CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Constituents of Emerging Concern Science Advisory Panel for Recycled Water - Report Out 1st Meeting

Jörg E. Drewes, Paul Anderson, Nancy Denslow, Walt Jakubowski, Adam Olivieri, Dan Schlenk, Shane Snyder

Costa Mesa, CA
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Outline - Panel Report Out

- Acceptance of Charge
- Triaging Title 22 Exposure Scenarios
- Antibiotic resistance research needs
- Indirect potable reuse
  - Groundwater recharge
  - Surface water augmentation
- Updating the risk assessment
- Request for community help
- Updating framework w/ on- and off-ramps
  - Adding additional CECs
  - Addressing unknowns
- Revised December meeting schedule
- Information/input to process

Panel Charge Questions

- What are appropriate chemicals of emerging concern (CECs) to be monitored, including analytical methods and MDLs?
- What is the known toxicological information for these constituents?
- Would the above lists change based on level of treatment and use? If so, how?
- What are possible indicators that represent a suite of CECs?
- What levels of CECs should trigger enhanced monitoring?

Title 22 Non-potable Reuse

- Irrigation
- - food crops
- - parks, playgrounds
- - non-edible vegetation

- Impoundments
- - non-restricted recreational impoundments
- - restricted recreational impoundments

- Cooling or air conditioning

- Other uses
  - Decorative fountains
  - Toilet flushing

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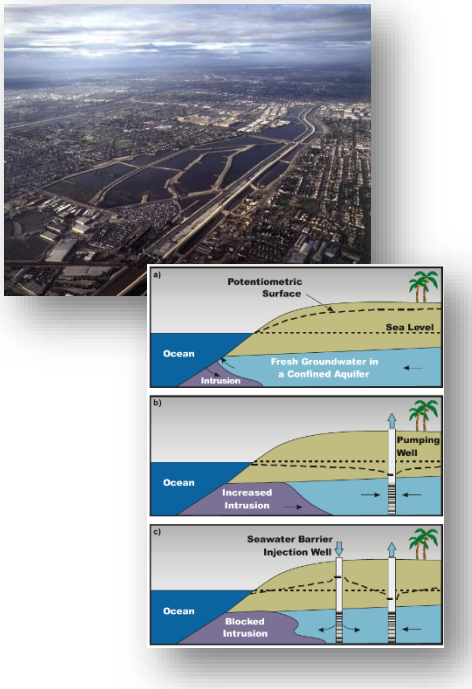
Antibiotic resistance

- Standardization and reporting of ARBs/ARGs
- Focus on studies that report ARBs/ARGs in relevant water reuse practices and surface water augmentation projects
  - Occurrence data for water reuse projects
- Risk levels associated with ARBs/ARGs in water have not been determined yet

Indirect Potable Reuse

- Three potable reuse practices
  1. Indirect potable reuse via **surface spreading** of recycled water
  2. Indirect potable reuse via **subsurface injection** of recycled water into a potable aquifer
  3. **Surface water augmentation** with recycled water
     - Characteristics and key differences of SWA compared to direct injection
     - Dealing with off-spec water situations
     - Required monitoring efforts



Request for Monitoring Data

- 8 permitted groundwater recharge projects
- Monitoring data according to Recycled Water Policy Amendment A
- Any special studies (CECs; non-target analysis; bioassays; antibiotic resistance)

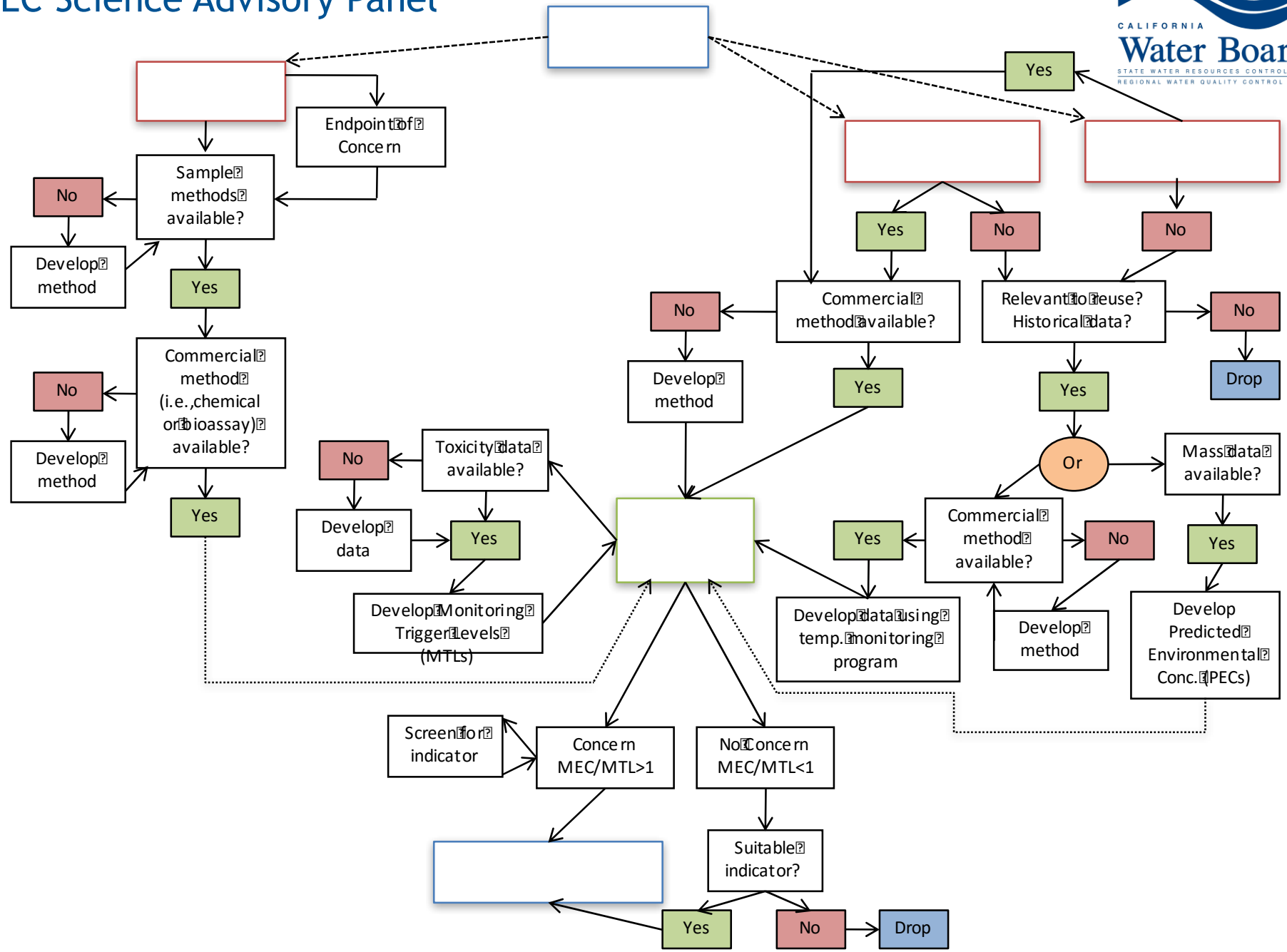
Location/Matrix	Parameter Name	Sample Date	Sample Type (Composite or Grab)	Method used	Name of Testing Lab	Numeric Result	Units	Reportable Detection Limit (RDL)

- Updating risk assessment for additional CECs (source of PNECs/ADIs; evaluating new CECs)

CEC Framework Revisions

- Selecting relevant CECs from the universe of chemicals
- On-ramps and off-ramps for known CECs
- Unknown unknowns
  - Update on chemical methods
  - Update on bioanalytical methods
- Level of conservatism (e.g., sec./tert. treated effluents or other water qualities)

CEC Science Advisory Panel



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Application of 2010 Framework
- Suggested short-list of CECs with health relevance

	Secondary/Tertiary Treated MEC 90th (ng/L)	Initial MTLs		MEC/MTLs	
		Potable Reuse	Irrigation	Potable Reuse	Irrigation
CCL3 CECs					
17β-estradiol	8.4	9.0E-01	9.0E+00	9.33	0.93
NDMA	68	1.0E+01	1.0E+02	6.8	0.68
Non-CCL3 CECs					
Caffeine	900	350	3500	2.57	0.26
Triclosan	485	350	3500	1.39	0.14

Initial MTL of **E2** was based on the California Office of Environmental Health Hazard Assessment (OEHHA) cancer slope factor, as opposed to the ADI developed by the World Health Organization (WHO)

The initial MTL for **caffeine** of 0.35 µg/l is the drinking water guideline established by Australia because chemicals for which structural features or likely metabolic pathways either permit no strong presumption of safety, or actually suggest significant toxicity

Remaining Schedule

- Input for monitoring data by August 2017
- *Meeting in Sacramento, December 15, 9 am -12 pm
- Draft report due on Dec 24, 2017
- 30-d public comment period – Jan. 2018

- * proposed change in public schedule