

DEPARTMENT OF WATER RESOURCES
MILESTONES TO IMPLEMENT SOUTHERN DELTA OBJECTIVES
AND
COMMENTS TO RESOLVE ISSUES RELATED TO
DRAFT CEASE AND DESIST ORDER
AGAINST DWR AND RECLAMATION
FEBRUARY 8, 2006

At the February 1, 2006, State Water Resources Control Board (SWRCB) meeting on item 8 related to the Draft Cease and Desist Order (CDO) against the Department of Water Resources (DWR) and U.S. Bureau of Reclamation, the SWRCB requested that DWR develop specific milestones or methods to meet southern Delta salinity objectives, provide accountability for achieving this goal, and avoid the potential of prolonged litigation. DWR appreciates this opportunity and has spent this past week working with various stakeholders to develop a set of Milestones, described in Part II below, for consideration at the February 15th public SWRCB meeting.

DWR requests that at the February 15th meeting the Board conduct an open discussion of DWR's Milestones with all of the interested parties so that we can better understand what everyone is trying to achieve and determine the best course of action to meet our common goal to improve salinity conditions in the southern Delta. DWR is proposing an alternative approach that has not before been considered. Because of this, DWR would appreciate if the SWRCB could provide some indication prior to the February 15th meeting if the SWRCB will allow additional time beyond the meeting to further develop the proposal.

DWR believes the process described in Part I below would allow the SWRCB to issue an order to stay the CDO proceeding while the Milestones move forward. DWR suggests implementation of the Milestones as an alternative to proceeding with the CDO. The work under the milestones promises to be a more effective means to achieving the southern Delta objectives. The SWRCB should not insert the Milestones in the CDO, however, as this would infer that the milestone actions are existing water rights obligations, which under the terms of the 1995 Bay-Delta Water Quality Control Plan and Decision -1641 would be incorrect.

In Part II, DWR describes Milestones that would result in actions to achieve the southern Delta salinity objectives in two general categories: (1) operation of permanent gates, and (2) programs to reduce saline discharges in the San Joaquin River and southern Delta channels. DWR modeling has shown that operation of the gates may significantly improve water levels, circulation, and water quality in Old River and Middle River (DWR-23, Exhibit for CDO hearing (Nov. 17, 2005)). Water quality between Vernalis and Brandt Bridge, however, may be less affected by the gates. DWR modeling of historical data has found that, in general, salinity at Vernalis can increase by about 8% downstream to

Brandt Bridge (DWR-20, Exhibit for CDO hearing (Nov. 17, 2005)). The second category of actions would include Milestones to implement actions that would reduce local and upstream saline discharges to mitigate this increased salinity.

I. Issues and Process to Achieve the 1995 WQCP Southern Delta Salinity Objectives

A. Identify Problem to Address and Resolve Conflict

At the February 1 meeting, the SWRCB members commented that there was a lack of progress in implementing water quality objectives for the southern Delta. The southern Delta water quality objectives have been part of the SWRCB Bay-Delta Water Quality Control Plans since 1978, including the most recent 1995 Bay-Delta Water Quality Control Plan (WQCP). However, not until 1999 were the objectives first included in a water right decision. (Decision 1641 (D-1641), Revised March 15, 2000 (Order WR 2000-02)). Since the Racanelli Decision (*U. S. v. SWRCB* 182 Cal. App.3d 82 (1986)), the SWRCB has included multiple actions in its Program Of Implementations for the WQCPs, both water right and non-water right related, that would help achieve the southern Delta objectives, such as actions to reduce saline drainage through land and water management programs (See, May 1991 WQCP, pp. 7-1 to 7-5; and May 1995 WQCP, pp. 27-42). As envisioned in the program of implementation, implementation of the objectives through water rights was meant to address those factors related to water rights, but was not intended to have water right permits assume the entire burden. Thus, from the discussion at the February 1 Board meeting, DWR believes that the best way to fully implement the southern Delta salinity objectives is to focus on the multiple implementation strategies described in the WQCP Program of Implementation. For such an approach to succeed, the CDO is neither necessary nor appropriate, because, as now written, it implies, if not holds, that the objectives should be fully met through water rights actions only.

The 1995 WQCP establishes both the objectives and the basis for allocating implementation responsibility in accordance with the Porter-Cologne Act (Water Code Section 13000 et seq.). Under the Act, the SWRCB must adopt a program of Implementation to carry out its responsibilities under (1) provisions of the reasonable use doctrine embodied in the California Constitution Article X, (2) protection of public trust resources, and (3) statutory principles of water rights (e.g., Water Code Sections 100, 183, 275, 1050, 1243, 1243.5, 1251, 1253, and 1256-58). A WQCP may be implemented through water rights, water discharge regulations, actions by other agencies to implement the objectives, agreements, and recommendations to other agencies (See 1995 WQCP, p. 27-42).

The 1995 WQCP Program of Implementation identifies various measures to implement the southern Delta objectives such as through flows in the San Joaquin River at Vernalis, control of saline agricultural drainage to the San

Joaquin River and its tributaries, the SWRCB's Nonpoint Source Management Plan adopted in 1988, the multi-agency San Joaquin Valley Drainage Program, and salt load reduction program by the Central Valley Regional Water Quality Control Board (1995 WQCP, p. 29-33). DWR presented evidence during the CDO hearing on the source control and drainage management measures that have been implemented since adoption of the WQCP and the substantial investments by the State in supporting these actions (See DWR-18A "Report on the San Joaquin Drainage Programs," Exhibit for CDO hearing (November 17, 2005)).

DWR recognizes that the SWRCB intends to implement the southern Delta objectives; however, DWR believes the WQCP Program Of Implementation, D-1641, and the statutes cited above do not support achieving full implementation through regulation of State Water Project (SWP) and Central Valley Project (CVP) water rights. In addition, similar to the SWRCB crafting Term 91 to protect the SWP and CVP from unreasonable and illegal use of their stored water to meet water quality in the Delta, the SWRCB should protect the Projects from the effects of local discharges that cause the Projects to release stored water to remedy these effects. If the SWRCB were to impose on the SWP and CVP the obligation to operate to achieve objectives regardless of the cause of a potential exceedance, the SWRCB, in effect, would be requiring the Projects to dedicate previously stored water to other people's use without compensation. The evidence submitted in the CDO hearing shows that the SWP and CVP are being asked to mitigate for water quality degradation in the southern Delta where such degradation is caused by others. DWR believes the SWRCB should seek other solutions to fully implement the WQCP objectives.

B. Proposed SWRCB Process

The proposed Milestones are divided into two categories: (1) Milestones for the South Delta Improvement Program (SDIP) and Permanent Operable gates to improve water levels, circulation, and water quality in interior southern Delta channels, and (2) Milestones to reduce salinity in southern Delta channels. The Milestones to implement SDIP will be accomplished under a combination of DWR's SWP and state wide water management authorities. The milestones to reduce salinity would be implemented under DWR's state wide water management authority, in coordination with the State and Regional Water Board and in cooperation with others, and would fund and help implement integrated management programs that mitigate local salinity problems in the southern Delta. This approach would be consistent with the SWRCB authority to achieve water quality objectives while considering reasonable use and method of use of water. The integrated programs could include actions that reduce the discharge of salinity in the southern Delta by local dischargers, such as the City of Manteca, or by off-site actions upstream on the San Joaquin River that ultimately help reduce the salt load entering the southern Delta.

DWR, USBR, and the SWRCB are authorized to work cooperatively to investigate water quality conditions and recommend steps to improve or protect water quality (Water Code Sections 225, 226, and 229). Under such authority, over the last 10 years we have taken such steps in the San Joaquin River Basin area, as described to the SWRCB during the CDO hearing (DWR-18A, Exhibit for CDO Hearing (November 17, 2005)). DWR suggests that we now take similar steps to address salinity degradation in the southern Delta through the following: (1) identify and quantify the factors causing degradation of southern Delta salinity, (2) identify mechanisms to prevent or mitigate these factors, (3) implement actions so that the receiving water objectives in the WQCP are reliably achieved. For the southern Delta this includes identifying the factors that degrade water quality from Vernalis to Brandt Bridge and then evaluating ways to offset this degradation, including funding actions that would reduce local saline discharges in the area and/or off-site mitigation programs in the San Joaquin River basin upstream. DWR believes such programs should be cooperative efforts among local and state agencies. The proposed permanent operable gates would continue to be recognized as the primary means to help improve circulation and salinity conditions at the interior compliance locations on Old River and Middle River. These milestones can be achieved quickly if we all work together and pool our resources.

For purposes of taking an action now by the SWRCB that would provide accountability for achieving the Milestones, DWR suggests a SWRCB process used during the D-1641 water rights proceedings. The SWRCB could issue an order to stay its pending action on the CDO, similar to the SWRCB's May 3, 2001 Order (WR 2001-05) that stayed Phase 8 to provide time for the parties to show progress on actions that would address flow related objectives in D-1641. The 2001 SWRCB Order stayed the Phase 8 proceeding and 18 months later automatically dismissed the Phase 8 hearing process. During the 18 months, the parties prepared work plans and an agreement to develop the water management actions needed to accomplish goals for meeting water quality needs in the Delta. DWR believes that this process could be used by the SWRCB for the implementing the Milestones to achieve the southern Delta objectives.

Therefore, DWR recommends that the SWRCB either withdraw the CDO or stay a decision on the CDO. The SWRCB could issue an order that stays, or suspends, action on the CDO decision pending completion of certain Milestones. If the milestones were achieved, then the SWRCB order could provide for automatic dismissal of the Draft CDO process. If the milestones were not achieved, the SWRCB could proceed with adoption of the CDO if the SWRCB believes it is still appropriate at that time. Such a SWRCB order could describe the Milestones and provide for multiple agency efforts to improve water quality in the southern Delta. However, the adopted process should not be structured in a

manner that would require DWR to inappropriately use SWP funds to cure problems unrelated to Project operations.

II. MILESTONES AND IMPLEMENTATION PLAN TO IMPLEMENT SOUTHERN DELTA OBJECTIVES

A. Milestones of SDIP and Permanent Operable Gates to Improve Circulation and Salinity Conditions in Southern Delta Channels

The key dates for installing the proposed permanent operable gates and dredging channels in the southern Delta, as described in the Draft EIR/EIS for the South Delta Improvement Program (SDIP), are shown below. These dates constitute Milestones to be achieved by DWR and Reclamation for improving circulation to help achieve southern Delta salinity objectives.

Physical/Structural Component Schedule for Proposed SDIP

August 2006	Adopt Final EIR/EIS
December 2006	Secure Environmental Permits / Award Contract
Begin August 2007	Dredge gate sites and drive all piles
August-November 2007	Channel Dredging
August-November 2008	Channel Dredging
August 2008	Set first gate in place
November 2008	Set final gate in place
April 2009	All gates operational
August 2009	All construction-related activities completed

B. Milestones of Programs to Reduce Salinity in the Southern Delta Channels

1. On-going and Past Actions that Contribute to Improving Water Quality on the San Joaquin River and in the Southern Delta

The State of California, through DWR in its water management role, the federal government, through Reclamation, and other agencies, have invested significant resources to reduce salinity upstream of Vernalis on the San Joaquin River in accordance and consistent with the Program of Implementation of the 1995 WQCP (1995 WQCP, pp. 29-33). These actions are described below as: (a) on-

farm management activities to reduce subsurface agricultural water drainage, (b) real-time water quality management to maximize the assimilative capacity of the SJR, and (c) efforts to improve wetlands discharges. Additional actions, with identified Milestones, that would further address salinity in the San Joaquin River to mitigate saline discharges downstream of Vernalis in the southern Delta (between Vernalis and Brandt Bridge) are described below in Part II.B.2.

a) On-Farm Drainage Management Activities

Drainage management activities involving source control have proven to be effective in reducing salt loads in the San Joaquin River. Since 1998, Grasslands Area Farmers (GAF) drainage discharges have decreased from 58,000 AF to about 30,000 AF and salt loads have been reduced from 210,000 tons to 117,000 tons. These results have been achieved through the collaboration and investment of many stakeholders. The State, through DWR, has played a significant role by investing in water conservation and water recycling projects in the GAF including the Grasslands By-Pass Project (GBP). For example, DWR provided funding through Proposition 13 of \$17.5 million to purchase 4,000 acres needed for the San Joaquin River Improvement Project, a major feature of the GBP. These projects include:

- Irrigation water conservation such as use of improved irrigation systems;
- Tiered water pricing, based on increased water cost for increased water use;
- Agricultural tailwater and tilewater control and recycling; and
- Agricultural subsurface drainage water reuse through the San Joaquin River Improvement Project.

DWR continues to implement many of the recommendations of the San Joaquin Valley Drainage Implementation Program (SJV DIP) through its Agricultural Drainage program and working in partnership with California Universities, CALFED, USBR, Resource Conservation Districts, Watershed groups, Water and Drainage Districts and many other Local, State and Federal entities. These activities include:

- a) Providing grants for control of agricultural drainage water and reduction of its toxic elements using (Propositions 13, 50, and 204) and DWR own project fund monies
- b) Developing, educating, and promoting the use Integrated On-Farm Drainage Management Systems (IFDM) in the San Joaquin Valley
- c) providing technical assistance and collaborating with water and drainage districts, and local entities to reduce and control surface subsurface agricultural drainage water

- d) maintaining research and demonstration projects to develop drainage reuse systems, including development of cost effective salt tolerant crops, drainage treatment and disposal technologies, and salt separation and utilization
- e) monitoring the quality and distribution of shallow groundwater levels in drainage-impaired areas of the San Joaquin Valley
- f) developing agriforestry systems to manage shallow groundwater area in the San Joaquin Valley.

To date, more than 70 million dollars in grants have been distributed by DWR through Project funds and bond money from Propositions 13, 50, and 204 (drainage sub-account) for the activities described above.

b) Real-time Water Quality Monitoring Program (RTWQMP)

DWR operates and maintains 25 river monitoring stations and shares responsibility with USGS for another three stations along the lower San Joaquin River System. Most of these stations are telemetered and part of the CDEC network. For this effort, DWR currently expends approximately \$1 million per year. In the early stages, the RTWQMP was funded by USBR and then by CALFED. Currently, DWR has assumed responsibility for funding most of the RTWQMP for the San Joaquin River. The RTWQMP provides information on existing water quality conditions and forecasts flow and water quality conditions to SJR water managers and stakeholders. The information provided is important for improving management and coordination of reservoir releases, agricultural and wetlands drainage flows, and eastside tributary releases to achieve water quality objectives at the SJR compliance points. DWR is collaborating with the San Joaquin River Water Quality Management Group to realize opportunities to achieve these goals using the RTWQMP. In addition, DWR is also collaborating with the USBR to incorporate RTWQMP to develop a new plan of operation for New Melones reservoir.

c) Efforts to Improve Wetlands Discharges

Based on 1998 data, wetlands discharges contributed about 9% of the total salt load in the San Joaquin River at Vernalis. The contribution is likely to be higher today as additional water supply and land are acquired for wetlands wildlife refuges through CVPIA, EWA, and other programs. Timing of wetland releases with assimilative capacity of the SJR will result in significant water quality improvements. DWR is funding research and collaborating with DFG, USFWS, Lawrence-Berkeley lab, UC Merced and Grasslands Water District in evaluating opportunities for these improvements. DWR has funded a project through Prop. 204 (drainage sub-account) titled Wetland Drainage Management Technology

Development in support of San Joaquin River Real-time Water Quality Management for \$199,807. In addition, DWR provides in-kind support to existing efforts by supplying Environmental Specialists who collaborate with others and by providing monitoring equipment.

2. Milestones of Actions to Improve Water Quality Downstream of Vernalis

These actions would build upon the salinity reductions and information provided by the programs described above in Part II.B.1. Milestones, specified below, provide accountability that the goals of these actions will be accomplished. These efforts are designed to support the approach of mitigating the salt load added by local discharges in the reach of the San Joaquin River between Vernalis and Brandt Bridge during times when Vernalis water quality is at or near the objectives by either removing or diluting the salt load. DWR would expect cooperation by others for purposes of achieving these Milestones.

The first milestone would quantify water quality degradation in the southern Delta below Vernalis, the second milestone would evaluate ways to reduce the local causes of salinity degradation and to evaluate off-site mitigation actions upstream of Vernalis and the third milestone would identify flows that would be needed to offset this degradation if a decision is made to pursue that course of action.

The following proposition restates the objectives of the Milestones, which would be accomplished by filling in the blanks with appropriate values that would be determined by studies and analysis required by each Milestone:

There is _____ amount of salt added between Vernalis and Brandt Bridge that causes degradation of water quality. For Brandt Bridge salinity to equal the salinity at Vernalis, this amount of salt must be removed or diluted. The salt load can be removed from the reach between Brandt Bridge and Vernalis or it can be removed from upstream of Vernalis. If the salt load is to be diluted, it would require _____ additional flow from upstream sources with water quality of _____ EC.

The three Milestones to reduce salinity (RS), accomplished by specific tasks, are described below. DWR believes that a partnership between DWR, USBR and the Central Valley Regional Water Board is needed to effectively accomplish these milestones over the next year: February 15, 2006 to February 15, 2007. Once these tasks are completed DWR proposes that their results be presented to the SWRCB, discussed and an implementation plan developed at that time.

Milestone RS1 - Quantify Degradation.

Task 1 – Determine the magnitude of salt loads from Vernalis to Brandt Bridge. Focus on obtaining information on salt discharges that are above the objectives of 1.0 and 0.7 EC for the time of year that they apply. Provide a list of sources but do not yet quantify the salt load allocations to each user. Divide by classes of users and by reach if possible. Include effects of losses of flows down Old River on flow and salt load.

This task would use observed data and output already generated by DSM2. The recommended approach is:

1. Review prior observed data analysis on degradation work shown as part of DWR's exhibit 20. This work looked at Vernalis, Brandt Bridge, and Mossdale Water Quality.
2. Investigate and do further analysis on the available data looking at times when the 1.0 and .7 Water Quality Control Plan objectives are exceeded.
3. Investigate if there is additional data available on discharges in the SJR between Vernalis and Brandt Bridge..
4. Determine the best degradation relationship from 1 to 3 shown above.
5. Investigate and compare available flow data to DSM2 simulated data at Vernalis and locations downstream. There is some data available downstream of Brandt Bridge and upstream of Old River, but it is only for 2005.
6. Use DSM2 flows, measured flows (mostly for validation purposes), and observed water quality data (with confidence intervals) to calculate salt loads.

Estimate time: 2 months.

Task 2 – With cooperation among appropriate agencies, collect water quality data this spring and summer from selected point and non-point sources that discharge to the San Joaquin River between Vernalis and Brandt Bridge and southern Delta channels. Determine the most likely opportunities for salt load reduction programs for these and related discharges. Using existing models evaluate the likely groundwater contributions of salt loads that degrade water quality between Vernalis and Brandt Bridge.

Estimated time: 6 Months

Milestone RS2 – Evaluate Ways to Reduce Salinity Degradation Locally in Southern Delta and Upstream of Vernalis.

Task 1 - Determine the amount of salt load between Vernalis and Brandt Bridge that would have to be removed to achieve the standards if 0.7 is just being met at Vernalis. Find out what that does to flows in this reach. Using the work from Milestones RS1 and RS3, calculate the salt loads needed to be removed for different Vernalis flows. Since data is limited, won't be able to determine flow losses in reaches.

Estimate Time: 1 Month.

Task 2- Determine how much salt load would have to be removed upstream in order to free up the water supply at Vernalis that would be needed to meet the Brandt Bridge objective. This would in effect be offsite mitigation for the salt loading caused by drainers from Vernalis to Brandt Bridge.

Using the previous tasks' work, the salt load to be removed can be determined. In order to determine where the salt load would be taken, specific concentrations and flows would be needed.

Locate data that has concentration and flow rates. DWR San Joaquin District staff or the Municipal Water Quality Investigation program can help in providing the information.

Estimate Time: 3 months.

Milestone RS3 – Identify Flows That Would Be Needed to Offset Salinity Degradation through Dilution.

Task 1 – Determine the amount of water needed at Vernalis to dilute the salt loads to meet the 0.7 EC WQCP objective at Brandt Bridge that is needed when the Vernalis objective is just being met. For calculation purposes, consider using New Melones as a surrogate for the source of the flows. Do this for a wide range of different year types. This task would require considerable computer modeling.

1. Use salt load calculations completed in Milestones RS1 and RS2 and DSM2 flows and flow splits to determine the amount of water needed to dilute the Vernalis water so that Brandt Bridge meets .7 EC. Rough calculations and DSM2 iterations over a wide range of Vernalis flows, a smaller range of New Melones water quality, and south delta temporary

barrier and export operations can be used to calculate needed flow amounts.

2. Use the salt load calculations and relationships completed in Milestones RS1 and RS2. Run CALSIMII with the lower Vernalis water quality objective and determine the amount of water needed over various year types.

Estimated Time: 3 Months.