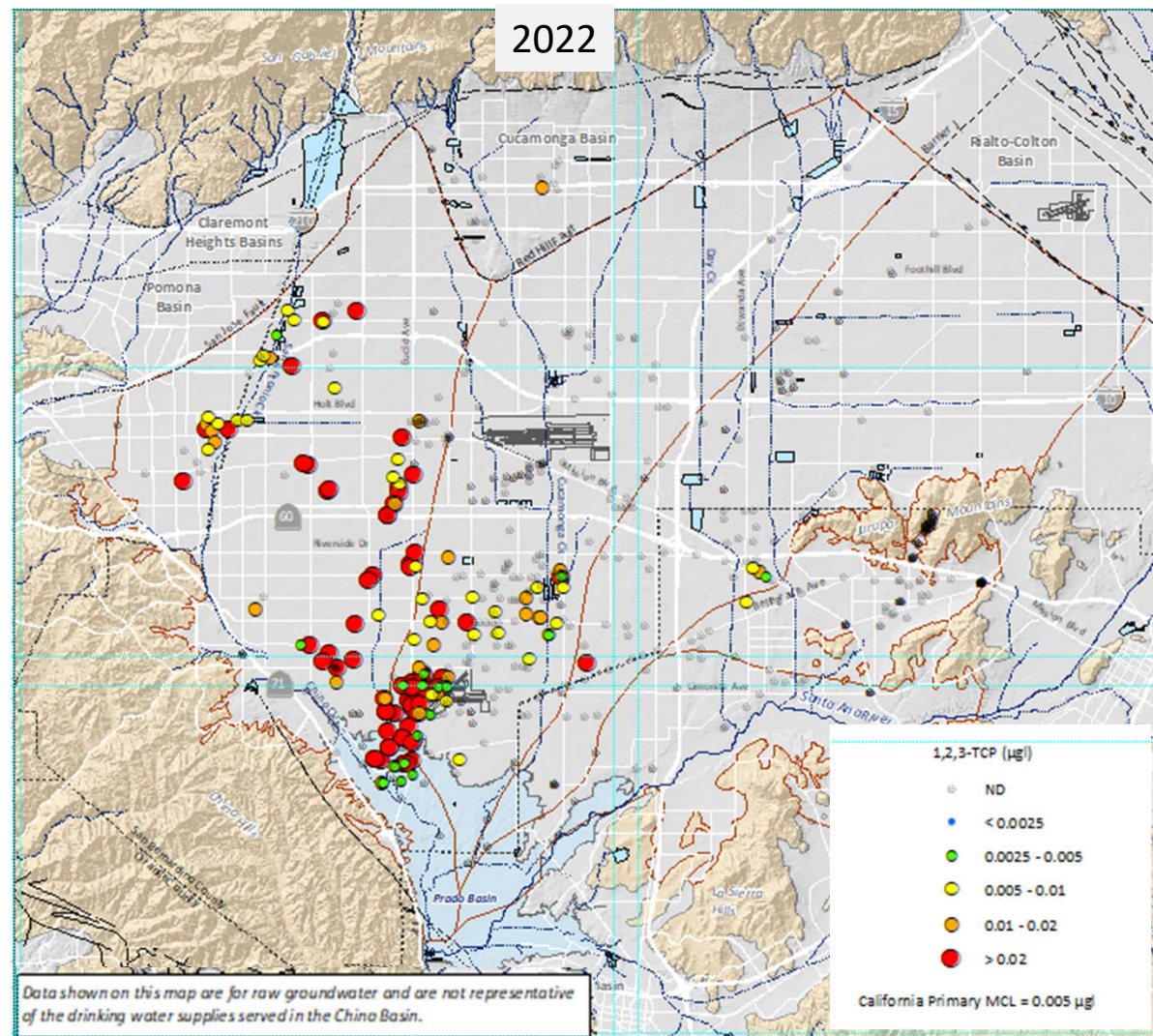
After the WQC discontinued its meetings in 2010, Watermaster continued to assist the Regional Board with the investigation and regulation of point-source contaminant sites, and perform monitoring and analysis for contaminants related to point-source and non-point source contamination, as needed. The ongoing water quality monitoring and analysis:

- Conducting annual water quality sampling at key monitoring wells and private wells
- Preparing annual or semiannual status reports on the monitoring and remediation of point-source contaminant sites
- Preparing updated delineations of the spatial extent of the contaminant plumes every two years
- Reporting on water quality trends and findings in the OBMP State of the Basin Reports, which are prepared and submitted to the Court every two years



# Water Quality Management Opportunities

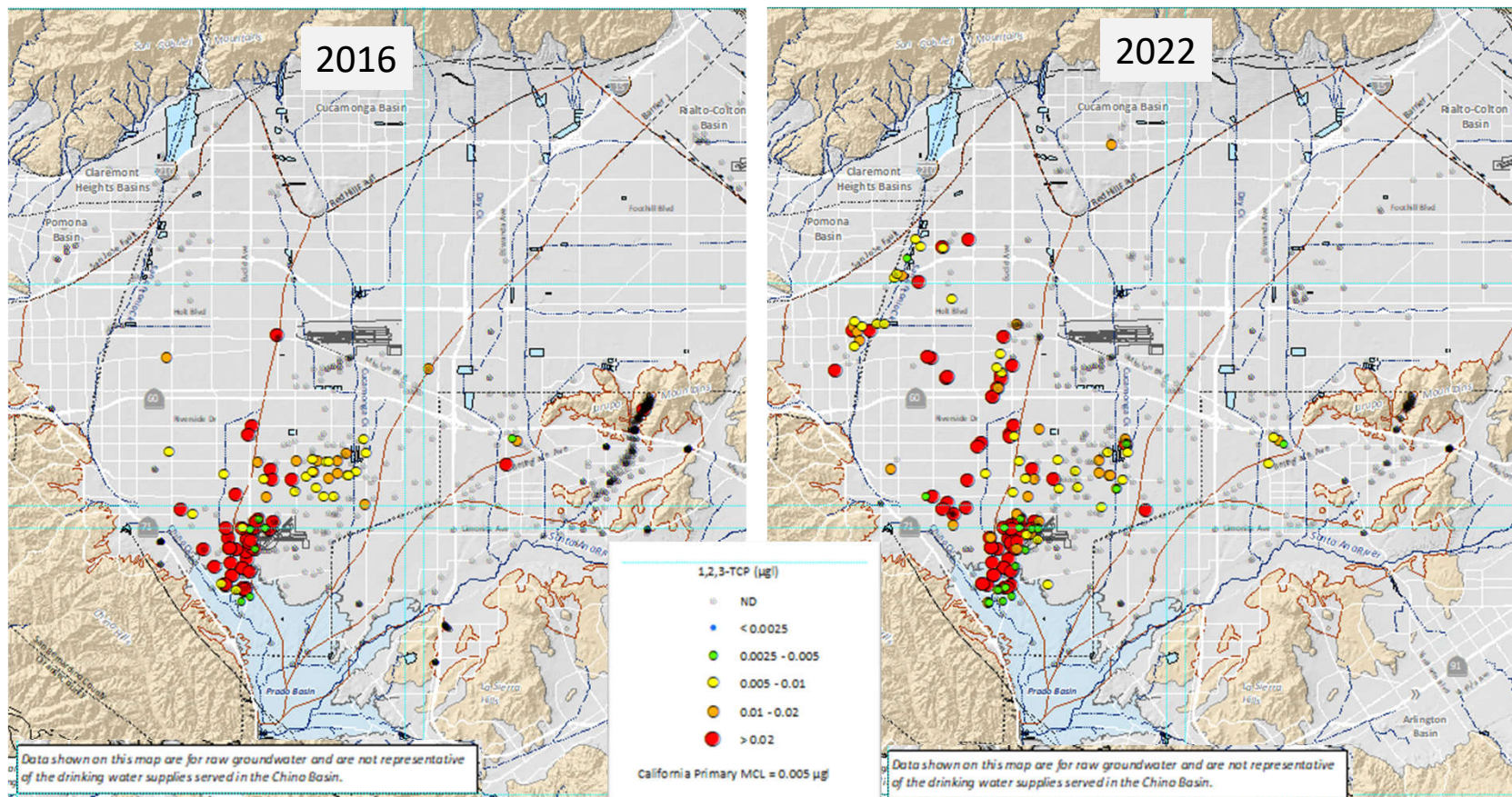
- Contaminants in groundwater that can limit its direct use for drinking water supply if treatment is not implemented.
- Since the 2000 OBMP, the State Water Resources Control Board Division of Drinking Water (DDW) has adopted three new Primary Maximum Contaminant Levels (MCLs) for drinking water:
  - Perchlorate
  - Hexavalent chromium
  - 1,2,3-Trichloropropane (1,2,3-TCP)





# Water Quality Management Opportunities

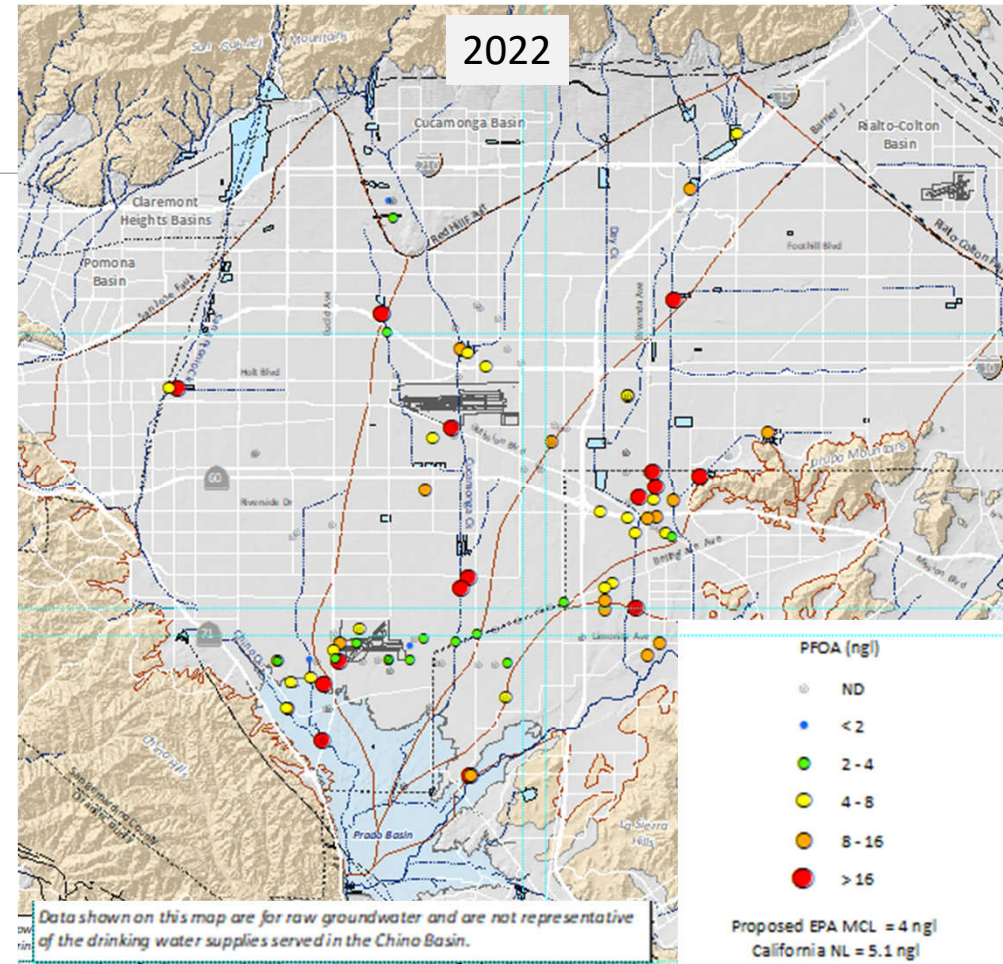
- Prior to the adoption of the MCL for 1,2,3-TCP, monitoring for the presence of 1,2,3-TCP in groundwater was limited in the Chino Basin.
- Some agencies were not prepared to quickly comply





# Water Quality Management Opportunities

- The DDW and the federal Environmental Protection Agency (EPA) continue to monitor and evaluate other emerging contaminants of concern in drinking water and determine if MCLs are needed.
  - New contaminants discovered
  - The ability to detect them improves
- Per-and Polyfluoroalkyl Substances (PFAS) - both DDW and EPA are developing MCLs (upcoming)
- It should be expected that water-quality regulations will continue to be more restrictive
- Important to understand and be prepared for what is coming



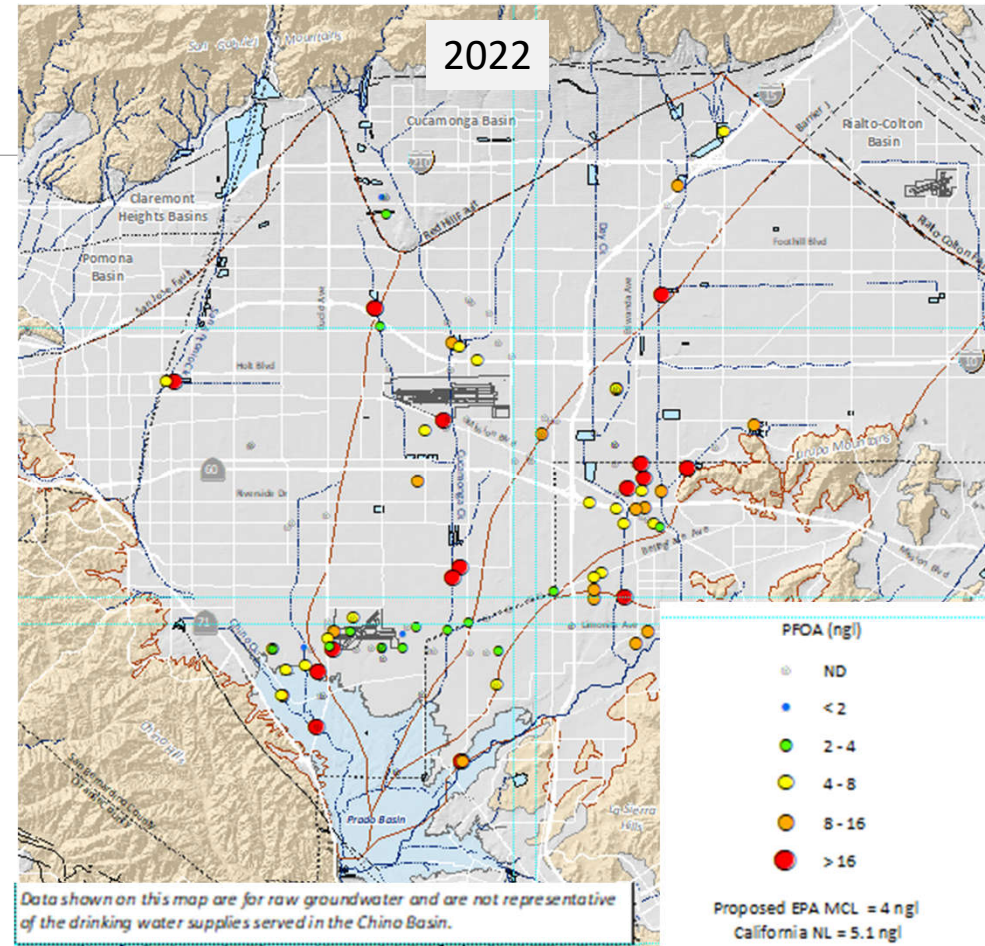




# Water Quality Management Opportunities

## Response to New or increased MCLs

- Ability to put groundwater to beneficial use is constrained - affected agencies must determine how to adjust pumping operation to comply (treatment/shut down wells)
- There may be multiple impacted water supply agencies in the Chino Basin that are simultaneously facing these decisions and issues; could be additive impact in the inability to pump groundwater rights, and alter where groundwater is pumped
- Such changes in the parties' pumping in response to drinking water regulations can impact other important basin Chino Basin management issues (i.e. the Safe Yield, maintenance of hydraulic control)





# Water Quality Management Opportunities

- Water Quality is not a standalone basin management issue and is connected to all other Watermaster basin management activities
- How agencies respond to water quality challenges, individually or collectively, can impact these management activities

Safe Yield

Recharge Master Plan

Storage Management Plan

Storage and Recovery Master Plan

Maximum Benefit Salt and Nutrient Management Plan

Subsidence Management Plan



## Water Quality Management Challenges and Opportunities - **Water Quality Management Plan (WQMP)**

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- 2020 OBMP Update (2020 OBMPU):
  - Stakeholders determined that goals from 2000 OBMP were still relevant
  - Stakeholders defined updated management activities to achieve the OBMP goals
- 2020 OBMPU – Two management activities defined to address groundwater quality:
  - “Develop and implement a water-quality management plan to address current and future water-quality issues and protect beneficial uses”
  - “Develop strategic regulatory-compliance solutions that achieve multiple benefits in managing water quality”



**Development of a Water Quality Management Plan (WQMP)** - address emerging contaminants of concern to better prepare the parties for addressing compliance with new drinking water regulations, individually or collaboratively.





# WQMP concept envisioned in the 2020 OBMPU:



PERFORM EXPANDED MONITORING FOR EMERGING CONSTITUENTS AND CURRENT WATER-QUALITY ASSESSMENT -



IDENTIFY POTENTIAL ALTERNATIVE PROJECTS FOR WATER QUALITY IMPROVEMENTS



DEVELOP RECONNAISSANCE-LEVEL ENGINEERING EVALUATIONS FOR DESIGN AND OPERATION OF POTENTIAL PROJECTS



SELECT PROJECT(S) FOR IMPLEMENTATION AND PREPARE AN IMPLEMENTATION PLAN



PREPARE A FINAL WQMP





# WQMP concept envisioned now:

Some Parties expressed that scope of the WQMP was complex, the duration long, and likely does not necessarily need to include reconnaissance-level engineering design and operating plan evaluations for projects, nor the selection of projects to be effective → Ultimately, the scope and depth of the plan should be defined by the parties through WQC





WQMP concept envisioned now:

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YES!



## WQMP concept can be reimagined to provide the parties with a strategic framework for reconvening the WQC to address some or all of the following:



Informing stakeholders on the available data and information on water quality



Regularly educating and sharing information on potential future water quality regulations



Systematically assessing emerging contaminants being considered for regulation and performing monitoring to characterize contaminant occurrence



Tracking available grant funding and loan opportunities



Discussing/assessing potential impacts of operational/management responses to water quality regulations on other Watermaster management efforts



Identifying opportunities for multi-agency and/or multi-benefit projects



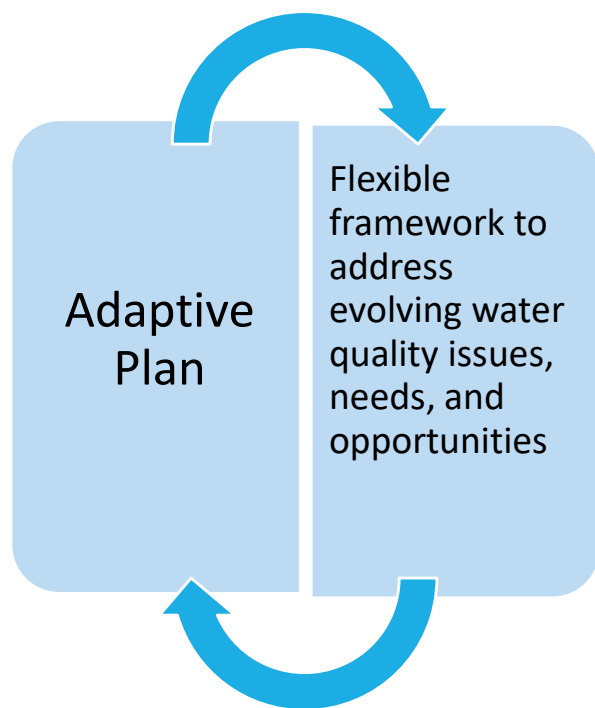
Conducting other activities of interest to the stakeholders.



Establishing annual scope of work and budgets for WQC activities



## Vision for WQMP



Based on past success, reconvening the WQC is the ideal approach to guide the development and implementation of the WQMP:

- WQC should be comprised of representatives from interested parties and stakeholders that can guide the development and implementation of a WQMP and make recommendations to the Pools, Advisory Committee, and Board.
- Ultimately the WQMP will serve as framework for ongoing activities and meetings of the WQC



Regional collaboration & planning through WQC increases the ability and success in obtaining grant funds or low-interest loans for conducting investigations and/or for the design/construction of treatment or multi-benefit projects



## Right Sized Approach for a WQMP

### WQMP (Simple)

- Periodic WQC meetings (2x per year)
- Annually assess for emerging contaminant monitoring – potential for monitoring if determined needed
- Scope of WQMP visited annually

### WQMP (Complex)

- Quarterly WQC meetings
- Conducting annual emerging contaminant monitoring and assessment
- System to tracking emerging contaminants and upcoming regulations
- System to tracking grant funding opportunities
- Structure to identifying opportunities for multi-benefit, collaborative projects

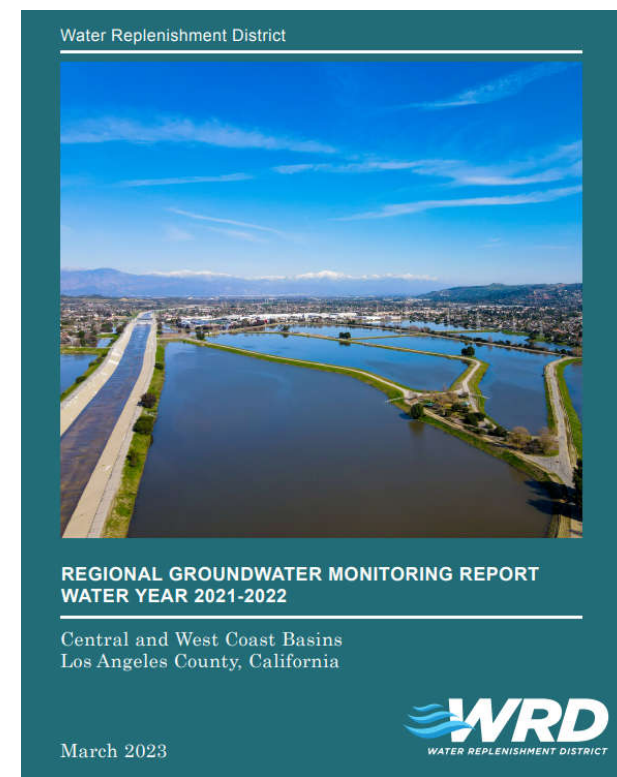




# Example of a Regional Water Quality Management Program Water Replenishment District (WRD)

## WRD Groundwater Quality Program:

- Ongoing effort to address water quality issues that affect WRD projects and pumpers in the Central and West Coast Basins (LA County)
- Sampling program to identify and track CECs. Data made available for use by various stakeholders including pumpers and regulatory agencies
- Monitors and evaluates impacts of proposed, pending, and recently enacted drinking water regulations – wells and recharge waters
- Annual workshop to provide information on the latest water quality regulations and other topics of interest to the water purveyors
- Groundwater Contamination Prevention Program – aims to minimize/eliminate threats to groundwater contamination





# Example of a Regional Water Quality Management Program Water Replenishment District (WRD)

## WRD Groundwater Quality Program Projects:

- Perchlorate cleanup project received \$15.6 million in State Prop 1 Grant funds
- Well deconstruction program to reduce contaminant migration received \$844,000 in State Prop 1 Grant funds
- PFAS Remediation Program – Grant program for funding PFAS treatment. Funds allocated through WRD appropriated grant funds (\$66) or assisting water purveyors to apply for grants for PFAS remediation

**WRD**  
WATER REPLENISHMENT DISTRICT

**PFAS  
REMEDIATION  
PROGRAM**

*A grant program for water purveyors in the Central Basin and West Coast Basin seeking to remediate drinking water wells that have been impacted by per- and polyfluoroualkyl substances (PFAS).*

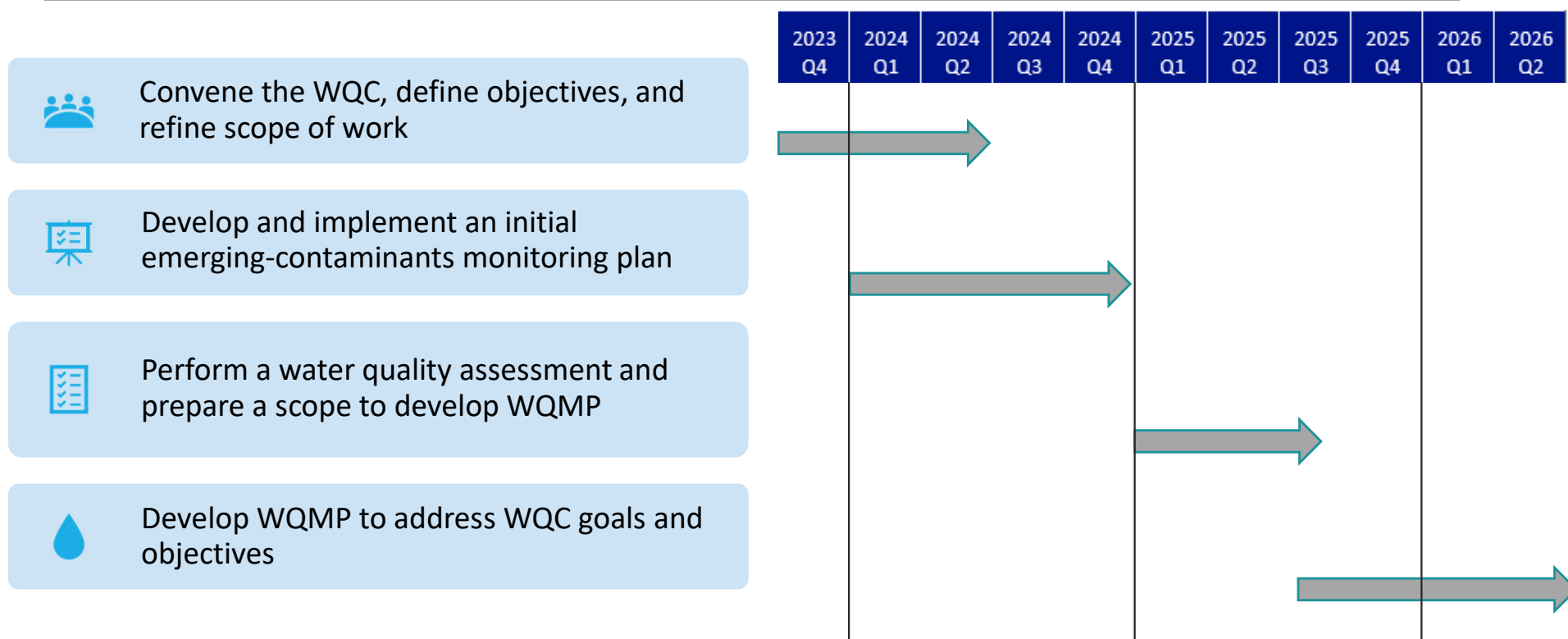
Photos of treatment systems that were successfully completed and funded under the WRD PFAS Remediation Program.



Source: WRD Spring 2023 Newsletter



# Proposed Scope of Work for Developing a WQMP





Break

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## Development of an initial Emerging Contaminants Monitoring Plan - Survey

Question: What contaminants come to mind when you hear “emerging contaminants of concern”?

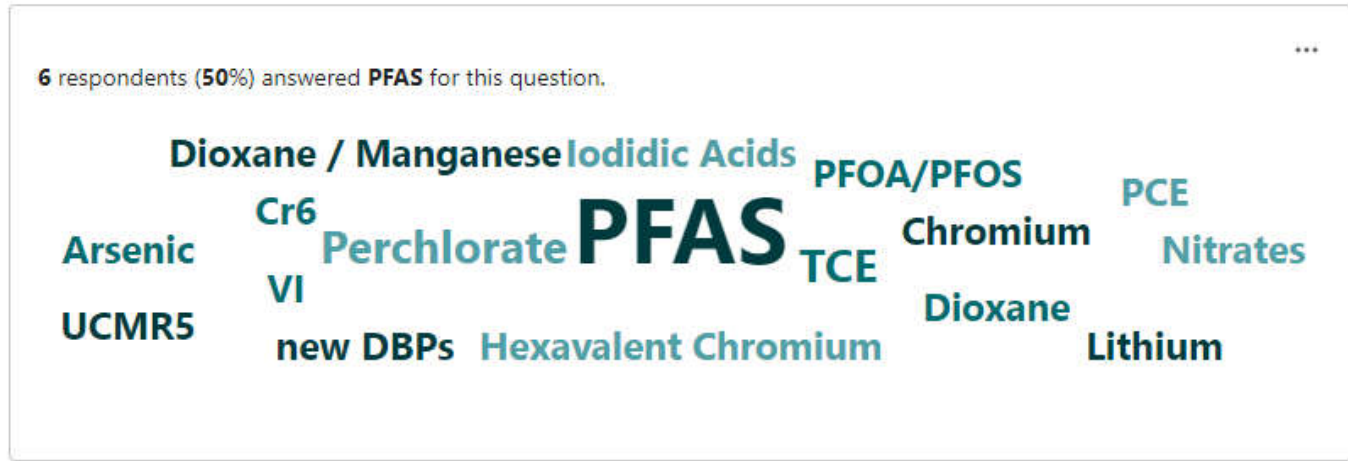
12 Responses

Latest Responses

"Hexavalent Chromium, Lithium, PFOA/PFOS"

"PFAS"

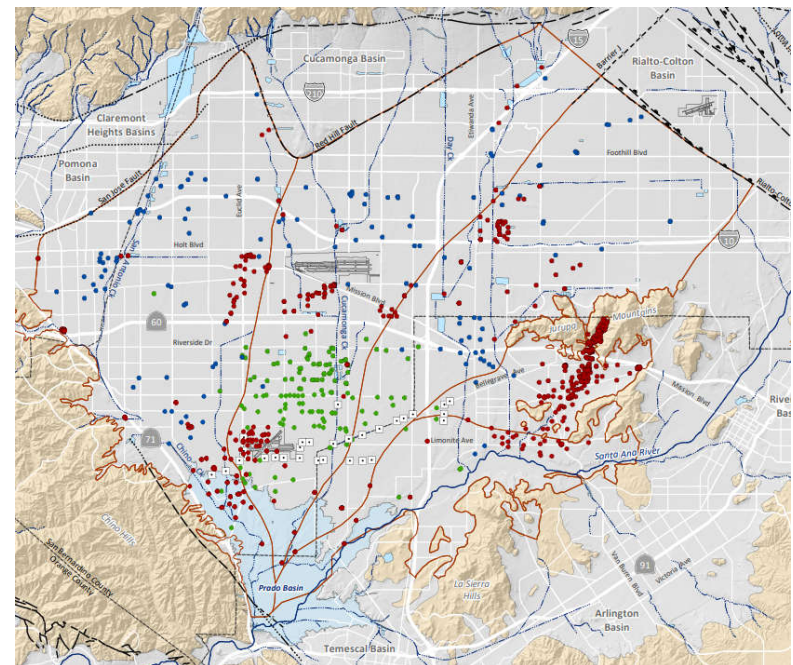
"PFAS, Dioxane, Chromium VI, TCE, PCE, Perchlorate"





## Development of an initial Emerging Contaminants Monitoring Plan

- Define initial monitoring plan to fill data gaps relative to emerging contaminants and characterize current water quality conditions
- Serves as a framework for a long-term monitoring program addressing emerging contaminants – can be updated annually based on evolving concerns/issues
- Includes:
  - List of initial emerging contaminants of concern to monitor
  - Identifies locations for Watermaster monitoring (select monitoring/private wells)
  - Requests for Appropriator and cooperators to monitor at select wells
  - Monitoring of other water sources (imported, recharge, etc.)
  - Use results to assess basin conditions and understand how these contaminants could impact other management activities and inform potential future actions for the WQC







# Development of an initial Emerging Contaminants Monitoring Plan

## How will we propose contaminants to monitor?

- State and Federal drinking water regulations
- Resources on emerging contaminants

### DDW :

- Webpage on emerging contaminants
- “News” links on developing and setting new regulations
- Resolution *2023-007 Proposed Prioritization of Drinking Water Regulations for Calendar Year 2023*
- State Notification Levels and Response Levels (Unregulated Contaminants)

### Federal EPA:

- Unregulated Contaminants Monitoring Rule (UCMR) 4, 5, etc.

5. The Division of Drinking Water (DDW) posts the MCL reviews on its website. The most recent reviews are available at: [MCL Review Process webpage](#).
6. The Division of Drinking Water has established a proposed prioritized list for regulatory development projects for 2023.
7. DDW staff use multiple factors in prioritizing drinking water regulations, including the protection of public health, establishment of a new or revised federal regulation or rule, existence of statutory mandates, as well as the existence of other priorities and staffing resources available for the development and implementation of regulations.

#### THEREFORE BE IT RESOLVED THAT:

The State Water Board directs the Division of Drinking Water to prioritize the development of drinking water regulations during calendar year 2023 as follows:

1. Maximum Contaminant Levels
  - a. Chromium (hexavalent)
  - b. Arsenic
  - c. Perfluoro-octanoic acid (PFOA) and perfluoro-octane sulfonic acid (PFOS)
  - d. N-nitroso-dimethylamine (NDMA)
  - e. Disinfection Byproducts
  - f. Styrene
  - g. Cadmium and Mercury
2. Direct Potable Re-Use
3. Water Quality Standards for On-Site Treatment and Re-Use
4. Recycled Water Regulations Update
5. Cross-Connection Control Policy Handbook
6. Lead and Copper Rule (LCR) and Revisions
7. Detection Limits for Purposes of Reporting
  - a. Metals
  - b. Organics
8. Primacy Package Approvals
  - a. Public Water System Definition
  - b. Revised Total Coliform Rule
  - c. Groundwater Rule
  - d. Public Notification Rule
  - e. Consumer Confidence Report Rule
9. Electronic Reporting of Drinking Water Quality Data
10. Notification and Response Levels
  - a. Cyanotoxins
  - b. Manganese (revision)
  - c. Per- and Polyfluoroalkyl Substances (PFAS)

# Monitoring for CA Emerging Contaminant 1,4-Dioxane

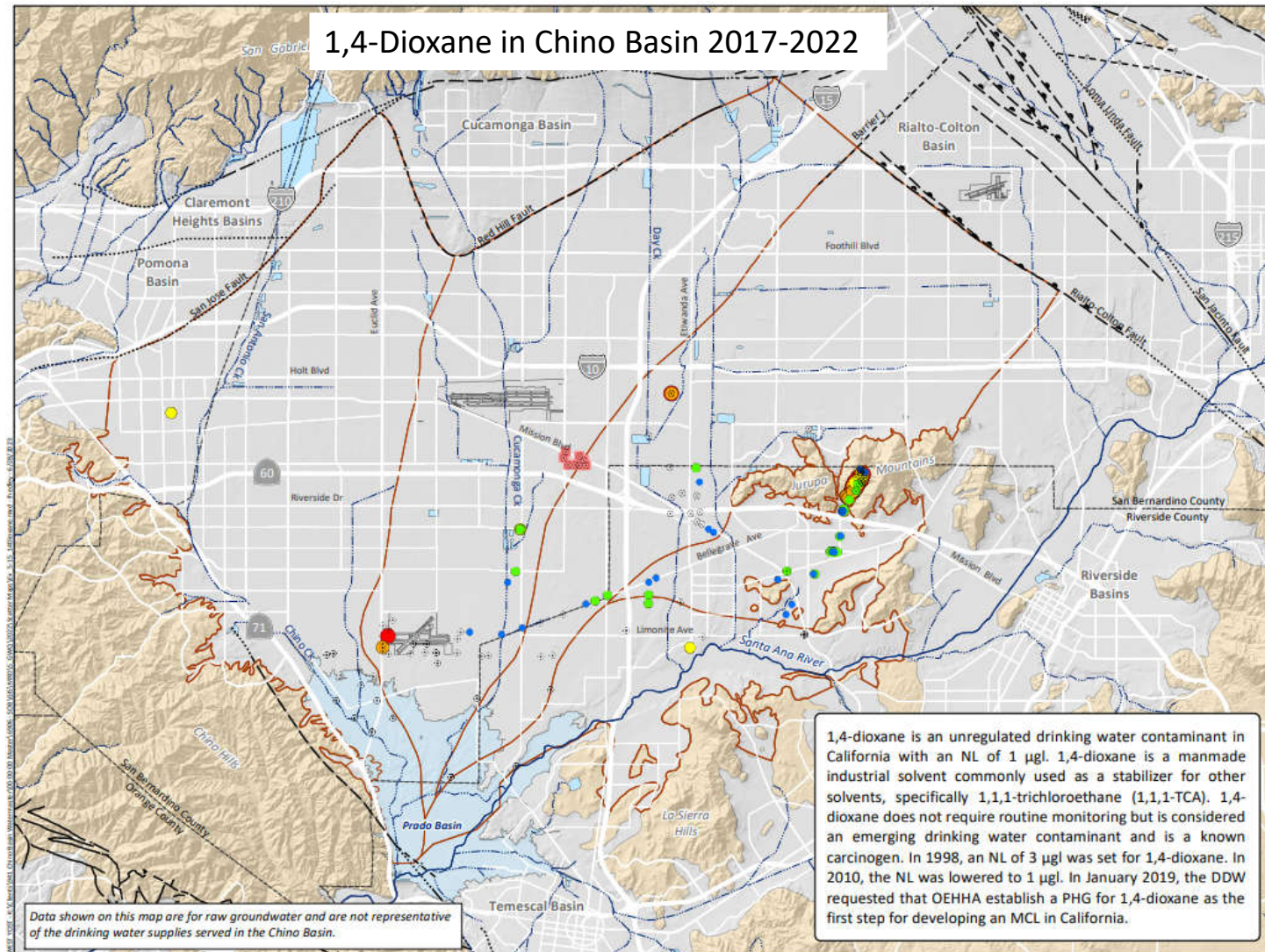
1,4-Dioxane in Chino Basin 2017-2022

1,4-Dioxane ( $\mu\text{g/l}$ )

- ND
- < 0.5
- 0.5 - 1
- 1 - 2
- 2 - 4
- > 4

California NL = 1  $\mu\text{g/l}$

Used DLR greater than NL of 1  $\mu\text{g/l}$



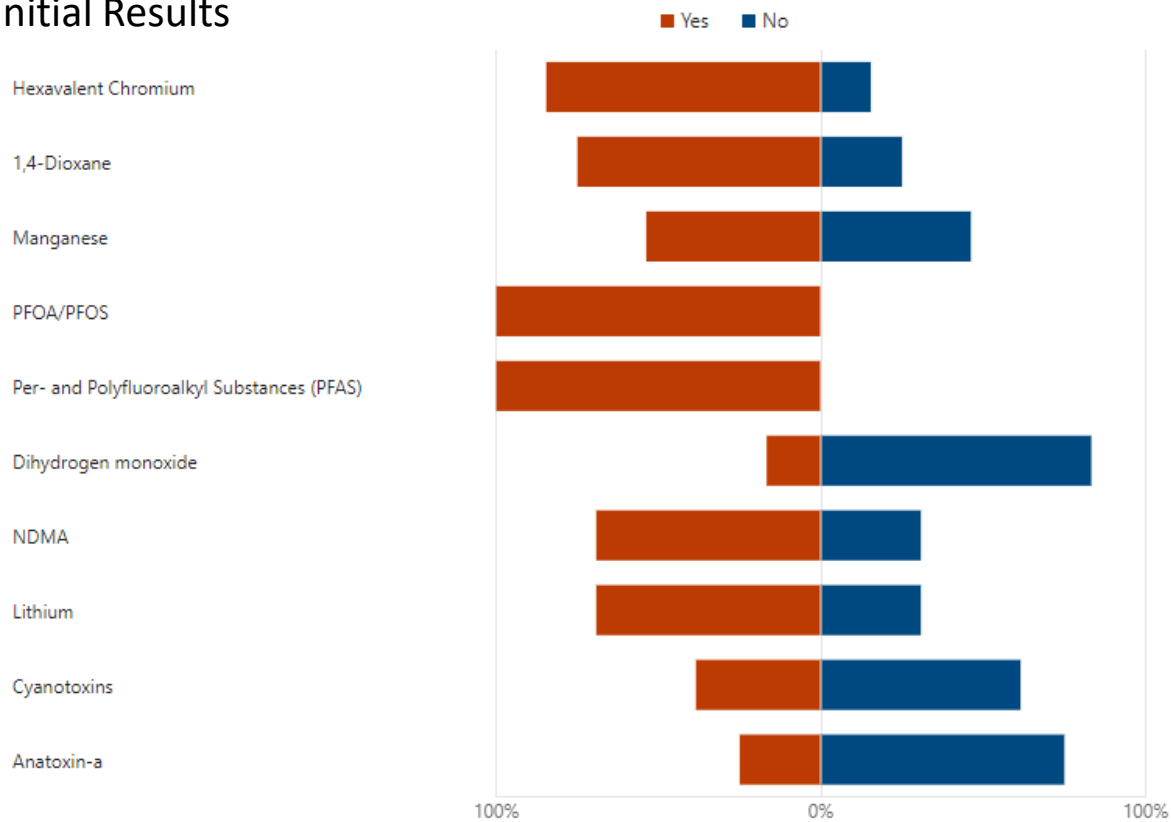




# Development of an initial Emerging Contaminants Monitoring Plan - Survey

## Question: Are you aware of these emerging contaminants of concern?

### Initial Results



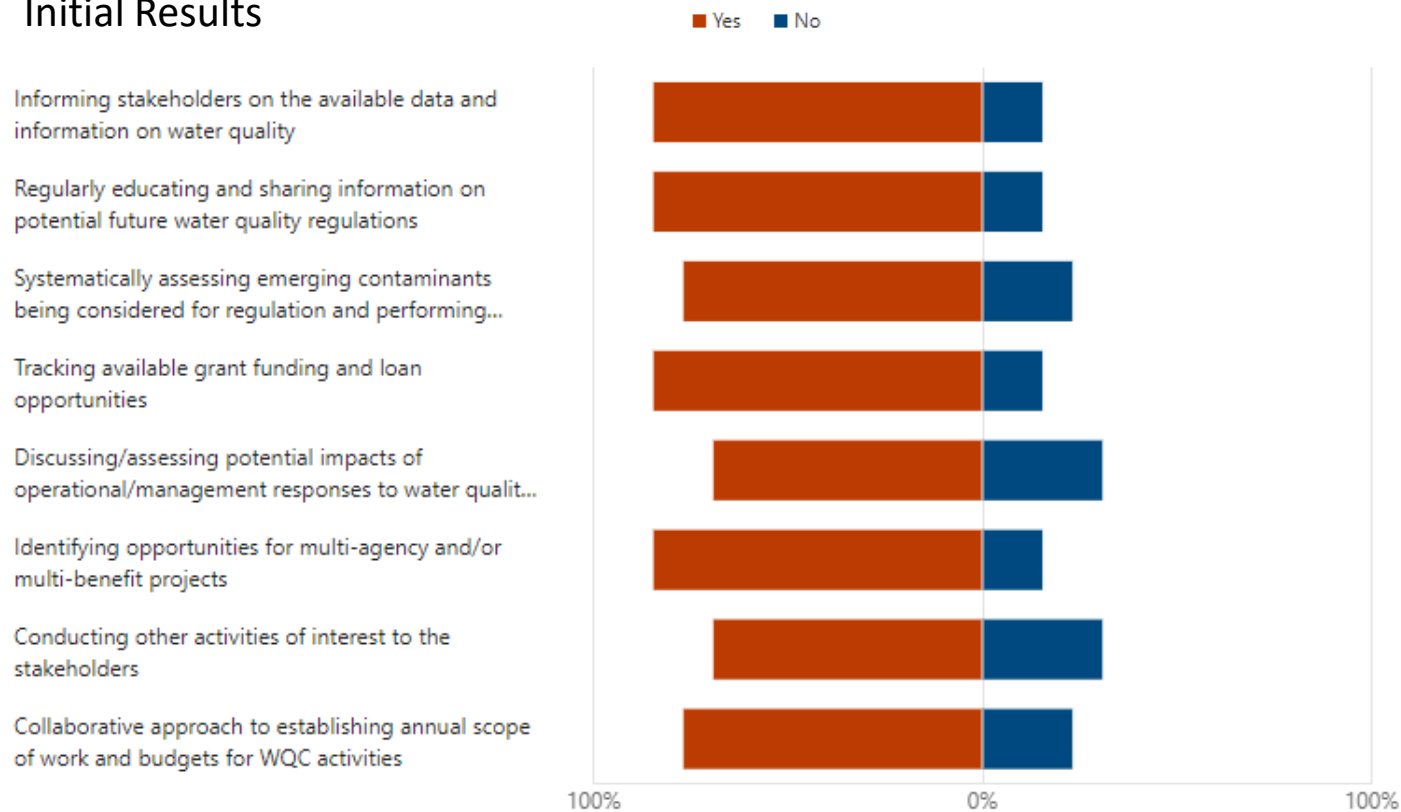
Water Quality Committee Session 1



# Feedback on goals and objectives for WQC and WQMP - Survey

## Question: Are these potential objectives of interest to your agency ?

### Initial Results



Water Quality Committee Session 1



## Obtain Initial Feedback on WQC Goals and Objectives

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The WQMP will ultimately serve as a framework for the ongoing activities and meetings of the WQC to address collective goals and objectives

Today – begin to collect information on agency interests and concerns



## Obtain Initial Feedback on WQC Goals and Objectives

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The 2003 scope of work for the WQC was defined based on concerns of the time. The scope addressed performing specific investigations to support the Regional Board to issue Regulatory Orders to responsible parties for contamination and shift the cost burden to responsible parties:

- Locate the leading edge of the total dissolved solids/total organic carbon/volatile organic chemicals (TDS/TOC/VOC) plume created by Kaiser Steel.
- Identify the potential sources of perchlorate throughout the basin.
- Identify the source(s) of the VOC anomaly located south of the Ontario Airport and north of the Chino-1 Desalter well field.
- Identify source(s) of the Chino Airport VOC plume. The Regional Water Quality Control Board (Regional Board) has identified a PRP and a groundwater investigation to better characterize the plume prior to mitigation is already underway. Watermaster is tracking the progress of this investigation.

*Excerpt from 9/18/2003 letter on Groundwater Quality Investigation Activities to Date and Proposed Scope – Optimum Basin Management Program*





## Obtain Initial Feedback on WQC Goals and Objectives – Survey



Question: What other topics of interest comes to mind that you would like to see addressed through the WQC as part of a WQMP?

Water Quality Committee Session 1





## Next Steps

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- Distribute follow-up email with presentation from today's meeting and guidance on how to provide further input on emerging contaminants of concern and goals and objectives
- Next WQC meeting - late January 2024:
  - Review and discuss draft Emerging Contaminants Monitoring Plan
  - Discuss/refine initial goals and objectives that will form the basis for the scope of work of the WQC in developing WQMP over next two years