

Issue Paper
Coordination of CALFED Water Quality Actions
with
Roles and Responsibilities of Regulatory Agencies

To have greatest success, CALFED water quality actions should be fully coordinated with the roles and responsibilities of regulatory agencies. The regulatory authority of CALFED agencies should be used to strengthen incentives for voluntary, cooperative partnerships among private and public entities; and, in the absence of stakeholder cooperation and volunteerism, regulatory actions should be taken as necessary to accomplish CALFED objectives. An optimized mix of incentives and regulatory involvement will enable CALFED water quality actions to be taken more efficiently and cost-effectively, and will result in maximum public acceptance for the CALFED program.

Priorities, Funding, and Staff Resources

Among the most important tasks of the Water Quality Program will be to establish priorities for action. The criteria for establishing priorities should be determined by CALFED and CALFED agency managers. Possible criteria might include the magnitude of the problem, the state of knowledge about its causes and corrective measures, and the relative cost and benefits of correcting the problem in relation to other CALFED water quality actions.

CALFED funding does not yet exist for implementing CALFED water quality actions, except those that can be justified for ecosystem restoration objectives, and that compete successfully for funding with other ecosystem restoration actions. To date, such projects have generally not competed very successfully in the Restoration Coordination process. CALFED and CALFED agencies need to consider whether and to what extent existing agency funds might be used to get CALFED water quality actions underway in the immediate future, and how to help CALFED gain the funding that will be needed during Stage I of program implementation.

As action priorities are established, it will be necessary for CALFED agencies to assume lead roles in implementing actions. These roles will be associated with a need for staff resources that will have to be identified by the managements of the lead agencies. CALFED management should consider how it can help the lead agencies to staff the efforts.

Roles and Responsibilities of CALFED Agencies and Issues to be Addressed

The following are specific examples of CALFED water quality actions requiring an optimized mix of cooperative work with stakeholders, along with incentives from regulatory processes that stimulate cooperative action, with provisions for regulatory action in the absence of cooperation.

Dissolved Oxygen on the lower San Joaquin River

The San Joaquin River in the vicinity of Stockton has long been troubled by low dissolved oxygen levels that affect migratory fish. A major historical problem has been discharge of inadequately oxidized waste water resulting from seasonal influence of cannery wastes. The City of Stockton has upgraded its ability to treat its high seasonal oxygen demand, and is planning

further process improvements as result of enforcement actions. Other sources of oxygen demand are believed to exist in the area, but the importance and causes of such sources are not well understood. The City of Stockton has organized a stakeholder process to address dissolved oxygen issues. The group consists of technical representatives from a number of agencies and interest groups, including the CALFED staff and the Central Valley Regional Water Quality Control Board, Department of Fish and Game and Department of Water Resources . The technical group is preparing a list of actions recommended to address the problem and will recommend priorities for taking these actions. Also through this group, Department of Water Resources staff are taking the lead in preparing a proposal for Restoration Coordination funding for a project to collect available data on the dissolved oxygen problem. The information would be used to support development of Total Maximum Daily Load requirements that would be subsequently established by the Regional Board.

Involved Entities

The City of Stockton's activities in this area are strongly influenced by regulatory actions of the Central Valley Regional Water Quality Control Board. Accordingly, both the City and the Board must be involved in any solutions. The DeltaKeeper organization, an environmental watchdog group, has been involved in performance of water quality evaluations connected to this problem, and have engaged in legal actions in this connection. The Department of Water Resources has done considerable monitoring of the dissolved oxygen problem, and has previously tested possible corrective actions such as mechanical aeration.

Issues to be Resolved

How might CALFED effectively engage in ongoing activities to help correct the problem?

What CALFED agency should have the lead role in coordinating CALFED efforts to participate in developing solutions? How are the necessary staff resources to be made available?

Should CALFED be willing to participate financially in upgrading City of Stockton waste water treatment plant processes?

Should CALFED invest in controlling other sources of oxygen demand in the absence of identified responsible parties?

What is the priority of this action in relation to all other CALFED water quality actions?

Diazinon and Chlorpyrifos Toxicity

Toxicity to aquatic organisms in the Sacramento River, San Joaquin River and Bay-Delta estuary has been repeatedly associated with the presence of the insecticides diazinon and chlorpyrifos in these water bodies. The extent of toxicity problems associated with these agents, and their sources, have not been well characterized. Investigation has demonstrated that pulses of these agents tend to be associated with runoff from orchards and with urban storm water runoff. There is a need for further investigation of the sources and effects of diazinon and chlorpyrifos

toxicity in the waters of the Bay-Delta, and there is a need for more adequate control of the sources.

Opportunity exists to improve use practices both by agricultural and domestic users. Better education, particularly of homeowners, could produce significant benefits quickly and at relatively small cost. Also, manufacturers and distributors of these chemicals are interested in contributing to improving customer use of their products, and might prove helpful in establishing educational approaches. Potential regulatory approaches exist as well; these would generally be directed at restricting the ability of diazinon and chlorpyrifos to migrate from the land surfaces where they are applied.

Involved Entities

The Central Valley and San Francisco Bay Regional Water Quality Control Boards and the U.S. Environmental Protection Agency have regulatory authority, as do the Departments of Food and Agriculture and Pesticide Regulation. Manufacturers and distributors of diazinon and chlorpyrifos will be affected by CALFED actions in this area, and will need to be involved, as will the agricultural interests using the products. Managers of urban stormwater management programs in the watershed should also be involved, including the programs of the Cities of Sacramento and Stockton.

Issues to be Resolved

Which CALFED agency should be identified to take the lead in coordinating CALFED actions to resolve toxicity problems resulting from use of diazinon and chlorpyrifos?

How should voluntary, cooperative approaches be combined with regulatory actions to produce the quickest and most economical solutions that have the highest degree of public acceptance and credibility for the CALFED program?

What are the first steps that should be taken?

What is the priority of this action in relation to all other CALFED water quality actions?

Mercury in Cache Creek Watershed

Deposits of cinnabar, the ore from which mercury is derived, exist in the Cache Creek watershed from Clear Lake downstream. Historic mining operations have increased the exposure of mercury-bearing soils to the water, and this has been a factor in causing fish to accumulate organic mercury concentrations above the limit considered safe for human consumption. It is entirely possible, though not well established, that aquatic organisms in the area are themselves harmed by mercury accumulation. Abandoned mines in the watershed are believed to be particularly important sources, and are sources that are relatively susceptible to control measures such as capping, rerouting watercourses away from tailings piles, and other engineered solutions. Other sources can include natural weathering of diffuse mercury laden geologic formations that are much less subject to control. In addition, mercury contained in Cache Creek sediments is very widespread and would also be very difficult to eliminate. An important source is the abandoned Sulfur Bank Mine which is located on the property of the Elem native American tribe.

Children of the tribe have been found to have accumulated potentially harmful levels of mercury. Sulfur Bank Mine is a Federal Superfund site.

Involved Entities

The U.S. Environmental Protection Agency and Central Valley Regional Water Quality Control Board have regulatory authority and have been involved in researching and developing remediation measures. The Department of Conservation has been involved and is in the process of developing an up to date inventory of all abandoned mines in the area, and making the information available through a computerized Geographical Information System. The Department of Health Services is involved in human health issues associated with exposures due to mercury, and the Elem tribe is actively involved in the Sulfur Bank Mine site.

Issues to be Resolved

The Cache Creek mercury problem is a good illustration of a situation that faces many of the water quality actions being contemplated by CALFED. Some parts of the problem are understood well enough to enable corrective actions to be taken in the short run, while other facets of the problem will require extensive investigation to identify sources, quantify the mechanisms and extent of harm resulting from the agent, and to identify workable and affordable solutions. Clearly CALFED should not wait until everything is understood before acting and neither should its focus be limited to only those problems that are already well understood. Rather, CALFED must achieve an optimal mix of actions that will create short term improvements along with investments in developing the information that will make possible corrective actions that cannot presently be identified. For the mercury problem in Cache Creek, therefore, what is the optimal mix of actions and information development?

Sites of toxic pollution, such as abandoned mines, can cause serious financial liability to any entity that becomes involved the site. Recent State legislation extended "Good Samaritan" protection from site liability to entities engaged in cleaning up toxic sites where the entity was not involved in polluting the site. No such protection exists, however, at the Federal level.

The U.S. EPA has authority to administratively grant immunity from site liability in certain circumstances. With regard to toxic site cleanup of mercury contamination in the Cache Creek watershed, how will the CALFED agencies avoid financial liability? How quickly can this protection be acquired? Are there limits to the degree of financial liability protection that can be administratively extended to the CALFED agencies?

The Elem tribe must be treated as an independent nation in aspects of the Sulfur Bank Mine problem. How should CALFED relate to the Elem tribe?

Which CALFED agency should take the lead for coordinating CALFED actions related to the Cache Creek mercury problem?

What is the priority of this action in relation to all other CALFED water quality actions?

Selenium in Grasslands Area

Drainage from the Grasslands Area, located in the San Joaquin Valley, has been an important source of selenium entering the San Joaquin River through Mud and Salt Sloughs, and has been subject to regulatory action since toxicity due to selenium was observed in Kesterson Reservoir. In the last few years, Grasslands Area drainage entities have organized a major effort to reduce subsurface agricultural drainage and to reduce contributions of selenium to the San Joaquin River. This is called the Grasslands Bypass Project. Successfully reducing selenium from this source is quite complex, and is strongly affected by hydrologic conditions; however, the project shows great promise, especially as the Grasslands Area entities are enthusiastically cooperating.

Involved Entities

The Central Valley Regional Water Quality Control Board is the entity that has regulated selenium discharges to the San Joaquin River. Also, U.S. EPA has been involved. The Department of Food and Agriculture and Department of Water Resources are involved, the latter of these having performed extensive water quality monitoring in the Area, as has the U.S. Bureau of Reclamation and the U.S. Geological Survey. The San Joaquin Valley Drainage Implementation Program is the entity responsible for implementing drainage programs in the Valley, and the Grasslands Area Drainers are the regulated parties and managers of the Grasslands Bypass Project. All of these entities will need to be involved in successful CALFED actions to reduce selenium in the San Joaquin River and Bay-Delta.

Issues to be Resolved

Which CALFED agency should take the lead in coordinating CALFED water quality actions to control selenium in the San Joaquin River and Bay-Delta that come from subsurface agricultural drainage in the Valley?

Should CALFED encourage and help to support the Grasslands Bypass Project? What form should such involvement take?

What regulatory involvement could enhance incentives for voluntary, cooperative efforts to resolve the selenium problems in the Valley, and what regulatory activities would assure corrective actions would occur in the absence of cooperation?

What is the priority of this action in relation to all other CALFED water quality actions?

Drinking Water Improvement

In its Phase II Report, CALFED indicated the intention to organize a Delta Drinking Water Council to oversee efforts to seek continual improvement in drinking water quality taken from the Delta, and to meet the objectives of 50 ug/L maximum bromide and 3.0 mg/L maximum total organic carbon in Delta waters, or an equivalent level of public health protection. South Delta waters used as drinking water sources are higher in bromide than about 90 percent of drinking water supplies in the nation. Most of this bromide comes from intrusion of sea water into the fresh water supplies of the Delta. Also, organic carbon increases as water flows through the Delta, largely due to discharges from Delta islands having rich organic soils. Impending and

planned more stringent drinking water standards for improving disinfection and reducing unwanted chemical disinfection byproducts present particular challenges for municipal users of Delta waters to meet CALFED's goals for public health protection, due to the relatively poor quality of the Delta source.

Organic carbon can be removed to some extent through conventional water treatment processes at an affordable cost; and, treatment of drainage from Delta islands may prove feasible. Unfortunately, no affordable means have been identified for removing bromide, and increasingly widespread use of ozone, rather than chlorine, as a disinfection chemical reacts with bromide to form bromate, which may present serious health concerns. As of the present, the only known feasible means of reducing bromide is prevention and control of its sources. Loading calculations recently performed by CALFED indicate that about 80 percent of the bromide load entering the San Joaquin Valley is from the Delta, indicating there is some potential for identifying and removing bromide from sources such as use of bromine-containing agricultural chemicals and connate groundwater (ancient seawater) in Valley aquifers.

Involved Entities

The Department of Health Services has primacy for implementing the Federal Safe Drinking Water Act, and also administers the State Safe Drinking Water Act, including establishing drinking water standards that must be at least as protective as federal drinking water standards. The U.S. Environmental Protection Agency establishes Federal drinking water standards, and is the source of funds for numerous programs related to drinking water that are administered by the Department of Health Services. The Department of Water Resources operates the State Water Project which is the source of drinking water to about two-thirds of the State's population. The Department has conducted its Municipal Water Quality Investigations Program since 1982, and is the source of most of the existing information on drinking water problems associated with Delta source waters. In recent years, the U.S. Geological Survey has undertaken studies of Delta soils and the mechanisms whereby they contribute organic carbon to Delta waters. California Urban Water Agencies is a group of drinking water purveyors that takes an active role in drinking water issues, and the urban water contractors of the State Water Project, as represented through the State Water Contractors organization, are active in drinking water issues. All of these entities will need to be involved in developing solutions to drinking water problems.

Issues to be Resolved

Because the Delta Drinking Water Council is identified as a CALFED undertaking, it is assumed that CALFED staff will take the lead for coordinating the work. How should the Delta Drinking Water Council be formed and constituted? How should the above listed involved entities be included in the Council or related to it?

How can the participation of environmental and agricultural stakeholders be provided for?

California Urban Water Agencies is currently working on development of interim water quality milestones to recommend for adoption by CALFED. What should the CALFED process be for

developing and adopting interim milestones for drinking water quality improvement? How should "equivalent level of public health protection" be represented in the milestones?

What is the priority of this action in relation to all other CALFED water quality actions?

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