Central Valley Regional Water Quality Control Board

Staff Report

Resolution in Support of

Developing a Drinking Water Policy

for the Central Valley

July 2004

Summary and Staff Recommendations

Staff proposes Board adoption of a resolution in support of developing a policy for protection of drinking water sources in the Central Valley. The resolution represents an initial step toward policy development, which the Regional Board prioritized during the 1998 and 2002 Basin Plan triennial reviews and committed to in the 2000 CALFED Record of Decision (ROD). The resolution provides the regulatory setting and the need for a drinking water policy and affirms the Regional Board's commitment to policy development while acknowledging the challenges associated with the effort.

Background

The Sacramento-San Joaquin Delta supplies drinking water for two-thirds of all Californians. The sanitary surveys of the State Water Project show that Delta watershed surface waters require advanced or alternative treatment to comply with future, and in some cases, current drinking water regulations. There is also concern that current high quality sources, such as the Sacramento River and the tributaries of the Sacramento and San Joaquin rivers, will be degraded as the population of the Central Valley grows. A multiple barrier approach including source water protection, appropriate treatment, and safe distribution of treated water is used by drinking water providers to reduce the risk to consumers.

The source water protection component of the multiple barrier approach falls under the Central Valley Regional Water Quality Control Board's (Regional Board) jurisdiction. Some Regional Board and State Water Resources Control Board (State Board) plans and polices are meant to protect water quality for the beneficial use of drinking water. However, they not provide adequate protection of drinking water source water quality because they do not include enforceable water quality objectives for some important drinking water constituents of concern, specifically pathogens and total organic carbon. As a result, current water quality control programs are not designed to address all drinking water quality concerns.

Thus, during the 1998 and 2002 Basin Plan triennial reviews the Regional Board classified development of a drinking water policy for the Central Valley a high priority. In addition, the ROD commits the Regional Board to develop a drinking water policy by the end of 2004. The Regional Board has been designated as the lead agency to work with other agencies and stakeholders to develop the policy. Regional

Board staff lead a workgroup comprised of CALFED member agencies, California Urban Water Agencies (CUWA), Sacramento Regional County Sanitation District (SRCSD), and other interested parties including representatives of Sacramento and San Joaquin agriculture, stormwater, and a public interest organization. In 2003, the workgroup finalized a workplan that outlines the technical studies and basin planning tasks necessary to develop and adopt a drinking water policy for the Central Valley. The estimated timeline for policy adoption is 2009, far exceeding the ROD deadline.

At the September 2003 Regional Board meeting, staff presented an information item on the drinking water policy. Staff proposed to prepare a resolution to show the Regional Board's support for the policy development effort and demonstrate progress toward meeting the ROD commitment. This staff report details the rationale for the resolution before the Board and summarizes the work completed and future steps toward developing a drinking water policy.

Need for Updating Current Drinking Water Policy

The Sacramento/San Joaquin River Delta is the source of drinking water for two thirds of California's population (over 20 million people). In addition, the Sacramento and San Joaquin rivers and many of their tributaries are sources of drinking water to many residents of the Central Valley and foothills. The Sacramento and San Joaquin Rivers and their tributaries receive pollutants from municipal wastewater, industrial wastewater, urban storm water runoff, agricultural drainage, mine drainage, and fish hatcheries. There are other sources of contaminants in the watersheds including the use of reclaimed wastewater for irrigation, dairies and feedlots, timber harvesting, and body contact recreation. These discharges contribute pathogens, organic carbon, dissolved solids, and numerous other contaminants to the rivers and Delta. The Central Valley continues to increase in population and the Regional Board is developing new and amending existing National Pollutant Discharge Elimination System (NPDES) permits to allow increased volumes of wastewater and urban runoff to be discharged to Central Valley waters.

At the same time, drinking water suppliers are required to meet increasingly stringent standards for disinfection byproducts, pathogens, and many other contaminants. In addition, there is a trend in regulations to base treatment requirements on source water quality conditions and source water protection measures implemented in a watershed. For a number of years, the Department of Health Services (DHS) has determined removal requirements for *Giardia* and viruses based on total coliform levels in source water, contaminant sources present in the watershed, and watershed management practices. The Stage 1 Disinfectants/Disinfection Byproducts (D/DBP) Rule requires drinking water utilities to remove varying levels of total organic carbon (TOC) based on TOC levels in source water. The proposed Long Term 2 Enhance Surface Water Treatment Rule links *Cryptosporidium* removal or inactivation requirements to *Cryptosporidium* levels in the source water. Currently, neither the Basin Plan for the Sacramento-San Joaquin rivers nor the State Board's Delta Plan include ambient water quality objectives for disinfection byproduct precursors, such as organic carbon and bromide, or for pathogens. There is a need to address the policy void to provide improved protection for drinking water sources and maintain water quality improvements achieved through implementation of CALFED projects and expenditure of public and private funds.

CALFED Agencies have identified a general target of continuously improving Delta water quality for all beneficial uses. For the Drinking Water Quality Program (DWQP), CALFED Agencies have developed a specific goal:

> "*CALFED Agencies' target for providing safe, reliable, and affordable drinking water in a cost-effective way, is to achieve either: (a) average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 µg/L bromide and 3.0 mg/L total organic carbon, or (b) an equivalent level of public health protection using a cost-effective combination of alternative source waters, source control, and treatment technologies*." [CALFED Bay-Delta Program Record of Decision, August 28, 200, pg. 66].

The Bay-Delta Public Advisory Committee Drinking Water Subcommittee developed a conceptual framework to achieve the CALFED goal of an equivalent level of public health protection (Attachment 1). Source water quality improvement is a component of that framework and development of a Central Valley Drinking Water Policy, as identified in the CALFED ROD, is an important part of the DWQP strategy for improved source water quality protection.

Status of Policy Development

Agency Workshop

In April 2003, the Regional Board hosted a meeting of DWQP implementing agency (DHS, EPA, and State Board) staff and interested stakeholders to discuss how existing policies are used to protect source water quality for drinking water beneficial uses. Prior to the meeting, agency staff were asked to prepare answers to questions regarding their policies and plans. During the meeting, the group discussed how the various policies were coordinated into the current source water protection program. The Workgroup is developing a document that summarizes the discussion and incorporates the agencies' answers to the questions. This document will be useful when evaluating alternatives for the drinking water policy.

Technical Workplan

The technical workplan finalized in January 2003 describes the data and technical studies needed to develop a scientifically defensible policy recommendation (Attachment 2). The following key tasks are included in the workplan:

- Identify available data on drinking water constituents of concern.
- Develop conceptual models of the sources, behavior, fate, transport, and effect for high priority constituents.
- Develop and populate a database of key information for use in policy development.
- Identify data gaps and develop a monitoring program to fill them.
- Conduct essential monitoring.
- Identify range of potential water quality goals and policy elements.
- Conduct pollutant load evaluation.
- Identify pollutant control alternatives.
- Evaluate pollutant control strategies.
- Develop policy recommendation and assemble Basin Plan amendment package.

Resources and Progress

In 2003, CUWA and SRCSD each contributed $75K to the policy development effort. These funds support Regional Board staff time (fiscal year 03-04) to lead the workgroup, outreach to stakeholders, and begin developing alternatives for the policy.

In addition, the CUWA/SRCSD funds supported the task to identify available data on drinking water constituents of concern. The draft document produced under that task includes a comprehensive list of constituents of concern to drinking water providers and summarizes the metadata (i.e., sampling locations and methods, sampling periods and frequency, quality assurance, etc.) for major data sources for those constituents. This document will be used to identify data that needs to be entered into the database, to assist in prioritizing constituents, and for developing conceptual models.

US EPA, Region 9 contributed $300K for developing conceptual models for drinking water constituents of concern. EPA staff, with input from the workgroup, developed a request for proposals (RFP) for the conceptual model work, which will be distributed to prospective consultants in mid-2004. In addition, the workgroup has developed a set of criteria that will be used to identify the constituents for which conceptual models should be developed. Criteria include the constituent's importance to drinking water suppliers, availability of data on the constituent, and extent of knowledge on the sources of the constituent.

In 2003, CUWA submitted a proposal to the State Board under the consolidated request for proposals (Proposition 50, drinking water) and in spring 2004 the proposal was recommended for funding ($970K). The funding will support data entry, refining conceptual models, monitoring to fill data gaps, identifying potential water quality goals, pollutant load evaluations, and identifying potential control alternatives. The grant agreement should be approved so work can begin by late 2004 or early 2005.

In addition to technical studies, the workgroup has devoted considerable effort to outreach to and receive input from interested stakeholders. The workgroup provides monthly updates to the Drinking Water Subcommittee of the Bay-Delta Public Advisory Committee. In addition, workgroup members have presented information on the policy development to specific stakeholder groups including:

- Northern California Water Agencies
- CALFED Central Valley Tribal Forum
- Central Valley Clean Water Association
- Sacramento River Watershed Program
- California Stormwater Quality Association
- Association of California Water Agencies
- Tri-TAC

Stakeholders contacted to date want the opportunity to provide input on the policy during the early development stages. The workgroup intends to continue outreach to these and more stakeholder groups as work progresses and to incorporate their input to the extent possible. Stakeholders also stressed the need to ensure that costs of implementing the policy are balanced among stakeholders (i.e., wastewater versus drinking water treatment costs). Evaluation of the costs of policy implementation is required as part of the California Environmental Quality Act (CEQA) analysis, which must accompany all Basin Plan amendments. Furthermore, some stakeholders are concerned that the current policy development effort

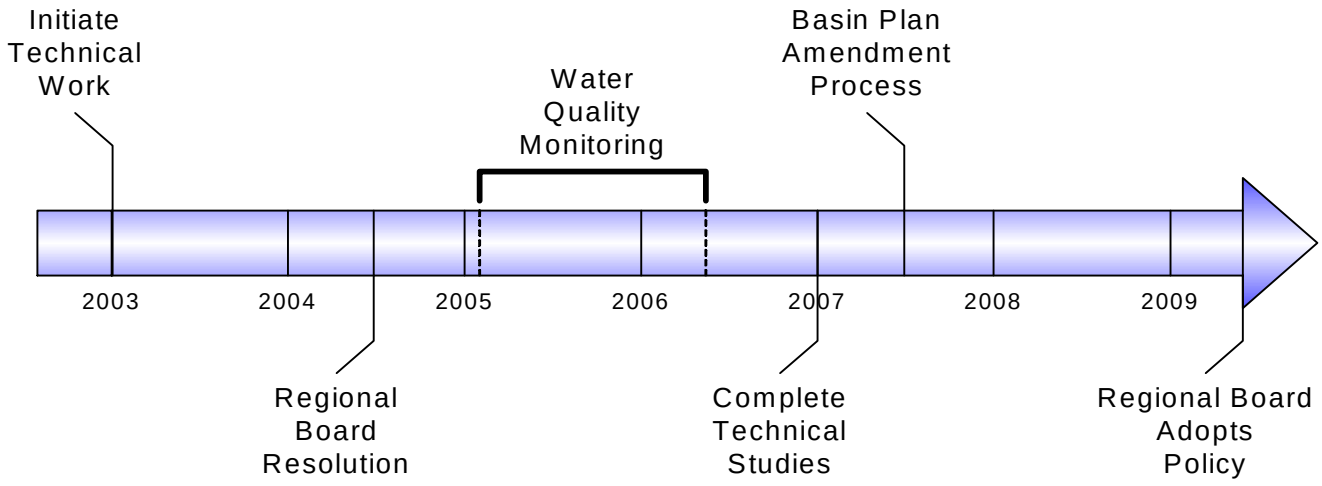
does not address groundwater quality issues. The workgroup is developing a white paper that describes the technical, programmatic, and fiscal reasons why the current effort focuses on surface water.

To assist in the outreach effort, the workgroup developed a fact sheet (Attachment 3). The purpose of the fact sheet is to describe the need for the drinking water policy and provide contact information for interested parties. The fact sheet and all interim work products will be posted on the Regional Board's website.

Schedule and Future Steps

Figure 1 shows the schedule for developing a drinking water policy including interim milestones.

Figure 1. Schedule of policy recommendation development and adoption.



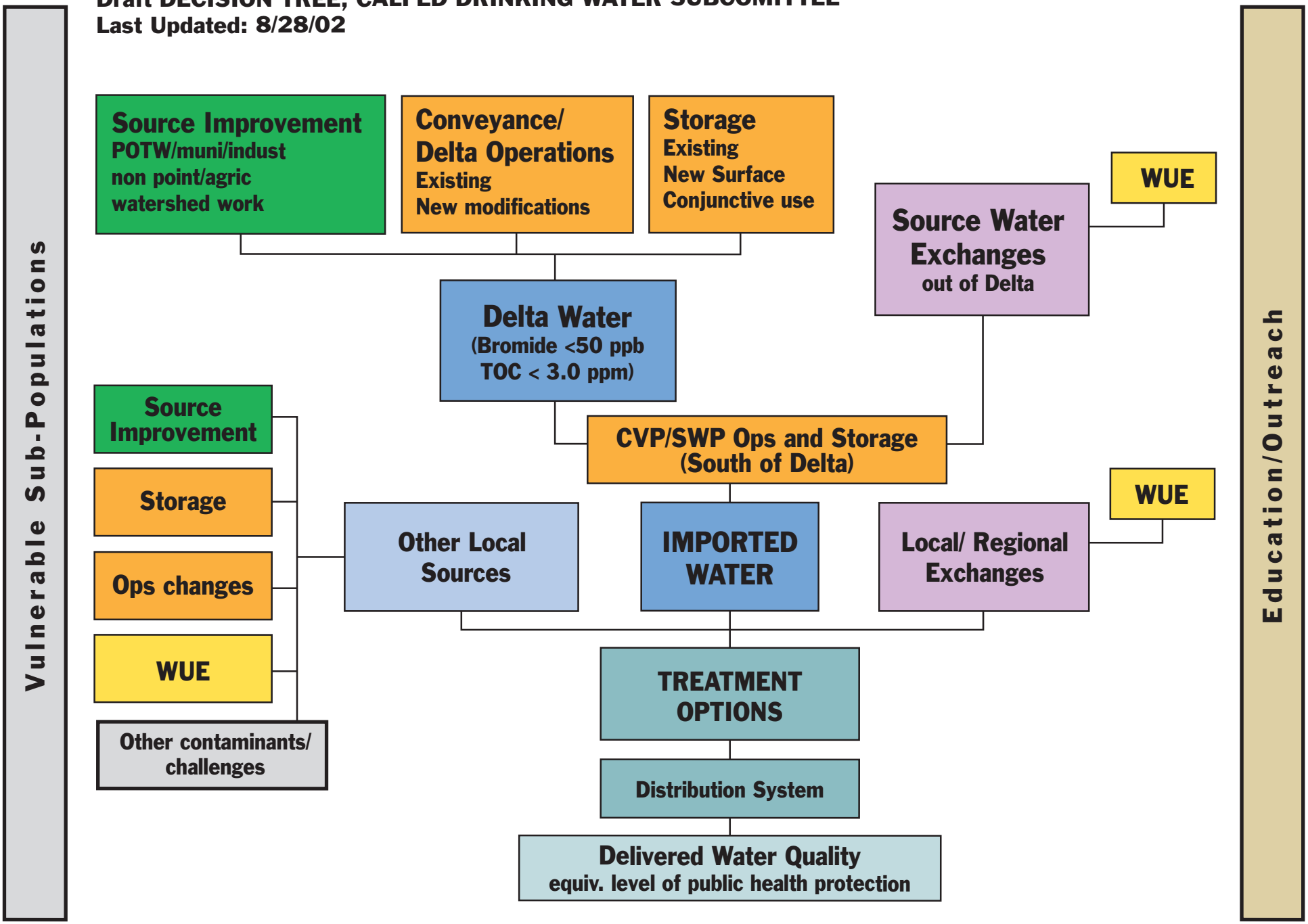
Authors of and signatories to the CALFED ROD anticipated that significant state and federal resources would be available for studies to fill data gaps and prepare a scientifically defensible policy. With current resource restrictions, it is projected to take approximately three to five years to prepare a staff recommendation and present it to the Board. Regardless of resource constraints, it will take approximately two to three years to fill identified data gaps. After the identified data gaps are filled, it will take two more years to establish a comprehensive policy.

During the final two years, Regional Board staff or contract consultants will develop the Basin Plan amendment package, including the required CEQA analysis, and submit it to the approval agencies. In addition to formal adoption by the Regional Board, State Board and Office of Administrative Law approval is required. If the policy consists of new water quality objectives for surface waters, the final approving entity would be US EPA pursuant to the federal Clean Water Act. It is estimated to take 417 days for final approval once a final draft policy is presented in a Basin Plan amendment and functional equivalent document (FED). Due to these time constraints, the earliest a comprehensive policy could be implemented would be 2009.

In the interim, assuming the level of resources remains constant, Regional Board staff will continue to serve as the lead on the Drinking Water Policy Workgroup ensuring that deliverables produced supply the information necessary for a scientifically defensible policy. Staff, in coordination with the CALFED DWQP, will manage the CUWA Proposition 50 project that funds water quality monitoring and the technical studies needed to support the policy. Staff will continue to outreach to stakeholders both through the CALFED Drinking Water Subcommittee and focused presentations. Finally, staff will ensure that the policy is developed in coordination and is consistent with other Regional and State Board programs.

Attachment 1. Conceptual framework for achieving the equivalent level of public health protection.

EQUIVALENT LEVEL OF PUBLIC HEALTH PROTECTION
Draft DECISION TREE, CALFED DRINKING WATER SUBCOMITTEE
Last Updated: 8/28/02



Attachment 2. Workplan for development of a drinking water policy for the Central Valley.

WORK PLAN

DEVELOPMENT OF DRINKING WATER POLICY
CENTRAL VALLEY REGION BASIN PLAN

Prepared by
California Bay-Delta Authority
Department of Health Services
California Regional Water Quality Control Board, Central Valley Region
California Urban Water Agencies
Sacramento Regional County Sanitation District

January 14, 2003

INTRODUCTION

The Sacramento River and San Joaquin River watersheds and the Sacramento-San Joaquin Delta provide drinking water for over two thirds of the people in California. Most of Southern California, a major portion of the San Francisco Bay Area, parts of the Central Coast, and many Central Valley communities rely on these watersheds for their drinking water. The Sierra tributaries to the Sacramento and San Joaquin rivers are high quality sources of drinking water. As the water flows out of the foothills and into the valley, pollutants from a variety of urban, industrial, agricultural and natural sources affect the quality of the water. The California Regional Water Quality Control Board, Central Valley Region (Regional Board) has designated municipal and domestic supply (MUN) beneficial uses for many waterways in the Central Valley. Water quality objectives are used as a regulatory tool to protect designated beneficial uses. Narrative water quality objectives for the Sacramento and San Joaquin rivers are specified in the Water Quality Control Plan for the Sacramento and San Joaquin rivers (Basin Plan) to protect human health. However, numeric water quality objectives are not in place for a number of pollutants that may adversely affect drinking water supplies such as organic carbon and specific pathogens.

This Work Plan lays out a technical and administrative process to establish either numeric or modified narrative objectives for drinking water constituents as elements of an overall drinking water policy for the Central Valley. New or modified objectives must be adopted by the Regional Board in a Basin Plan amendment. The adoption of water quality objectives must be performed in compliance with the requirements of the California Water Code. The Water Code requires consideration of various factors, including the means by which the objectives can be attained, economics, the need for housing and others. This Work Plan includes the development of an implementation plan to demonstrate the means by which proposed objectives will be achieved and other information to fulfill Water Code requirements. Federal law requires treatment of surface waters prior to their use as drinking water. Therefore, the Work Plan includes an assessment of the ability to control sources of key drinking water constituents that are discharged to ambient waters and the ability to remove the constituents in water treatment plants. The feasibility, costs, and risks of both approaches will be evaluated.

The Record of Decision on the CALFED Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) requires the California Bay-Delta Authority (CBDA), with the assistance of the Department of Health Services (DHS) 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 Delta and upstream tributaries by the end of 2004." This Work Plan is consistent with that action and with the Drinking Water Conceptual Framework adopted by the Bay Delta Public Advisory Committee (BDPAC) Drinking Water Subcommittee.

The Work Plan lays out a series of tasks to be completed over a five to six year period that will culminate in the adoption of a Basin Plan Amendment. Table 1 presents an estimated budget to complete the work plan and Figue 1 is a schedule. Figure 2 is a schematic of the tasks and how

they relate to each other. It is anticipated that the Work Plan will be dynamic and will be modified, possibly on an annual basis, as data and information are gathered and assessed. It is also anticipated that not all of the drinking water constituents of concern will be addressed by this work plan. Due to data, economic, and technical constraints, it will be necessary to identify a priority list of constituents for which objectives will be established. This will be an on-going process with additional Basin Plan amendments required to include other constituents of concern in the future.

TECHNICAL ANALYSIS TO SUPPORT DEVELOPMENT OF DRINKING WATER POLICY

Task 1. Program Management

Scope - The Work Plan will be implemented by a Drinking Water Policy Work Group (Work Group), consisting of representatives from CBDA, DHS, the Regional Board, and affected stakeholder groups. The Work Group will direct the effort and make decisions on funding and consultant selection. The technical analysis will be managed by a Program Manager who is a DHS employee funded by CBDA. The BDPAC Drinking Water Subcommittee will provide a forum for communicating with the stakeholder community on the progress on the work plan. It is anticipated that this program will become a regular agenda item for Drinking Water Subcommittee meetings.

In addition to program management, this task includes the identification of stakeholders to participate in the Work Group and the identification of funds to support the effort. Currently the Work Group consists of agency representatives and representative from California Urban Water Agencies (CUWA) and Sacramento Regional County Sanitation District (SRCSD). An effort is underway to identify stakeholders from the agricultural and urban runoff communities to participate in the Work Group. Other stakeholder groups may be identified in the future.

A critical element of program management is to identify and obtain funds to support this effort. The agencies listed above are currently providing some staff time to support the effort and CBDA may be able to provide limited funding. CUWA and SRCSD have agreed to provide start-up funding for 2003.

Responsible Party – Work Group and CBDA Program Manager

Estimated Budget – $0 (Covered by CBDA and agency budgets of Work Group members.)

Schedule – On-going for duration of project.

Deliverables –Monthly reports to BDPAC Drinking Water Subcommittee
Identification of potential funding sources

Task 2. Identify Existing Data

Scope - Develop a comprehensive inventory of existing major water quality databases, water quality reports, sanitary surveys, discharger reports, and other information sources on the following categories of constituents:

- Disinfection by-product (DBP) precursors such as total organic carbon (TOC), dissolved organic carbon (DOC) and bromide, and indicators of the potential to form DBPs such as ultraviolet light absorbance (UVA_{254}), specific ultraviolet light absorbance (SUVA), and trihalomethane formation potential (THMFP);

- pathogens, including *Giardia lamblia* and *Cryptosporidium parvum* and surrogates such as total coliforms, fecal coliforms, enterococcus and *Escherica coli*;

- dissolved minerals, such as total dissolved solids and chloride;
- nutrients;
- rice pesticides, including those used in the past and the present;
- flow data at selected locations in the watershed to enable loading estimates.

One of the initial steps in this task will be to meet with modeling experts to determine if there are "signature constituents" that should be included. The focus will be on data collected downstream of the major dams on the Sacramento and San Joaquin rivers and their tributaries. As an initial step, develop a matrix showing agencies or groups performing monitoring, time period covered, monitoring locations, constituents, and frequency of monitoring. Also, summarize the metadata for each of the identified monitoring programs, describing sampling and analytical methods, detection limits, and other important data quality characteristics. Develop data quality criteria for use in the determination of suitable, high quality data for the Drinking Water Policy development effort. Prepare a summary report identifying the data sets that are available, those data sets that will be used in this project, and contact information for data managers for each data set.

Responsible Party – Consultant under direction of Work Group

Estimated Budget – $25,000

Schedule – Initiate Task – Feb 2003
Draft Matrix – Apr 2003
Draft Report – May 2003
Final Report – Jul 2003

Deliverables – Summary matrix
Report identifying data that are available and may be of use

Task 3. Develop Conceptual Models and Identify Analytical Tools

Scope –

Task 3a. Develop Preliminary Conceptual Models. For each of the water quality constituents identified in Task 1, develop a preliminary conceptual model of the sources, behavior, fate, transport and effect. Develop a preliminary conceptual model for flow, identifying the major inputs and diversions from the system.

As a first step, a literature search and networking task shall be performed to identify existing conceptual models for these constituents applicable to the Central Valley watershed. One or more conceptual model experts shall be identified for each constituent. Using readily available information from the literature search and Task 1, identify what is known and not known about significant factors affecting each constituent, focusing on baseline ambient data, source loadings and linkages, in-system changes, and effects on beneficial uses. Develop a list of key questions that will have to be answered about each constituent and each significant potential source. Conduct a one-day workshop to critique the conceptual models, discuss information needs, and to reach agreement on the criteria for selection of constituents to be included in the initial drinking water policy. Criteria may include the importance of the constituent to drinking water suppliers, the extent of knowledge on sources, transformations in the system, controllability of sources and ambient levels, whether the constituent is being addressed in another forum (e.g. nutrients), the opportunity to coordinate with other efforts, and the potential effects of the constituent on beneficial uses. Based on the criteria identified in the workshop, develop a priority list of water quality constituents to be included in the drinking water policy. A list of constituents that will not be included in the policy at this time and the rationale for not including them will also be developed. It is anticipated that these constituents may be included in future Basin Plan amendments.

Task 3b. Develop Preliminary Loading Analysis and Identify Analytical Tools. For each of the priority constituents selected for detailed analysis and inclusion in the drinking water policy effort, use available data to quantify mass loads from the key point and non-point sources based on the conceptual models. Determine if there are representative data sets that can be used in these initial loading estimates to represent particular categories of sources (e.g. is Sacramento area urban runoff data representative of runoff in the other urban areas of the Central Valley). Identify key receiving water quality locations that will serve as benchmarks in the loading analysis (e.g. downstream of each major dam, major tributary to the Sacramento and San Joaquin rivers, and major agricultural drains). Identify the best available analytical tools and models that will be used to develop the more detailed loading, transport and effects analysis for each of the priority constituents and determine the data needs for each of the tools. It is anticipated that the

conceptual models and analytical tools will be refined as more data are gathered and assessed. Summarize the results of this task in a technical report.

Responsible Party – Consultant with assistance from Work Group and other experts such as the CBDA Drinking Water and Science Programs, United States Geological Survey (USGS), California Department of Water Resources (DWR), and the University of California (UC).

Estimated Budget –

Task 3a. - $30,000

Task 3b. - To be determined (include $50,000 allocation which may increase depending on decisions reached on the level of effort to be expended).

Schedule –

Task 3a. - Initiate Task – Feb 2003
Workshop – Apr 2003
Draft Report – May 2003
Final Report – Jul 2003

Task 3b - Initiate Task - May 2003
Draft Report – Nov 2003
Final Report – Jan 2004

Deliverables –

Task 3a - Report identifying priority constituents.

Task 3b - Report identifying conceptual models and analytical tools.

Task 4. Develop Database of Key Information for Use in Policy Development

Scope – Based on the clearly defined data needs identified in Task 3b, work with the Regional Board, DWR and other parties to develop a functional and efficient database that will include water quality and flow data and other information on point and non-point sources of drinking water constituents in the Central Valley. The purpose of the database is to provide a tool for performance of loading analyses, source control evaluations, and other analytical work to support development of the Drinking Water Policy. Based on the results of tasks 1 and 2, the water quality constituent data and specific monitoring program data to be included in the regional database will be identified. Existing and historic water quality and flow data for known or suspected point and non-point sources of the pollutants of concern will be evaluated for

suitability for entry into the database. The database shall be maintained and updated as additional data become available (Task 5).

Responsible Party – Consultant with assistance from Regional Board and DWR.

Estimated Budget – $50,000 (This cost could be low, depending on the data formatting and data entry requirements.)

Schedule – Initiate Task – Feb 2003
Existing Data in Database – Jul 2003
All Data in Database – Jul 2005

Deliverables – Functional database

Task 5. Identify Essential Monitoring Needs and Develop Monitoring Program

Scope – The focus for this task is to identify "essential" monitoring activities that can be performed within a short time frame (less than one year). Using the conceptual models, available data, identified data gaps, and the other information identified in Task 2b, identify essential receiving water quality, pollutant sources, pollutant loading, or other data that are needed to significantly reduce uncertainty in the pollutant loading and transport analysis. Develop a proposed monitoring plan, including monitoring locations, constituents to be analyzed, analytical methods, detection limits, number of samples and monitoring frequency. Contact other major monitoring programs (e.g. IEP, DWR, SWAMP, Sacramento River Watershed Program) and determine whether the proposed monitoring can be dove-tailed with one or more existing monitoring programs to achieve efficiency and desired data quality. Document the detailed elements of the proposed monitoring effort in a Quality Assurance Program Plan (QAPP) for the proposed monitoring effort. Implement the monitoring plan in accordance with the provisions of the QAPP.

Responsible Party – Consultant with assistance from Drinking Water Policy Work Group and other experts (USGS, DWR, UC, CALFED, Sacramento River Watershed Program, Regional Board)

Budget and Funding Source – $50,000 (This cost could be low.)

Schedule – Initiate Task – Oct 2003
Draft Report – Jan 2004
Final Report – Mar 2004

Deliverables – Proposed Monitoring Plan and QAPP

Task 6. Conduct Essential Monitoring

Scope - Implement the monitoring program identified in Task 4. Work includes the development of contracts with groups or contractors to perform the sampling and analytical work, coordination of the work with other programs, management of the monitoring activities, data quality evaluations, data transfer into the data base, data analysis and report preparation.

Responsible Party – Work Group will determine after completion of Task 5. Depends upon ability to work with existing programs.

Estimated Budget – Unknown until Task 5 is completed.

Schedule – Initiate Task – Feb 2004
Complete Monitoring – Apr 2005

Deliverables – Essential Data

Task 7. Identify Range of Potential Water Quality Goals and Policy Elements

Scope – For each of the selected priority constituents, review and summarize existing Basin Plan water quality objectives and policies established for MUN or other beneficial uses. Conduct interviews with drinking water suppliers who treat water from the Sacramento and San Joaquin rivers and the Delta and determine desired source water quality goals and the basis for those goals. Conduct a literature review to determine if receiving water standards aimed at drinking water protection have been established in other states or countries and to document the basis for each of those established standards. Review and evaluate the U.S. Environmental Protection Agency's work on water quality criteria for drinking water constituents based on public health protection needs and health effects information under the Clean Water Act and the Safe Drinking Water Act. Based on these sources of information, develop a range of potential water quality goals and policy elements with supporting documentation and an assessment for each of the priority constituents. The assessment of potential goals and policies shall include consideration of risk at the point of use and consideration of other beneficial uses (e.g. aquatic life uses). The range of potential goals and associated documentation and assessments shall be summarized in a technical report. Organize and conduct an expert peer review workshop to review the content of the report and to discuss the risk-based and legal considerations that should go into the selection of appropriate drinking water quality goals and enforceable drinking water quality objectives for the priority constituents in the Central Valley. Summarize the results of the workshop in a revised draft technical report. Obtain comments on the revised draft report from the expert peer review group and interested parties and prepare a response to those comments. Finalize the workshop technical report.

Responsible Party – Consultant under direction of Work Group

Budget and Funding Source - $75,000

Schedule – Initiate Task – Feb 2003
Draft Goals Report– May 2003
Expert Peer Review Workshop - Jun 2003
Revised Draft Goals Report - Jul 2003
Final Goals Report– Sep 2003

Deliverables – Draft and final reports identifying goals and supporting data.

Task 8. Conduct Refined Pollutant Load Evaluation

Scope – Using the tools identified in Task 3 and the data obtained from Task 6, refine the estimate of pollutant loads of each priority constituent from each of the major sources in the Basin. As a first step, prepare refined versions of the conceptual models using data collected in Task 6. On the basis of the conceptual models and available data, select analytical model(s) for use in the assessment of the fate of pollutants after discharge. Use the selected model(s) to identify relationships between discharged contaminant levels and ambient receiving water concentrations over a range of seasonal and annual flow conditions. Based on this analysis, identify the major point and non-point pollutant sources within the region that could potentially be managed to achieve ambient water quality goals identified in Task 7. Prepare a draft report describing the data and analytical model(s) used in the analysis and the major findings of the analysis. Submit the draft report to the Drinking Water Policy Work Group for review and comment. Prepare a final report that contains a detailed response to comments received on the draft report.

Responsible Party – Consultant under direction of Work Group

Budget and Funding Source – $100,000

Schedule – Initiate Task – Jun 2005
Draft Report – Dec 2005
Final Report – Feb 2006

Deliverables – Draft and final reports identifying point and non-point sources of concern.

Task 9. Identify Potential Control Alternatives

Scope - For each priority constituent, identify available control strategies (influent or effluent treatment, receiving water management, land use controls, containment or diversion strategies, regional water management actions, or other potential control strategies) for reducing constituent discharges or controlling constituents within receiving waters, or controlling constituents at water treatment plants. The focus shall be on control strategies which (1) apply to the most significant

sources with the greatest impact on ambient conditions and/or (2) are cost-effective. Conduct outreach and conduct facilitated workshops with potentially affected parties within the Central Valley to receive input on the costs, benefits and viability of identified control alternatives. Establish a stakeholder working group to develop a report of viable control strategies and associated feedback as an outcome of this data collection effort.

Responsible Party – Consultant under direction of Work Group

Budget and Funding Source – $100,000

Schedule – Initiate Task – Jan 2006
Draft Report – Apr 2006
Final Report – Jun 2006

Deliverables – Report identifying viable alternatives.

Task 10. Evaluate Potential Control Strategies

Scope – Prepare a screening level estimate of the amount of pollutant load reduction projected to be achieved from each viable control strategy identified in Task 9. Estimate the costs and benefits associated with implementing the various viable strategies. Use this information to reduce the list of alternative strategies to those that have the greatest load reduction benefit or are otherwise cost-effective. Assess and compare individual and combinations of these remaining strategies to determine which are (1) consistent with state and federal water quality policies, and (2) projected to lead to cost-effective regional compliance with various potential water quality goals and policies. Prepare a draft report which summarizes the methodology and outcomes from this analysis. Submit the draft report to the Work Group and the Stakeholder Working Group for review and comment. Prepare a final report that includes a response to comments on the draft report.

Responsible Party – Consultant under direction of Work Group

Budget and Funding Source –$100,000

Schedule – Start Date – May 2006
Draft Report – Oct 2006
Final Report – Dec 2006

Deliverables – Draft and final reports summarizing costs and benefits of alternatives and impacts on water quality objectives.

POLICY ANALYSIS TO SUPPORT DEVELOPMENT OF DRINKING WATER POLICY

The Basin Plan amendment process must be performed in concert with the requirements of Section 13241 of the Water Code. Water quality objectives must be adopted in accordance with the specific provisions of Section 13241. Additionally, the overall policy must provide reasonable protection of drinking water and other beneficial uses.

Policy development shall be consistent with the themes and concepts contained in the Drinking Water Quality Strategic Plan that the BDPAC Drinking Water Subcommittee is developing and the CALFED ROD. In particular, the ROD noted that it might not be practical to achieve specific numeric limits in the Delta. The development of this policy will focus on an approach that is the most effective in achieving stakeholder support for a plan for water quality improvement in the Bay-Delta system.

Task 1P. Select Proposed Numerical Objectives and Control Strategies

Scope – Use the information developed in prior tasks in the development of the policy. Determine proposed new numerical or narrative receiving water quality goals or objectives necessary to maintain and enhance existing and proposed beneficial uses. Develop a draft Policy and Implementation Plan which identifies the reasonable and appropriate control strategies (consistent with State and federal water quality policies) required to achieve compliance with the proposed water quality goals or objectives.

Federal law requires treatment of surface waters prior to their use as drinking water. Therefore, the work plan includes an assessment of the ability to control sources of key drinking water constituents that are discharged to ambient waters and the ability to remove the constituents in water treatment plants. The feasibility, costs, and risks of both approaches will be evaluated.

Task 2P. Adopt Drinking Water Policy and Implementation Plan as a Basin Plan Amendment

Scope – Prepare the documentation necessary for the adoption of a Basin Plan amendment that describes the proposed Drinking Water Policy. Complete the Basin Plan amendment process, including notifications, documentation, public participation and public hearing. A description of the Basin Plan amendment process is included in Attachment

Table 1. Estimated Budget for Drinking Water Policy Tasks

Task	Estimated Budget, $
Technical Tasks	
1. Program Management	0
2. Identify Existing Data	25,000
3. Develop Conceptual Models and Identify Tools	
3a. Preliminary Models	30,000
3b. Loading Analysis and Tools	50,000
4. Develop Regional Database	50,000
5. Identify Needs and Develop Monitoring Program	50,000
6. Conduct Essential Monitoring	unknown
7. Identify Water Quality Goals	75,000
8. Conduct Pollutant Load Evaluation	100,000
9. Identify Potential Control Alternatives	100,000
10. Evaluate Potential Control Strategies	100,000
Policy Tasks	
1P. Select Numerical Objectives and Control Strategies	
2P. Implement Objectives and Implementation Plan	

APPENDIX A

REGIONAL BOARD BASIN PLAN AMENDMENT PROCESS

1. Develop draft basin plan amendment (BPA) and California Environmental Quality Act (CEQA) Functional Equivalent Document (FED).

   The work conducted under the previous workplan tasks will be used to develop these documents.

   Variable

2. External scientific peer review of BPA and FED.

   60 days

3. Respond to scientific peer review comments in staff report. Revise staff report as necessary.

   14 days (minimum)

4. Distribute staff report and associated documents for public comment.

   This step begins the formal public comment period. During this time, a public hearing must be held to receive additional comments.

   45 days

5. Respond to public comments.

   14 days (minimum)

6. Notice Board Meeting and distribute response to comments.

   45 days (minimum)

7. Board Meeting to consider adoption of amendment.

   If adopted, then the amendment must be approved by the State Water Resources Control Board, the Office of Administrative Law (OAL) and U.S. EPA. If not adopted, then staff could be redirected to revise aspects of abandon the project.

If approved, then:

8. Assemble administrative record.

   In practice, assembling the administrative record occurs concurrently with the other steps. The administrative record must be indexed, in chronological order, fully paginated, and include, at a minimum:

   - Copies of all hearing notices and notices of filing, signed and dated;
   - Draft and final staff report(s) including detailed rationale for any changes between version of the reports;
   - The completed CEQA checklist;
   - Documentation of peer review, including all correspondence, peer reviewers' comments and staff responses;
   - Copies of written public comments and written responses;
   - Board Hearing and Meeting agendas;
   - Hearing agenda items (summary, draft resolution and amendment, attachments, etc.);
   - Copies of all hear4ing exhibits, by staff or the public;
   - Direct transcript, or electronic recording and transcription of the elctronic recording of the adoption hearing and any additional Board meetings;
   - Typed interested parties lists;
   - Copies of all documents that were relied on by the Board in adoption of the amendment. If only a portion of the document is relevant to the case, such as an article in a scientific journal, only the relevant portion, along with the title page, need be included. A document was relied on if you would want it to be available in court to support he amendment;
   - The amendment as adopted; and
   - The signed resolution.

9. Submit amendment to SWRCB for approval.

   - Notice Board workshop and comment period.
     45 days (minimum)
   - Board workshop/close comment period.
   - Respond to comments
     14 days
   - Notice Board hearing and distribute response to comments
     45 days (minimum)
   - Board hearing
   - If adopted by SWRCB, then the BPA is submitted to OAL for approval.
     ~42 days

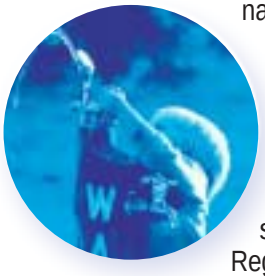
- If approved by OAL, then the BPA is submitted to U.S. EPA. This step includes consultation with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.
  90-135 days

Attachment 3. Drinking water policy outreach fact sheet.

Central Valley Drinking Water Policy

Fact Sheet

Surface waters from the Sacramento and San Joaquin River watersheds and Bay-Delta provide drinking water for more than two thirds of all Californians. The Sierra tributaries to the Sacramento and San Joaquin rivers are high quality sources of drinking water. As the water flows out of the foothills and into the valley, pollutants from a variety of urban, industrial, agricultural, and natural sources affect the quality of the water, leading to treatment challenges and potential public health concerns.



What regulatory controls are currently in place?

Drinking water quality is regulated by several state agencies. For instance, the California Department of Health Services issues Drinking Water Standards, or maximum contaminant levels, that stipulate the maximum concentrations of certain chemicals in drinking water supplied to consumers. The State Water Resources Control Board (State Board) and Regional Water Quality Control Board (Regional Board) Basin Plans designate beneficial uses, including municipal drinking water supply, for the Sacramento and San Joaquin Rivers and Delta. Basin Plans also specify numeric and narrative water quality objectives to protect designated beneficial uses. For copies of plans or policy documents, visit www.swrcb.ca.gov.

Why is a comprehensive Drinking Water Policy needed?

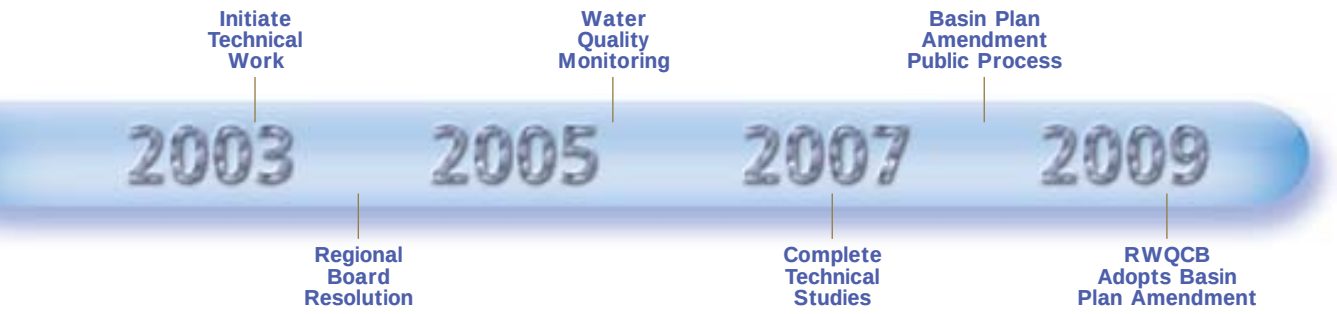
Current policies and plans lack water quality objectives for several known drinking water constituents of concern, such as disinfection by-product precursors and pathogens, and do not include implementation strategies to provide effective source water protection. The California Bay-Delta Authority's (CBDA) CALFED Programmatic EIS/EIR established a Drinking Water Quality Program, which requires development of a source water protection program that includes a comprehensive drinking water policy for the Delta and its upstream tributaries.

What is the process and schedule for developing the Drinking Water Policy?

The Central Valley Drinking Water Policy Work Group (Work Group) was formed to develop and implement a work plan to provide the technical information needed by the Regional Board to develop a comprehensive Drinking Water Policy for the Central Valley. Work plan tasks include water quality monitoring, pollutant load evaluations, and evaluation of potential control strategies to identify those that are reasonably attainable and cost effective. The following agencies and stakeholder groups have been involved in the development of the work plan or are actively participating in implementing work plan tasks:

- California Bay-Delta Authority (CBDA)
- Department of Health Services (DHS)
- California Regional Water Quality Control Board, Central Valley Region (CVRWQCB)
- State Water Resources Control Board (SWRCB)
- Sacramento Regional County Sanitation District (SRCSD)
- Northern California Water Association (NCWA)
- California Urban Water Agencies (CUWA) with representatives from Contra Costa Water District and Metropolitan Water District of Southern California
- United States Environmental Protection Agency (EPA)
- Clean Water Action
- Sacramento City Stormwater

The work group utilizes the Bay-Delta Public Advisory Committee's Drinking Water Subcommittee as the forum to update the public on the progress of the policy development. The Subcommittee is the stakeholder group responsible for advising the CBDA on the implementation of the Drinking Water Quality Program. The technical portions of the work plan are expected to take up to three years to complete at which time the Basin plan amendment process can begin. The Regional Board has the authority to establish an enforceable Policy and will ultimately be responsible for its development and implementation. Any Regional Board actions will include additional public outreach and review, and will provide further opportunity for stakeholder input. Policy development and adoption could occur by the middle of 2009.



How will the Drinking Water Policy effort coordinate with other Regional Board programs?

Development of the Drinking Water Policy will be coordinated with other Regional Board programs. Furthermore, the policy for protecting drinking water source waters, in whatever form it takes, will become part of the Basin Plan. The Basin Plan guides all programs that the Regional Board implements and thus, once adopted, the drinking water policy will need to be considered in all relevant program decisions

What types of regulatory requirements might be included in the Policy?

The exact types of regulatory requirements that will be included in the Drinking Water Policy have not yet been determined. Any changes to the Basin Plans for the Sacramento and San Joaquin Rivers as a result of any new water quality objectives developed under this policy will impact those governed by the requirements of those Basin Plans. Any water quality objectives developed will be established in accordance with California Water Code requirements. The Regional board will hold public hearings if changes are proposed to the Basin Plans. All interested stakeholders, including the regulated community, will have the opportunity to provide their input during the public hearings.

How is development of the Policy being funded?

Due to the State's fiscal situation, the Regional Board does not have funding to fully support the development of the drinking water policy. Partial funding to implement initial tasks in the work plan is currently being provided by SRCSD and CUWA. The Work Group is actively seeking other sources of funding including EPA and State Board grant funding.

Who can I contact for more information or to get involved?

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