

Providing Safe Drinking Water

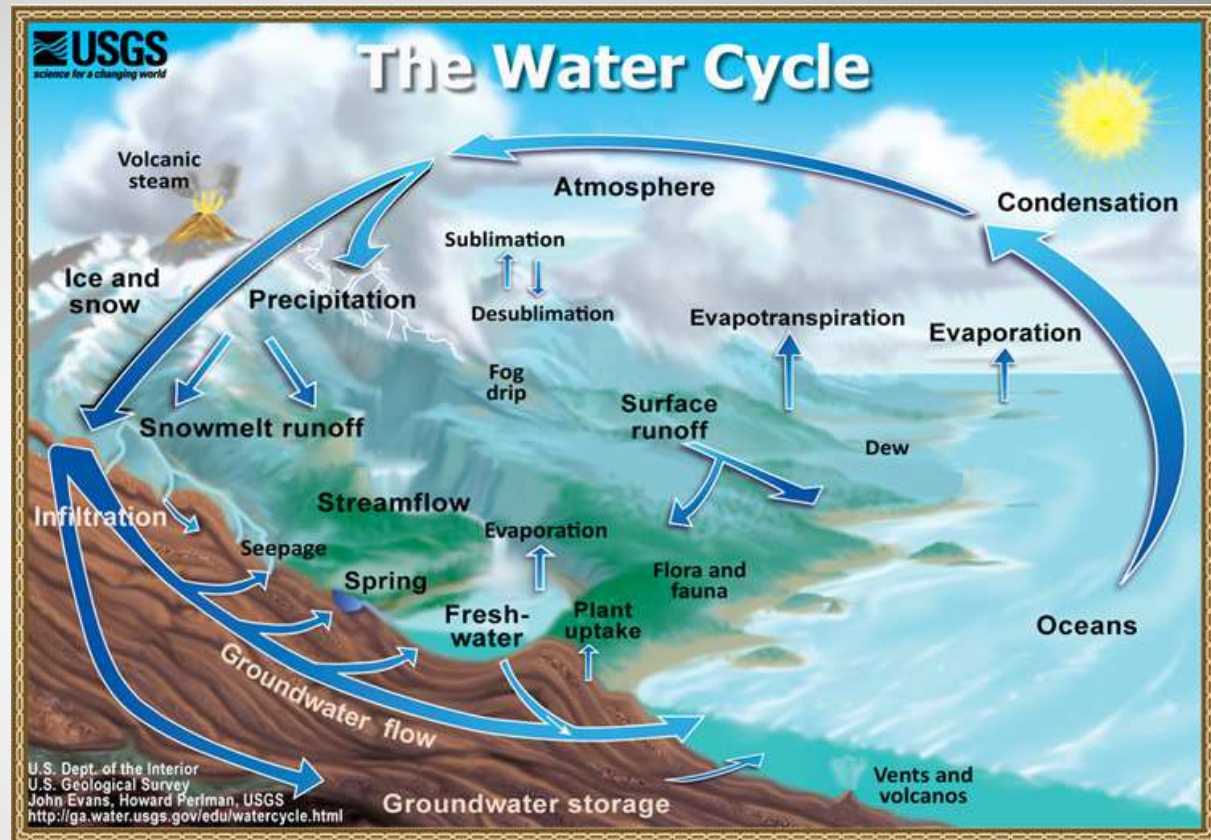
Coachella Valley Water Counts Academy

February 5, 2018 Session



Water = “Universal Solvent”

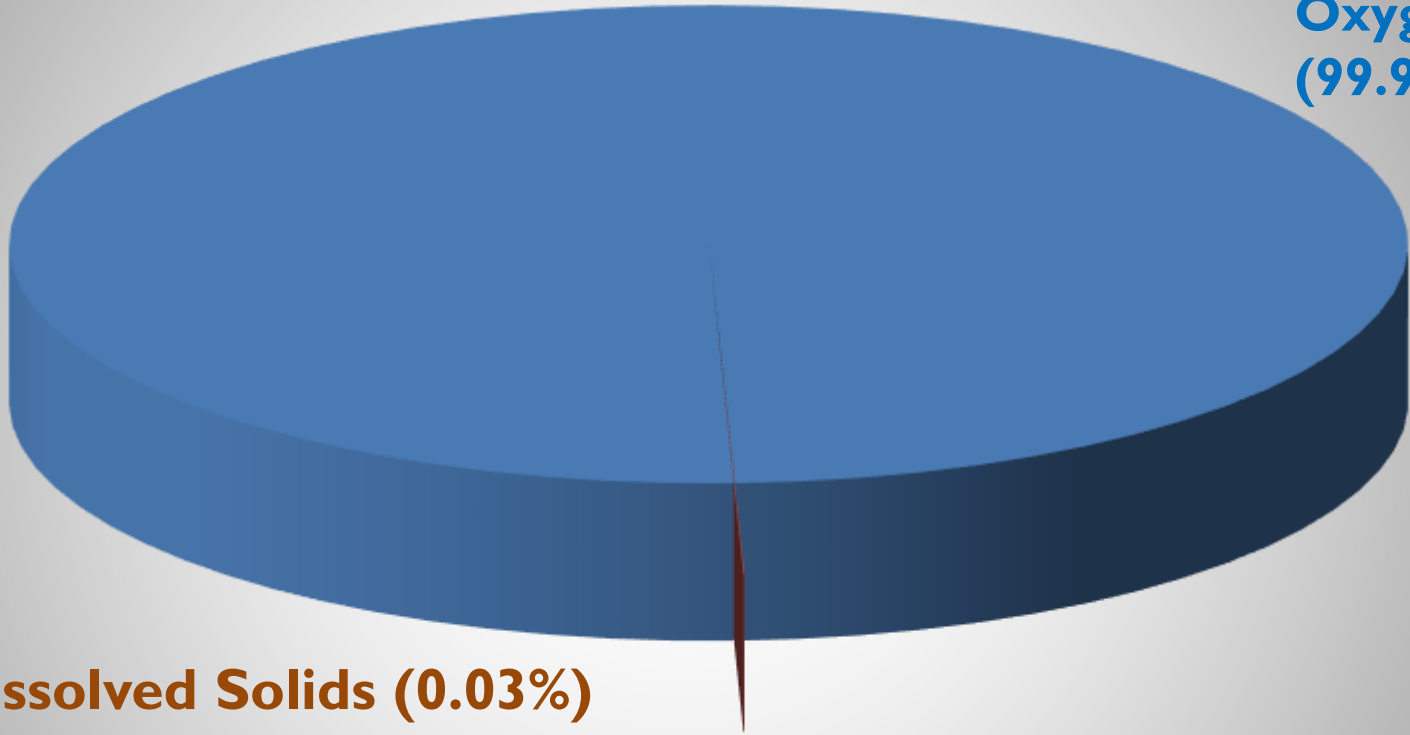
Water Source	Dissolved Solids or Salinity (ppm)
Rain	<5
Melted snow	<30
Freshwater streams	100 – 1,500
Fresh groundwater	100 – 3,000
Brackish groundwater	2,000 – 35,000
Ocean	35,000
Salton Sea	60,000
Great Salt Lake	Up to 270,000
Dead Sea	340,000



“Contaminants” are any substance or matter in water

Tap Water Content

Hydrogen &
Oxygen
(99.97%)



Total Dissolved Solids (0.03%)

0.0299% - Bicarbonate, calcium, magnesium, sulfate, sodium, chloride, nitrate, potassium & fluoride

0.0001% - Aluminum, arsenic, barium, copper, chromium, disinfection by-products, iron, lead, molybdenum, organic compounds, selenium, strontium, uranium & vanadium

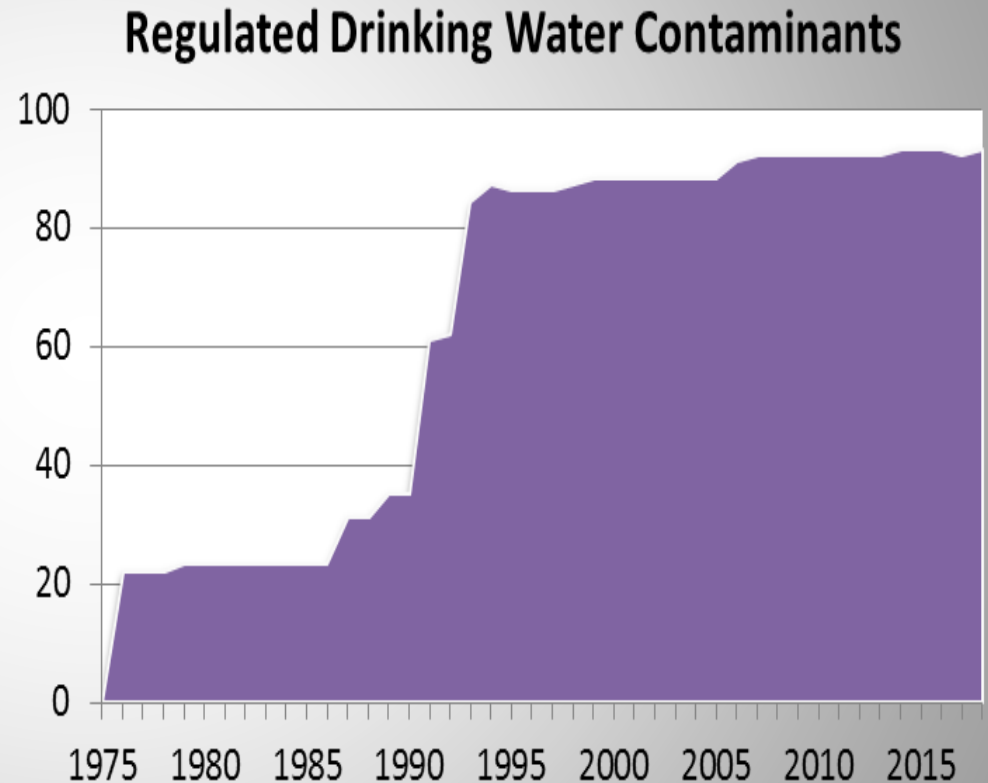
Program Elements

- Research
- Contaminant monitoring
- Source water protection
- State and Federal regulations
- Water treatment
- Sanitary surveys
- Water system construction and OM&R
- Backflow prevention
- Water agency reporting



Drinking Water Regulations

- Primary maximum contaminant levels
 - Enforceable (health)
- Secondary maximum contaminant levels
 - Non-enforceable (aesthetics)
- EPA establishes national standards
- States can establish more stringent standards



State Standards

State	No EPA or Other State MCL	No EPA MCL	More Stringent than EPA MCL	Total
California	6	8	25	39
New York	3	8	13	24
New Jersey	1	4	14	19
Delaware	0	2	4	6
Colorado	0	3	0	3
Massachusetts	0	1	2	3
Hawaii	0	1	2	3

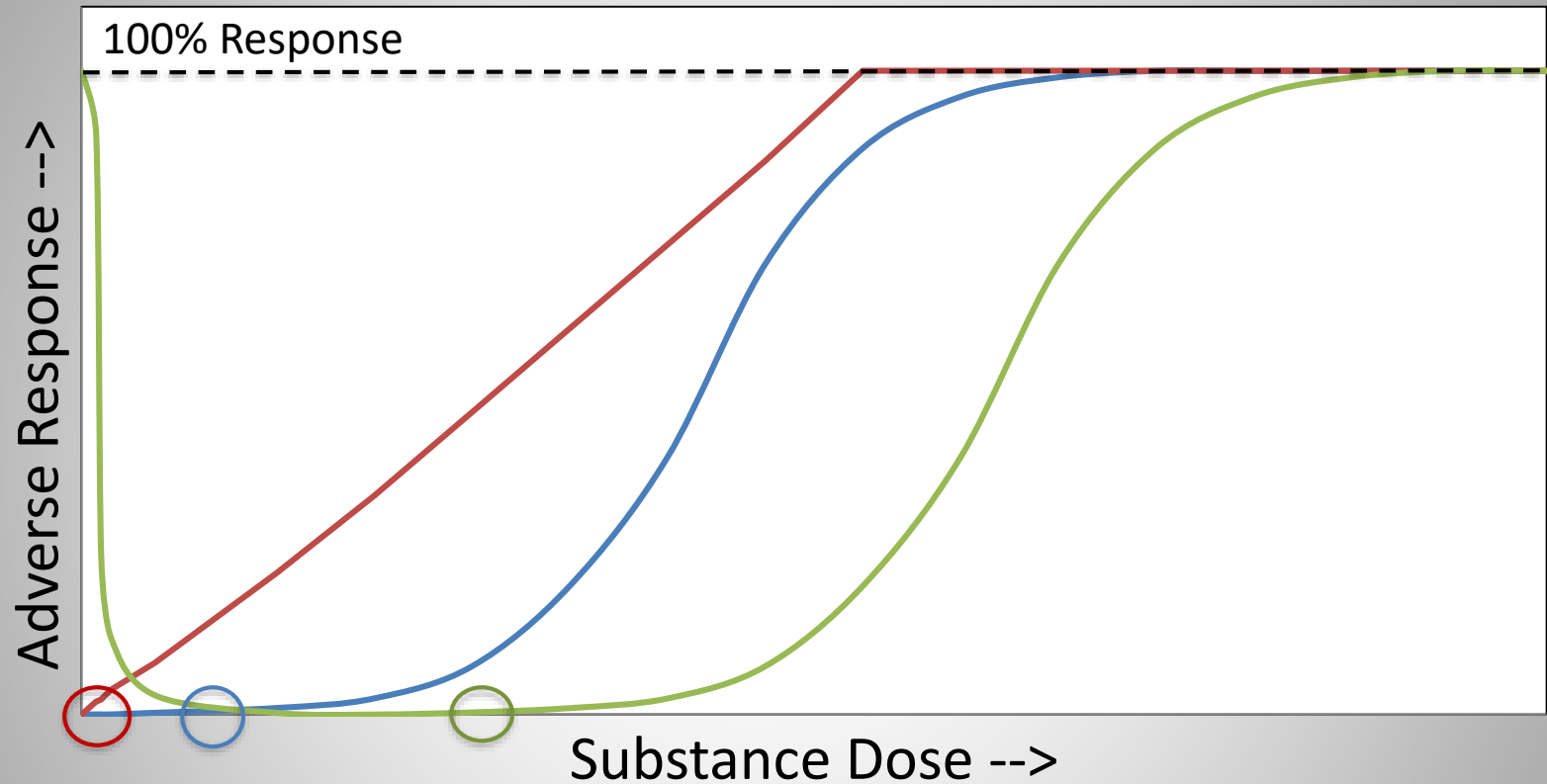
Examples

Constituent	EPA MCL	Other State MCLs	California MCL
Molinate	None	None	20 ug/L
MTBE	None	NY & DE (10 ug/L), NJ (70 ug/L)	13 ug/L
1,2,3 – TCP	None	NY (5 ng/L), HI (600 ng/L)	5 ng/L

When EPA Regulates Contaminants

- Toxicity
 - May have adverse health affects
- Occurrence
 - Exists or likely exists enough at levels of concern
- Benefit
 - Meaningful opportunity for risk reduction
 - Technically & economically feasible

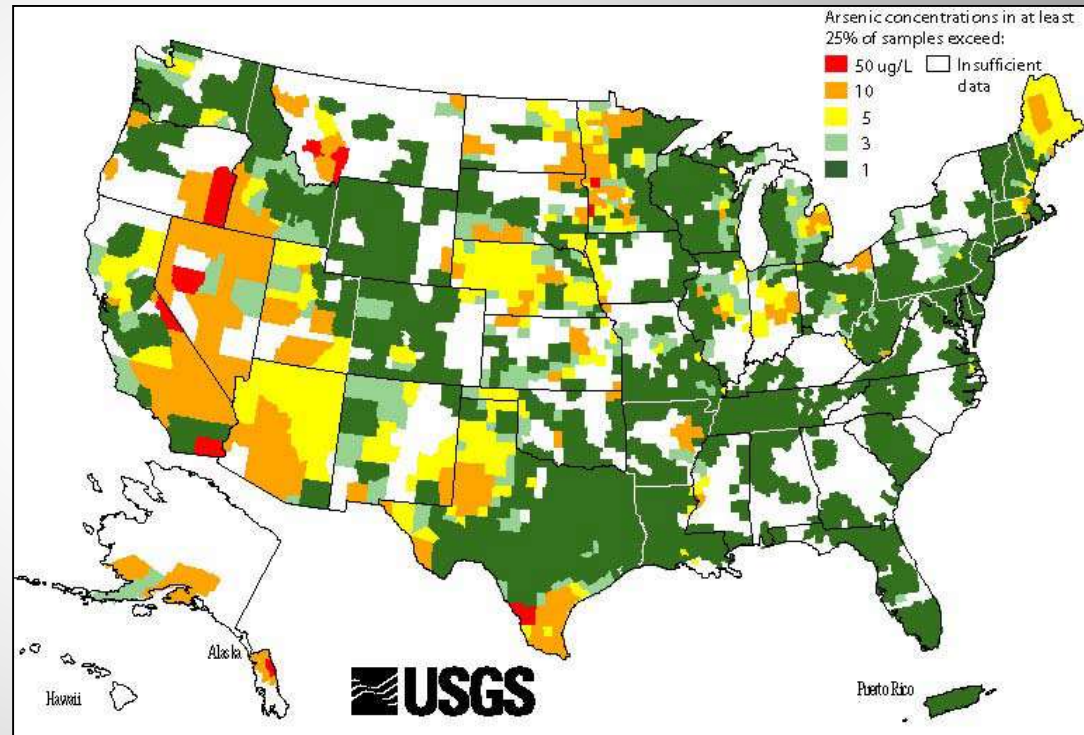
Predicting Dose Response



— Threshold (non-essential) — Linear — Threshold (essential)

Contaminant Occurrence

- Contaminant Candidate Lists
- Analytical test methods
- Unregulated contaminant monitoring rules
- Water agency monitoring

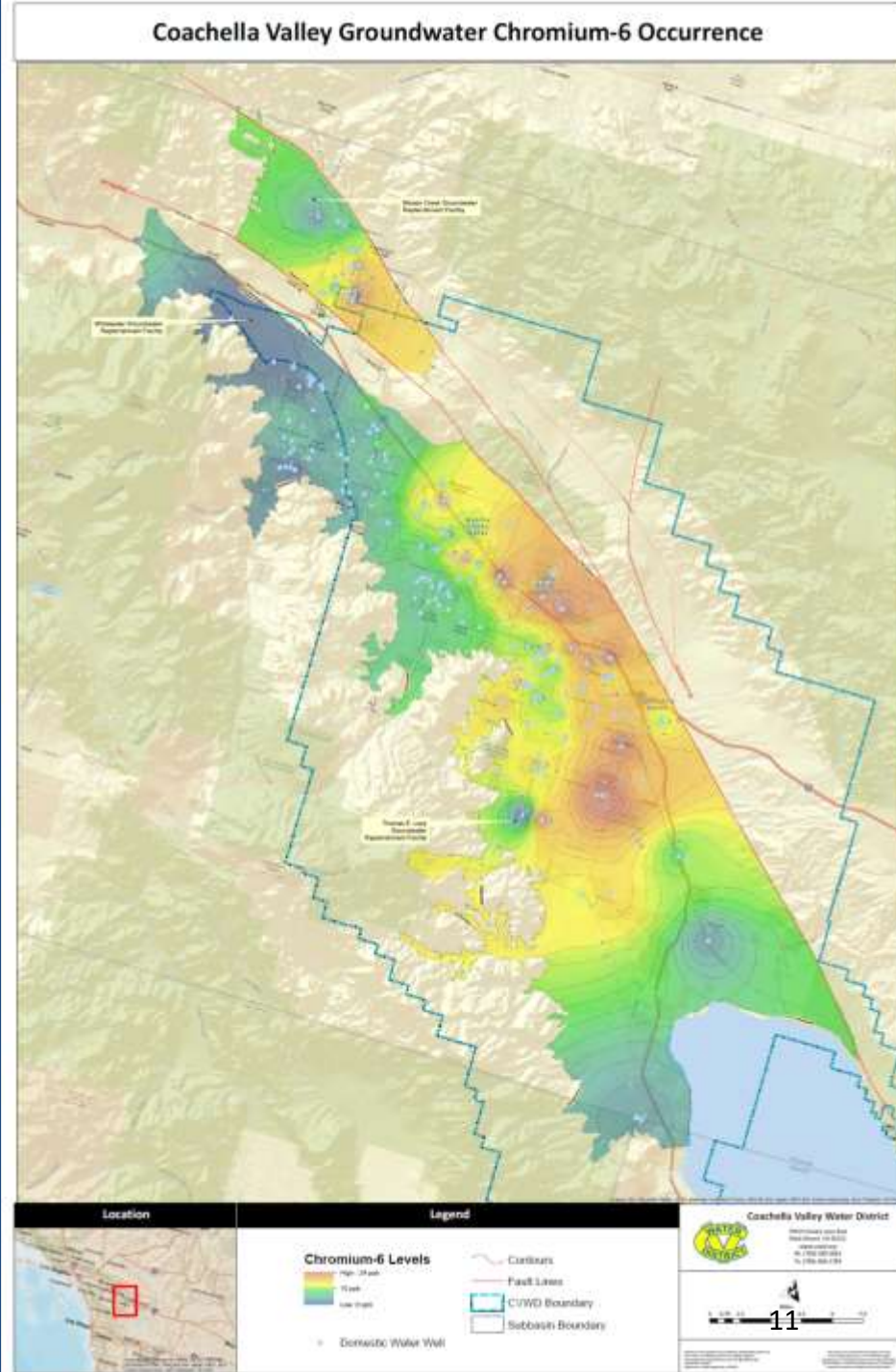


Regulatory Determination

- Health risk reduction and cost analysis
 - Treatment technology costs
 - Qualitative and quantitative health benefits
- Set lowest feasible limit to maximize benefits
 - Best available technology
 - Must be economically feasible
- Provide 3-5 year compliance period

Chromium Background

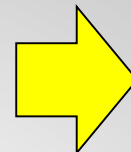
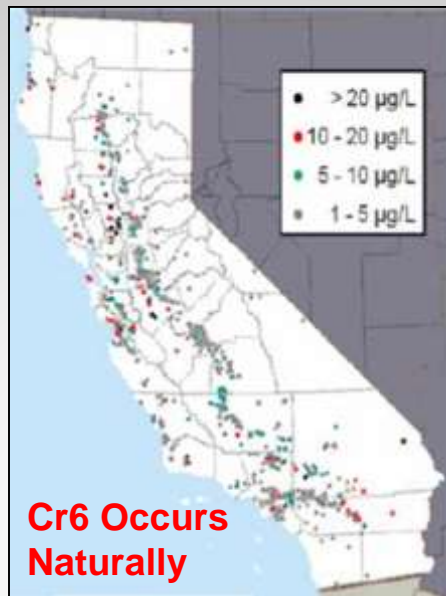
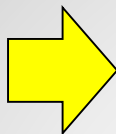
- Abundant in earth's crust
- Chromium-3 (Cr⁺³) or chromium-6 (Cr⁺⁶) in water
 - Mostly Cr6 in groundwater
 - Need Cr3 to regulate blood sugar (nutrient in vitamins)
- Cr6 Sources in Water
 - Erosion of natural sediments
 - Isolated industrial sources
- Cr6 Health Concerns
 - Occupational carcinogen when inhaled
 - Possible carcinogen when ingested (rodent studies)



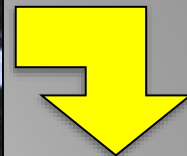
RIP 1968

"Only in California"

1999
Cr PHG
2.5
ppb



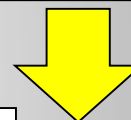
SB 351 (2001)



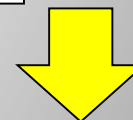
2010
Cr6
PHG
0.020
ppb



RIP
2008



v.

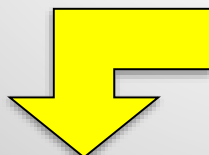


April 15, 2014 Court
Orders State to adopt
Cr6 MCL at 0.010 mg/L
(10 ppb)

MCL
Withdrawn

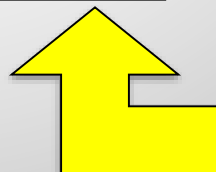


June 1, 2017 Court
Orders State to withdraw
Cr6 MCL, perform
economic feasibility
analysis & set new MCL



CMTA &
Solano Co.
Taxpayers

v.



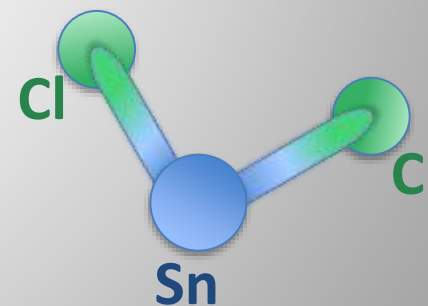
Water System Activity

- Vast majority of impacted systems on pause
- Handful continue operating plants
- Some finishing treatment studies
 - CVWD full-scale demonstration



Stannous Alternative

- Approved drinking water additive
 - Solution used to protect pipes
- Salt made of tin & chloride (SnCl_2)
- Antioxidant in consumer products
- Reduces Cr_6 to Cr_3
 - Faster and better than other reductants (e.g., iron, vitamin C)

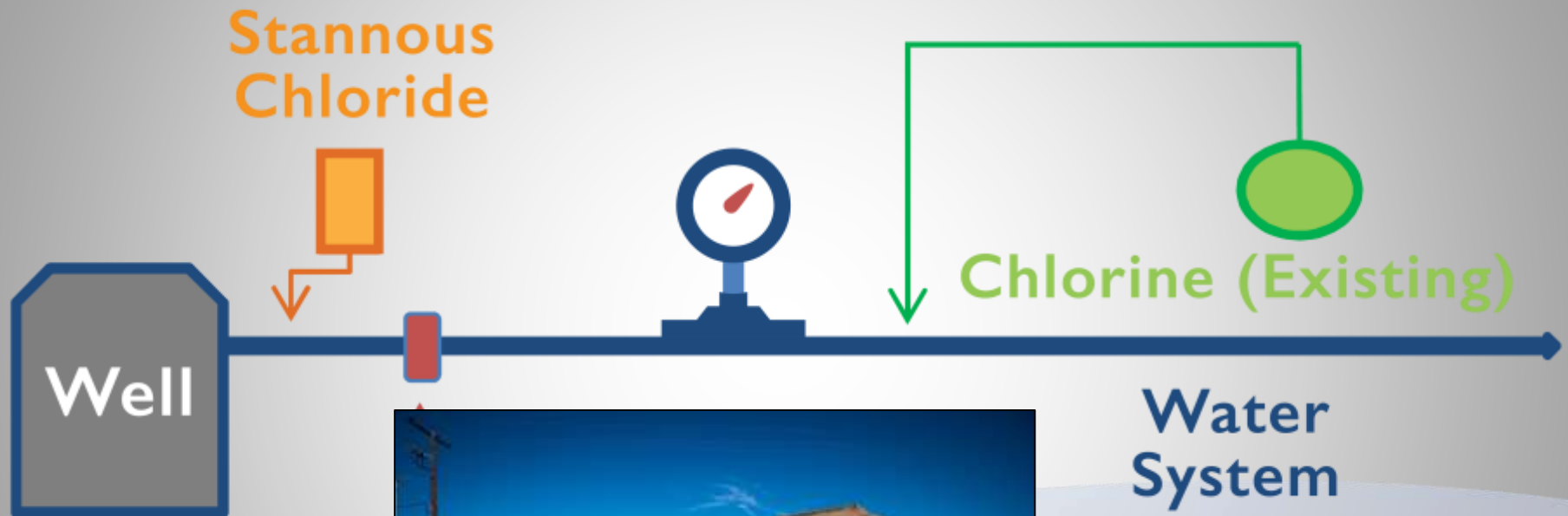


Sky Valley System Demonstration

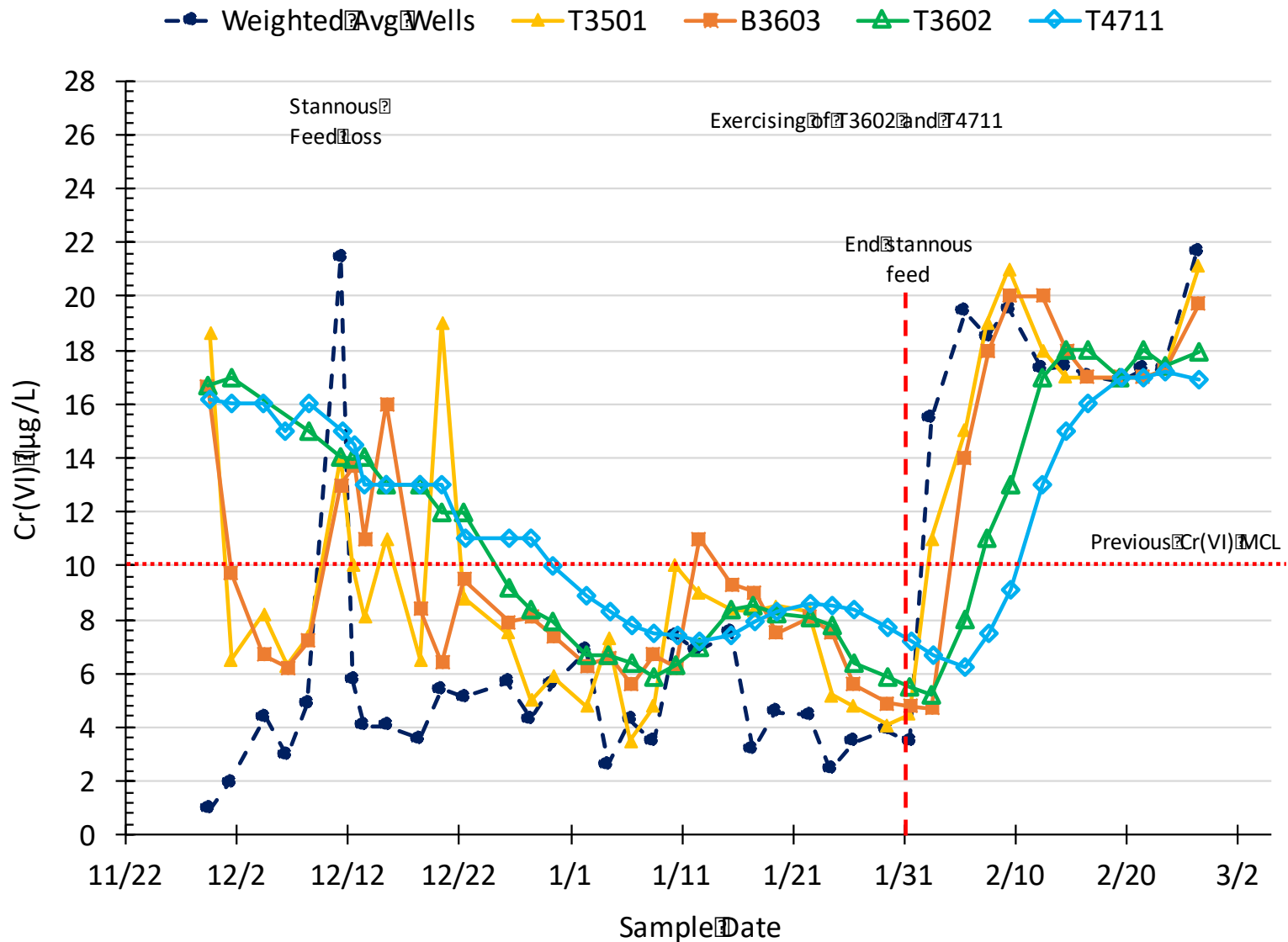
- Sufficient Cr6 levels (16-20 ppb)
- Extended water System (15 miles)
- Only 3 active supply wells



Stannous Demonstration Project



Demonstration Test Results



Benefits



Cost effective

No waste products

No visual impacts

Helps protect pipes

Does not change taste, smell
or look of water

What's Next



State develops required economic feasibility analysis



State establishes new chromium-6 drinking water standard



Agencies are prepared to act

Questions?

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