

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2010-0079

ESTABLISHMENT OF A
CENTRAL VALLEY DRINKING WATER POLICY
FOR THE
SACRAMENTO-SAN JOAQUIN DELTA AND UPSTREAM TRIBUTARIES

Whereas, the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) finds that:

1. The Sacramento-San Joaquin Delta (Delta) provides drinking water to more than 25 million people or about 60 percent of the population of California.
2. The Central Valley Water Board recognizes that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters, including the Delta.
3. The Central Valley Water Board recognizes that meeting the goal of clean, safe drinking water requires a multi-barrier approach consisting of protecting source water quality, appropriately treating raw water, and ensuring safe distribution of treated water to consumers' taps. The degree of treatment for drinking water required by state and federal regulations depends on the quality of the source water for certain parameters.
4. The surface water drinking water supplies in some of the Delta tributaries are currently of sufficient quality that municipal water users are generally allowed to provide minimum levels of treatment specified in the drinking water regulations. Drinking water treatment needed for Delta water includes enhanced coagulation, ozone disinfection, ultraviolet irradiation, chloramination, and measures to control tastes and odors. There is considerable concern that population growth in the Central Valley could impact the high quality of the source water. Drinking water purveyors are concerned about future treatment requirements and increased costs for treatment.
5. The CALFED Bay-Delta Program began as a cooperative effort of more than 20 state and federal agencies including the Central Valley Water Board, the State Water Resources Control Board (State Water Board), the U.S. Environmental Protection Agency (USEPA), the California Department of Public Health (DPH), the California Natural Resources Agencies, and the U.S. Department of the Interior, with a mission to develop and implement a long-term comprehensive plan to restore ecological health and improve water management for beneficial uses of the Bay-Delta. In 2006, the Water Quality

program functions of the CALFED Bay-Delta Program were transferred to the State Water Board. Also in 2006, the executive management and Science Program functions were transferred to the Secretary for Natural Resources. In 2009, the Delta Stewardship Council was created by legislation and is now responsible for the executive management and Science Program functions as well as general oversight of the CALFED Bay-Delta Program.

6. The CALFED Bay-Delta Program identified the following drinking water quality concern:

Source water from the Bay-Delta poses treatment challenges and public health concerns for the 22 million Californians who drink the water. [CALFED Bay-Delta Program Water Quality Program Plan, July 2000, pgs. 3-4]

7. In August 2000, CALFED issued the Record of Decision (ROD) for the Programmatic Environmental Impact Statement/Environmental Impact Report requiring the California Bay-Delta Authority (CBDA), with the assistance of the DPH to coordinate a comprehensive source water protection program. One element of this source water protection program is to “establish a comprehensive State drinking water policy for the Delta and upstream tributaries by the end of 2004.”
8. The Central Valley Water Board is a signatory to the Implementation Memorandum of Understanding for the CALFED Drinking Water Quality Program, executed on 22 May 2002, which states that:

CVRWQCB, in consultation with DHS [now DPH], SWRCB, and USEPA, will have primary responsibility for development of a State drinking water policy for the Delta and its tributaries.
9. The State Water Board sets water quality objectives for salinity that protects all beneficial uses including municipal and industrial beneficial uses in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.
10. The State Water Board’s Sources of Drinking Water Policy (Resolution No. 88-63), as incorporated into the Central Valley Water Board’s *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised September 2009 (Basin Plan) establishes that all waters within the San Joaquin River and Sacramento River basins are considered suitable or potentially suitable to support the MUN beneficial use, with certain exceptions.
11. The Central Valley Water Board has authority to formulate and adopt water quality control plans, establish water quality objectives, and develop

implementation plans under California Water Code §13240, §13241, and §13242. Water quality objectives are defined under State law as “the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.” (Water Code §13050(h)).

12. USEPA water quality standards regulations require each state to adopt an “antidegradation” policy and specify the minimum requirements for the policy (40 CFR 131.12).
13. The State Water Board’s Policy with Respect to Maintaining High Quality of Water in California (Resolution No. 68-16) incorporates the federal antidegradation policy and restricts reductions in water quality even if beneficial uses are protected. Changes in water quality are allowed only if they are consistent with maximum benefit to the people of the State, do not unreasonably affect beneficial uses, and do not result in water quality less than that prescribed in water quality control plans or policies. Administrative Procedures Update No 90-004 provides guidance for implementation of the State and federal antidegradation policies. This guidance requires an antidegradation analysis to be conducted for any new or expanded discharge with the potential to degrade water quality.
14. Water Code §13000 states that “activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.”
15. The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) designates municipal and domestic supply (MUN) as a beneficial use of the Delta. The Central Valley Water Board’s *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised September 2009, has also designated the drinking water municipal and domestic supply beneficial use (MUN) for most waters in the Central Valley, including the Sacramento-San Joaquin Delta.
16. The Basin Plan includes narrative objectives for chemical constituents, taste and odor, sediment, suspended material, and toxicity, and numeric objectives for chemical constituents and salinity. The Basin Plan incorporates by reference the primary and secondary maximum contaminant levels specified in Title 22 of the California Code of Regulations for waters designated MUN. The Bay-Delta Plan also includes numeric water quality objectives that apply within the Bay-Delta.

17. Although the Basin Plan addresses many constituents that threaten drinking water source waters, the 1998, 2002 and 2006 Triennial Reviews of the Basin Plan identified development of a policy for maintaining water quality for drinking water as high priority.
18. After the CALFED ROD was issued, the Central Valley Drinking Water Policy Workgroup (Workgroup) was formed to develop a comprehensive drinking water policy. The Workgroup is comprised of federal and state agencies, drinking water purveyors, and wastewater, municipal and agricultural dischargers.
19. In 2003, the Workgroup developed a Work Plan that described necessary technical studies to support the development of a drinking water policy. The technical studies included identification of constituents of concern; examination of regulatory programs in other regions, states and countries; water quality and watershed modeling; water quality monitoring; source control methods, effectiveness and costs; and drinking water treatment feasibility options and cost analysis.
20. In 2003, California Urban Water Agencies (CUWA) and Sacramento Regional County Sanitation District entered into contract with the State Water Board to reimburse staff costs for one half of a staff person per year for work performed on the development of the drinking water policy. This contract has been amended several times to continue funding staff through June 2010.
21. In 2004, CUWA, acting on behalf of the Workgroup, was awarded a Proposition 50 grant of \$970,000 to develop technical studies and perform watershed monitoring consistent with the 2003 Work Plan to support the development of the Central Valley Drinking Water Policy.
22. In July of 2004, the Central Valley Water Board adopted Resolution No. R5-2004-0091, which formally communicated the Board's continued support for development of a comprehensive drinking water policy after the CALFED ROD date of 2004.
23. The following drinking water constituents of concern have been identified by stakeholders as high priority for study and evaluation: salt (including bromide), nutrients, organic carbon and pathogens such as *Cryptosporidium* and *Giardia*.
24. The Workgroup gathered available ambient and discharger water quality data for the Delta and major tributaries. The information included the groups performing monitoring, time period covered, monitoring locations, constituents, data quality and frequency of monitoring. This data was gathered into a water quality database for the drinking water constituents of concern.

25. Between 2006 and 2007, conceptual models for organic carbon, nutrients, pathogens and pathogen indicators, and salinity were developed for the Workgroup. The conceptual models produced preliminary loading analysis, identified data gaps, and provided recommendations for the next steps; the models identified the additional data needs for each of these constituents to refine current loading estimates from the different sources.
26. There is currently inadequate information to evaluate the potential for organic carbon, *Cryptosporidium* and *Giardia* to impact the drinking water beneficial use. The organic carbon conceptual model recommended collecting additional source data, specifically from wastewater treatment plants and fish hatcheries. The pathogen conceptual model recommended collecting additional data for *Cryptosporidium* and *Giardia* in ambient surface water, at Delta drinking water intakes, and in wastewater and urban storm water discharges.
27. The conceptual models did not result in a recommendation for additional data to be collected from irrigated lands, since the Irrigated Lands Regulatory Program requires monitoring for organic carbon, salinity and nutrients in representative receiving waters that receive discharge(s) from irrigated lands. Monitoring is conducted for pathogen indicators but not for actual pathogens. Information is needed regarding practical management practices that can be implemented on irrigated lands, along with the efficacy of those practices at reducing constituents of concern and the cost estimates for implementing them.
28. Some Delta municipalities regulated by municipal separate storm water permits are required to monitor for organic carbon, salinity and nutrients in receiving waters. Monitoring is conducted for pathogen indicators but not for actual pathogens. Information is also needed regarding practical management practices that can be implemented to reduce or treat urban runoff, along with the efficacy of those practices at reducing constituents of concern and the cost estimates for implementing them.
29. The Proposition 50 grant included funding for monitoring at wastewater treatment plants and fish hatcheries, source control analysis, drinking water treatment and cost evaluations, and the development and refinement of analytical water quality and watershed models. The models would predict how constituents of concern move from their sources to the drinking water intakes, under present and projected future conditions, accounting for different treatment options, management practice application and population growth.

30. In December 2008, the Governor issued a stop work order on all proposition funded projects. This halted the technical studies funded by the Proposition 50 grant to support the development of the Drinking Water Policy.
31. In December 2009, the State Water Board's Division of Financial Assistance issued a conditional restart for the Proposition 50 grant. The conditional restart stipulated that the project be completed by 31 March 2010 for a dollar value not to exceed \$200,000.
32. In February 2010, the State Water Board's Division of Financial Assistance offered the grantee the opportunity to apply for a grant extension for the Proposition 50 grant until 1 March 2011 and reinstated the entire amount of the grant. CUWA did not act on the grant extension.
33. The Governor's stop work order and the subsequent restart of the grant more than a year later disrupted the stakeholder effort to move forward with various elements of the grant. The following work is unfinished:
 - Conducting water quality monitoring for selected constituents of concern in publicly owned treatment works and fish hatchery effluents in the Central Valley
 - Evaluating potential control strategies and costs
 - Completing and refining drinking water treatment evaluations and costs
 - Completing and refining analytical modeling
 - Continuing Workgroup and conducting a workshop with a scientific review panel to discuss conceptual models, loading analysis and major sources identification.
 - Evaluating the cost of alternative control strategies and compare to other drinking water risk reduction measures (e.g., enhanced water treatment).
34. There are ongoing efforts to address salinity and nutrients in surface waters, including the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) program and the State Water Board effort to develop nutrient numeric endpoints. The CV-SALTS effort is addressing salinity and nitrate problems in the Central Valley. The State Water Board, with the support of US EPA, is working to develop nutrient numeric endpoints to regulate nutrient levels in the State's waters, with the primary goal of maintaining nutrient levels that support the health of aquatic systems. The nutrient numeric endpoints are also to limit excessive growth of macrophytes or phytoplankton, potentially harmful algal blooms leading to oxygen declines, imbalance of aquatic species, potential impacts to municipal and domestic supplies, and a general decline in aquatic resources. The technical work that has been completed to date on salinity and nutrients, as well as the work yet to be completed (i.e., monitoring), can be used to inform the CV-SALTS and State Water Board's nutrient numeric endpoint process.

35. Work in the Delta by the Interagency Ecological Program on determining the causes of the ongoing pelagic organism decline (POD) has recently been focused on the pelagic food web and the role of nutrients. The results of that work are inconclusive at this time.
36. The Workgroup has concluded there is inadequate information to develop a comprehensive drinking water policy. In addition, the Workgroup has concluded that adequate information has not been collected to determine current and potential future drinking water quality conditions in the Delta with regard to organic carbon, *Cryptosporidium* and *Giardia*. Information needed includes practical management practices for irrigated lands and urban runoff, efficacy of those practices at reducing constituents of concern and cost estimates for implementing them; fate and transport information for constituents of concern; and resolution of equity issues regarding the funding of management activities that are beneficial to various stakeholders.
37. The Workgroup has discussed whether development of water quality objectives should be a high priority for organic carbon and *Cryptosporidium* and *Giardia* at this time, taking into consideration the resource requirements for objective development and the lack of data to determine current trends in constituent concentrations or loads. At this time, additional data, information and analysis would be required to develop water quality objectives for organic carbon, *Cryptosporidium* and *Giardia* to protect the drinking water beneficial use. It would be necessary to have a better understanding of the ecosystem needs for organic carbon in the Delta, more data on background levels of these constituents in the Delta and tributaries to the Delta, information on the fate and transport of these parameters, drinking water treatment options and costs, and source control options and costs. There is currently no funding to accomplish this work.

THEREFORE BE IT RESOLVED:

1. The Central Valley Water Board is committed to developing a comprehensive Drinking Water Policy for the Delta and tributaries, and the Central Valley Water Board encourages the Workgroup to continue to work with staff to develop a comprehensive policy if adequate resources are available.
2. The Central Valley Water Board believes that other efforts that are underway are the appropriate venues for working on salinity and nutrients. These efforts include CV-SALTS, and the State Water Board's development of nutrient numeric endpoints. The Central Valley Water Board directs staff to track efforts of CV-SALTS and the State Water Board's development of nutrient numeric endpoints to coordinate these efforts with the development of the Drinking Water Policy for the Delta and tributaries.

3. The Central Valley Water Board recommends that continued efforts of this Workgroup focus on organic carbon, *Cryptosporidium* and *Giardia*.
4. The Central Valley Water Board recognizes that, while the Workgroup has not agreed upon the ultimate content and scope of the policy, collection of additional data and information on discharges and alternative control practices will enhance the effective use of existing analytical models and those under development to predict changes in ambient conditions and loading from significant source categories. The information is essential for developing a comprehensive policy and determining what resources will be required to develop the policy.
5. The Central Valley Water Board directs staff to take the following actions:
 - Coordinate with the Workgroup to seek grant funding and to complete the Proposition 50 grant.
 - Continue to ensure that the drinking water constituents of concern are considered when NPDES facilities conduct their anti-degradation analyses.
 - Evaluate whether monitoring should be required for organic carbon, salinity, nutrients, *Cryptosporidium* and *Giardia* from significant sources of these constituents.
 - Ensure that the priority constituents of concern for drinking water supplies are integrated into the Regional Monitoring Program for the Delta.
 - Stay abreast of research on emerging drinking water contaminants and periodically assess the need to conduct monitoring of discharges and receiving waters.
 - Consult with the California Department of Public Health and Office of Environmental Health Hazard Assessment on reports and evaluation of monitoring data and request input on potential public health impacts at the levels detected.
6. The Central Valley Water Board recommends that the following actions be voluntarily implemented by other entities:
 - Department of Water Resources and other appropriate entities should monitor and conduct fate and transport analyses for *Cryptosporidium* and *Giardia* in the Delta waterways as well as the tributaries of the Delta.
 - Department of Public Health and Office of Environmental Health Hazard Assessment should evaluate data collected for the drinking water constituents of concern and provide input on potential public health impacts at the levels detected.
7. The Central Valley Water Board directs staff to work with the Workgroup to develop an outline for what should be contained in the comprehensive policy, and develop a work plan and funding proposal for completion of information needed to support each of the policy elements. One element of the policy could be development of narrative or numeric water quality objectives, consistent with all state and laws and regulations. The Board directs staff to

complete the outline, work plan (including key elements of the policy, timelines and cost estimates), and funding proposal within a year of adoption of this resolution and to bring a final drinking water policy to the Board no later than three years after adoption of this Resolution, assuming that resources are available to support policy development.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Water Quality Control Board, Central Valley Region, on 29 July 2010.

Original signed by Kenneth D. Landau for Pamela C. Creedon
PAMELA C. CREEDON, Executive Officer