

**STATE WATER RESOURCES CONTROL BOARD
BOARD MEETING SESSION – DIVISION OF FINANCIAL ASSISTANCE
FEBRUARY 19, 2008**

ITEM 4

SUBJECT

CONSIDERATION OF A RESOLUTION FOR AUTHORIZATION TO ENTER INTO AN AGREEMENT WITH THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH FOR TWO EXPERT ADVISORY PANELS AND A RISK ASSESSMENT REPORT

DISCUSSION

The purpose of this agenda item is to authorize an agreement with the California Department of Public Health (CDPH) to provide funding for two expert advisory panels and a risk assessment report. Funds will be used to provide scientific peer review and evaluation of health regulations governing water recycling in California Code of Regulations, Title 22. Specifically, two topics will be addressed:

1. Whether recycled water produced in conformance with the California Water Recycling Criteria in Title 22 is sufficiently protective of public health for agricultural food crop irrigation, and
2. Whether Biodegradable Dissolved Organic Carbon (BDOC) is a suitable alternative surrogate to Total Organic Carbon (TOC) to assess the removal of unregulated wastewater-derived organics from recycled water to be used for groundwater recharge.

The agreement with CDPH will be funded with bond funds. The Costa-Machado Water Act of 2000, also known as the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act or Proposition 13 (2000 Bond Law), included funding for water recycling research. The 2000 Bond Law provides that the State Water Resources Control Board (State Water Board) may use funds to undertake plans, surveys, research, development, and studies necessary or desirable to carry out water recycling, including the preparation of comprehensive statewide or areawide studies and reports on the collection, treatment, and disposal of waste and wastewater recycling (Wat. Code, §§ 79144, 79145).

On January 18, 2007, the “Strategic Plan, January 2007-December 2008, Water Recycling Funding Program, Division of Financial Assistance” (Performance Plan) was approved by the Division of Financial Assistance (Division). The Performance Plan calls for the Water Recycling Funding Program to act as a partner and catalyst in statewide efforts to promote water recycling, including research to study emerging issues addressing public health related to water reuse.

Under authority of the Water Code, Section 13521, CDPH has established statewide water recycling criteria for each type of use of recycled water where the use involves the protection of public health. These criteria are found in Title 22 of the California Code of Regulations, Division 4, Chapter 3. The applicable criteria are incorporated by the Regional Water Quality Control Boards (Regional Water Boards) into waste discharge requirements or water reclamation requirements permits. The last revision of the water recycling criteria in Title 22 was in 2001.

Topic 1: Agricultural Irrigation

The use of recycled water for irrigation of food crops has a long history of safe use in California. However, increased mobility of people and products from many areas, changes in agricultural practices, and increased knowledge of behavior of pathogens and disease, warrant a re-evaluation of the Title 22 criteria to verify their adequacy. CDPH requests funding for two actions to address whether the criteria are sufficiently protective of public health for agricultural food crop irrigation: convening an expert advisory panel and commissioning a risk assessment report.

Advisory Panel. The scope of the agricultural irrigation advisory panel will be to address recycled water used for irrigation of a wide variety of food crops requiring different recycled water qualities. These include crops eaten raw (e.g., strawberries) with direct recycled water contact and requiring a highly treated recycled water. These also include crops with no direct recycled water contact (e.g., nuts) or subject to pathogen destroying processing (e.g., sugar beets), requiring a lesser recycled water quality.

The scientific basis of the water recycling criteria dealing with agricultural food crop irrigation will be evaluated, including:

- Public health objective and structure of the criteria;
- Filtration requirements including the turbidity performance standard, acceptable filter designs, filter loading rate, and treatment optimization;
- Disinfection requirements including the coliform performance standard, CT (a design parameter of chlorine residual times contact time) required for chlorination, and log reduction goal for virus and protozoan parasites (cryptosporidium and Giardia);
- Use area crop handling and irrigation practice assumptions;
- Reliability requirements; and
- Role of multi-barrier treatment.

In addition, the evaluation will address criteria implementation issues including incorporation of the criteria into Regional Water Board permits, regulatory surveillance, and the state of compliance. Should the panel determine that the use is not sufficiently health protective, it would be asked to recommend criteria changes or other State of California actions that will assure sufficiently health protective agricultural irrigation of food crops with recycled water.

The panel will consist of nine experts of various disciplines. It would meet, review relevant literature and research, and prepare a report over a period of about nine months.

Risk Assessment Report. In support of the panel work, CDPH also requests funding to contract for the preparation of a risk assessment report. This report will include: a summary of existing risk assessment approaches to assess the human health risks associated with exposure to microbial pathogens through consumption of agricultural food products irrigated with recycled water, and an evaluation of risk assessment based on available models. The report would also include development of a conceptual model and an analysis and risk characterization. The report is expected to result in enhanced knowledge of the likelihood of adverse human health effects and identification of areas where more research is needed.

Topic 2: Groundwater Recharge and BDOC

Specific performance and design criteria for the use of recycled water for groundwater recharge have not been adopted in Title 22. Projects have been reviewed using draft regulations as a basis. The draft regulations have been evolving as new issues arise and recent research becomes available. CDPH intends to begin formal adoption of criteria for groundwater recharge this year.

One of the constituents included in the draft regulations for groundwater recharge is TOC, which is used as a surrogate for measuring unregulated organic compounds of wastewater origin present in recycled water. The use of TOC is based on recommendations of the Scientific Advisory Panel on Groundwater Recharge with Reclaimed Water, which prepared a report to the State Water Board, Department of Water Resources, and the predecessor to CDPH in 1987. The use of TOC, thus, has a long history in the development of groundwater recharge regulations and the determination of acceptable levels of treatment and ratio of recycled water to other dilution water during recharge operations. However, limitations have been identified in using this parameter that may unnecessarily limit the amount of recycled water that can be recharged in a project. TOC can consist in part of organic chemicals that were present in the source drinking water and are not of public health concern and that are not easily removed in treatment.

A suggested alternative to the use of TOC is the use of BDOC in concert with specific chemical indicators in performance and design criteria in the draft regulations for groundwater recharge projects. CDPH requests funding to convene an expert advisory panel to obtain recommendations on the technical viability of the BDOC/indicator chemicals concept and whether this approach could be included in the draft groundwater recharge regulations. The scope of the panel will be to assemble information and research relevant to TOC, BDOC, and trace organic indicators related to groundwater recharge.

The panel will consist of up to seven members of various disciplines. The panel will meet and prepare a report over a period of about three months.

POLICY ISSUE

Should the State Water Board authorize the Executive Director, Chief Deputy Director, the Deputy Director of the Division, or designee to negotiate, execute, and amend, as necessary, an Agreement with the CDPH for an amount not to exceed \$140,000?

FISCAL IMPACT

This Agreement will be fully funded by the Water Recycling Subaccount (Subaccount) of the 2000 Bond Law. A total of up to three percent of the amount deposited in the Subaccount of the 2000 Bond Law may be used for the purposes of studies, research, and demonstration activities, as described above. Three percent of the initial Subaccount balance of approximately \$100 million was \$3 million. Three percent of water recycling loan repayments deposited into the Subaccount has increased this amount. Commitments of these funds and the current balance are shown in the table below. Currently, new research funds derived from loan repayments amount to about \$100,000 annually. They are allowed to accumulate until appropriate funding opportunities develop.

Initial 2000 Bond Law allocation from the Water Recycling Subaccount	\$3,000,000
Allocation from loan repayments and SMIF interest	+ 1,137,247
WateReuse Foundation research (2001)	- 1,000,000
2002 Recycled Water Task Force	- 29,430
San Diego County Water Authority Regional Planning Grant (April 2003)	- 508,891
WateReuse Foundation research increase (2004)	- 1,000,000
WateReuse Foundation research Agreement increase (2007)	- 650,000
Agreements and subcontracts, if appropriate, with Common Ground, UCD Dept. of Civil and Environmental Engineering and Agricultural and Resource Economics	-179,475
Proposed Agreement with CDPH	-140,000
Balance:	\$629,451

REGIONAL BOARD IMPACT

None.

STAFF RECOMMENDATION

That the State Water Board authorize the Executive Director, the Chief Deputy Director, the Deputy Director of the Division, or designee to negotiate, execute, and amend, as necessary, an Agreement with the CDPH for an amount not to exceed \$140,000.

D R A F T

STATE WATER RESOURCES CONTROL BOARD RESOLUTION NO. 2008-

AUTHORIZATION TO ENTER INTO AN AGREEMENT WITH THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH FOR TWO EXPERT ADVISORY PANELS AND A RISK ASSESSMENT REPORT

WHEREAS:

1. The Costa-Machado Water Act of 2000 (also known as Proposition 13 or the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act) established the Water Recycling Subaccount, and authorizes the State Water Resources Control Board (State Water Board) to use a portion of it to fund water recycling research;
2. The Division of Financial Assistance (Division), through the Water Recycling Funding Program (WRFP), administers an on-going research funding program using funds authorized under the Costa-Machado Water Act of 2000;
3. On January 18, 2007, the "Strategic Plan, January 2007-December 2008, Water Recycling Funding Program, Division of Financial Assistance" (Performance Plan) was approved by the Division. The Performance Plan calls for the WRFP to act as a partner and catalyst in statewide efforts to promote water recycling, including research to study emerging issues addressing public health related to water reuse;
4. The California Department of Public Health (CDPH) has statutory authority to establish uniform statewide water recycling criteria, which are used as a basis for permits adopted by Regional Water Quality Control Boards for water recycling projects;
5. The CDPH has requested \$140,000 to convene two expert advisory panels and commission a risk assessment report to assist CDPH in evaluating (a) the adequacy of existing state regulations governing the use of recycled water for agricultural food crop irrigation and (b) the potential substitution of Biodegradable Dissolved Organic Carbon and indicator chemicals for Total Organic Carbon in performance and design criteria in proposed regulations governing the use of recycled water for groundwater recharge.

D R A F T

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Authorizes the Executive Director, the Chief Deputy Director, the Deputy Director of the Division, or designee to negotiate and execute an Agreement with the CDPH, for an amount not to exceed \$140,000, and to make additional amendments as necessary; and
2. Authorizes the Executive Director, the Chief Deputy Director, the Deputy Director of the Division, or designee to perform all acts and to do all things necessary and convenient to implement such an agreement.

CERTIFICATION

The undersigned, Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on February 19, 2008.

Jeanine Townsend
Clerk to the Board