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**Workshop Report on Managing Contaminants of Emerging Concern
in California's Water Resources Now Available**

FOUNTAIN VALLEY, Calif. – A new workshop report is now available that discusses strategies to begin addressing contaminants of emerging concern (CECs) in California's water resources. The report provides a list of recommended steps that involve new and evolving approaches for prioritizing compounds to study, identifying monitoring goals and objectives, and assessing thresholds of human and ecological health concern.

This report was prepared by a consortium of nonprofit and university sponsors interested in water quality issues in California, including the California Ocean Protection Council, California Ocean Science Trust, National Water Research Institute, San Francisco Estuary Institute, Southern California Coastal Water Research Project, and Urban Water Research Center at the University of California, Irvine.

CECs are a group of mostly unmonitored and unregulated chemicals whose potential to impact the beneficial uses of water resources in California is largely unknown. CECs, which include pharmaceuticals and personal care products, pesticides, and industrial and household compounds, have been found at trace levels (parts per trillion) in wastewater discharges, ambient receiving waters, and drinking water supplies.

Approximately 100,000 individual chemicals have been registered for use in the United States over the past 30 years. However, the analytical methodologies used to measure trace levels of CECs in the environment are currently limited to several hundred of these non-regulated chemicals.

Having a limited pool of analytical methods restricts the ability of researchers to accurately describe CEC occurrence, which in turn limits the ability to assess potential risks. Due to this knowledge gap, regulatory agencies thus far have been unable to develop a comprehensive strategy for monitoring and regulating CECs.

In response, a workshop was held on April 28-29, 2009, in Costa Mesa, CA, to bring together scientists, water quality managers, and stakeholders to formulate a path toward developing an effective CEC management strategy that is protective of water quality.

The workshop included interactive break-out sessions that focused on:

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- CECs of sufficient concern that should be incorporated into routine monitoring programs.
- Measurement techniques for monitoring these CECs.
- Thresholds of ecological and human health concern for interpreting CEC monitoring data.

Conclusions from the workshop were summarized in a 37-page workshop report entitled, “Managing Contaminants of Emerging Concern in California: Developing Processes for Prioritizing, Monitoring, and Determining Thresholds of Concern.”

Major findings included:

- **The current chemical-specific risk assessment approach is neither feasible nor cost-effective for prioritizing and managing the vast majority of CECs.** The U.S. Environmental Protection Agency currently regulates 129 priority chemicals, but tens of thousands of CECs exist that may require risk assessment. The traditional risk-based approach may not be feasible given the extreme data gaps for most CECs. Therefore, a new paradigm that prioritizes chemicals with similar toxicological modes of action for further evaluation is needed.
- **Because we are currently in the investigative phase, developing regulatory limits would be premature at this time.** In lieu of regulations or compliance monitoring, investigative monitoring should be used as a first step towards the development of a management strategy. Identifying a clear set of goals for investigative monitoring is essential for filling in critical data gaps.
- **A flexible, multi-element prioritization framework is needed to identify those compounds of highest concern.** This framework would integrate risk-, occurrence-, and modeling-based prioritization elements to select the highest priority CECs for specific monitoring applications and geographic locations.
- **The creation of a single master list of CECs that agencies could apply effectively across all applications is unlikely.** It is more likely that constituents of concern will vary depending upon a number of application-specific parameters, such as type of waterbody, degree of treatment, impact of concern (human or ecological health), and land use. Therefore, a more logical step would be the formulation of preliminary lists of priority CECs that will address the investigative monitoring goals for various applications, such as drinking water or recycled water.
- **The interpretation of monitoring data and subsequent decision making should be based on tiered, multiple thresholds.** Thresholds associated with no, little, moderate, and high probabilities of impact should be used to trigger risk-appropriate actions aimed at protecting the beneficial uses of the resource.

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- **An adaptive management strategy is imperative to respond to rapidly changing knowledge.** Little is known about CECs at this time. Therefore, new information and technology will affect our ability to monitor for CECs, and preliminary CEC monitoring lists will be subject to trial and error. Further advances in treatment technologies and changes in chemical use will also affect the occurrence of CECs. Therefore, CEC management processes must also be able to adapt to new information.

In addition to these findings, the workshop report also includes the following recommended next steps toward developing a CEC management strategy for California:

- Fill in data gaps, which can be accomplished through investigative monitoring and targeted research.
- Synthesize current knowledge to select a proposed list of CECs for the purposes of monitoring.
- Identify and, as necessary, develop and test the most appropriate monitoring methods for these CECs.
- Incorporate measurements of proposed CECs into the design and implementation of existing and future planned studies.

Finally, it was determined that trust among water quality managers, scientists, and the public is a key component in moving the process forward in developing a comprehensive strategy for monitoring and regulating CECs.

Copies of the workshop report can be downloaded at the following websites: www.calost.org, www.nwri-usa.org, www.sfei.org, www.sccwrp.org, and www.uwrc.uci.edu.

The California Ocean Protection Council (OPC) was founded in 2004 to ensure that California maintains healthy, resilient, and productive ocean and coastal ecosystems for the benefit of current and future generations. More information may be found at www.opc.ca.gov.

The California Ocean Science Trust (OST) is a nonprofit public benefit corporation established pursuant to the California Ocean Resources Stewardship Act of 2000 to encourage coordinated, multi-agency, multi-institution approaches to translating ocean science to management and policy applications. More information may be found at www.calost.org.

The National Water Research Institute (NWRI) is a nonprofit research organization founded in 1991 to promote the protection, maintenance, and restoration of water supplies and to protect the freshwater and marine environments through the development of cooperative research work. More information may be found at www.nwri-usa.org.

The San Francisco Estuary Institute (SFEI) was founded as a non-profit organization in 1986 to foster the development of the scientific understanding needed to protect and enhance the San Francisco Estuary. More information may be found at www.sfei.org.

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The Southern California Coastal Water Research Project (SCCWRP) is a research institute founded in 1969 that focuses on the coastal ecosystems of Southern California from watersheds to the ocean. More information may be found at www.sccwrp.org.

The Urban Water Research Center (UWRC) is a partnership of over 70 faculty members and a variety of departments at the University of California, Irvine, that is dedicated to advancing the understanding of the distinct characteristics of the urban water environment to assist people and institutions in their effort to promote health, enhance the efficient use of water resources, and protect environmental values. More information may be found at www.uwrc.uci.edu.

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