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OF SOUTHERN CALIFORNIA**

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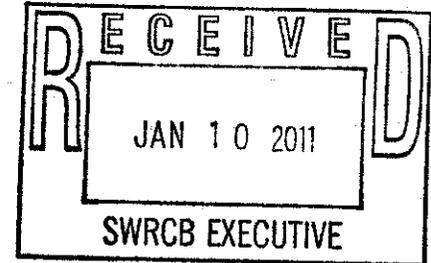
ROBB WHITAKER, P.E., GENERAL MANAGER

Public Hearing (12/15/10)
CEC – Recycled Water
Deadline: 1/10/11 by 12 noon

January 10, 2011

Via Electronic Mail (commentletters@waterboards.ca.gov)

Charlie Hoppin, Chair, and Members
State Water Resources Control Board



Subject: Comment Letter – CEC Monitoring for Recycled Water

Dear Chairman Hoppin and Members of the Board:

The Water Replenishment District (District) of Southern California is pleased to submit comments regarding the recommendations for monitoring constituents of emerging concern (CECs) in recycled water used for groundwater recharge and landscape irrigation. The District manages two of the most utilized urban groundwater basins in the State – the Central and West Coast Groundwater Basins. To help replenish these groundwater basins, the District uses over 65,000 acre-feet of recycled water per year, both by surface spreading and direct injection, and plans to use more recycled water for similar purposes in the future. The use of recycled water is critical to sustaining the quality of these basins and greatly reduces the demand for water imported from the Bay Delta and the Colorado River. We consider the recommendations to be adopted by the State Water Board (Board) vital to the continued safe use of recycled water for these purposes under appropriate conditions.

The District's comments reflect the knowledge and experience gained by nearly 50 years of managing, operating, and studying groundwater recharge projects using recycled water. This experience includes the resolution of issues to achieve consistency in the regulation of recycled water, in particular the petition for the Alamos Barrier Project permit that served as the catalyst for the Board's Recycled Water Policy. The District commends the Board for its leadership and commitment to develop consistent policy guidance for recycled water projects throughout the State, and for committing to a process of using sound science to determine appropriate monitoring requirements for recycled water use. The District believes that such a process is essential in order to build consumer confidence in the safety and benefits of recycled water.

As noted in the District's testimony at the Board's December 15, 2010 hearing, we urge the Board to adhere as closely as possible to the recommendations of the Science Advisory Panel (Panel) including its systematic approach to monitoring CECs based on the risk they present to human health. Those recommendations should be accepted, unabridged and without embellishment. This comment letter highlights six issues where we believe the approach proposed by Board staff either deviates from the Panel's recommendations or where further clarification is needed to avoid unnecessary regulation. We support the comments submitted by the Association of California Water Agencies, the California Association of Sanitation Agencies, and WaterReuse California (collectively, the Associations) and incorporate them by reference.



1. **California Department of Public Health (CDPH) Recommended CECs.** The District believes that the Board should not add the CECs included in the September 13, 2010 CDPH letter to the list of CECs designated for baseline monitoring for groundwater recharge projects unless the compounds have undergone appropriate screening using the Panel's framework. The Panel has already provided comments on the compounds suggested by CDPH in a December 2, 2010 letter. For the three compounds suggested by CDPH for use as performance indicators (bisphenol A, carbamazepine, and tris (2-chloroethyl) phosphate), the Panel concluded that they are not the best candidates for valid technical reasons, and thus we agree with the Panel that they should not be part of the Board's CEC baseline list at this time. However, CDPH may have additional occurrence or effects data that were not reviewed by the Panel. If so, that information should be provided to the Board for screening to identify any additional human health-based indicators. Those CECs that emerge as warranting further monitoring based on health considerations should be added to the list. Those that emerge as important for specific projects can also be recommended by CDPH for inclusion in individual permits separate from the baseline monitoring list. While we acknowledge and respect CDPH's role in case-by-case permitting of groundwater recharge projects, it is inappropriate at this time, as suggested in the Staff Report, to require this additional monitoring as a universal requirement for all projects. The CDPH recommended CECs should be viewed as a candidate list of compounds that CDPH might recommend to be included in a monitoring program for a groundwater recharge project that utilizes surface spreading, depending upon the project-specific considerations. Monitoring location and frequencies will also depend upon the project specifics. We believe this approach would be consistent with the August 2008 CDPH Draft Groundwater Recharge Regulations, in which CDPH acknowledged that monitoring for specific contaminants of interest to CDPH will likely vary between individual projects depending on their engineering reports and characteristics of their groundwater basins, as well as the project sponsor's efforts to address the presence of endocrine disrupting chemicals, pharmaceuticals, and personal care products in recycled water as well as efforts to assure that their presence in recycled water are protective of the public health.
2. **Future Collection of CEC Occurrence Data and the Role of Regional Boards.** The District disagrees with the Staff Report's suggestion that it would be appropriate to give the individual regional boards the authority to select and add CECs to be monitored to individual permits. This approach is contrary to the Panel's recommendation that called for the State to collect data from recently completed or ongoing controlled scientific studies and provide this information to the next expert panel for review using the recommended screening framework to make future modifications to the baseline monitoring program. The Association's comment letter provides examples of applicable research studies. The District recommends that regional boards participate in this process by having the Board adopt the Panel's recommendation to conduct a one-year study of a particular class of CEC's that warranted further evaluation but there was insufficient information on their occurrence in recycled water (see Table 8.4 in the Panel Report). These constituents should be studied to gather data to determine if there is need for longer term monitoring. The regional boards should participate in an advisory role when available results from the special study are presented for review and for a determination if any particular CECs should be added to the baseline monitoring list pursuant to the Panel's framework.
3. **Monitoring Locations for Groundwater Recharge Projects.** The Staff Report does not adequately delineate between the locations for monitoring of health-based CECs and monitoring for performance-based indicators and surrogates. In addition, the Staff Report does not incorporate the Panel's statement (pg. 69) that "The location and monitoring criteria for selection and use of

these sampling locations are site-specific and need to be defined on a case-by-case basis" to allow for project flexibility and compatibility with CDPH regulations. Any follow-up Board recommendations or documents should provide clarification of monitoring locations consistent with the Panel's Final Report and CDPH's draft groundwater recharge regulations to avoid confusion as part of the permitting process.

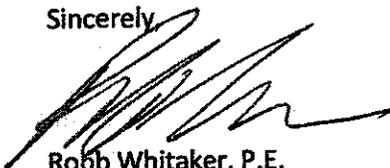
4. **Monitoring Frequency for Surrogates.** The District is concerned that there is some ambiguity in the staff recommendation on how to establish monitoring frequencies for surrogate compounds for groundwater recharge projects. The Staff Report cites "Daily or Weekly," monitoring for surrogates for all groundwater recharge projects with a footnote stating that "Staff considers the frequency of monitoring to be a function of the parameter. Hence, some parameters may be monitored less frequently." While the District appreciates this caveat, determination of the monitoring frequency will also be a function of the type of treatment, the monitoring location, and the type of project. For example, for surface spreading projects, daily monitoring of total organic carbon at a water reclamation plant and/or monitoring wells appears to be unnecessary and burdensome, while daily monitoring at a water reclamation plant for turbidity and coliforms is warranted. We recommend that any follow-up Board recommendations or documentation acknowledge that other types of site-specific factors should be considered by regional boards and CDPH in selecting surrogate monitoring frequencies.
5. **Expected Removals for Indicators and Surrogates.** The Staff Report cites "expected removal percentages" for performance indicator CECs and surrogate parameters in Tables 1 and 2. The District is concerned that the use of the term "expected removal percentages" has the potential to be misinterpreted and misused as required removal rates when in fact the percentages included in the tables are simply examples of removal rates observed from one specific research project. An effective and safe project could have actual removal rates that differ from these percentages if the conditions of the project differ from those used for that particular study. The Panel recommended that the removal rates for the performance-based indicators and surrogates be documented during a project's piloting and/or start-up phase (not all projects conduct pilot studies). The District recommends that follow-up Board recommendations or documents define expected removal rates as examples of rates that have been observed as part of a specific research project and may differ from actual project performance defined during an individual project's piloting and/or start-up phase.
6. **Response Actions.** The District believes that the Staff Report could be misinterpreted to establish a specified regulatory framework for responses to CEC monitoring results, which is contrary to the Panel's recommendation. The Staff report notes that the Panel provided five tiers of thresholds and corresponding response actions. It fails to acknowledge that the Panel specifically did not want the monitoring results to be used for compliance and/or regulatory purposes, but for investigation and potential use for additional follow-up actions only as part of conferring with the CDPH and the regional boards. We recommend that follow-up Board recommendations or documents reflect the Panel's conceptual approach and denote that the responses provided are only examples and specific responses should be developed with CDPH and the regional boards depending on the circumstances.
7. **Options for Implementing Research.** The District disagrees with the Staff Report's suggestion for how to implement the Panel's research recommendations. The first research pathway (chemical-

specific monitoring) as described in the Staff Report entails developing toxicity data and analytical methods for *all* of the chemicals for which no water quality objectives have been established. This first research pathway is characterized by Board staff as too slow and too difficult based on the huge universe of chemicals that would have to be addressed. As a result, Board staff recommended a second research pathway; namely that all efforts be directed at developing bioanalytical screening methods. While the staff description for the first research pathway is indeed impracticable, it also overstates what the Panel has recommended. The Panel's research recommendations Numbers 1 through 5 that deal with chemical-specific monitoring (presented on page 8 of the Staff Report) can logically be addressed by utilizing existing and ongoing research and monitoring activities, some of which are summarized in Attachment 2 of the Associations' comment letter. Much of this work has been supported by the Board via funding provided to the WaterReuse Research Foundation. The Board's role for addressing the Panel's recommendations would be to provide technical support for staff to assist with data and information collection efforts and support for convening future expert panels to review the research results. We recommend that the Board adopt this approach. With regard to bioanalytical methods, while the Panel is hopeful that techniques may be available in three to five years, there is no guarantee that this will occur or that the tests will be useful for identifying chemicals of concern. Research in this area has been conducted for over 40 years with no definitive methods, including research that has been sponsored by the District. We have always faced the reality that the universe of chemicals is large and impossible to fully characterize. Yet, we have continued to come up with approaches to reasonably characterize the safety of water. While we believe that bioanalytical methods may at some point in the future be of great utility, a considerable amount of research is needed, which may be well beyond the means of the State to undertake on its own. The WaterReuse Research Foundation is launching a project that will help fill this gap: *Bio-analytical Techniques to Assess the Potential Human Health Impacts of Reclaimed Water* (WRF 10-007). This particular project will provide critical information on the value and utility of bioanalytical techniques. We recommend that the Board provide support for this study and use the results of WRF 10-007 and any other relevant bioassay studies for review by the next expert panel to determine if and how bioanalytical tools might be applied for groundwater recharge projects that used recycled water.

The Board and its staff are to be commended for their thorough analysis of the Panel's Report and for their ongoing commitment to select the Panel's recommendations that are most likely to accomplish the goals of the Recycled Water Policy: *"increasing the use of recycled water and maximizing consistency in the permitting of recycled water projects."* Programs like ours, which have such promise for creating a safe, sustainable water supply in California, depend on public policy and permitting decisions that are based on sound science.

If you have any questions, please contact Ted Johnson, our Chief Hydrogeologist or me at (562) 921-5521.

Sincerely



Robb Whitaker, P.E.
General Manager