

**Technical Comments
of the Agricultural and Urban Water Caucuses
on the CALFED Water Quality Program Programmatic Actions**

The technical comments on the CALFED Water Quality Program Programmatic Actions are presented in this document. To facilitate understanding of our comments, we have included language from Appendix B in italics, followed by our comments.

For each major pollutant source (e.g. mine drainage, agricultural drainage, etc.,) CALFED should provide a description of the problem including the chemical or physical parameters of concern, and the effects on water quality and aquatic organisms - a state of the watershed report. We also recommend that CALFED provide information on how well understood the problem is. Without this more detailed descriptive information, it is difficult to evaluate the need for the actions and to determine if the "performance measures" and "indicators of success" are appropriate. We are hopeful that the detailed information will be presented in the CALFED Component Report which, we understand, will be available for public review within a month.

Many of the Programmatic Actions contain implementation methods that require action by other state and federal agencies that are not under CALFED's jurisdiction. We assume that CALFED will make recommendations to those agencies to implement the CALFED Water Quality Program and that the individual agencies will then engage in their normal processes for establishing regulations or programs.

Mine Drainage

Action

Reduce toxic effects of cadmium, copper, and zinc loadings to the Delta and its tributaries by source control or treatment of mine drainage at inactive and abandoned mine sites. Action targeted at the Upper Sacramento River and tributaries to the Upper Sacramento River that are major contributors of copper, cadmium and zinc loadings.

Ag/Urban Comments - In recent years, the Regional Boards have been reluctant to commit public funds on mine abatement projects due to the concern that the State would become liable for clean up costs. The California Water Code has been amended to allow "good Samaritans" to become involved in mine abatement and to avoid liability. The federal Clean Water Act has not been revised and should be amended to allow state agencies and others to pursue mine abatement while avoiding liability associated with doing so. We recommend that CALFED take the lead in pursuing this revision to the federal Clean Water Act. Ag/Urban technical staff will be pleased to meet with your staff to discuss the content of the state legislation and our recommendations for federal legislation.

The Central Valley Regional Water Quality Control Board (Regional Board) has identified the mines that contribute significant loadings of pollutants to the Sacramento River. The information on metals loading must be combined with information on areas of biological importance (e.g. salmon spawning areas). CALFED should develop a priority list and identify the mines that should be remediated first to provide the most biological benefit. CALFED needs to find the appropriate balance between conducting studies and taking action with respect to cleaning up mine sites.

CALFED should define "Upper Sacramento River". The designation of Upper Sacramento River means the Sacramento River above Lake Shasta to some. We believe that CALFED's efforts on mine drainage need to be largely directed at mines discharging into the Sacramento River or its tributaries downstream of Lake Shasta and other major reservoirs. We believe that is CALFED's intent, but are somewhat confused by the discussion of the Upper Sacramento River.

Performance Measure

- *Reduction in annual copper loadings (during an average water year) to the Upper Sacramento River from approximately 65,000 pounds to 10,000 pounds.*

Ag/Urban Comment - CALFED should provide the basis for this load reduction. If the load is reduced to 10,000 pounds, will the Basin Plan objectives for copper be met in the Sacramento River? Is CALFED recommending load reductions for cadmium and zinc that are commensurate with the copper load reduction?

Indicator of Success

- *Achievement of Basin Plan objectives for cadmium, copper, and zinc in the Sacramento River above Hamilton City.*

Ag/Urban Comment - Many of the programmatic actions contain performance measures and indicators of success that are based on chemical concentrations in ambient waters rather than biological responses. Although water quality objectives and criteria are used by regulatory agencies to define the health of aquatic ecosystems, many scientists question the ecological validity of chemical concentrations as indicators of ecosystem health. We recognize the difficulties in determining appropriate quantitative responses and in measuring success biologically, but we urge CALFED to base the performance measures and indicators of success on biological responses in the system, where appropriate.

The indicator of success for this action should include a significant reduction (or elimination) of aquatic toxicity in the Sacramento River due to mine drainage. Although it is difficult to quantify a significant reduction in toxicity at this time, it should be possible to do so

after conducting a year or two of the comprehensive monitoring, assessment, and research program.

Urban and Industrial Runoff

Action

Reduce the toxic effects of copper, zinc and cadmium loadings to the Delta and its tributaries from urban and industrial runoff.

Ag/ Urban Comment - There is currently little information to suggest that metals in urban runoff are producing toxicity in receiving waters of the Delta watershed. The comprehensive monitoring, assessment, and research program should provide information on the effects of metals on the aquatic life of receiving waters. We recommend that CALFED concentrate on reducing the effects of pesticides in urban runoff until monitoring results either confirm that metals are not adversely affecting aquatic life or evidence is found to the contrary.

Indicator of Success

- *For copper and zinc achievement of Basin Plan objectives in the Delta and Sacramento River and its tributaries, US EPA 304(a) guidelines in the San Joaquin River and its tributaries.*
- *For cadmium achievement of Basin Plan objectives in the Sacramento River and its tributaries and west of Antioch Bridge in the Delta, US EPA 304(a) guidelines in the San Joaquin River and its tributaries and east of Antioch Bridge in the Delta.*

Ag/ Urban Comment - The indicator of success should be a reduction (or elimination) of aquatic toxicity in the Delta and its tributaries due to metals in urban and industrial runoff, if the comprehensive monitoring, assessment, and research program provides information that metals in urban runoff are resulting in toxicity in receiving waters.

Action

Reduce toxicity from the pesticides chlorpyrifos and diazinon in the Delta and its tributaries through source control of urban and industrial runoff.

Ag/ Urban Comment - This action should be reworded as follows, "Reduce (or eliminate) toxicity from urban, industrial, and residential pesticides such as chlorpyrifos and diazinon that have been identified as causing toxicity to aquatic life in the Delta..." Diazinon and chlorpyrifos have been identified as causing toxicity in urban runoff discharges and sufficient data already exist to support the need for control programs for both agricultural and urban use of these

chemicals. There is evidence that other pesticides (e.g. diuron) may also cause toxicity and much of the toxicity has not yet been chemically identified. Although CALFED should focus its actions on known sources of toxicity to aquatic life in the Delta, this action should not be limited to toxicity caused by chlorpyrifos and diazinon because we currently don't have enough information to know what other pesticides are causing toxicity in the receiving waters of the Delta watershed, as much of the toxicity has not yet been chemically identified. The comprehensive monitoring, assessment, and research program should provide this information.

Methods

- *Enforcement of existing source control regulations*

Ag/Urban Comment - We believe strongly that existing regulations should be enforced. If there are indications that existing regulations are not being enforced, CALFED should provide a description of the problem and make specific recommendations to the regulatory body(ies) on areas where better enforcement would help improve the Bay-Delta ecosystem. The Water Quality Program should then contain actions that would supplement existing regulations with voluntary incentive-based methods. The CALFED actions should be focused on broader efforts outside the scope of existing regulations.

We suggest that this method be replaced with, "Provide regulatory incentives and financial incentives for implementation of additional urban and industrial runoff source control measures." We also recommend an additional action, "Work with watershed stakeholder groups on source control education."

Action

Reduce the toxic effects of nutrient loadings and consequently, oxygen depletion in the Delta and its tributaries through source control of urban and industrial runoff.

Ag/Urban Comment - It is misleading to refer to the toxic effects of nutrient loadings. This action should be restated as "Eliminate the oxygen depletion problem in the Delta by reducing nutrient loads from (list sources of nutrients contributing to oxygen depletion problem)." We know of only one area of the San Joaquin River near Stockton where oxygen depletion is a problem. Are there other areas of the Delta or its tributaries that have low dissolved oxygen problems?

Action

Reduce the impacts of sediment loading, and subsequent turbidity to the ecosystem of the Delta and its tributaries and to urban drinking water sources in the Delta, through source control of urban and industrial runoff.

Methods

Ag/Urban Comment - An additional method should be added to evaluate the feasibility of detention basins in new developments for control of sediment and its associated pollutants.

Performance Measure

- *Decreased turbidity levels at Delta water supply intakes*

Ag/Urban Comment - This performance measure should be expanded to include decreased turbidity levels in urban runoff discharges to the Delta and its tributaries.

Ag/Urban Recommended Action

Evaluate the loadings of TOC, salinity, and pathogens in urban runoff and assess the need for source control measures to reduce these parameters of concern to drinking water supplies.

Methods

- Include monitoring for TOC, salinity, and pathogens in stormwater and dry season runoff as part of the comprehensive monitoring, assessment, and research program.
- Evaluate the relative loading of these constituents in urban runoff, wastewater discharges, and agricultural drainage discharges.

Performance Measure

- Improved understanding of the sources of TOC, salinity, and pathogens in the Delta and its watersheds.
- Reduced TOC, salinity, and pathogen loads entering the Delta and its tributaries.
- Reduced peaks in salinity concentrations at water supply intakes.

Indicator of Success

- Achievement of water supply target levels for TOC (3.0 mg/L, quarterly average), pathogens (<1 oocyst/100L), and salinity (220 mg/L, 10 year average).

Wastewater and Industrial Discharges

Action

Reduce the impact of domestic wastes and hence pathogens to Delta urban drinking water supplies and recreational water uses, from boat discharges within the Delta and Delta tributaries.

Indicator of Success

- *Lower pathogen levels near water supply intakes.*

Ag/Urban Comment - This indicator of success should be quantified and stated as, "Achievement of water supply target levels for pathogens (<1 oocyst/100L).

Action

Reduce the toxic impacts of oxygen depleting substances and copper and mercury loadings to the Delta through cost effective source control and treatment of industrial and municipal wastewater discharges. Action for oxygen depleting substances should be targeted at the Lower San Joaquin River and copper and mercury loadings at the Suisun Bay and Carquinez Straight area.

Ag/Urban Comment - There are no significant municipal and industrial sources of copper and mercury to Suisun Bay and Carquinez Straight.

Methods

- *Increased incentives for industries to pre-treatment discharges containing copper and mercury.*

Ag/ Urban Comment - This should be reworded to state "Financial and regulatory incentives will be provided to industries to pre-treat discharges containing copper, mercury, and oxygen depleting substances." Many food processing industries have high BOD loads so the method should not be confined to copper and mercury but should also include oxygen depleting substances.

- *Incentives for municipal wastewater effluent reclamation and reuse.*

Ag/ Urban Comment - This should be reworded to state "Financial and regulatory incentives will be provided to municipalities to provide improved wastewater effluent treatment and to identify and implement opportunities for wastewater effluent reclamation and reuse."

Action

Reduce the toxic impacts of selenium loadings to the Delta through source control and treatment of industrial discharges. Action should be targeted at industries that discharge selenium to the Suisun Bay and Carquinez Straight area.

Ag/Urban Comment - Reducing selenium loadings in industrial discharges to Suisun Bay and Carquinez Straight will have little effect on selenium loadings to the Delta. The biological significance of selenium has not been clearly established. It is premature to assume that selenium has had "toxic effects" on aquatic organisms. A study of the biological effects of selenium should be included in the comprehensive monitoring, assessment, and research program.

Indicator of Success

- *Reduced tissue bioaccumulation of selenium in aquatic organisms of the western Delta.*

Ag/ Urban Comment - We recommend that the indicator of success be a reduction in the tissue concentrations of selenium to levels that are not harmful to aquatic organisms in the western Delta. We recognize that research is needed to determine the harmful levels for many aquatic organisms. This research should be included in the comprehensive monitoring, assessment, and research program.

Action

Reduce the toxic effects of ammonia entering the Delta and its tributaries from waste water treatment plant discharge through improved treatment.

Ag/Urban Comment - This action was mistakenly included under the Agricultural Drainage section of Appendix B.

Ag/Urban Recommended Action

Evaluate the loadings of TOC, salinity, and pathogens from wastewater and industrial treatment plant discharges, and assess the need for source control measures to reduce these parameters of concern to urban water supplies.

Methods

- Include monitoring for TOC, salinity, and pathogens in wastewater and industrial treatment plant discharges as part of the comprehensive monitoring, assessment, and research program.

- Evaluate the relative loading of these constituents in urban runoff, wastewater discharges, and agricultural discharges.

Performance Measures

- Improved understanding of the sources of TOC, salinity, and pathogens in the Delta and its tributaries.
- Development of appropriate actions to reduce TOC, salinity, and pathogen loads entering the Delta and its tributaries.

Indicator of Success

- Achievement of water supply target levels for TOC (<3.0 mg/L, quarterly average), pathogens (<1 oocyst/100L) and salinity (220 mg/L, 10 year average and reduced peaks in salinity) at the water supply intakes.

Agricultural Drainage

We recommend that the agricultural drainage section be divided into several categories for ease of understanding the pollutant sources and the actions:

- Subsurface Drainage (selenium, boron, salinity)
- Surface Runoff (TOC, salinity, pesticides)
- Runoff from Dairies (ammonia, pathogens)

Subsurface Drainage

Action

Reduce the toxic effects of selenium loadings to the Lower San Joaquin River and Delta by controlling sources of selenium in agricultural sub-surface drainage.

Ag/ Urban Comment - The biological significance of selenium has not been clearly established. Additional studies are needed to determine if selenium has had "toxic effects" on aquatic organisms in the San Joaquin River and the Delta. It is not clear that selenium from agricultural drainage from the San Joaquin Valley reaches the Delta in concentrations that are harmful to aquatic life. A study of the biological effects of selenium should be included in the comprehensive monitoring, assessment, and research program.

Methods

- *Change use of lands that are major sources of selenium through voluntary landowner participation and by compensated arrangements to reduce drainage volumes.*

Ag/ Urban Comment - An active land management program that includes planting crops, such as safflower, that use water from the high water table should be evaluated. Active land management may result in improved water quality compared to land retirement. In some cases retiring land with a high water table could create salt flats that could potentially cause more severe environmental problems than continued production of drainage water. We concur that landowner participation should be voluntary and that compensation should be provided for land that is retired.

- *Reduce drainage flows through increased water use efficiency.*

Ag/ Urban Comment - Improvements in irrigation efficiency can be achieved by reducing surface runoff or deep percolation. Reductions in surface runoff will not reduce subsurface drain water volume or selenium loads directly, as there is very little selenium in surface runoff. Reductions in deep percolation will reduce the volume of subsurface drain water and, therefore will reduce selenium loads. However, given that subsurface drain water moves laterally between fields, and over longer distances through sand stringers and other pathways, it is difficult to predict the reduction in subsurface drain water volume and selenium loads that can be achieved by improving water use efficiency.

- *Treat drainage for selenium removal.*

Ag/ Urban Comment - The feasibility of various treatment options should be evaluated. For example, we believe that a 1 mgd biological treatment plant should be constructed and studied. Westlands Water District designed a 1 mgd plant but did not proceed with construction. DWR has conducted pilot scale testing which showed that 50% removal rates could readily be achieved. Additional work needs to be done to identify an optimized process that can achieve a 90% removal rate.

Performance Measure

- *Reduced selenium loadings from the Grassland area of the San Joaquin River watershed and compliance with Basin Plan objectives for selenium.*

Ag/ Urban Comment - The Grassland area is not the only source of selenium to the San Joaquin watershed. The Coast Range is a source of selenium as is the irrigation water derived from the Delta.

Indicator of Success

- *Reduced selenium concentrations in the San Joaquin River near Vernalis, where the River flows into the Delta.*

Ag/ Urban Comment - We recommend that the indicator of success be a reduction in the tissue concentrations of selenium to levels that are not harmful to aquatic organisms.

Action

Reduce salinity impacts to Delta urban and agricultural source water quality through source control and treatment of agricultural surface and sub-surface drainage in the San Joaquin River watershed.

Methods

- *Concentration and safe disposal of agricultural drainage in evaporation ponds.*

Ag/ Urban Comment - Evaporation ponds are not a practical solution in the Grassland area, particularly if selenium is in the water. The water quality and wildlife problems in Kesterson Reservoir are prime examples of the types of adverse effects that can result from evaporation ponds.

- *Treatment of agricultural drainage by reverse osmosis, constructed wetlands, or by other means.*

Ag/ Urban Comment - Treatment of drainage water for removal of salts and selenium should be evaluated along with land management in the CALFED program. Although at the current time there are concerns to be overcome, such as cost, brine disposal, and technical feasibility, the drainage water could be a valuable resource if cost effective treatment can be identified. Treatment methods to be evaluated should include reverse osmosis and low pressure membranes, constructed wetlands, and continued research in other treatment techniques.

- *Time agricultural drainage discharges to coincide with periods when dilution flow is sufficient to achieve water quality target ranges for salinity*

Ag/ Urban Comment - Realtime monitoring is needed to time discharges to coincide with periods of high river flow and low in-river concentrations so that water quality objectives are not exceeded in receiving waters. This method can potentially result in lower salinity concentrations in the San Joaquin River at certain times but it will not likely reduce the total salinity load. This is inconsistent with the reduction in salinity loads called for by the performance measure.

Performance Measure

- *Reduced salinity loads entering the San Joaquin River from adjacent lands and compliance with Basin Plan objectives.*

Ag/ Urban Comment - Timing of drainage discharges for periods of high flow will not reduce salinity loads to the San Joaquin River; however, it will reduce salinity concentrations. We recommend adding an additional performance measure, "Reduced peaks in salinity levels at the water supply intakes."

Indicator of Success

- *Reduced salinity in the San Joaquin River near Vernalis, where the River flows into the Delta.*

Ag/ Urban Comment - The percent reduction in salinity or percent of time that the target level for salinity is met should be specified in the indicator of success. Additional compliance points, such as the water supply intakes, should be added. We recommend that the target level at the water supply intakes be <220 mg/L, 10 year average.

Surface Runoff

Action

Reduce the toxic effects of carbofuran, chlorpyrifos, and diazinon in the Delta and its tributaries through source control of agricultural surface drainage and Delta island drainage.

Ag/Urban Comment - This action should be reworded as follows, "Reduce toxicity from agricultural pesticides such as carbofuran, chlorpyrifos, and diazinon that have been identified as causing toxicity to aquatic life in the Delta..." Carbofuran, diazinon and chlorpyrifos have been identified as causing toxicity in Delta and tributary waters; however, there is evidence that other pesticides (e.g. ziram) may also cause toxicity. Although CALFED should focus its actions on known sources of toxicity to aquatic life in the Delta, this action should not be limited to toxicity caused by chlorpyrifos and diazinon because we currently don't have enough information to know what other pesticides are causing toxicity in the receiving waters of the Delta watershed, as much of the toxicity has not yet been chemically identified. The comprehensive monitoring, assessment, and research program should provide this information.

Method

- *Incentives and/or enforcement of existing regulations.*

- *Incentives for pesticide users to increase implementation of best management practices including integrated pest management and grower education.*

Ag/ Urban Comment - While we believe that existing regulations must be enforced, we support voluntary, incentive-based methods rather than regulatory-based programs. We suggest that the two methods listed above be rewritten to state "Provide regulatory and financial incentives for implementation of agricultural drainage source control measures that include incentives for pesticide users to increase implementation of best management practices including integrated pest management and grower education." We recommend that a second method be added, "Provide financial incentives and assistance for pilot-scale testing of best management practices to control pesticide discharges in agricultural surface runoff." We also recommend an additional method, "Work with watershed stakeholder groups on source control education."

Performance Measures

- *Reduction of toxicity in Delta channel waters.*

Ag/ Urban Comment - The performance measure should be restated, "Reduction (or elimination) of toxicity in Delta channel waters and tributary waters."

Ag/Urban Recommended Action

Reduce the impacts of sediment loading and subsequent turbidity to the ecosystem of the Delta and its tributaries and to urban drinking water sources in the Delta, through agricultural runoff control measures.

Methods

- Provide incentives and assistance for implementation of agricultural land use practices and improved irrigation strategies to reduce soil erosion, and for installation of buffer strips.

Performance Measure

- Reduction of sediment loading to the Delta and its tributaries from agricultural areas with high erosion rates.

Indicator of Success

- Achievement of a 50 NTU monthly median at drinking water intakes in the Delta and tributaries.
- Achievement of Basin Plan objectives for turbidity (need to state them).

Ag/Urban Recommended Action

Reduce the impacts of TOC loading on drinking water supplies by controlling TOC discharges from the Delta islands.

Methods

- Provide financial assistance and incentives for pilot-scale testing and implementation of water management practices and cropping patterns to reduce contributions of TOC from Delta islands.
- Change or modify land use on Delta islands with peat soils.
- Reduce concentration of TOC in agricultural drainage water through treatment of drainage water prior to discharge.

Performance Measure

- Reduction in TOC loads to the Delta by at least 25 percent (the comprehensive monitoring, assessment, and research program will provide information on whether a 25 percent reduction in conjunction with other source control measures will allow the target level of <3.0 mg/L to be met).

Indicator of Success

- Achievement of a TOC target level of <3.0 mg/L quarterly average at drinking water supply intakes.

Rangeland, Dairies, and Confined Animal Facilities

Ag/Urban Recommended Action

Reduce the impacts of pathogens on drinking water supplies by controlling sources of pathogens from rangelands, dairies, and confined animal facilities

Methods

- Provide financial incentives and educational assistance for pilot-scale testing and implementation of best management practices that control pathogen discharges from rangelands, dairies, and confined animal facilities.

- Provide financial resources for the Regional Board to regulate all dairies with waste discharge requirements.

Performance Measure

- Reduction in pathogen loads entering the Delta and its tributaries from confined animal facilities and rangelands.

Indicator of Success

- Achievement of pathogen target level (<1 oocyst/100L) at drinking water supply intakes.

Water Treatment

Action

Improve treated drinking water quality (including reduction in formation of disinfection by-products) through treatment to reduce concentrations of total organic carbon, pathogens, turbidity, and bromides.

Ag/Urban Comment - In many cases urban drinking water suppliers have already upgraded or are making plans to upgrade their treatment plants to include ozone or enhanced coagulation. Installation of granular activated carbon (GAC) and/or membrane filtration is not economically feasible, and these technologies have associated environmental impacts such as siting of GAC regeneration facilities and wasting 15 to 25 % of the water supply in concentrated brine when using membranes. Also, reliance on treatment technologies alone to address drinking water quality issues is not sufficiently protective of public health and is at odds with EPA's source water protection programs. Source water protection must be a central component of any Bay-Delta solution, and CALFED's Water Quality Program must include source control action strategies addressing each of the drinking water parameters of concern.

CALFED's Water Quality Program includes source control actions addressing drinking water parameters in a few cases, including 1) agricultural drainage source control measures and water management practices to address salinity in the San Joaquin River, 2) urban and industrial runoff source control and treatment measures to address nutrients and turbidity, and 3) source control actions for boat discharges to address pathogens. Although these action strategies address drinking water quality parameters through source control methods, for the most part there are no connections made between the source control action and a target for drinking water quality improvement. In addition some of the key parameters of concern to urban water supply agencies have not been adequately addressed (e.g. TOC and bromide). To protect the drinking water beneficial use, the CALFED Water Quality Program needs to include additional source

control actions that address drinking water quality parameters and that incorporate targets for improved source water quality for drinking water supplies. We have recommended additional actions for several sources of pollutants.

Action

Improve total organic carbon, pathogens, turbidity and bromides at domestic water supply intakes.

Method

Relocate water supply intakes to areas that are not influenced by those discharges.

Ag/Urban Comment - CALFED should determine if adequate drinking water quality can be provided by source control actions or if it will be necessary to relocate drinking water intakes to provide raw water quality that can be treated to meet drinking water standards. Relocation of water supply intakes should be included in the CALFED storage and conveyance alternatives and the water quality impacts (both to drinking water supplies and the ecosystem) should be evaluated in the programmatic EIR/EIS..

Unknown Toxicity

Action

Identify and implement actions to address potential toxicity to water and sediment within the Delta and its tributaries.

Ag/ Urban Comment - This action should be reworded to state, "Identify and implement actions to reduce toxicity to aquatic organisms from chemicals in the water and sediments." This action should include evaluation of persistent chemicals (DDT, pesticides, chlordane, etc.,) that have been banned in California.

Methods

- *Conducting toxicity testing and toxicity identification evaluations and/or other appropriate methods.*
- *Coordinate efforts with monitoring programs being conducted by others.*

Ag/ Urban Comment - CALFED should design a comprehensive toxicity testing, TIE, and chemical testing program to fully evaluate toxicity in the Sacramento and San Joaquin rivers, their tributaries, and the Delta. The comprehensive monitoring, assessment, and research

program should determine the extent and amount of toxicity present in the rivers and sediments, identify the toxicants, determine the sources of the toxicants, and evaluate control measures. The various programs that are on-going or planned have not been designed to adequately address the full scope of potential toxicity in the watersheds. CALFED's efforts should be directed at doing so and then opportunities for coordination with other programs should be evaluated.

Performance Measure

- *Numbers of toxicity bioassays and Toxicity Identification Evaluation test conducted.*

Ag/ Urban Comment - The performance measure should be full implementation of a comprehensive program, not simply a counting of the number of tests conducted.

Indicator of Success

- *Successful identifications of causal agents of toxicity in the channels of the Delta estuary.*

Ag/ Urban Comment - The indicator of success should be a significant reduction (or elimination) of the amount of toxicity present in the rivers and sediments due to successful implementation of control measures for toxicants identified in the comprehensive monitoring, assessment, and research program.

Water Management

Ag/Urban Comment - The water management actions don't appear to be related to the Water Quality Program and should be included in other elements of the CALFED program. The water quality impacts of these measures should then be assessed in the water quality impact analysis. In some cases, water management actions, including water conservation practices, can reduce or affect water quality for agricultural and environmental purposes. For example, reduced water supply in systems where the water is reused or recirculated throughout the service area can cause increased salinity levels that detrimentally affect crop and soil health. Reduced water can also affect the quality of wildlife habitat found in agricultural drains.

The following action was mistakenly placed under the Agricultural Drainage section. It is more appropriately categorized as a water management action.

Action

Reduce salinity for agricultural source water in the South Delta through improved outflow patterns and water circulation in the Delta.

Methods

- *Construct one or more tide gates, wiers, dams or sills at the head of Old River and possibly other southern Delta locations to manage drainage flows, tidal currents and stages in the San Joaquin and Middle River and interconnecting channels.*

Ag/Urban Comment - Although this action would improve salinity in the south Delta as well as at the Tracy and Banks pumping plants, salinity concentrations would increase at the Contra Costa Water District pumping plant at Rock Slough. This is counter to CALFED's solution principle that impacts will not be redirected.

- *Provide dilution water for salinity control. (This measure would be considered as one possible means of mitigating salinity impacts of other CALFED actions, if such mitigation were necessary.)*

Ag/Urban Comment - Source control and pollution prevention are the preferred methods of achieving salinity reductions.

Other Pollutant Sources

The CALFED Water Quality Program does not contain any source control actions for timber harvesting, railway/highway/road construction, or wildfire prevention and remediation. These activities contribute tremendous sediment loads to the Sacramento and San Joaquin watersheds each year and should be included in the CALFED program. The Central Valley Regional Board has identified the Feather River watershed as being adversely affected by these activities.

Comprehensive Monitoring, Assessment, and Research Program

We believe that a comprehensive monitoring, assessment, and research program designed to address real water quality problems, is an essential component of the Water Quality Program. Despite years of study, many water quality problems are not yet properly understood and the relationship between in-stream biological effects and water quality standards exceedences or toxicity test results using standard bioassays is poorly understood, at best. We understand it is difficult and may not be cost effective to take action prior to understanding the water quality problems of the Delta and its watersheds; however, CALFED needs to find the proper balance between monitoring and taking action. We believe there is sufficient justification to proceed with control measures for some Water Quality Program actions (e.g. mine abatement, control of dormant spray pesticides); however, many of the Water Quality Program actions need to be monitored and adjusted based on monitoring program results (e.g. unknown toxicity, biological

effects of selenium). For adaptive management to be successful, clear objectives and measurable criteria for assessing the effectiveness of actions need to be identified.

We understand that CALFED staff are developing a comprehensive monitoring, assessment, and research program. We look forward to working with CALFED staff to develop a program that will establish baseline conditions in the watersheds and evaluate the effectiveness of control measures recommended in the Water Quality Program. We offer some preliminary ideas on elements that should be included in the assessment and monitoring program. We would be pleased to meet with CALFED staff to further discuss these initial ideas.

- Comprehensive toxicity testing of the Sacramento and San Joaquin rivers and the Delta
- TIE's to determine the chemicals responsible for toxicity when it is found
- Effects of selenium and selenium tissue levels on aquatic organisms
- Loading analysis for salinity, TOC, bromide, and pathogens so that sources can be identified and control measures recommended