



May 14, 2010

Jonathan Bishop, Chief Deputy Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Re: Comments on *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water: Recommendations of a Science Advisory Panel* (April 15, 2010)

Dear Mr. Bishop:

The California Coastkeeper Alliance (CCKA), which represents California's 12 Waterkeeper organizations, and Heal the Bay are Stakeholder Advisors to the "Advisory Panel for CECs in Recycled Water," and were active members of the drafting group for the State Water Resources Control Board's Recycled Water Policy (Policy). On behalf of CCKA and Heal the Bay, we are pleased to provide these comments on the Panel's draft final report, *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water: Recommendations of a Science Advisory Panel* (April 15, 2010) (Report).

While we support the Panel's review process, and while the Report does a good job of presenting the current scientific information on CECs given the allotted time, we have significant concerns with the conclusions drawn by the Panel with respect to the actions flowing from this technical information. Specifically, we disagree with the Report's proposed, extremely limited set of monitoring proxies, which will fail to build the database of information needed to develop sound CEC standards and encourage safe, increased use of recycled water. We also disagree with the final Report's focus on monitoring solely for the purpose of assessing human health impacts. This approach is contrary to the Recycled Water Policy's clear direction to include ecological assessments, as well as the Policy's goal of using recycled water more frequently than under the current environmental conditions examined by the Panel.

Severely limiting recommended monitoring as proposed by the Panel will reduce, rather than encourage, consumer confidence in the use of recycled water. It also will delay effective action to prevent potential public health and ecological impacts, contrary to the goals of the Recycled Water Policy and the charge to the Panel. A monitoring program, particularly when used as a shorter-term regulatory screening tool, necessarily must err on the side of comprehensiveness. It is the follow-up regulatory effort, and associated longer-term monitoring program, that may be more circumscribed, *if* called for based on sufficiently comprehensive initial monitoring and analysis. Our organizations would most certainly oppose broad implementation of a recycled water program that was based solely on monitoring for a small set of potential proxies for human health impacts and no consideration of ecological impacts. Given that our organizations invested heavily in the development of the Policy with the goal of increasing recycled water use consistent with state and federal water quality laws, this would be an unfortunate result. Instead, we urge that the final Report be revised to recommend an initial screening period of monitoring, over two to three years, that includes the full list of CECs in Tables 8.1 and 8.2 (pages 62-63) and any additional appropriate contaminants from Table D-1. Monitoring for this list will far better ensure the protection of both human health and the environment, as envisioned by the Policy. These comments are discussed further below.

The Recycled Water Policy Calls for Broad Consideration of Monitoring Needs in the Context of Protecting Human Health and the Environment

The Recycled Water Policy established the Panel for the purpose of “describing the current state of scientific knowledge regarding the risks of emerging constituents *to public health and the environment.*” (Emphasis added.) The Policy further called on the Panel’s Report to “recommend actions that the State of California should take to improve our understanding of emerging constituents” because “[r]egulating most CECs will require . . . more specific determinations as to how and at what level CECs impact public health or our environment.” This mandate was directed at an expert Panel because, as the Report notes, “[t]here needs to be additional research . . . to determine *potential environmental and public health impacts.*” (Emphasis added.) This research is further needed to implement the Policy’s direction to agencies to “minimize the likelihood of CECs impacting *human health and the environment* by means of source control and/or pollution prevention programs.” (Emphasis added.)

In the context of these overarching mandates to ensure protection of both human health and the environment, the Policy then directed the Panel as follows:

(4) The panel report shall answer the following questions: What are the appropriate constituents to be monitored in recycled water, including analytical methods and method detection limits? What is the known toxicological information for the above 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 of CECs in recycled water, groundwater and/or surface waters?

It is important to note that the Panel was charged with answering each of these questions for both human health and environmental perspectives, keeping in mind the overarching goal of increased use of recycled water consistent with water quality laws. The dearth of monitoring data to date has been an impediment to moving forward on recycled water use and development of the associated CEC standards needed to build public confidence in the use of recycled water.

We support the process that the Panel went through to look at the current information on CECs. Examining existing monitoring data, analytical methods and risk (toxicity and exposure) in a systematic manner is a logical approach. The report serves as a good reference on the state of CEC regulation, human health (though not environmental) risks, and effluent monitoring. Further, the analysis that was completed to develop the final list of CECs may prove to be of value for determining which CECs should be looked at more carefully for regulation. However, the final recommendations are completely inappropriate in light of the data and fail to meet the requirements or goals of the Policy. For example, the Panel did not expressly acknowledge the fact that discharge of recycled water to receiving waters occurs on a daily basis, that many streams in southern California are effluent-dominated streams with 80-95% of dry weather flows coming from recycled water discharges, or that many northern California streams that may receive recycled water effluent interact regularly and closely with groundwater. As such, the importance of including monitoring recommendations for those CECs that potentially pose a risk to aquatic life and ecosystems is absolutely critical. By failing to recommend a robust monitoring program even in the short-term in light of this dearth of data, the Report will only delay the increased, safe use of recycled water that California needs to ensure a sustainable water future.

The Report Must Provide a Comprehensive Monitoring Strategy That Will Help Guide Future Regulatory Efforts

The Recycled Water Policy recognized the need for further research to determine “how and at what level CECs impact public health or our environment” in order to guide future regulation of CECs. The Policy in fact created the Panel with this uncertainty in mind. Given that the Panel reviewed existing information based on ongoing, relatively limited use of recycled water, we strongly disagree with the Report’s peremptory and unsupported conclusion that “[m]ost water reuse practices tend to have limited impact on ecological receptors” (p. 72), and its use of this conclusion to recommend a monitoring regime of only a small set of CECs, all relevant primarily to human health rather than *both* human and ecological health. Such an extremely limited monitoring regime will fail to satisfy the research needs of the regulatory effort referenced in the Policy, will fail to provide the public confidence in the use of recycled water needed to ensure a reliable water supply statewide, and will fail to protect the health of the environment in the event that recycled water is indeed, as envisioned by the Policy, used in the surrounding environment more broadly than currently.

As has been repeatedly articulated by our organizations and supported in the scientific literature, CECs are a growing problem in aquatic environments, and will only increase in significance if recycled water is used more widely unless appropriate safeguards are put in place. The Panel itself acknowledged that “reuse practices engage conventional and advanced water treatment processes that result in very different effluent water qualities” (p. 40), results that could have markedly varying environmental impacts that would go unexamined under the monitoring framework recommended in the Report. Moreover, the Panel acknowledged that it had ignored “[o]ther reuse practices that could result in discharge of recycled water to surface water, estuaries, and the ocean.” (Page 9.) The Report noted, possibly by way of explanation, that “the SWRCB, in collaboration with the Packard Foundation, established another Science Advisory Panel in January 2010 that was charged to address CEC discharge” in ocean and coastal ecosystems. However, the release of future reports related to environmental impacts of CECs is not relevant to the immediate mandate before the Panel to assess the “current state of scientific knowledge regarding the risks of emerging constituents to public health and the environment,” and to answer monitoring-related questions that will further such scientific knowledge.

As noted above, the Policy established the Panel to “recommend actions that the State of California should take to improve our understanding of emerging constituents” because “[r]egulating most CECs will require . . . more specific determinations as to how and at what level CECs impact public health or our environment.” Increased use of recycled water, which is important to California’s water sustainability, requires expedited development of this understanding of the impacts of CECs on public health and the environment. Within the context of the Policy and its mandate to the Panel, the recommended monitoring framework is thus too long-term in focus and approach. An initial screening period of two or three years of comprehensive monitoring is needed to build the foundational baseline to determine which CECs need to be monitored further – and, importantly, to build public confidence that the science behind recycled water use is sound. This last point cannot be over-emphasized; the many years of difficulty in increasing the use of recycled water in the face of public concern about its overall safety must be faced with comprehensive and transparent monitoring programs that lead to protective standards. Without the baseline data created by a comprehensive initial screening period, the extremely limited monitoring framework recommended in the Policy will fail to reassure a concerned public that the health and environmental impacts widely reported as resulting from CECs are being sufficiently studied and, as needed, addressed. More limited monitoring may be instituted after the initial screening period, based on the results of the initial monitoring and in light of the state’s recycled water use objectives and environmental and public health protection goals.

The Report itself appears to recognize the limitations of the recommended monitoring framework, noting that “there are a number of activities the State can undertake to improve the quality of future monitoring and toxicological information that feeds into the process that the Panel has identified for this inaugural CEC monitoring effort.” (Page 72.) The inaugural monitoring effort, in fact, should be a baseline, comprehensive monitoring program, not the circumscribed program recommended in the Report. The Report further notes that the state should “[d]evelop a process to predict likely environmental concentrations of CECs based on production, use and environmental fate, as a means for prioritizing chemicals on which to focus method development and toxicological investigation.” (Page 72.) Again, this cannot be done without a robust set of initial monitoring information, which the Report curiously avoids recommending.

Instead of the limited framework recommended by the Report, which will fail to meet the goals and directives of the Policy, we urge the Panel to revise the final Report to recommend an initial screening period of monthly effluent monitoring, and at least annual receiving water monitoring, over two to three years, that includes the list of CECs in Tables 8.1 and 8.2 (pages 62-63) and any additional appropriate contaminants from Table D-1. These lists are far from a comprehensive compilation of CECs, but we are willing to support them based on the research done to date in developing them. We believe that the full CEC monitoring list itself should be revisited on a biennial basis initially, since the science and number of new chemicals and pharmaceuticals coming on the market are changing so rapidly; review of the monitoring list can move as appropriate to a triennial basis.

Although some may argue that monthly monitoring may be cost prohibitive, the Panel must not lose sight of one of the main purposes of the screening effort: to provide consumer confidence that recycled water poses negligible human and aquatic life health risks. A monthly monitoring program for 2-3 years would capture any variability in plant performance and seasonal influent water quality and provide a more solid base of information. The state needs to build a robust database on the issue quickly, and it needs to provide adequate information to the public on the effluent water quality discharged from various different levels of water recycling treatment. We expect that some technologies like MF/RO will do a good job of removing many CECs to below detection levels, and that other treatment technologies will hopefully be effective at CEC removal as well. But the state needs to collect and publicly present this data to a skeptical public, *and* demonstrate its understanding of the impacts of the discharges to receiving waters, to demonstrate its scientific case for a larger strategy to increase statewide water recycling. Again, effluent monitoring can be reduced in the longer term based on the results of this initial screening process, but this must be done consistent with an initial, comprehensive review of effluent concentrations and receiving water impacts.

Monitoring during this initial period of this list of contaminants will reassure the public that the science is being developed fully, and it will produce the information necessary to make a more informed decision about which parameters to include and exclude in a longer-term monitoring framework. Monitoring should be required for all constituents both in the effluent and in the receiving waters, to build the database that the Panel recognized is needed to “predict likely environmental concentrations of CECs based on production, use and environmental fate, as a means for prioritizing chemicals on which to focus method development and toxicological investigation.” To ensure fate and transport is readily understood, receiving water monitoring should be conducted at least annually, with a trigger of increased frequency to quarterly if effluent has detected any CECs on the list more than once in a 90-day period.

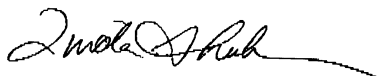
Finally, the Final Report needs to ensure that recommendations are made based on the need for monitoring, not the current availability of analytical methods. The Policy established the Panel in part out of recognition of the need for “additional research and development of analytical methods and surrogates to determine potential environmental and public health impacts.” By contrast, the Report’s monitoring framework includes a recommendation to “[s]creen the priority list to ensure that a commercially-

available robust analytical method is available for that compound.” (Page 5.) Monitoring recommendations that are limited to those constituents that have a currently viable method will avoid the Policy’s direction to encourage “additional research and development of analytical methods.” Discounting the need for analytical methods based solely on the fact that they are currently unavailable will assuredly continue the status quo of their unavailability. Requiring necessary contaminant monitoring on a reasonable timeframe for method development is a sounder course to achieve the Policy’s goals and directions.

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Thank you for the opportunity to provide these comments on an issue critical to the health and well-being of Californians and their environment. If you have any questions, please do not hesitate to contact us.

Regards,



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