

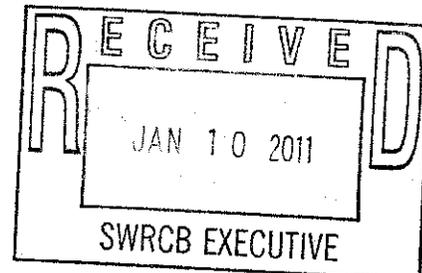


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California State Water Resources Control Board (SWRCB)  
c/o Jeanine Townsend, Clerk to the Board  
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Submitted via email to: [commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov)



Subject: Comment Letter – CEC Monitoring for Recycled Water:  
Comments Regarding the Panel's Research Recommendations

Thank you very much for this opportunity to comment on the important ongoing work regarding CECs<sup>1</sup> in recycled water. The CEC Panel's efforts have created a framework that is unique because it is the first such attempt - of which I am aware - that appears truly implementable.

This comment letter addresses only the CEC Panel's research recommendations and the SWRCB Staff Report's recommendations regarding research. Other aspects of the CEC Panel's recommendations and the Staff Report have been addressed by other parties. In general, it is my opinion that the CEC Panel's approach represents the "best available science" on the potential health effects of CECs, provides a practical and feasible framework to develop a monitoring program, and should be adopted by the SWRCB with no significant changes.

In particular, I believe that implementation of all six of the Panel's research recommendations will be critical to the success of the Panel's monitoring framework and to the successful implementation of water recycling programs across the State of California.

The Staff Report recommends doing further research only on bioanalytical screening techniques (Panel Research Recommendation 6). New bioanalytical screening techniques have the potential to act as "sentinels," i.e., advising utilities and regulators when problems may exist that should be pursued. We concur with the Staff's recommendation that this is the only viable option for detecting the effects of the "unknown unknowns", i.e., chemicals of whose identity we are not yet aware that may have adverse human health (or ecological) impacts.

<sup>1</sup> CECs = constituents of emerging concern

The other Panel Research Recommendations (1 through 5) apply not to "unknown unknown" chemicals, but to those compounds of whose existence we are already aware. However, research on chemicals whose existence is known or suspected is not necessarily a continuation of the status quo based on a traditional "chemical-by-chemical" evaluation approach, as implied in the Staff Report. Instead, selected and well-directed research in the areas discussed in the Panel's research recommendations 1 through 5 should provide many of the missing tools and data needed ultimately to implement the Panel's monitoring framework on firm scientific footing and would allow the SWRCB to move away from the "chemical-by-chemical" approach more quickly and effectively, as discussed in more detail below.

Regarding Panel Research Recommendation 1, a relatively limited amount of further study of existing literature would provide great benefit in terms of determining MECs<sup>2</sup> and/or MTLs<sup>3</sup> for CECs that may not have been adequately addressed in the CEC Panel's report. Some amount of research funding could be cost-effectively directed here as no additional laboratory or field work is needed for this step and it would likely provide a large benefit for relatively small additional investment.

Regarding Panel Research Recommendations 2 and 3, I concur with the SWRCB Staff conclusion that it is not necessary or even practical for the State to fund research for the development and validation of analytical techniques for every new CEC that is "discovered." However, properly directed research in the area of analytical techniques will be critical to practical and wide-spread implementation of the Panel's recommended monitoring program. Specifically, the SWRCB should consider funding the development and commercial validation of analytical techniques that can adequately capture as many of the Panel's recommended CECs as possible as simply and inexpensively as possible. Development of such techniques should result in large cost savings in the analytical work associated with water recycling and will allow smaller utilities to implement water recycling projects in a more cost-effective manner. Therefore, Panel Research Recommendations 2 and 3 are critical to the successful implementation of water recycling projects State-wide.

Panel Research Recommendation 4, which recommends "development of a detailed procedure to *estimate* [emphasis added] predicted environmental concentrations for CECs for which MECs are not currently available...", is a step clearly needed to transition effectively away from the "chemical-by-chemical" approach. This research recommendation has the simple aim of "fleshing out" the current framework in more detail for CECs for which MECs are not known, based on other data already available. If this part of the framework can be properly constructed, it will be the strongest scientific argument that a "chemical-by-chemical" approach is no longer needed.

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<sup>2</sup> MECs = measured environmental concentrations

<sup>3</sup> MTLs = Monitoring Trigger Levels

Finally, Panel Research Recommendation 5 advises implementation of a limited and targeted study of CECs with very low MTLs (<500 ng/L), for which MEC data are currently unavailable or limited. This recommendation highlights another area where a small but well-directed amount of research should bring large benefit in terms of understanding the occurrences of this particularly concerning class of CECs in recycled water across the State. It would also allow the SWRCB to state publicly that compounds in this class (again, in contrast to a "chemical-by-chemical" approach, this does not necessarily mean every single compound) had been specifically investigated and can now be appropriately accounted for within the CEC Panel's monitoring framework.

In conclusion, I recommend adoption and implementation of the CEC Panel's recommendations without significant changes, and am looking forward to the much-needed expansion of recycled water projects across the State that will be enabled by this approach.

Please contact me if you have any questions.

Very truly yours,



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