



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**REGION IX**

**75 Hawthorne Street  
San Francisco, CA 94105-3901**

**JUL 12 2006**

Colonel Ronald N. Light  
District Engineer, Sacramento District  
Attention: Bill Guthrie, Regulatory Section  
U.S. Army Corps of Engineers  
1325 J Street, 14<sup>th</sup> Floor  
Sacramento, California 95814-2922

Re: Public Notice (PN) 199001376, South Delta Improvements Program; San Joaquin/Contra Costa Counties, California

Dear Colonel Light:

We have reviewed the subject PN dated 7 June 2006 for the proposal by the California Department of Water Resources and the U.S. Bureau of Reclamation for the first stage of the South Delta Improvements Program (SDIP). We appreciate the Corps extension of the PN comment period until 14 July 2006. The project proposes to construct, operate, and maintain four permanent operable gates to control fish and flows, and conveyance dredging to improve flows in the South Delta. This project would fill 1.16 acres of waters of the United States and temporarily impact 269.33 acres of waters from the dredging of 247,000 cubic yards of sediment.

The following comments were prepared under the authority of, and in accordance with, the provisions of the Federal Guidelines (Guidelines) promulgated under section 404(b)(1) of the Clean Water Act (CWA) at 40 CFR Part 230. EPA recommends resolution of the following issues regarding gate operations and dredging before permit issuance.

### **Gate Operations – Impacts to Water Quality**

Section 303(d) of the Clean Water Act requires the identification of water bodies that do not meet, or are not expected to meet, water quality standards, or are considered impaired. The current list, approved by the EPA, is the 2002 303(d) list and includes the following water bodies in the project area: Old River, Middle River, and the Stockton Deep Water Ship Channel (DWSC) portion of the San Joaquin River. These water bodies are impaired due to low dissolved oxygen (DO) and mercury.

The PN gave no information as to whether water quality issues raised by both EPA and the Central Valley Regional Water Quality Control Board (CVRWQCB) during the environmental review process were addressed with respect to gate operations. In a letter dated 22 February 2006, EPA provided comments to the Bureau of Reclamation on the draft

Environmental Impact Statement (DEIS), concluding that the DEIS was deficient in disclosing the projects impact to water quality in the Delta. In a letter to the California Department of Water Resources dated 7 February 2006, the CVRWQCB identified SDIP operations as having the potential to impact water flow through the DWSC, thereby potentially contributing to DO impairment. Additionally, CVRWQCB identified that the project will result in changes in Delta sulfate mixtures, thereby influencing methyl mercury production in sediment. The Guidelines require that no discharge be permitted if it causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard (40 CFR 230.10(b)(1)).

We remain concerned that the applicant has not demonstrated that their project will not cause or contribute to violations of water quality standards, specifically with regard to mercury and DO. For the applicants' reference, we have enclosed both EPA's and CVRWQCB comment letters on the DEIS (see Attachments 1 & 2). Issues raised during this process must be addressed prior to issuance of a Corps permit.

#### *Gate Operations Issue Summary*

- 1. The applicant must demonstrate that the project will not cause or contribute to violations of methylmercury or total mercury level standards in the Delta. The applicant must evaluate the potential effects of the SDIP on bioavailability of mercury, mercury exposure levels, and implementation of the mercury TMDL.*
- 2. The applicant must demonstrate that the project will not cause or contribute to violations of dissolved oxygen standards in the Delta. The applicant must evaluate the potential effects of the SDIP on DO impairment in the Middle River, Old River, Stockton Deep Water Ship Channel and other south Delta channels.*
- 3. The applicant must demonstrate that the project will not cause or contribute to violations of salt and boron standards in the Delta. The applicant must evaluate the potential effects of the SDIP on the implementation of the salt and boron TMDL.*

#### **Dredging**

Figure 9 of the PN depicts seven settling basins that will be constructed adjacent to Middle River, and Figure 8 shows that return water from these ponds will be pumped back into Delta waters. We are concerned that the PN presents no basis for determining the adequacy - in size, design, or operation - for the proposed settling basins. To be effective such basins must be sized, designed, and operated specifically in order that the return flow will be in compliance with relevant water quality standards. Inadequate settling pond performance can result in water quality standards violations and adverse impacts on downstream beneficial uses.

For the water quality parameters included in the impairment listing (mercury and

dissolved oxygen), the return water flow must meet water quality standards at its discharge point (without mixing). Other key water quality parameters for which the predicted quality of the return flow from the settling ponds should be evaluated include (but are not limited to) total dissolved solids, and chemical and biological oxygen demand. The PN presents no information showing that such considerations have adequately been taken into account in the applicant's proposal.

In addition, please be aware of the sediment testing protocols set out in the joint EPA-USACE national guidance, *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Inland Testing Manual (ITM)* dated February 1998. Testing is conducted when necessary to assist the permitting authority make factual determinations regarding the effect of the discharge on the aquatic ecosystem, and in determining whether the discharge will comply with the Guidelines (40 CFR 230.10 and 230.11). In this case, at a minimum chemical characterization of the sediment to be dredged is necessary to support determinations about the appropriate size, design, and operation of the settling ponds to ensure adequate return flow water quality. Neither the PN or the DEIS presents sediment quality information adequate to make such determinations. EPA will require that adequate, representative sediment sampling be conducted in accordance with the ITM for this purpose. Of course, EPA will consider any existing sediment data for the project area in determining the degree of additional sampling necessary.

It appears that the applicant proposes to include future maintenance dredging of the four water gates in the permit. Additionally, the applicant requests to include a round of maintenance dredging in Middle River, Old River, and West Canal within the next five years. EPA will require additional rounds of sediment testing to support determinations about the discharge and management of this future material, as necessary. Any eventual USACE permit for the SDIP should make clear that future maintenance dredging episodes must first undergo episode-specific sediment quality evaluation and approval by USACE, EPA and CVRWQCB before future discharges of material will be approved under the permit.

*Dredging Issue Summary:*

- 1. USACE has published an engineering manual that addresses appropriate design considerations for settling basin facilities (EM 1110-2-5027). The applicant should show that the basins would be sized, designed, and operated consistent with this manual, and specifically in order to meet the particular water quality needs of the return flow this project.*
- 2. Prior to the issuance of a USACE permit, the applicant must submit a draft dredged material sampling and analysis plan (SAP) to EPA, USACE, and CVRWQCB for review and approval. Chemical characterization of the dredged material in accordance with the ITM is necessary to determine whether the size and design of the settling basins is adequate, and whether special controls on*

*operation of the settling basins will be necessary to protect against adverse aquatic impacts. EPA is happy to work with the applicant in development of their SAP.*

- 3. The applicant should address whether and how the disposal ponds will be able to accommodate future dredged material anticipated from the proposed maintenance dredging.*

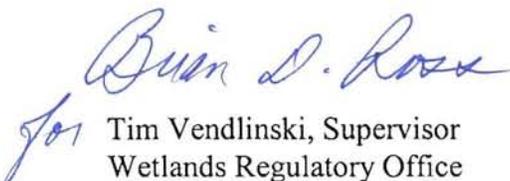
## **Mitigation**

The Guidelines state that discharge of fill material shall not be permitted unless appropriate and practicable steps have been taken which minimize impacts to the aquatic system (40 CFR 230.10(d)). The 1990 Memorandum of Agreement on mitigation between the Corps and EPA clarified the Guidelines by establishing a mitigation sequence that first avoids adverse effects, then minimizes adverse effects, and finally compensates for unavoidable impacts to waters of the U.S. Since the applicant has not developed a conceptual mitigation plan, we are unable to make a determination on its adequacy. Table ES-3 in the DEIS commits up to \$6 million dollars for mitigation for project impacts, including dredging, but it is unclear how this money will be used to mitigate specific project impacts.

## **Conclusions**

Following a review of the information provided in the PN and the DEIS, EPA has determined there is insufficient information available to determine whether the project would comply with the Guidelines. We look forward to receiving a draft SAP from the applicant and working with USACE, CVRWQCB, and the applicant to resolve outstanding water quality issues. If you wish to discuss this matter further, please contact Jorine Campopiano of my staff at (415) 972-3397.

Sincerely,

  
for Tim Vendlinski, Supervisor  
Wetlands Regulatory Office

Attachments:

Attachment 1: DEIS Comment Letter, EPA: February 22, 2006

Attachment 2: DEIS Comment Letter, CVRWQCB: February 7, 2006

cc:

Les Grober, Central Valley Regional Water Quality Control Board

Sue McConnell, Central Valley Regional Water Quality Control Board

Chris Foe, Central Valley Regional Water Quality Control Board

Patrick Gillum, Central Valley Regional Water Quality Control Board

USFWS, Stockton Office

California Department of Fish and Game, Central Valley Bay-Delta Branch



## **Attachment 1**

**DEIS/EIR Comment letter, EPA dated February 22, 2006**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

February 22, 2006

Mr. Paul Marshall  
California Department of Water Resources  
Bay Delta Office  
1416 Ninth Street  
Sacramento, CA 95814

Subject: Draft Environmental Impact Statement (DEIS) for South Delta  
Improvements Program, Sacramento-San Joaquin Bay Delta, California  
(CEQ# 20050462)

Dear Mr. Marshall:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and Section 309 of the Clean Air Act. Our comments are provided in accordance with the EPA-specific extension to the comment deadline date from February 7, 2006 to February 21, 2006 granted by you and Ms. Sharon McHale, Reclamation Program Manager, (telephone conversation with between Laura Fujii and Sharon McHale, January 26, 2006).

The South Delta Improvements Program (SDIP) raises a number of important issues concerning the health of the largest estuary on the West Coast as well as the water supply for millions of Californians. In developing a response to these issues, the U.S. Bureau of Reclamation (Reclamation), as the federal lead agency, and the California Department of Water Resources (DWR), as the state lead agency, have taken a creative approach to decision-making for the SDIP. The lead agencies propose a staged decision-making process. Stage 1 decisions will involve only the physical/structural components of the project, and Stage 2 will address the operational components necessary to increase the permitted pumping capacity beyond the current 6,680 cubic feet per second (cfs) limit.

EPA supports this staged decision-making because it offers the best opportunity to make critical decisions about Stage 2 operational issues after scientific evaluations shed light on the pelagic organism decline in the Delta. We believe this approach is consistent with NEPA, especially given the lead agencies' commitment to develop supplemental NEPA/CEQA documentation, with appropriate public review processes, before any decisions are made about Stage 2. Given this NEPA commitment, EPA has followed the same staged process, and is evaluating and rating only Stage 1 of the DEIS. EPA will provide formal comments and rating of Stage 2 after the supplemental

document and preferred alternative for Stage 2 are issued. Given that much of the analysis in this Stage 1 DEIS is applicable to the Stage 2 decision, EPA has provided initial comments on the analysis, so that the lead agencies can address concerns in advance of the Stage 2 NEPA document.

Based on our review, we have rated the proposed Stage 1 physical/structural component as Environmental Concerns – Insufficient Information (EC-2). A *Summary of EPA Rating Definitions* is enclosed. EPA supports the effort to address water quality, fishery, and water supply reliability issues in the south Delta. However, the Stage 1 DEIS does not analyze the effects of Stage 1 on implementation of Total Maximum Daily Load measures to improve dissolved oxygen, mercury accumulation, and salt/boron, significant water quality issues within the south Delta. We recommend establishment of a comprehensive water quality monitoring and assessment program, which is a Delta Improvements Package commitment. We are also concerned with the unspecified point in time for implementation of interim operations. We recommend increases in export pumping, proposed in interim operations, not be initiated until the Stage 2 decision is complete.

EPA appreciates the opportunity to review this Stage 1 DEIS. We are available to discuss our Detailed Comments. When the Stage 1 FEIS is released for public review, please send two copies to the address above (mail code: CED-2). If you have questions, please contact me at 415-972-3988, or Laura Fujii, the lead reviewer for this project. Laura can be reached at 415-972-3852 or [fujii.laura@epa.gov](mailto:fujii.laura@epa.gov).

Sincerely,

/s/

Duane James, Manager  
Environmental Review Office  
Communities and Ecosystems Division

Enclosures:  
Summary of EPA Rating Definitions  
Detailed Comments

cc: Sharon McHale, Bureau of Reclamation  
Les Grober, Central Valley Regional Water Quality Control Board  
Dave Harlow, US Fish and Wildlife Service  
Michael Aceituno, NOAA-Fisheries

**Comments on Stage 1 Physical/Structural Component**

**Water Quality Analysis**

***Evaluate effect on methyl mercury production and mercury concentration.*** Delta waterways and the lower San Joaquin River are listed as impaired for “mercury.” The Central Valley Regional Water Quality Control Board (Central Valley RWQCB) is preparing a Total Maximum Daily Load (TMDL) for mercury in the Delta. A recently released staff report (August 2005) discusses habitat, water management, and water quality conditions which can contribute to bioavailability of mercury and exposure at levels affecting human health and biota. This information is relevant for conditions in the South Delta Improvements Program (SDIP) project area and potential effects of the project.

***Recommendation:***

The Stage 1 Final EIS (Stage 1 FEIS) should provide information on mercury levels in the Delta. Evaluate the potential effects of SDIP on bioavailability of mercury, mercury exposure levels, and implementation of the mercury TMDL. The analysis should be consistent with the recommendations of the Central Valley RWQCB. Mitigation measures should be provided to address adverse conditions such as an increase in bioavailability of mercury that may be caused by SDIP.

***Evaluate effect on dissolved oxygen.*** The Stage 1 Draft EIS (Stage 1 DEIS) information on dissolved oxygen (DO) and its related TMDL is incomplete and outdated. Objectives for DO are minimum levels to protect fish. The State Water Resources Control Board (SWRCB) has approved the DO TMDL for the Stockton Deep Water Ship Channel as an amendment to the Basin Plan. This TMDL cites flow, channel geometry (which affects natural aeration processes), and oxygen demanding substances as contributing to the DO impairment. The Stage 1 DEIS also omits information on DO impairment in the Middle River and Old River (between the San Joaquin River and Delta Mendota Canal). For both of these rivers, the 303(d) listing identifies “hydrologic modification” as the cause of the DO impairment. SDIP Stage 1 operations could affect flow, channel geometry, and oxygen demanding substances and DO conditions in south Delta channels.

***Recommendation:***

The Stage 1 FEIS should evaluate the effect of Stage 1 operations on DO impairment in the Middle River, Old River, Stockton Deep Water Ship Channel and other south Delta channels. Potential effects on implementation of TMDL requirements for dissolved oxygen should be described and mitigated.

***Evaluate effect on implementation of the TMDL for salt and boron.*** Salt loading of source water is a key water supply issue. Under the salt/boron TMDL to meet objectives for the lower San Joaquin River at Vernalis, the Bureau of Reclamation (Reclamation) is responsible for mitigating the impacts of the salt load associated with its Delta Mendota

Canal supply water. According to the TMDL, this can be done through dilution flows which increase assimilative capacity, or other mitigation measures. SDIP increases in Central Valley Project (CVP) deliveries to the San Joaquin Basin could influence salt loading and implementation of the salt/boron TMDL.

*Recommendation:*

The Stage 1 FEIS should document the salt/boron TMDL requirements and Reclamation obligation to mitigate salt loads. Evaluate the effect of Stage 1 SDIP deliveries on San Joaquin River and Basin salt loading. Stage 2 National Environmental Policy Act (NEPA) documentation should fully evaluate the impacts of increased deliveries on salt loadings and implementation of the salt/boron TMDL.

***Establish a comprehensive water quality monitoring and assessment program.*** Water quality modeling is based on monthly time steps making it difficult to accurately evaluate adverse effects on fish which may not survive a monthly average. For instance, the Stage 1 DEIS used a monthly average concentration of 10% below the DO objective (p. 5.3-24) to define “significant” impact. However, the DO objective is strictly a minimum of 5.0 milligrams/liter (mg/l)—not a monthly average. Thus, the proposed criteria for significant impact for the DO objective may not be appropriate.

The NEPA document should state that modeling indicates a potential for violation of water quality objectives and recognize the need for water quality monitoring and response to avoid violations. We note that water quality monitoring and response was a commitment made in the Delta Improvements Package Agreement which included the SDIP.

*Recommendations:*

The Stage 1 FEIS should evaluate and propose the establishment of a comprehensive water quality monitoring, assessment, and response program. We recommend this monitoring program include measures to capture biological and water quality information for our collective efforts to improve fisheries and water quality. The Vernalis Adaptive Management Plan (VAMP) on the San Joaquin River included such an approach and is yielding useful information, even though this long-term experiment has not yet been completed.

Reclamation and Department of Water Resources (DWR) should consult with the Central Valley RWQCB and SWRCB regarding water quality analysis and monitoring for both Stage 1 and Stage 2 of the SDIP.

**Interim Operations**

***State the point in time for implementation of interim operations.*** The Stage 2 operational component description includes implementation of “an interim operations regime” pending full execution of Stage 2 operations (p. 2-2). The text is unclear regarding when “interim operations” would begin. It is our understanding that an increase to 8,500 cfs pumping levels will not occur during Stage 1, as initially considered in the

Stage 1 DEIS under interim operations (personal communication between Carolyn Yale, EPA, and Paul Marshall, California Department of Water Resources, February 15, 2006). We support this conservative approach.

Substantial uncertainty remains regarding the cause for the recent pelagic organism decline. Given this uncertainty, it is unknown whether the proposed conditions for increased pumping under an interim operation regime are appropriate. Deferring operations decisions until after the Stage 2 decision would give biologists and project operators an opportunity to develop a scientifically supportable set of operating criteria.

*Recommendation:*

The Stage 1 FEIS should confirm that the interim operations regime will not be implemented in Stage 1. We recommend increases in export pumping proposed in interim operations not be initiated until the Stage 2 decision is complete. The Stage 1 FEIS should describe how the CVP and State Water Project (SWP) will be operated during Stage 1 and describe the key regulatory constraints and basis for this operations regime. The Stage 1 FEIS, as well as the Stage 2 NEPA document, should describe how operations will affect the water quality parameters discussed above, as well as address potential fisheries impacts.

**Air Quality**

***Describe feasibility of mitigation for nitrogen oxide emissions.*** Construction- and dredging-related nitrogen oxides (NO<sub>x</sub>) emissions would be above the general conformity threshold in San Joaquin County. Mitigation for these short-term increases includes acquiring NO<sub>x</sub> emission reduction credits (p. 5.9-11).

*Recommendation:*

The Stage 1 FEIS should describe the availability of NO<sub>x</sub> emission reduction credits and the ability to purchase sufficient credits to mitigate anticipated NO<sub>x</sub> exceedences.

**Cumulative Impacts Analysis**

***Include potential effects of the San Luis Unit Drainage Re-Evaluation Project in the cumulative impacts analysis.*** The cumulative impact analysis does not include the San Luis Unit Drainage Re-Evaluation Project (Table 10-1). This drainage project could significantly improve water quality and affect flows in the San Joaquin River, which, in turn, could cumulatively affect resources in the SDIP project area.

*Recommendation:*

The Stage 1 FEIS should include the potential effects of the San Luis Unit Drainage Re-Evaluation Project in the cumulative impacts analysis. Provide information on potential impacts on San Joaquin River water quality (e.g., salinity, DO) and flows.

## Comments on Stage 2 Operational Component

### Stage 2 Operational Scenarios

EPA, with other state and federal CALFED agencies, endorsed in the CALFED ROD, the concept of using the 8,500 cubic feet per second (cfs) pumping capacity to provide operational flexibility to meet project water supply and water quality goals (CALFED ROD, p. 49). Support of the increased pumping regime was explicitly conditioned “upon avoiding adverse impacts to fishery protection and in-Delta water supply reliability.” Further, the CALFED ROD called for the development and implementation of a plan to meet all existing water quality standards for which the CVP and SWP have responsibility before the end of 2002 (CALFED ROD, p. 70).

Much has happened since the adoption of the CALFED ROD. EPA believes that the framework put in place by the CALFED ROD (and subsequently endorsed in state and federal legislation) is still a valid approach to the question of using the 8,500 cfs pumping capacity. In sum, the CALFED ROD suggests that CVP and SWP can move to higher pumping capacity only if the issues of fisheries impacts, water quality standards compliance, and in-Delta water supply reliability are satisfactorily addressed.<sup>1</sup> With this framework in mind, EPA has the following comments on the analyses contained in the SDIP Stage 1 DEIS.

***Explain the rationale for the operational scenarios.*** The Stage 1 DEIS does not provide the rationale for the operational scenarios evaluated. It is not apparent that the selected scenarios capture the key variables on which decisions balancing fisheries, water quality, and water supply are likely to be based.

#### *Recommendations:*

The Stage 1 FEIS should clarify the key objectives and decision factors distinguishing scenarios. Describe the intended environmental protection differences, if any, among the scenarios; such as Environmental Water Account (EWA) performance and conveyance of refuge water supplies.

The Stage 2 NEPA document should fully evaluate the potential impacts of the proposed operational scenarios on environmental protection measures. Key objectives and decision factors distinguishing scenarios should be fully discussed, clearly delineating the rationale, environmental protection measures, and operational differences between operational scenarios.

***Consider other operational scenarios.*** Investigations of the pelagic organism decline may provide information on CVP and SWP operational effects that could change the proposed operational scenarios. Furthermore, it is not clear how the current proposed scenarios represent a full, reasonable “range” of alternatives with respect to SDIP purposes.

---

<sup>1</sup> The Delta Improvements Package Implementation Plan adopted by the California Bay Delta Authority on August 13, 2004 reiterated the CALFED ROD framework and added some additional specific tasks to accomplish on the way to approving increased pumping capacity.

The current proposed scenarios have significant limitations. For example, Scenario B is presumably more fish protective by holding the December 1 to June 20 monthly pumping rate at a maximum of 6,680 cfs “except when fish densities allow higher diversions” (Stage 1 DEIS Table 2-3). If “fish densities” refers to salvage density, this is especially inappropriate for Delta Smelt. Due to the precariousness of Delta Smelt survival, the Delta Smelt Working Group has recommended avoiding reliance on fish densities as an operational trigger (Delta Smelt Working Group “Delta Smelt Risk Assessment Matrix”).

In another example, the Stage 1 DEIS describes the trade-offs between water quality and fisheries protection when routing supply water through Old River when the Head of Old River Barrier (HORB) is open, versus drawing more supply water through the Central Delta (p. 5.3-27) when HORB is closed. Ways of resolving or reducing these trade-offs have not been discussed.

*Recommendations:*

The Stage 1 FEIS should address the potential for other operational scenarios, and, in general, describe how the scenarios in the Stage 1 DEIS provide a full range of alternatives.

The Stage 2 analysis and accompanying NEPA document should consider other operational scenarios. Other operational rules may reduce or mitigate impacts and water quality/fisheries objectives trade-offs that may result from increased CVP and SWP pumping. The Stage 2 NEPA document should discuss in detail how the proposed operational scenarios represent a full, reasonable range of alternatives with respect to SDIP purposes.

***Evaluate effect on the Environmental Water Account.*** The Environmental Water Account (EWA) is treated differently in various operational scenarios in the Stage 1 DEIS. For instance, Scenario B provides 1,820 cfs of dedicated conveyance in the summer period while Scenarios A and C provide 500 cfs during this period (Table 5.1-1, page 5 of 6). The reasons for these differences, and implications for EWA effectiveness, are not explained. Altering features of the EWA outside the bounds of the adopted and NEPA-evaluated program would be inappropriate.

*Recommendations:*

The Stage 1 FEIS should evaluate, in general, the effects of SDIP on the EWA. The Stage 1 FEIS should explain the relationship between the EWA-related operations variables and the adopted short-term EWA program. Describe the reasons for different operational components and their implications for EWA effectiveness. Explain whether the “size” of EWA assets is considered sufficient to mitigate for planned pumping increases.

The Stage 2 NEPA document should provide a detailed analysis of effects of operational changes on the EWA, its effectiveness, and the ability of EWA assets to mitigate for proposed pumping increases.

### **Water Quality Analysis**

***Describe water quality effects of Stage 2.*** As stated above, different operational scenarios could have various effects on the ability to implement TMDLs and meet water quality standards. The consequences of these water quality impacts for ecosystem restoration and drinking water objectives, and protection of other beneficial uses, is of concern.

***Recommendation:***

The various Stage 2 operational scenarios may have different effects on the ability to meet water quality standards, TMDLs, and desired conditions in the Delta. These different effects should be analyzed and disclosed in the Stage 2 NEPA document.

***Evaluate effects on salt loading in the San Joaquin Basin and Tulare Basin.*** The Stage 1 DEIS does not address the impacts of changes in the quantity and quality of CVP supply water in the San Joaquin service areas and SWP water in the Tulare Basin. CVP exports to the San Joaquin Basin contribute significant loads of salt, exacerbating salinity management problems in the Basin. Under the adopted TMDL and Basin Plan Amendment for salinity and boron, Reclamation is responsible for helping to mitigate or reduce salt loads within areas draining to the San Joaquin River. Additionally, salinity problems in areas not draining to the San Joaquin River—notably, major portions of the San Luis Unit and SWP Tulare Basin service areas—can be affected by changes in project deliveries.

***Recommendation:***

The Stage 1 FEIS should evaluate, in general, the effects of operational changes on salt loading in the San Joaquin Basin and Tulare Basin. Include information on planned salinity control and flow measures and potential mitigation measures.

The Stage 2 NEPA document should provide a detailed analysis of the effects of operational scenarios on the quantity and quality of CVP and SWP water supply deliveries and associated effects on salt loading throughout the south Delta, San Joaquin River Basin, and Tulare Basin.

***Evaluate effects on the Trinity River.*** The Trinity County Supervisors and Planning Department have expressed concerns regarding the potential effect of operational changes on Trinity River flows, reduction of long-term Trinity River exports, and restoration of Trinity River fisheries and habitat. The Trinity River is a key component of the CVP. Trinity River operations and constraints could influence the effectiveness of the SDIP.

***Recommendations:***

The Stage 1 FEIS should describe the concerns of Trinity County Supervisors and other interested parties and discuss potential measures that could address their concerns.

We recommend the Stage 2 NEPA document fully address operational concerns raised in comments on this Stage 1 DEIS.

## **Mitigation**

***Describe expanded EWA and avoidance-and-crediting mitigation measures.*** The Stage 1 DEIS states that Stage 2 mitigation for fishery impacts would be an expanded EWA or avoidance-and-crediting system augmenting the current EWA program (p. ES-6).

### *Recommendations:*

The Stage 1 FEIS should provide a general description of the expanded EWA and avoidance-and-crediting mitigation measures.

The Stage 2 NEPA document should include a more detailed description, including a discussion of the effectiveness and implementation of the current EWA program--its intent, its original design, how it is implemented, and the result of litigation. The Stage 2 NEPA document should clearly demonstrate that proposed mitigation measures, such as the expanded EWA, can mitigate for operational impacts.

## **General Comments**

***Compliance with the Clean Water Act Section 404 and 404 (b)(1) Guidelines.*** The Stage 1 DEIS states that the CALFED ROD includes a memorandum of understanding (MOU) which provides that “when a project proponent applies for a Section 404 individual permit for a CALFED project, the proponent is not required to reexamine program alternatives already analyzed in the Programmatic EIS/EIR. The Corps and EPA will focus on project-level alternatives that are consistent with the PEIS/EIR when they select the least environmentally damaging practicable alternative...” (p. 8-12; also p. 6-19). While this statement is generally correct, the MOU also establishes that new information regarding completeness or correctness of the program level documentation can alter this alternatives evaluation. Further, the MOU specifies that “[t]his Understanding is conditioned on the programs and related commitments of the CALFED Bay-Delta Program, including those related to water use efficiency, water transfers, and the Ecosystem Restoration Program, being implemented in the same manner as described in the Decision Documents.” (MOU, ROD Attachment 4, p. 4, Additional Provision IIIG).

### *Recommendation:*

The Stage 1 FEIS and Stage 2 NEPA document should provide a thorough analysis of compliance with the Clean Water Act Section 404 and 404(b)(1) Guidelines for their particular alternatives. If alternatives were evaluated in the CALFED Bay Delta Program Programmatic EIS, that analysis should be explicitly referenced in the Stage 1 FEIS 404 analysis.

***Provide simplified graphs and tables.*** The Stage 1 DEIS provides many graphs and tables to illustrate the results of water supply and Delta tidal hydraulic model simulations. Graphs and tables in Chapter 5 Water Supply and Chapter 6 Biological Environment are very detailed and “busy,” reducing their effectiveness in clearly conveying information and highlighting effects.

*Recommendation:*

We recommend providing in the Stage 1 FEIS and Stage 2 NEPA document simplified graphs and tables that highlight key effects and information. For instance, simulated data for monthly range of reservoir storage and river flows (e.g., Figures 5.1-2 to 5.1-4) could be displayed with only the minimum, average and maximum data rather than data for all percentiles.



## **Attachment 2**

**DEIS/EIR Comment letter, CVRWQCB dated February 7, 2006**



# California Regional Water Quality Control Board

## Central Valley Region



Alan C. Lloyd, Ph.D.  
Agency Secretary

Robert Schneider, Chair

Arnold  
Schwarzenegger  
Governor

Sacramento Main Office  
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114  
Phone (916) 464-3291 • FAX (916) 464-4645  
<http://www.waterboards.ca.gov/centralvalley>

7 February 2006

Mr. Paul Marshall  
SDIP EIS/EIR Comments  
State of California Department of Water Resources, Bay Delta Office  
1416 Ninth Street  
Sacramento, CA 95814

**SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT / ENVIRONMENTAL IMPACT REPORT (EIS/EIR) FOR THE SOUTH DELTA IMPROVEMENTS PROGRAM (SDIP)**

Thank you for the opportunity to submit the following comments on the subject document. Comments are provided regarding the potential impacts of the SDIP on dissolved oxygen (DO) and mercury impairments in the Sacramento-San Joaquin Delta (Delta), and issues related to the Clean Water Act (CWA) Section 401 Water Quality Certification that will eventually be required for this project from the State Water Resources Control Board (State Water Board).

### **DISSOLVED OXYGEN BACKGROUND**

Several water bodies within the boundaries of the Delta have been included on the State Water Board's CWA Section 303(d) list as impaired due to low DO conditions. Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff believes the physical and operational components of the proposed SDIP, along with existing State Water Project (SWP) and Central Valley Project (CVP) operations, have the potential to impact three of these impaired water bodies: Old River, Middle River, and the Stockton Deep Water Ship Channel (DWSC) portion of the San Joaquin River between Stockton and Disappointment Slough.

In January 2005, the Central Valley Water Board adopted *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel* (DO Control Program). In November 2005, the State Water Board approved the DO Control Program with minor modifications. The DO Control Program identifies reduced San Joaquin River flow through the DWSC as a major contributor to the DO impairment. It also recommends to agencies responsible for existing and future water resources facilities, which impact or have the potential to impact flow through the DWSC, that they evaluate and reduce their impacts on the DO impairment in the DWSC. The DO Control Program identifies the SDIP as a water resources project with the potential to impact flow through the DWSC. Also, the State Water Board in Water Right Decision D-1641 encouraged the parties involved in constructing and operating the barriers to consider the effects of the barriers on DO in the DWSC. In accordance with Central Valley Water Board and State Water Board regulatory guidance, and the requirements of the California Environmental Quality Act (CEQA) and the National

*California Environmental Protection Agency*

Environmental Policy Act (NEPA), an evaluation and mitigation of the impacts of the SDIP on DO conditions in the DWSC are required.

In 2002 the State Water Board adopted a revised 303(d) list of impaired water bodies. This list included DO impairments on Old River and Middle River within the Delta. Although the Central Valley Water Board has not yet developed control programs for these impairments, the EIS/EIR must evaluate and mitigate the potential impacts of the physical and operational components of the SDIP on these water bodies.

Central Valley Water Board staff has had numerous written and verbal interactions with Department of Water Resources (DWR) and U.S. Bureau of Reclamation staff during the preparation of the DO Control Program and the SDIP EIS/EIR. For reference, enclosed is a letter sent to DWR in October 2003 regarding some concerns we had with the administrative draft of the SDIP EIS/EIR. Also beginning in December 2003, Central Valley Water Board staff participated in California Bay Delta Authority (CBDA) sponsored Integrated Water Operations Forum & Framework (IWOFF) discussions aimed at developing the details of the Delta Improvements Package (DIP), of which the SDIP is a part. Central Valley Water Board staff participated in these meetings to provide input on the potential impacts of the proposed activities on the DO impairments in the Delta. For reference, enclosed is a letter sent to CBDA in November 2003, at the initiation of the IWOFF discussions, outlining our concerns regarding the proposed DIP actions. Many of the same concerns expressed in both these letters appear again in the comments below.

## DISSOLVED OXYGEN COMMENTS

### Comment #DO1 - References to Relevant Regulations Omitted

The following omissions in the SDIP EIS/EIR should be addressed:

- a) There is no mention in Chapter 5.3, *Delta Water Quality Issues*, Page 5.3-6 of the DO impairments in Old and Middle Rivers, and DWSC, nor the ongoing and potential impacts of the existing Delta exports and the proposed operational alternatives on these impairments.
- b) There is no mention of the DO impairments in Old and Middle Rivers in Chapter 5.3, *Delta Water Quality Variables*, Page 5.3-14 to 15.
- c) In Chapter 5.3, *Assessment Methods*, at the end of the third bullet toward the bottom of the page 5.3-15, it should be clarified that the DO Control Program has been formally adopted by both the Central Valley Water Board and the State Water Board.
- d) References to applicable sections of both the DO Control Program and Water Right Decision 1641 should be included in Chapter 8 *Compliance with Applicable Laws, Policies, and Plans and Regulatory Framework*.

### Comment #DO2 - Significance Criteria

In Chapter 5.3 (page 5.3-21) the EIR/EIS states, "*No change [of a water quality variable] is allowed if the baseline value exceeds the maximum objective.*"

- a) In the case of DO, it should be clarified that no change should be allowed if the baseline values are below the minimum objective.
- b) By definition when a water body is listed as impaired on the State Water Board's CWA 303(d) list (as is the case for DO in the DWSC, Old and Middle Rivers) baseline values already violate

the objective. By applying this proposed general significance criteria, no further decrease in the DO water quality variable in these portions of the Delta should be allowed.

### **Comment #DO3 – Applicable Criteria for Dissolved Oxygen**

The following comments apply to the discussion of the DO criteria/objectives contained in Chapter 5.3 of the SDIP EIS/EIR (pgs. 5.3-23 to 24).

- a) The Basin Plan DO objective applicable to the DWSC applies at all times and places. There is no allowance in the Basin Plan for a 10% cushion of monthly average violations as proposed in the EIR/EIS. Any reduction of the monthly estimated DO concentration below the objective, therefore, should be considered a violation of the applicable objectives and should be considered a significant impact.
- b) Applying the general significance criteria on page 5.3-21 (and addressed in Comment #DO2 above), no change to the DO variable should be allowed by the proposed project when the baseline value already violates the objective.
- c) The DO objective applicable at all times and places in Old and Middle Rivers is 5.0 mg/L. This objective needs to be established as a criterion in this section of the EIR/EIS, and analysis of the potential impacts of the proposed projects against this criteria need to be provided elsewhere in the EIR/EIS. No such criteria or analysis is currently provided in the EIR/EIS.

### **Comment #DO4 - Methods for Assessing Impacts on Dissolved Oxygen**

As proposed in EIS/EIR Chapter 5.3 (pgs. 5.3-18), using flow vs. DO curves developed from existing data is a reasonable approach to evaluating the impact of activities that reduce DWSC flow on the DO impairment.

The flow vs. DO model proposed in the SDIP EIR/EIS, however, is seriously flawed. The conclusion that DO is 6.0 mg/L when flow is 1500 cubic feet per second (cfs) is not supported by even a visual inspection of the data, nor is the conclusion that DO is 3.0 mg/L when flow is 0 cfs. A statistically valid model of the observed flow vs. DO relationship that considers variability is required if this approach is to be used.

Also, the flow vs. DO data presented in this chapter is for 1983 to 2001. Data exists through 2004 and part of 2005, which includes periods of particularly low DO conditions in the DWSC. All the most recent data should be used.

### **Comment #DO5 – Incorrect Representation of Central Valley Water Board Report**

The EIR/EIS states in Chapter 5.3, Alternative 2A, Stage 1, Impact WQ-13, Page 5.3-33 "*[o]nly flows of less than 1,500 cfs are assumed to have an effect on the DWSC DO concentrations*" and attributes this to the *Total Daily Maximum Load for Low Dissolved Oxygen in the San Joaquin River* (Central Valley Water Board, 2003). This is an incorrect citation and must be removed or modified. The cited document states "*[f]or net daily flow above 3,000 cfs, there were no violations of either the 5.0 or the 6.0 mg/L Basin Plan DO objectives. Below 3,000 cfs, the DO concentrations decrease with decreasing flow. At flows below 1,000 cfs, about half of the daily minimum DO concentrations were below 5.0 mg/L.*" These same words were also used in the February 2005 final staff report for the DO Control Program. At no time has the Central Valley Water Board stated or endorsed 1,500 cfs as a flow rate that will address the DO impairment.

**Comment #DO6 - Balancing Operational Considerations**

Chapter 5.3 (pg. 5.3-27) of the EIR/EIS describes the “*three major gate operation choices to provide maximum benefits from the tidal gate operations*”. Item 2 on this page describes the need to weigh the benefits of operating the head of Old River fish control gate to increase flow past Stockton (improving DO conditions in the DWSC) against the potentially negative impact of such operation on entrainment of larval and juvenile fish into the CVP and SWP pumps and the shifting of San Joaquin River salinity toward the Contra Costa Water District and SWP Banks facilities.

The balancing of competing positive and negative impacts is understandable, but choosing to protect one beneficial use at the expense of another is unacceptable. Mitigation of impacts for all beneficial uses must be provided. To the extent that the flow split to the San Joaquin River at the head of Old River is reduced below what would occur naturally at that point, mitigation measures must be implemented, by one means or another, at the same time those impacts occur.

The DO Control Program suggests that alternate measures may be considered by the Central Valley Water Board as a means of mitigating the impact of activities that reduce flow in the DWSC. If the head of Old River fish control gates must be opened to prevent fish entrainment and undesirable salinity impacts in the Delta, alternate measures (e.g. aeration) may provide an acceptable mitigation for the associated flow reduction in the San Joaquin River past Stockton. Before such alternate measures would be acceptable to the Central Valley Water Board, however, the effectiveness of such measures would need to be demonstrated.

It is understood that DWR is initiating the construction and operation of a demonstration aeration project at Rough and Ready Island in the DWSC. This project should provide useful information on the efficacy and the extent to which aeration can be used to improve DO conditions in the DWSC.

**Comment #DO7 - Cumulative Impacts**

Title 14, California Code of Regulations, Chapter 3 (CEQA Guidelines) at Section 15355 defines the cumulative impact from several projects as:

*“...the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.”*

The SDIP EIS/EIR only evaluates the incremental impacts of the SDIP over and above baseline conditions. These baseline conditions (i.e. Alternative 1 - No Action) assume:

*“...[a]ll of the temporary rock barriers (head of Old River fish control barrier, and Middle River, Grant Line Canal, and Old River flow control barriers) would continue to be installed and removed annually.”*

The purpose of these ongoing temporary barrier operations, among other things, is to mitigate the water quality and quantity impacts of the current SWP pumping capacity of 6,680 cfs. According to the cumulative impact requirements of CEQA, the cumulative impact of the proposed SDIP components and the existing 6,680 cfs pumping capacity (a closely related past project) must therefore be evaluated and

mitigated. Furthermore, as the temporary barriers were intended to provide mitigation for the impacts of the existing pumping capacity, the permanent barriers, which will replace them, also need to mitigate the existing 6,680 cfs pumping capacity.

As the evaluation of all water quality impacts in Chapter 5.3 are based on the baseline assumption of current pumping capacity of 6,680 cfs with temporary barrier operations, the resulting analysis is incomplete. The tidal hydraulics analysis in Appendix D would need to be reworked accordingly. The discussion of these cumulative impacts should also be included in Chapter 10, *Cumulative Impacts*.

#### **Comment #DO8 - Appendix D, DSM2 Modeling Methods and Results**

Aside from Comment #DO7 above, please consider the following improvements to the tidal hydraulic analysis in Appendix D:

- a) It would be useful to extend the time period of the DSM2 simulations to include more recent years when we also have data from the ultrasonic velocity meter (UVM) in the San Joaquin River near Stockton. This UVM meter was installed by the U.S. Geological Survey in 1995 and would provide useful comparison to DSM2 output for the same period.
- b) Once consideration of current pumping and barrier operations are included, the explanation and presentation of the DSM2 flow modeling results needs to be improved. (e.g. the modeling results presented qualitatively in Figures 5.3-21 and 41 were difficult to interpret). More quantitative analysis needs to be performed and presented to support the conclusions made.

#### **Comment #DO9 – Old River and Middle River DO Impairments**

The draft SDIP EIS/EIR currently does not evaluate the impacts from various SDIP components (e.g. altered channel geometries in Delta waterways, or long-term barrier/pumping operations) on the Old River and Middle River DO impairments. Until such evaluation is performed, and the required mitigation measures are developed, the EIS/EIR is incomplete.

#### **METHYL MERCURY BACKGROUND**

The Delta is on the State Water Board's CWA 303(d) list because of elevated concentrations of methyl mercury in fish. The Central Valley Water Board submitted a technical Total Maximum Daily Load (TMDL) report to the U.S. Environmental Protection Agency (USEPA) in the summer of 2005 (<http://www.waterboards.ca.gov/centralvalley/programs/tmdl/delta.html>). A draft amendment to the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) will be presented to the Central Valley Water Board for possible adoption in the summer of 2006. The technical TMDL report identifies the SDIP as having the potential to increase methyl mercury concentrations in Delta fish.

Methyl mercury is a developmental neurotoxicant. Most at risk are human and wildlife fetuses and young. The primary route of exposure is from consumption of mercury-contaminated fish. Statistically significant positive correlations have been observed in the Delta and elsewhere between average annual unfiltered methyl mercury concentrations in water and aquatic biota. The relationship suggests that aqueous methyl mercury is an important factor controlling methyl mercury bioaccumulation in the aquatic food chain.

Aqueous methyl mercury is produced by sulfate reducing bacteria in sediment. Sulfate is used by these bacteria as the terminal electron acceptor in the oxidation of organic matter. Sulfate additions have been observed to both stimulate and inhibit methyl mercury production (see TMDL report for details). It is not known how sensitive methyl mercury production in the Delta is to changes in sulfate concentration.

Sediment sulfate concentrations are determined by the concentration in overlying water. Primary sources of sulfate to the Delta are the Sacramento and San Joaquin Rivers and seawater intrusion. Sulfate concentrations in the Sacramento River are about 7 times lower than in the San Joaquin and about 450 times less than in seawater. Therefore, changes in both the mixture of Sacramento to San Joaquin River water and in the volume of carriage water will alter regional sulfate concentrations in Delta sediment. These changes may significantly influence methyl mercury production in sediment and subsequent bioaccumulation in fish.

Sulfate amendment studies should be undertaken with sediment collected throughout the year from the Delta to determine whether methyl mercury production is sensitive to changes in sulfate concentration. If the results suggest that methyl mercury production is a function of sulfate, then the net change in methyl mercury concentration in water and biota should be determined for each SDIP operational alternative and the results considered when selecting the preferred alternative.

## **METHYL MERCURY COMMENTS**

### **Comment #Hg 1. References to relevant Regulations Omitted**

There is no mention in Chapter 5.3, *Delta Water Quality Issues*, of the CWA 303(d) listing for mercury in the Delta, or the tributary San Joaquin River and Mud Slough.

### **Comment #Hg 2. Applicable Criteria for Mercury**

Chapter 5.3 needs to mention that the draft methyl mercury amendment to the Basin Plan recommends a small and large fish methyl mercury tissue objective and an average annual unfiltered aqueous methyl mercury goal to meet the tissue objectives.

### **Comment #Hg 3. Methods for Assessing Methyl Mercury Impacts**

Chapter 5.3 should include DSM2 modeling results to quantitatively determine how the SDIP alternatives change ambient sulfate concentrations at various locations in the Delta. The DSM2 sulfate results should be integrated with laboratory and field methyl mercury production results to predict the magnitude of change in water and fish tissue methyl mercury concentrations for each SDIP alternative.

### **Comment #Hg 4. Cumulative Impacts**

As stated in Comment #DO7 above, the methyl mercury analysis in the SDIP EIS/EIR needs to consider the cumulative effects of both the SDIP and the existing SWP and CVP operations. Chapter 10 should also include an analysis of how changes in ambient Delta sulfate concentrations might affect methyl mercury production in water pumped onto Delta Islands and exported south to the San Joaquin Basin and Mud Slough. Finally, the cumulative impact on the Delta of methyl mercury from both the SDIP alternatives and from agricultural return flow from Delta Islands and the San Joaquin River basin should be evaluated.

**GENERAL COMMENTS**

**Comment #G1 – Section 401 Water Quality Certification**

Any project involving in-stream construction activity requires a CWA Section 404 permit from the U.S. Army Corps of Engineers. As part of this process, according to CWA Section 401, the State Water Board must certify that the proposed project will meet applicable water quality standards. An application for a Section 401 Water Quality Certification for the SDIP needs to demonstrate that this project has no impact on water quality, whether short-term (e.g. impacts from construction activities) or long-term (e.g. effects of new dredged channel geometry or long-term barrier/pumping operations). A certified SDIP EIS/EIR would need to be part of that application. To support a Section 401 Water Quality Certification, the SDIP EIS/EIR would at least need to address the DO and mercury related comments above.

If there are any questions regarding these comments please contact Jerry Bruns by e-mail at [jbruns@waterboards.ca.gov](mailto:jbruns@waterboards.ca.gov) or by phone at 916-464-4831. Thank you.

Sincerely,

Kenneth D. Landau  
Acting Executive Officer

<b>APPROVED</b>	
author	_____
senior	_____

Enclosures (2)

- cc: Jerry Bruns, Central Valley Water Board
- Les Grober, Central Valley Water Board
- Sue McConnell, Central Valley Water Board
- Chris Foe, Central Valley Water Board
- Gita Kapahi, State Water Board, Division of Water Rights