



Drinking Water Regulation Maximum Contaminant Levels and CECs

Division of Drinking Water

May 1, 2017

Mark Bartson, P.E., Chief ,Technical Operations
Section

Mark.Bartson@waterboards.ca.gov

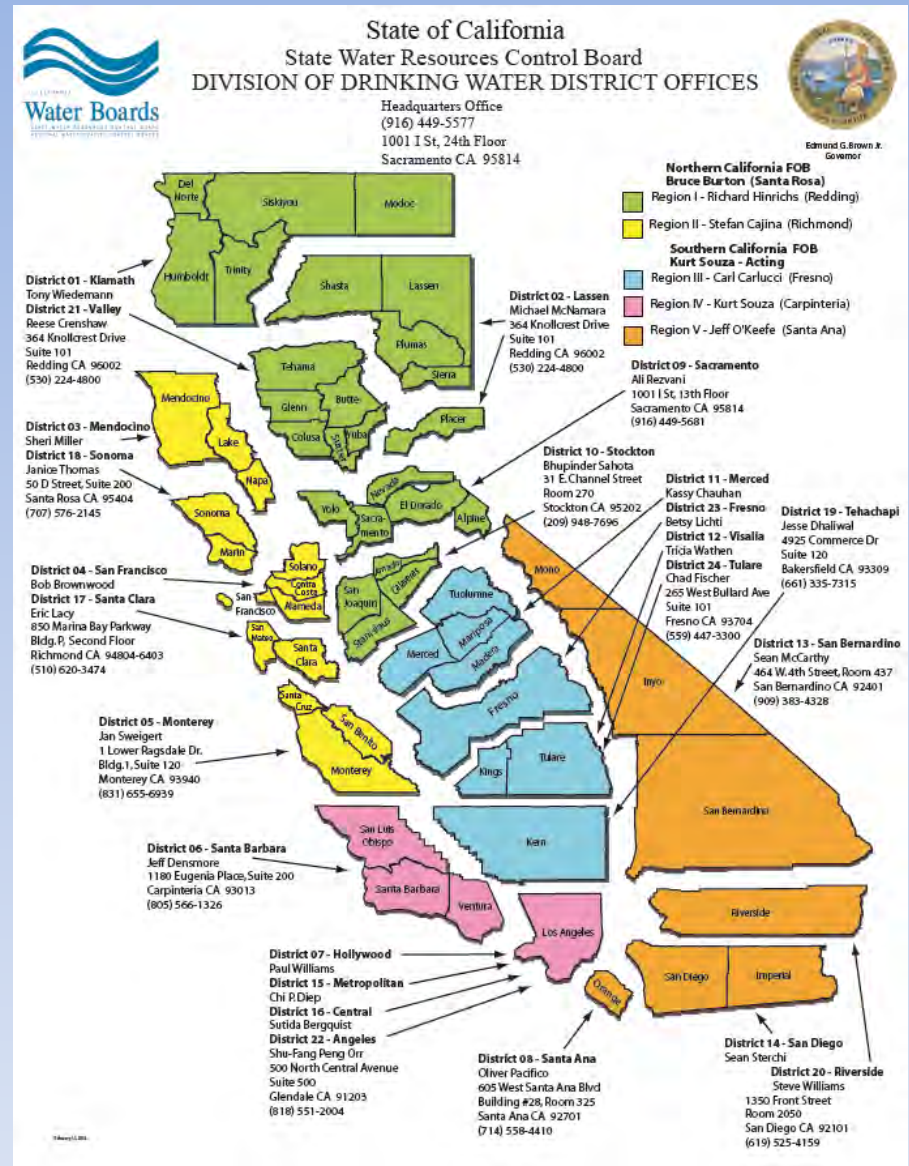
(916) 449-5622

California's Division of Drinking Water

- Northern California Field Operations Branch
- Southern California Field Operations Branch
- Program Management Branch
 - Quality Assurance Section (NEW!)
 - Technical Operations Section
 - Environmental Laboratory Accreditation Program

District Offices/LPAs

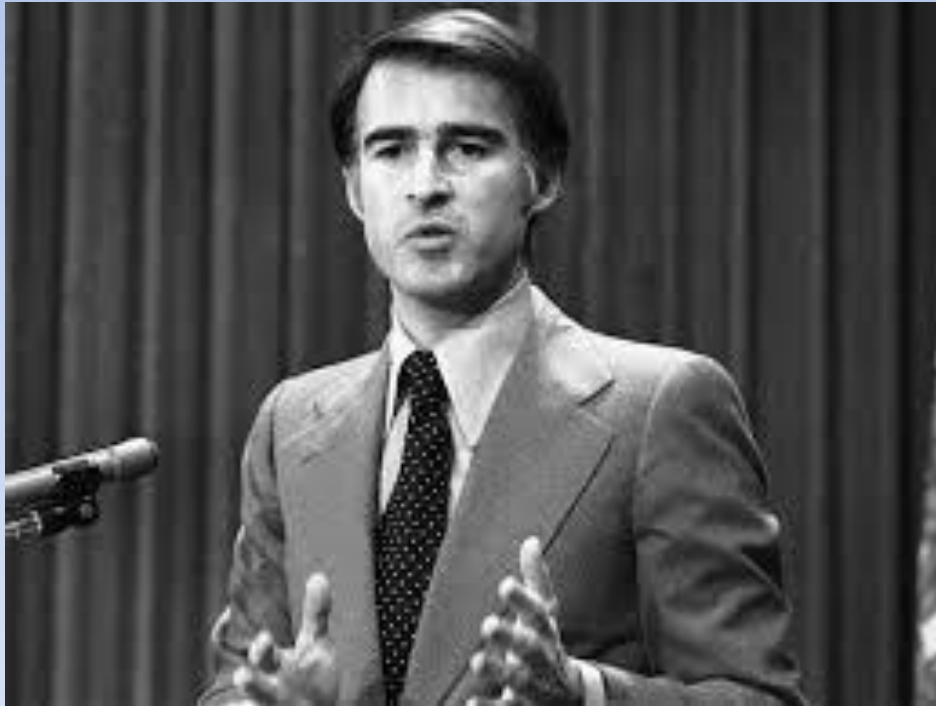
- 7500+ Water Systems
- 5 Regions
- 24 State District Offices
- 30 County Local Primacy Agencies



- <http://www.waterboards.ca.gov/>
- http://www.waterboards.ca.gov/drinking_water/programs/index.shtml

My Boss, Then and Now

1981



Today



Water Board approved Prioritization of Drinking Water Regulations in Calendar Year 2017

PROPOSED WORK PRIORITIES

- 1) MCL for 1,2,3-Trichloropropane (1,2,3-TCP MCL)
- 2) Surface Water Augmentation (SWA) Regulation
- 3) Revised Total Coliform Rule (RTCR)
- 4) Lead and Copper Rule (LCR)
- 5) Maximum Contaminant Level (MCL) Review for Perchlorate
- 6) Cross-connection Regulations update
- 7) Environmental Laboratory Accreditation Program (ELAP) Regulations
- 8) Permanent Point of Use (POU) / Point of Entry (POE) Regulations
- 9) Unregulated Contaminant Monitoring Rule (UCMR)
- 10) Primacy Package Applications
- 11) Work to Support Direct Potable Reuse (DPR)

The Federal Safe Drinking Water Act (SDWA) establishes a framework for evaluating potential drinking water contaminants

- **Contaminants without health-based standards are evaluated every 5-years**
- **Includes a process for developing the US EPA Contaminant Candidate List (CCL)**
- **Reviewed by the scientific community and stakeholders**
- **Unregulated Contaminant Monitoring Rule (UCMR) - occurrence data for selected contaminants on the CCL**
 - **All public water systems serving over 10,000 people and**
 - **Representative water systems serving fewer than 10,000 people**
- **Analytical data from the Federal unregulated contaminant monitoring were collected by US EPA and, in California, by the Division of Drinking Water**

General approach for an unregulated contaminant that is found in drinking water supplies

- Establish an advisory Notification Level (a health-based value similar to a Public Health Goal)**
- Evaluate and recommend methods for laboratory analysis**
- If contaminant may be widespread, monitoring may be required statewide or for specific systems**
- If statewide monitoring suggests a need for regulation, DDW would request a Public Health Goal from OEHHA**

Moving from CECs towards Maximum Contaminant Levels (MCLS)

How does that happen?

Many chemicals have moved from CECs to Maximum Contaminant Levels

- Establishment of a Notification Level
- Statewide monitoring through an unregulated chemical monitoring requirement
- Establishment of a chemical-specific human health risk assessment
- Adoption of a Maximum Contaminant Level

California has adopted MCLs in the absence of a federal MCL. Recent examples:

- Methyl tert-butyl ether (MTBE), perchlorate, and hexavalent chromium.
- Proposed MCL for 1,2,3-trichloropropane now is in State regulatory process.

What is needed for the Development of a Maximum Contaminant Level?

- Occurrence data
- Potential population affected/exposed,
- The risk to human health
- Information on treatment feasibility
- Cost of treatment and operation/monitoring and analysis

Other Work by Drinking Water Program on CECs

Evaluation of drinking water contaminants identified during monitoring by public water systems including:

- Monitoring of extremely impaired sources
- Potential future California-specific unregulated contaminant monitoring requirements
- Guidance for monitoring and reporting of detected contaminants
 - To the public and to governing bodies of public water systems, when MCLs or NLs are exceeded.

Indirect Potable Reuse of Recycled Water - June 2014 for Groundwater Replenishment Reuse Projects (GRRPs)

- **Source control programs to assess the fate and transport of CECs in environment**
- **Water quality monitoring of Indicator Compounds that represent families of CECs**
 - Ensure the efficiency of the GRRP's treatment processes
 - Indicate process failures
- **Advanced treatment process, such as Soil Aquifer Treatment and Advanced Oxidation Processes are required in order to:**
 - Ensure CECs are destroyed or removed
 - Protect the environment and public health Indicate process failures
- **Results of the monitoring are routinely reported to the Water Boards and used**

Other Resources – National Water Research Institute

May 2010 Report

**Source, Fate and Transport of Endocrine
Disruptors, Pharmaceuticals and Personal care
Products in Drinking Water Sources in California**

Available at NWRI Website

NWRI Report

“Source, Fate and Transport of Endocrine Disruptors, Pharmaceuticals and Personal Care Products in Drinking Water Sources in California?”

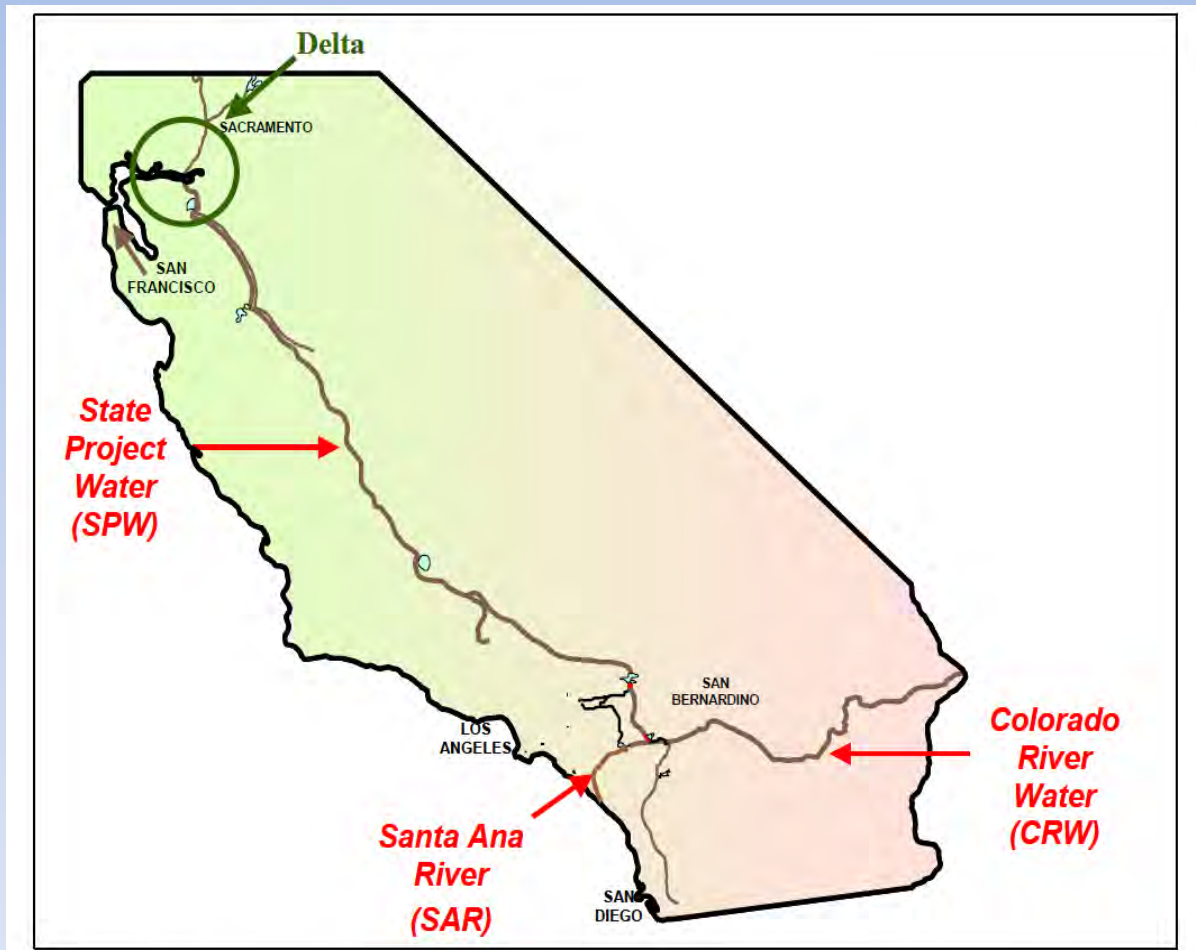


Figure ES-1. Map of central and southern California depicting the three watersheds studied for the project.

NWRI Report - Excerpt

“Source, Fate and Transport of Endocrine Disruptors, Pharmaceuticals and Personal Care Products in Drinking Water Sources in California?”

“Of the 126 samples analyzed for the project, one sample ...had no detectable levels of any EDCs, PPCPs, or OWCs.

All other samples had one or more analytes detected at or above the corresponding MRLs.

The five most frequently detected PPCPs were caffeine, carbamazepine, primidone, sulfamethoxazole, and tris(2-chloroethyl) phosphate (TCEP).”

Water Research Foundation Project #4494

“Evaluation of Current and Alternative Strategies for Managing CECs in Water”



Current and Proposed Paradigms to Control CECs in the United States and Internationally

Phase 1 Report

Prepared by:

Tanja Rauch-Williams

Carollo Engineers, 390 Interlocken Crescent, Ste. 800, Broomfield, CO 80021

Shane Snyder

University of Arizona

Jorg Drewes

Technische Universität München

Munich, Germany

What is the Objective of WRF Project #4494?

“...to help broaden the currently progressing regulatory perspective on controlling CECs in the U.S.”

“...by summarizing and comparing the initiatives different countries are undertaking for managing this complex challenge”

“... to provide a common knowledge basis ... on the evaluation of the effectiveness, implementability, and direct and indirect costs of different CEC management approaches”

“... for mitigating perceived or demonstrated environmental and human health risks.”

Questions?

Answers?