SCVWD & ZONE 7

Santa Clara Valley Water District

June 26, 2006

Samantha Salvia, Project Manager
Contra Costa Water District
P.O. Box H20
Concord, CA 94524-2099

Erika Kegel, Project Manager
US Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Subject: Comments on the Draft EIR/EIS for the Contra Costa Water District Alternative Intake Project

Dear Ms. Salvia and Ms. Kegel:

The Santa Clara Valley Water District (SCVWD) and Zone 7 Water Agency (Zone 7) have reviewed Draft Environmental Impact Report/Statement (EIR/EIS) for Contra Costa Water District's (CCWD's) Alternative Intake Project and have the following comments. These comments supplement those comments provided by the State Water Contractors and are hereby incorporated.

As you are aware, SCVWD and Zone 7 are South Bay Aqueduct (SBA) contractors. Our agencies rely on deliveries of State Water Project (SWP) supplies via the South Bay Aqueduct to provide up to 180,000 acre-feet per year to our service areas. The SCVWD, which provides wholesale water supply and watershed management to 1.7 million residents of Santa Clara County and to the vital high-tech economy known as "Silicon Valley", also relies on water imported from the Central Valley Project (CVP). Zone 7 provides wholesale water supply, agricultural water supply, and water resources management (including artificial groundwater recharge with SWP water) to almost 200,000 residents in eastern Alameda County. Our agencies' water supply and water resources planning efforts include substantial local investments in water use efficiency, recycled water, and groundwater management. However, ensuring the reliability and water quality of our regions' water supply also depends on protecting and restoring the reliability and water quality of water imported from the Bay-Delta watershed.

The SBA contractors are particularly vulnerable to any water quality degradation of Delta water supplies. There is little, if any, dilution or attenuation of water quality impacts to water delivered from Clifton Court Forebay (CCF) to the SBA; these impacts are conveyed directly through the SBA and translate into greater and more direct health risks to the people who live in our service areas than other areas of the SWP system.

The Draft EIR/EIS indicates that the proposed new intake will incrementally degrade the quality of water delivered to our customers, and analysis of additional data obtained from CCWD confirms that the proposed new intake will degrade water quality at Clifton Court and Tracy Pumping Plant. Our agencies strongly support the CALFED objective of continuous water quality improvement, and must be concerned about any project that could degrade our source water quality. CCWD's modeling data shows a consistent pattern of degradation caused by the proposed intake, particularly in scenarios depicting future conditions, during dry years, and during fall months, when water quality is already poor.

SCVWD & ZONE 7-1

Of particular concern are the cumulative impacts of the project combined with other reasonably foreseeable projects, which together will unacceptably degrade our agencies' water quality. The Draft EIR/EIS does not acknowledge the significance of these cumulative impacts. The Draft EIR/EIS also fails to adequately evaluate the combined impacts of an expanded Los Vaqueros Reservoir in combination with the proposed new intake. In addition, the location of the proposed intake adjacent to the State Water Project pumping plant may impact SWP and CVP project operations (see the State Water Contractor's comments).

SCVWD & ZONE 7-2

SCVWD & ZONE 7-3

CCWD's goal of improving water quality for their 500,000 customers to meet their Board adopted water quality standards would be laudable, if it were not at the expense of the 20 Million other Californians who draw at least part of their water from the San Francisco/San Joaquin Delta, and whose quality water is already inferior to that of CCWD's. The concentration of chloride in San Luis Reservoir and Banks Pumping Plant frequently exceeds 65 ppm, while CCWD's blending capabilities already provide them with the ability to meet the 65 ppm chloride objective most of the time. In fact, 50% of the time, concentrations of chlorides in San Luis Reservoir exceed 65 ppm, while the chloride concentrations measured at Banks pumping plant range from 12 to 151 ppm (California State Water Project Watershed Sanitary Survey Update Report 2001, dated December 2001). The Draft EIR/EIS does not adequately justify the further degradation of water quality of millions of Californians in order to incrementally improve the already superior quality of CCWD's water supply.

SCVWD & ZONE 7-4

Given the already degraded quality of Delta water, the impacts of future foreseeable projects, and the challenge SWP contractors currently experience in achieving existing water quality objectives, degradation anticipated from CCWD's proposed new intake is unacceptable and must be mitigated if implementation of the project is to be seriously considered. The Draft EIR/EIS currently offers no options for mitigation.

SCVWD & ZONE 7-5

Specific comments regarding the inadequacy of the Draft EIR/EIS are detailed below:

- **Inadequate analysis of LVE in combination with Alternative Intake:**

  The Draft EIR/EIS does not adequately evaluate the cumulative impacts of the Alternative Intake Project in conjunction with the Los Vaqueros Expansion (LVE) project. The two projects are closely linked; the Alternative Intake would serve to fill an expanded Los Vaqueros Reservoir and would probably be expanded in size and capacity if an expanded Los Vaqueros Reservoir were built. The Draft EIR/EIS states, without substantiation, that the impact of the LV project will be minor at less

SCVWD & ZONE 7-6

than 5% change in Delta water quality, and then makes the leap that the LVE project and the Proposed Alternative Intake would not result in significant cumulative effects on Delta water quality. The assertion that the combined impacts from the proposed new intake and the LVE project would be insignificant based on the assumption that impacts from LVE would be insignificant is unsubstantiated and does not satisfy the requirement to analyze the cumulative effects of projects whose impacts could be collectively significant. CCWD modeling capability of the LVE project is sufficiently advanced to perform a detailed evaluation of the cumulative impacts of these two projects, as indicated in CCWD's July 2004 Planning Report and the Nov 2005 Initial Alternatives Information Report (Chapter IX).

SCVWD & ZONE 7-6 Cont'd

- **Other Cumulative Impact Analysis**

The Draft EIS/EIR's conclusions of the cumulative impacts of foreseeable projects, in combination with the proposed intake at Victoria Canal, is flawed. The document presents numbers corresponding to 16-year average changes in salinity (see Table 4.2-21), which, because of the extended averaging involved, masks the significant impacts to water quality caused by these projects. However, even with the damping effect caused by the 16-year averaging, the degradation to salinity from these projects alone, without the Alternative Intake Project, is substantial (11% at Jersey Point). The Draft EIR/EIS shows the modeled impacts on a daily basis on Exhibit. 4.2-10, which indicates the degradation caused by these foreseeable projects frequently exceed 100 uS/cm. The figure also shows that the Alternative Intake Project consistently contributes to the negative impact on water quality at Clifton Court Forebay, with degradation of approximately 30 uS/cm or more in many instances. In addition, the Draft EIR/EIS fails to consider other reasonably foreseeable projects, such as the Stockton Delta Water Supply Project, the City of Tracy Wastewater Treatment Plant Expansion Project, and Mountain House Community Services Wastewater Treatment Facility in its discussion of cumulative impacts to water quality.

SCVWD & ZONE 7-7

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It appears that Draft EIR/EIS finding that the Alternative Intake Project will not considerably contribute to cumulative changes in Delta Water Quality is based on the logic that, because the impacts from other foreseeable projects are substantially greater than the impacts from the Alternative Intake Project, the impacts of the Alternative Intake Project are insignificant. However, CCWD itself argues that, "(u)nder CEQA, a cumulative impact is an impact created by the combination of the project together with other projects causing related impacts. See CEQA Guidelines Section 15130, 15355. The Guidelines make clear that cumulative impacts "can result from individually minor but collectively significant projects taking place over a period of time"...Thus, even if the project's impacts were less than significant (which is not the case)..., this would not justify a finding that the project does not contribute to significant cumulative impacts. This is especially true...when environmental conditions have already been substantially degraded." (see CCWD's comments on the South Delta Improvement Project EIR/EIS). CCWD's own arguments call into question the claim that the Alternative Intake Project does not contribute significant cumulative impacts to Delta water quality.

SCVWD & ZONE 7-9

- **Water quality impact analysis is inadequate.**

The water quality impact analysis presented in the Draft EIR/EIS is inadequate. Impacts are presented in tables as long-term averages that minimize impacts, or as single maximum values with no indication of the time period over which elevated concentrations occur (see Section 4.2.2.5). Daily impacts are described in figures presented in Appendix C-4, but the scale of these figures is such that impacts are difficult to quantify. The Draft EIR/EIS should provide a more transparent evaluation of the water quality impacts of the project. In addition, the Draft EIR/EIS should provide a monitoring and mitigation program to assess actual impacts and potential mitigation measures.

SCVWD & ZONE 7-10

SCVWD & ZONE 7-11

The Draft EIR/EIS modeling results estimate a monthly maximum increase in salinity of about 3.5% at Tracy PP and CCF caused by the Alternative Intake Project (see Table 4.2-17), assuming that existing regulations are held constant into the future. Upon SCVWD's request, CCWD provided its modeled output data averaged on a daily basis. This data indicates that the proposed new intake will cause degradation of at least 1% in water quality 21% to 27% of the time at CCF and 18% of the time at Tracy Pumping Plant, with the bulk of the degradation occurring from August through October, when Delta water quality is at its poorest. A more detailed analysis shows that the additional intake causes salinity to increase at Clifton Court Forebay by 1% or greater 70% of the time during the month of September and 30 to 38% of the time period during the month of August and October under current conditions. Under future conditions, this degradation occurs 45%, 69%, and 57% of the time during the months of August, September, and October. During Critical to Below Normal year types, the degradation occurs 100% of the time in September under current conditions, while degradation occurs close to 100% of the time in August, September, and October under future conditions. During critical years, CCWD's data indicates that water quality is degraded by 2% or greater 10% to 12% of the time during critical dry years at Tracy Pumping Plant and CCF, while degradation exceed 3% in critical dry years 2 to 3% of the time.

SCVWD & ZONE 7-10 Cont'd

CCWD's modeling data show that the proposed new intake will impact the water quality of the State and Federal water projects. A consistent trend of incremental degradation caused by the proposed project can be seen, particularly during dry years and fall months. This degradation will result in an increased concentration of harmful disinfection by-products to the millions of Californians who rely of the Delta for their drinking water supply.

SCVWD & ZONE 7-10 Cont'd

The water quality degradation that will result from implementation of the Alternative Intake Project is counter to CALFED objectives advocating the continuous improvement of water quality. Available information indicates that the proposed new intake will contribute to unacceptable impacts to water quality in the Delta and potentially affect the operations of the SWP and CVP operations. The Final EIR/EIS must address these issues by proposing adequate mitigation and monitoring measures. Any further development of the project should be coordinated with the Delta Risk Management Strategy and Delta Vision process.

SCVWD & ZONE 7-12

SCVWD & ZONE 7-11

SCVWD & ZONE 7-13

Thank you for providing us with the opportunity to comment on this document. Please contact Cindy Kao, Special Program Engineer, at (408) 265-2607 ext. 2346, if you have any questions.

Sincerely,

for Stanley M. Williams
Chief Executive Officer
Santa Clara Valley Water District

Dale Myers
General Manager
Zone 7 Water Agency

Cc: Mr. Lester Snow, Director, DWR
Mr. Joe Grindstaff, Director, California Bay Delta Authority
Mr. Terry Erlewine, General Manager, State Water Contractors

Letter SCVWD & ZONE 7 Response

Santa Clara Valley Water District and
Water Resources Zone 7 Management
Stanley Williams, CEO, Santa Clara Valley Water District
Dale Myers, General Manager, Zone 7 Water Agency
June, 26, 2006

SCVWD&Zone 7-1 See Master Response 1, "Delta Water Quality Analysis."

SCVWD&Zone 7-2 See Master Response 5, "Cumulative Analysis."

SCVWD&Zone 7-3 See Master Response 4, "Los Vaqueros Reservoir Expansion Project Analysis."

SCVWD&Zone 7-4 See Master Response 1, "Delta Water Quality Analysis."

SCVWD&Zone 7-5 See Master Response 1, "Delta Water Quality Analysis."

SCVWD&Zone 7-6 See Master Response 4, "Los Vaqueros Reservoir Expansion Project Analysis."

SCVWD&Zone 7-7 See Master Response 5, "Cumulative Analysis."

SCVWD&Zone 7-8 See Master Response 5, "Cumulative Analysis."

SCVWD&Zone 7-9 See Master Response 5, "Cumulative Analysis."

SCVWD&Zone 7-10 See Master Response 1, "Delta Water Quality Analysis."

SCVWD&Zone 7-11 See Master Response 1, "Delta Water Quality Analysis."

SCVWD&Zone 7-12 See Master Response 6, "Project Relationship to CALFED Goals, Delta Improvements Package, and Future Delta Water Quality."

SCVWD&Zone 7-13 See Master Response 6, "Project Relationship to CALFED Goals, Delta Improvements Package, and Future Delta Water Quality."

SLDMA & WWD

diepenbrock harrison
A PROFESSIONAL CORPORATION

JOHN V. "JACK" DIEPENBROCK
KAREN L. DIEPENBROCK
KEITH W. McBRIDE
BRADLEY J. ELKIN
EILEEN M. DIEPENBROCK
MARK D. HARRISON
GENE K. CHEEVER
MICHAEL V. BRADY
LAWRENCE B. GARCIA
SUSAN E. KIRKGAARD
ANDREA A. MATANAZZO
JOEL PATRICK ERB
JON D. RUBIN

R. JAMES DIEPENBROCK
(1929–2002)

JEFFREY L. ANDERSON
[illegible]
MICHAEL E. YIRUING
JENNIFER L. DAUER
CHAD O'NEAL MUILENBURG
SEAN K. HUNGERFORD
LEONOR Y. DICDICAN
CHRIS A. McCANDLESS
JEFFREY K. DORSO
DAN M. SILVERBOARD
ANDREW P. TAURIAINEN
BLAIR W. WILL
KRISTA J. DUNZWEILER
DAVID R. RICE
JENNIFER D. BECHTOLD
SARAH R. HARTMANN

August 22, 2006

Samantha Salvia
CCWD Project Manager
P.O. Box H2O
Concord, CA 94524

Erika Kegel
Bureau of Reclamation Project Manager
2800 Cottage Way
Sacramento, CA 95825

Re: Comments on Contra Costa Water District Alternative Intake Project

Dear Ms. Salvia and Ms. Kegel:

On behalf of the San Luis & Delta-Mendota Authority ("Authority") and Westlands Water District ("Westlands"), (collectively the "Water Agencies"), I submit this comment letter on the proposed Alternative Intake Project ("Project") for Contra Costa Water District ("CCWD").[1] The Water Agencies do not object to an effort by the United States Bureau of Reclamation ("Reclamation") and CCWD to "provide a reliable supply of high-quality water" to the people served by CCWD. However, that effort must be accomplished without redirecting adverse impacts to the other water users – a principle CCWD often articulates and a standard to which it holds others.

The Water Agencies are concerned that analyses contained in the proposed Environmental Impact Report/Environmental Impact Statement, Alternative Intake Project, May, 2006 ("Alt. Intake EIR/EIS") either: (1) do not provide sufficient information to allow the public to adequately comment and do not allow the United States and

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[1] These comments are timely submitted. The United States Bureau of Reclamation and Contra Costa Water District extended to comment period for the San Luis & Delta-Mendota Water Authority and Westlands Water District. The extensions are reflected in the letters, copies of which are attached hereto as Exhibit 1.

400 CAPITOL MALL
SUITE 1800
SACRAMENTO, CA 95814

WWW.DIEPENBROCK.COM 916 492.5000
FAX: 916 446.4535

CCWD to make an informed decision on the potential effects of the Project, or (2) show that the Project will have significant adverse impacts that are currently not avoided or mitigated. SLDMA & WWD -2

THE AUTHORITY AND WESTLANDS

The Authority is a joint powers authority formed pursuant to Government Code section 6500 *et seq.*, and is authorized to comment on any action involving or affecting the use of water by its member agencies. Those members hold contractual and vested rights to receive from Reclamation Central Valley Project ("CVP") water for irrigation of approximately 1.3 million acres of agricultural lands in western San Joaquin Valley, San Benito County and Santa Clara County. The Authority's members also supply approximately 200,000 acre-feet of CVP water for municipal and industrial uses, primarily in Santa Clara Valley, and 200,000 acre-feet of CVP water for waterfowl habitat uses in the San Joaquin Valley.

Westlands, a member of the Authority, is a California water district with a contractual and vested right to receive up to 1,150,000 acre-feet of CVP water from Reclamation. Westlands provides water for municipal and industrial uses, and for the irrigation of approximately 500,000 acres on the west side of the San Joaquin Valley in Fresno and Kings Counties. Westlands' farmers produce more than 60 high quality commercial food and fiber crops sold for the fresh, dry, canned and frozen food markets, both domestic and export. More than 50,000 people live and work in the communities dependent upon Westlands' agricultural economy.

SUMMARY OF NEPA/CEQA

The National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321 *et seq.*, requires federal agencies to identify and develop methods and procedures, in consultation with the Council on Environmental Quality, to insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations. 42 U.S.C. § 4321. For every recommendation or proposal for a major federal project that may significantly affect the quality of the human environment, a detailed statement must be prepared. 42 U.S.C. § 4332(C). The detailed statement serves as an environmental full disclosure tool by providing information to the public and decision makers about the environmental costs involved in a particular project. *Kleppe v. Sierra Club*, 427 U.S. 390, 409 (1976).

Similar to NEPA, the California Environmental Quality Act ("CEQA"), Pub. Resources Code § 12000 *et seq.*, requires state agencies, at all levels, to develop standards and procedures necessary to protect environmental quality. Pub. Resources Code § 21001, subd. (f). State agencies should not approve projects as proposed if there are feasible alternatives or mitigation measures available. Pub. Resources Code § 21002. Indeed, "[t]he purpose of an Environmental Impact Report ("EIR") is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment," to list ways in which the effects may be mitigated, and to indicate alternatives. Pub. Resources Code § 21061.

DETAILED COMMENTS

The Alt. Intake EIR/EIS violates NEPA and CEQA because it does not include necessary analyses and, for certain areas of the environment, fails to identify and either avoid or mitigate for potentially significant adverse impacts. The Water Agencies' concerns fall within two general categories: concerns that the Project will: (1) adversely affect water quality, including the potential to exacerbate the water cost of compliance efforts by Reclamation, or in the alternative, to expose Reclamation to enforcement proceedings for non-compliance, and (2) affect reservoir operations of the CVP. The Alt. Intake EIR/EIS fails to adequately identify, analyze, and avoid or mitigate for those concerns and related impacts. SLDMA & WWD -3

The Project Will Degrade Water Quality

The Alt. Intake EIR/EIS fails to consider the potential adverse impacts to water quality, which result from the Project. The Alt. Intake EIR/EIS concludes:

> [T]here would be no changes in . . . salinity at Delta water quality compliance locations that would result in either violations of water quality standards at those locations or substantial changes to project operations to avoid water quality violations at those locations. SLDMA & WWD -4

Alt. Intake EIR/EIS at 4.2-41.[2] Those conclusions conflict with prior positions taken by the United States, the State of California, and CCWD.

[2] The Alt. Intake EIR/EIS modeling shows that the Project will degrade water quality. *See, e.g.*, Alt. Intake EIR/EIS at 4.2-41. Notwithstanding the thresholds of significance, CCWD should explain why it is willing to allow SLDMA & WWD -5

That is, before the State Water Resources Control Board at the proceedings for the periodic review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento San Joaquin Delta Estuary ("1995 Bay-Delta WQCP"), the United States and CCWD took the position that an action that reduces pumping at CCWD's Pumping Plant No. 1, which the Project would do, likely results in exceedances of the water quality objective at Rock Slough or requires the CVP and State Water Project ("SWP") to re-operate to avoid that exceedance. CCWD-EXH-14 at 1, a copy of which is attached hereto as Exhibit 2; DWR-EXH-13 at 3-9 (joint comments of the California Department of Water Resources and the United States Department of Interior), a copy of which is attached hereto as Exhibit 3. The California Department of Water Resources ("DWR") has taken a similar position. Exhibit 3, DWR-EXH 13.

Indeed, CCWD explained:

> During periods of low diversions at Pumping Plant #1, local seepage and drainage into Rock Slough and the Contra Costa Canal intake channel can sometimes degrade water quality between Old River and CCWD Pumping Plant #1. Under such conditions, the ability of the State Water Project (SWP) and Central Valley Project (CVP) to fully control water quality at Pumping Plant #1 is limited.

SLDMA & WWD -4

Exhibit 2, CCWD-EXH-14 at 1. CCWD recognized that historically degradation in Rock Slough has caused exceedances of a water quality objective. *Id.* at 1-2.

Because Reclamation and DWR are at least partially responsible for the relevant water quality objective, they are exposed to potential enforcement actions for an exceedance, even if they are not able to control the factors causing the exceedance. If the State Water Resources Control Board were to take an enforcement action and issue a cease and desist order against Reclamation and DWR for an exceedance, the result of such order could require Reclamation and DWR to significantly change CVP and SWP operations to avoid the exceedance of the water quality objective. In fact, regardless of the terms of such an order, it may not be possible for the CVP and SWP to re-operate to ensure the objective is not exceeded. The Alt. Intake EIR/EIS fails to

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its Project to degrade water quality when it holds others to a more stringent standard – one which would have no project proceed if it does not result in "continuous improvement" in Delta water quality.

SLDMA & WWD -5

analyze the effect of such a re-operation by Reclamation and DWR or the potential impacts of an enforcement action by the State Water Resources Control Board. SLDMA & WWD -4 (Cont')

The Water Agencies recognize that CCWD has completed or is proposing to undertake projects to address the local seepage and drainage into Rock Slough. However, some of those projects are still in a relatively early stage, (*e.g.*, design stage), and, even for the completed projects, the Alt. Intake EIR/EIS lacks sufficient information to allow the public, Reclamation or CCWD to conclude that those projects will avoid exceedances under Project operations. Further, as suggested above and stated explicitly by CCWD, the local seepage and drainage is only one factor, albeit a significant one, affecting water quality in Rock Slough. The other factor is movement of water through the Slough. *See* CCWD-EXH-7 at Slide 4, 9, a copy of which is attached hereto as Exhibit 4. SLDMA & WWD -6

During the periodic review of the 1995 Bay-Delta WQCP, CCWD also explained that water quality degradation occurs in Rock Slough because of limited circulation. CCWD indicated that this factor would be addressed through CCWD's planned future operations. CCWD informed the State Water Resources Control Board that "Rock Slough use will increase as CCWD demand increases because diversions from the Old River Pump Station are already maximized." *Id.* Those statements now appear to conflict with statements made in the Alt. Intake EIR/EIS. The Alt. Intake EIR/EIS indicates that if the Project is completed, "Rock Slough . . . diversions would decrease under all alternatives compared to the base case (*see* Tables 4.2-5 and 4.2-6, respectively). *See* EIR/EIS at 4.2-27. It indicates that the preferred alternative for the Project would "result in approximately a 29% . . . reduction in base case Rock Slough pumping." *Id.* a 4.2-34. The Alt. Intake EIR/EIS does not explain this difference of position. SLDMA & WWD -7

In sum, the conclusion in the Alt. Intake EIR/EIS that "there would be no changes in . . . salinity at Delta water quality compliance locations that would result in either violations of water quality standards at those locations or substantial changes to project operations to avoid water quality violations at those locations", conflicts with the standard CCWD holds others and with prior statements by the United States, the State of California, and CCWD. The Project will degrade water quality and will likely result in exceedances of water quality objectives. The Alt. Intake EIR/EIS does nothing to explain the impacts or to clarify the discrepancy between those prior statements and the statements and conclusions made in the Alt. Intake EIR/EIS. In fact, the statements in the Alt. Intake EIR/EIS only further support the prior statements by the United States,

the State of California, and CCWD, and an ultimate conclusion that the Project will cause exceedances of a water quality objective or substantial changes to CVP and SWP operations to avoid the water quality violation, impacts that must be avoided or mitigated. This is particularly egregious, as Reclamation and CCWD could easily mitigate for the impact to the CVP by completing the conceptual agreement reached by the United States Department of the Interior, DWR, and CCWD at the time of the periodic review of the 1995 Bay-Delta WQCP. *See* Exhibits 2, 3, 4.

SLDMA & WWD -7 (Cont')

SLDMA & WWD -8

Modeling Of The Project Shows Significant Direct Impacts To The CVP

The Alt. Intake EIR/EIS also improperly dismisses potentially significant direct impacts to the CVP. One such impact is to CVP reservoir operations. A reason for that impact is CCWD proposes to use the Project to cause a shift in its overall diversions: (1) from wetter years to drier years, and (2) from times when the Delta is in excess conditions to times when the Delta is in balanced conditions. *See* Alt. Intake EIR/EIS at 4.2-34, 4.2-36-40. In other words, CCWD is intending to operate its Project to shift its overall diversions from years and months when water is more plentiful to years and months when water supply is much more limited. As one would expect, that shift harms the CVP.

The modeling performed for the Alt. Intake EIR/EIS produced data predicting that the Project will cause Shasta Reservoir, a CVP facility, to have reduced storage in 41 of the 73 years modeled. In those 41 years, the Project caused an average impact of the 13,000 acre-feet. That average change alone is significant.

SLDMA & WWD -9

However, when considering the individual years used to develop the average, the significance of the impact is more evident. For example, the modeling shows the following:

Year	End of Sept. Storage In TAF (Existing-Base)	End of Sept. Storage In TAF (Existing-Alt. 1)	Change From Base to Alt. 1 In TAF
1924	592	581	-11
1926	1,754	1,715	-39
1932	1,045	1,042	-3
1933	812	800	-12
1935	1,785	1,777	-8
1994	1,536	1,514	-22

Appendix C3- CALSIM II Modeling at C54-57. Out of context, some may assert even those changes in CVP storage are insignificant. Indeed, the Alt. Intake EIR/EIS seeks to minimize the predicted impacts by comparing them to the quantity of water that evaporates from CVP facilities or by explaining that the impact may be realized at more than one facility. *See* Alt. Intake EIR/EIS at 4.2-39.

None of those explanations, however, change the fact that in the years that the modeling predicts the impact will occur, the CVP will be substantially harmed by what some may characterize as a moderate change in storage. The impact is substantial because it is predicted to occur in years when water supply is incredibly limited. The extent of the impacts cannot be discounted because the impact from evaporation is also significant or due to the impact being realized at more than one CVP facility. Simply put, nothing can change the conclusion that the predicted changes in Shasta storage, if realized as modeled, would significantly affect the CVP, and would likely appreciably impair the timing and quantity of CVP water allocations to the members of the Authority.

In fact, in Appendix C2-Water Resources Modeling Methodology Report, Reclamation and CCWD concede that, at least some of the predicted impacts, would be significant. Reclamation and CCWD explain: SLDMA & WWD -9 (Cont')

> 1.9 MAF is an important reservoir storage level related to river water temperature control. . . . With storage above 1.9 MAF, there is generally enough water in storage for CVP operators to develop an operational plan that can meet the goals of temperature control without curtailing contract deliveries. Below 1.9 MAF, there is the possibility that CVP allocations could be affected.
>
> * * *
>
> Storage at or below 1 MAF represents a critical level for the CVP where any change in storage could be significant and could impact project operations.

Id. at C2-23, 24 (emphasis). *See also* Alt. Intake EIR/EIS at 4.2-37.

Notwithstanding, it should also be noted that a critical error in the analyses conducted for the Alt. Intake EIR/EIS is the reliance upon a 1.9 million acre-feet ("MAF")

carry over storage level for Shasta Reservoir. Although it is beyond reasonable debate that "1.9 MAF is an important reservoir storage level", that level cannot be used to draw broad conclusions regarding the effects on CVP operations, which the Alt. Intake EIR/EIS does. Potentially significant impacts to CVP operations and, in particularly, to south of Delta operations can occur when storage levels are higher than 1.9 MAF. Thus, the 1.9 MAF level can not be used to support the blanket conclusions that when Shasta is above 1.9 MAF, any change to CVP storage is insignificant.

SLDMA & WWD -9 (Cont')

For these reasons, Reclamation and CCWD must revise and republish for public comment an Alt. Intake EIR/EIS that (1) includes the necessary analyses identified above, which are absent from the existing draft, and (2) either changes the description of the proposed operations of the Project to avoid reasonably foreseeable significant impacts to the CVP or take other appropriate actions to mitigate for them.

SLDMA & WWD -10

Thank you for your consideration of these comments.

Very truly yours,

DIEPENBROCK HARRISON
A Professional Corporation

Jon D. Rubin
Attorneys for the San Luis Delta-Mendota Authority and Westlands Water District

JDR/jvo

CONTRA COSTA
WATER DISTRICT

1331 Concord Avenue
P.O. Box H20
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122

FAX

June 23, 2006

Tom Birmingham
General Manager
Westlands Water District
P. O. Box 6056
Fresno, CA 93703

Dan Nelson
Executive Director
San Luis-Delta Mendota Water Authority
P. O. Box 2157
Los Banos, CA 93635

Subject: Alternative Intake Project Draft EIR/EIS

Dear Mr. Birmingham and Mr. Nelson:

Thanks again for meeting with Greg and me yesterday to discuss the Alternative Intake Project. In order to allow time for us to develop an agreement relative to your concerns regarding the operation of the Alternative Intake Project, Contra Costa Water District is extending the due date for comments from San Luis Delta Mendota Water Authority and Westlands Water District from Monday, June 26, to Monday, July 17. I've confirmed this extension with the Bureau of Reclamation (lead agency for NEPA). I think this should allow ample time for our agencies to work out a mutually acceptable agreement and look forward to working with you toward that goal.

Sincerely,

Samantha Salvia
Project Manager

SS:ps

cc: Jim Snow, Westlands Water District
Tom Boardman, SL&DMWA
Erika Kegel, Bureau of Reclamation

CONTRA COSTA
WATER DISTRICT

1331 Concord Avenue
P.O. Box H20
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122

FAX

July 12, 2006

Tom Birmingham
General Manager
Westlands Water District
P. O. Box 6056
Fresno, CA 93703

Dan Nelson
Executive Director
San Luis-Delta Mendota Wat
P. O. Box 2157
Los Banos, CA 93635

Subject: Alternative Intake Project Draft EIR/EIS

Dear Mr. Birmingham and Mr. Nelson:

Previously I sent you a letter extending the due date for comments from the San Luis Delta Mendota Water Authority and Westlands Water District to Monday, July 17. We are making good progress on an agreement to address concerns regarding the operation of the Alternative Intake Project. However, it appears we may need some additional time to complete the agreement. By this letter, Contra Costa Water District is extending the due date for your comments to July 31, 2006 to provide additional time to resolve concerns and reach an agreement.

Sincerely,

Samantha Salvia
Project Manager

SS:ps

cc: Jim Snow, Westlands Water District
Tom Boardman, SL&DMWA
Erika Kegel, Bureau of Reclamation

CONTRA COSTA
WATER DISTRICT

1331 Concord Avenue
P.O. Box H20
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122

FAX

July 13, 2006

Tom Birmingham
General Manager
Westlands Water District
P. O. Box 6056
Fresno, CA 93703

Dan Nelson
Executive Director
San Luis-Delta Mendota Water Authority
P. O. Box 2157
Los Banos, CA 93635

Subject: Alternative Intake Project Draft EIR/EIS

Dear Mr. Birmingham and Mr. Nelson:

This letter clarifies the letter I sent dated July 12, 2006 extending the comment period on the CCWD Alternative Intake Project EIR/EIS to July 31, 2006. The comment period is extended for both CEQA and NEPA purposes for comments from the San Luis Delta Mendota Water Authority and Westlands Water District. I've confirmed this extension with the Bureau of Reclamation (lead agency for NEPA).

Sincerely,

Samantha Salvia
Project Manager

SS:ps

cc: Jim Snow, Westlands Water District
Tom Boardman, SL&DMWA
Erika Kegel, Bureau of Reclamation

CONTRA COSTA
WATER DISTRICT

1331 Concord Avenue
P.O. Box H20
Concord, CA 94524
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FAX

July 27, 2006

Tom Birmingham
General Manager
Westlands Water District
P. O. Box 6056
Fresno, CA 93703

Dan Nelson
Executive Director
San Luis-Delta Mendota Water Authority
P. O. Box 2157
Los Banos, CA 93635

Subject: Alternative Intake Project Draft EIR/EIS

Dear Mr. Birmingham and Mr. Nelson:

Previously I sent you a letter extending the due date for comments from the San Luis Delta Mendota Water Authority and Westlands Water District to Monday, July 31. We are making good progress on an agreement to address concerns regarding the operation of the Alternative Intake Project. However, it appears we made need some additional time to complete the agreement. By this letter, Contra Costa Water District is extending the due date for your comments to August 22, 2006 to provide additional time to resolve concerns and reach an agreement.

The comment period is extended for both CEQA and NEPA purposes for comments from the San Luis Delta Mendota Water Authority and Westlands Water District. I've confirmed this extension with the Bureau of Reclamation (lead agency for NEPA).

Sincerely,

Samantha Salvia
Project Manager

SS:ps

cc: Jim Snow, Westlands Water District
Tom Boardman, SL&DMWA
Erika Kegel, Bureau of Reclamation

CONTRA COSTA
WATER DISTRICT

1331 Concord Avenue
P.O. Box H20
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122

February 14, 2005

Ms. Debbie Irvin, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812

RE: Issue 4b: Rock Slough Compliance Location

Dear Ms. Irvin:

The 150 mg/L and 250 mg/L municipal and industrial (M&I) chloride objectives in the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1995 Plan) and State Water Resources Control Board (Water Board) Water Rights Decision 1641 provide some protection against the intrusion of ocean-derived salts, including bromide, for the source water quality that Contra Costa Water District (CCWD) relies on to provide water to its customers for municipal and industrial uses.

CCWD comments regarding Issue 4b of the SWRCB's Periodic Review of the 1995 Plan are summarized below:

1. The Pumping Plant #1 compliance location (C-5) must remain unchanged at the Contra Costa Canal Pumping Plant #1 to ensure water diverted by CCWD from Rock Slough is at or better than the 150 mg/L and 250 mg/L M&I chloride objectives. These objectives provide protection against salinity intrusion to all M&I diversion points in the southern and central Delta, and are necessary to ensure water quality protection at those Delta M&I diversion points, including CCWD's Old River intake.
2. During periods of low diversions at Pumping Plant #1, local seepage and drainage into Rock Slough and the Contra Costa Canal intake channel can sometimes degrade water quality between Old River and CCWD Pumping Plant #1. Under such conditions, the ability of the State Water Project (SWP) and Central Valley Project (CVP) to fully control water quality at Pumping Plant #1 is limited. When exceedances of the M&I objective at this location have occurred in the past, CCWD, California Department of Water Resources (DWR) and the U.S. Bureau of Reclamation (Reclamation) have each reported to the Water Board that exceedances of the 250 mg/L M&I objective are not attributable to the actions of the SWP and CVP because water quality in Old

River was otherwise sufficient to meet the objective. Without exception, the Water Board has concurred, and has not levied fines or other enforcement actions in response to the M&I exceedances linked to low diversions at Pumping Plant #1. Examples of this correspondence are included as Attachment B.

3. CCWD and CALFED have embarked on major remediation projects to address the sources of drainage and seepage into Rock Slough and the Contra Costa Canal. The discharge point of agricultural drainage from Veale Tract is being relocated into Indian Slough. This project is expected to be completed in the summer of 2005, and will eliminate the effect of the Veale Tract discharge on Pumping Plant #1 water quality without redirecting impacts to others. The portion of the Contra Costa Canal most subject to seepage impacts (the unlined portion in the vicinity of Pumping Plant #1) may be lined as early as 2007, depending upon the availability of funding. CCWD appreciates the statements of Board members expressing their desire to make sure that these and similar projects are not delayed.
4. When these two remediation projects are completed, they will virtually eliminate the predominant sources of water quality degradation between Holland Tract and CCWD Pumping Plant #1. Of course, as CCWD demands increase, the likelihood of extended periods of low diversions at Pumping Plant #1 will be reduced for the simple reason that CCWD will need more of the Rock Slough capacity to meet its increased service area demands.
5. To address the near-term problem of water quality degradation in Rock Slough, CCWD recommends that a formal method be established for determining whether compliance with the M&I chloride objective at Pumping Plant #1 is within the control of the SWP and CVP under certain conditions, as outlined below and in Attachment A. CCWD's proposed language is included below.

There is conceptual agreement between CCWD, DWR and Reclamation that until the two remediation projects described above are completed, the SWP and CVP should not be considered fully responsible for exceedances of the M&I chloride objectives if, during times of low diversions from Pumping Plant #1, the electrical conductivity (EC) at Holland Tract is at or better than specific EC targets that are consistent with the M&I chloride objectives. CCWD, DWR and Reclamation have not reached agreement on the specific value of these equivalent EC targets.

CCWD proposes that, if the M&I chloride objective is exceeded at a time when CCWD was pumping below 30 cfs at Pumping Plant #1, the Water Board use Holland Tract EC data to determine whether the exceedance was fully within the control of DWR and Reclamation. CCWD recommends that the Holland Tract EC criteria be:

- 0.94 EC at Holland Tract for 250 mg/L chlorides at Pumping Plant #1
- 0.56 EC at Holland Tract for 150 mg/L chlorides at Pumping Plant #1

This mechanism could be accomplished either as an implementation matter under Issue 11 or through addition of a footnote to the existing M&I chloride objective language (Table 1 of the May 1995 Plan). Such a footnote could read:

> An exceedence of the 250 mg/L chloride objective will be considered not fully within the control of DWR and Reclamation if the 3-day running average diversion rate at CCWD Pumping Plant #1 is less than 30 cfs, and the daily EC at Holland Tract, measured three days previously, was 0.94 mS/cm or less. An exceedance of the 150 mg/l chloride objective will be considered to be not fully within the control of DWR and Reclamation if the 3-day running average diversion rate at Pumping Plant #1 is less than 30 cfs, and the daily EC at Holland Tract, measured three days previously, was 0.56 mS/cm or less.

CCWD would prefer that this mechanism be accomplished as an implementation matter rather than by an amendment to the Water Quality Control Plan because of the uncertainty of the necessary funding to complete the necessary projects discussed above. However, CCWD believes that this proposed footnote fairly acknowledges the difficulty the SWP and CVP have in meeting the M&I chloride objectives when Pumping Plant #1 diversions are low, while ensuring that the water quality provided by the M&I objectives for CCWD and other Delta water users is not degraded. It is expected, of course, that the water quality remediation projects will, upon completion, reduce the problem these criteria address.

If you or your staff have any questions regarding these comments, please contact me at (925) 688-8187.

Sincerely,

Richard Denton
Water Resources Manager

RAD/MM

Attachments
A: Technical Basis for Proposed Modification
B: Previous correspondence regarding exceedances to M&I chloride objectives

cc: Chester V. Bowling (USBR)
Alf Brandt (DOI)
Cathy Crothers (DWR)
Ken Landau (CVRWQCB)
Carl Nelson (BPMNJ)

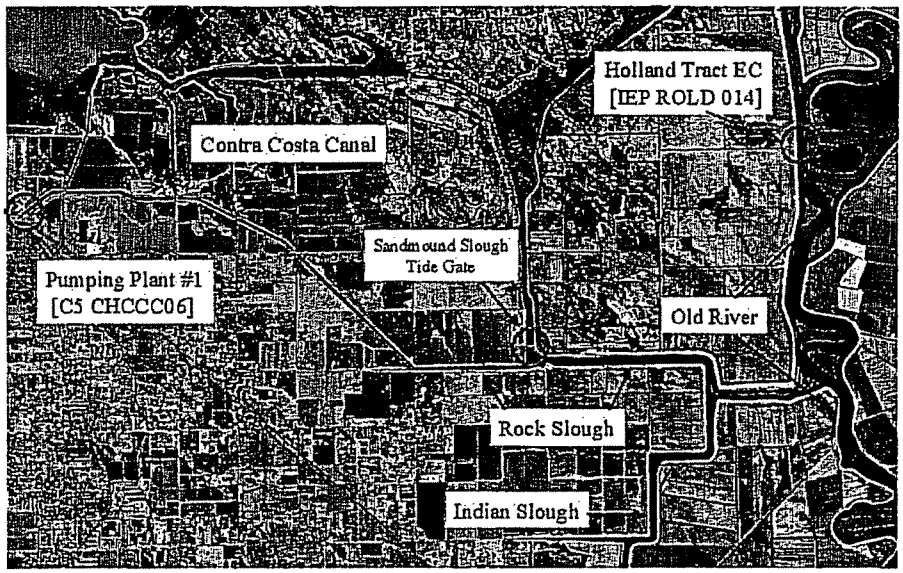
Attachment A

Technical Basis for Proposed Modification

This attachment provides the technical basis for the proposed modification to the M&I chloride objective. Background information on CCWD operations is also presented here to aid the consideration of this proposal.

CCWD delivers water that is the primary source of drinking water for 500,000 people in central and eastern Contra Costa County. CCWD depends on water diverted from Rock Slough at the intake to the Contra Costa Canal for a major portion of its water supply. Figure 1 shows a map of Rock Slough and the Contra Costa Canal. Pumping Plant #1, the first location where water is lifted out of the Delta, is located at the end of the 4.2 mile unlined Contra Costa Canal.

Figure 1: Map of Rock Slough, Contra Costa Canal and Pumping Plant #1



The EC monitoring station on Old River at Holland Tract[1] is also shown in Figure 1. EC measurements have been collected daily at this station since 1964, developing a solid historical record of water quality which can then be correlated with chloride measurements taken at CCWD Pumping Plant #1 under a wide range of conditions. Also shown in Figure 1 is the

[1] Holland Tract is station HLL on DWR's California Data Exchange Center database. Real-time EC data is reported from this station every hour.

Sandmound Tide Gate, owned by Reclamation, which allows one-way tidal flow up to approximately 30 cfs from south to north out of Rock Slough into Sandmound Slough. This provides net circulation throughout eastern Rock Slough from Old River, and helps maintain water quality in the absence of CCWD pumping. CCWD currently maintains the self-operating Sandmound Slough Tide Gate under contract with Reclamation.

The Rock Slough compliance location must remain at Pumping Plant #1

The best way to ensure that water diverted by CCWD at the Contra Costa Canal at Pumping Plant #1 is of a quality equal to or better than the 1995 Plan M&I chloride objectives is to retain compliance with the objectives at Pumping Plant #1. Indeed, federal law[2] mandates that the compliance location be at Pumping Plant #1. P.L. 99-546 explicitly directs the Interior Secretary to operate the Central Valley Project, in conjunction with the State Water Project, to meet the water quality standards contained in Water Rights Decision D-1485. CCWD requests that the compliance location not be changed from Pumping Plant #1. However, the proposal contained in this letter is a recognition that, while the SWP and CVP must operate the Delta in a way that meets the objective, under conditions of low diversions from Pumping Plant #1, there are currently other factors beyond the control of the SWP and CVP that also affect water quality at Pumping Plant #1, which could reasonably be taken into account in the implementation of the objectives.

Continuous enforcement of the 150 mg/L and 250 mg/L chloride objectives at Pumping Plant #1, and requiring the SWP and CVP operate the Delta consistent with those chloride objectives, will also provide some protection against seawater intrusion for CCWD at its Old River intake, and for the other 23 million people who drink water diverted in the Delta, and at other primarily agricultural intakes in the south Delta. CCWD constructed the Los Vaqueros Reservoir, the Old River intake, and associated conveyance facilities to take advantage of the typically better water quality at Old River near Highway 4 that the objective in question helps protect.

[2] Public Law 99-546, enacted October 27, 1986, 100 Stat. 3050. This Federal legislation approved the Coordinated Operations Agreement between the Bureau of Reclamation and the Department of Water Resources.

Figure 2: Old River water quality is strongly correlated with, and better than, Rock Slough water quality. Maintaining good water quality at Rock Slough also maintains good water quality at CCWD's Old River intake and elsewhere in the south and central Delta

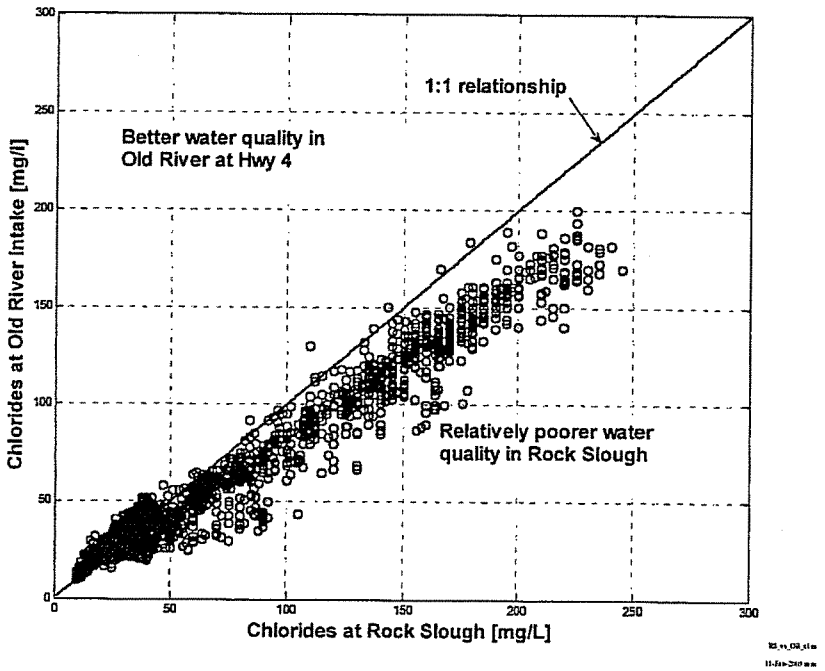


Figure 2 presents water quality measurements collected concurrently in Rock Slough and at the Old River intake. Above approximately 50 mg/L chloride, water quality is clearly and consistently better at the Old River intake than it is in Rock Slough. This was a primary motivation for the development of CCWD's Old River intake. A similar relationship may be demonstrated for water quality at Clifton Court or other south Delta diversion points relative to Rock Slough.

Certain conditions lead to water quality degradation beyond the control of SWP and CVP

Some natural variation (due to tides, winds, flow variations, upstream discharges, changes in Delta outflow, etc.) in water quality occurs between the Old River at Holland Tract monitoring station and CCWD Pumping Plant #1, which makes water quality at Pumping Plant #1 hard to accurately predict based on water quality at Holland Tract. To ensure conformance with the M&I objectives, an allowance for natural variation as the water moves from Holland Tract to

Pumping Plant #1 is required. To truly ensure equivalence with the M&I objective at Pumping Plant #1, a water quality benchmark at Holland Tract must include room for the normal random variation of the background conditions.

However, at times some measurable and consistent water quality degradation occurs between Old River at Holland Tract and Pumping Plant #1. As stated by Dr. David Briggs in the periodic review workshop on January 10, 2005, CCWD has investigated these local water quality impacts in detail through a project funded by CALFED and DWR. DWR has also carried out its own independent investigation. Two primary sources of degradation have been identified: local agricultural discharge into Rock Slough from the north side of Veale Tract, and seepage into the unlined portion of the Contra Costa Canal just upstream of Pumping Plant #1. The effect of these impacts is most apparent when CCWD reduces diversions from Pumping Plant #1 because the degradation continues with little or no dilution flow within the Canal or from Old River. In such circumstances, the poor quality water simply accumulates in the Canal. Under these conditions, it is difficult for SWP and CVP operations to fully control water quality at Pumping Plant #1 through reservoir releases or export reductions. Provided the SWP and CVP are meeting suitably conservative EC criterion at the Holland Tract monitoring station, a portion of the responsibility for implementation of the Pumping Plant #1 M&I objective – and any exceedances thereof – would need to be assigned to the parties causing the local degradation and addressed through waste discharge requirements and cease and desist orders.

The low diversion conditions described above occurred in December 1999, October 2001 and October 2002. In each case, SWRCB agreed with all parties that the exceedances were not within the control of DWR or Reclamation. Correspondence describing each of these events is attached to this letter (Attachment B).

CALFED has a project nearing completion that will eliminate the effects of the existing Veale Tract agricultural discharge

The agricultural discharge from Veale Tract affected water quality in Rock Slough prior to construction of the State Water Project, and even prior to completion of the Central Valley Project export facilities. Through funding from the CALFED Bay-Delta Program, CCWD has completed a detailed study of this issue and has recently completed design and permitting of a project to eliminate the water quality impacts of Veale Tract discharge in the Contra Costa Canal. The project, currently under construction, will relocate the discharge to the southeast of Veale Tract into Indian Slough where it can be properly diluted, will not accumulate, and will not affect other beneficial uses. The project is expected to be completed and operating by summer 2005.

CCWD has a project under way to eliminate seepage into Contra Costa Canal near Ironhouse Sanitary District

Seepage into the unlined portion of the Contra Costa Canal near land irrigated with treated wastewater by the Ironhouse Sanitary District was first noticed in 1997, when the Los Vaqueros

Project came on line and CCWD was able to temporarily stop Rock Slough diversions to carry out much needed maintenance of the Contra Costa Canal facilities, which had been operating continuously for almost 60 years. This was possible because CCWD's Old River intake was newly available to meet District demands. Now that the Los Vaqueros Reservoir Project is on line, with current demands CCWD can now rely on water diverted from the Old River intake or releases from Los Vaqueros Reservoir during periods of required maintenance as well to blend with generally poorer water quality in Rock Slough.

During times of little or no Canal pumping, seepage into the Canal can cause localized increases of salinity in the Canal near Pumping Plant #1. So long as Pumping Plant #1 is operating at about 20-30 cubic feet per second (cfs) or greater, the seepage is diluted by the flow passing along the Canal.

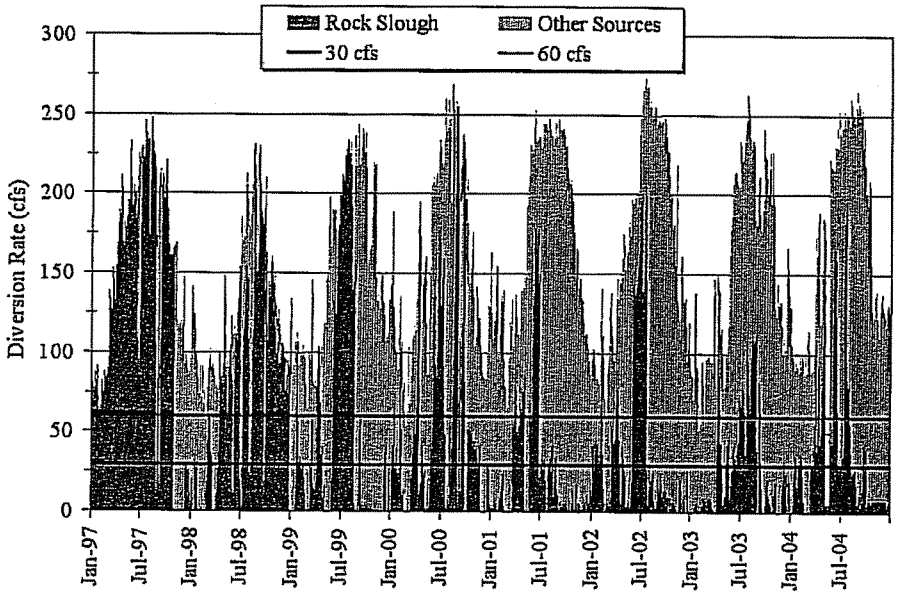
CCWD is working with the Central Valley Regional Water Quality Control Board to address this problem, which appears to be in large part directly related to land application of wastewater with some lesser contribution from local groundwater. CCWD has begun a project to encase this unlined portion of the Contra Costa Canal to eliminate the effects of this seepage, with funding contributed by CALFED, USBR, and local developers. If the current level of funding remains available, the first phase of this project, which will eliminate the major sources of seepage into the Canal, is expected to be completed by Summer 2007.

CCWD has reduced its diversions from Rock Slough but will continue to rely on the Rock Slough intake to meet demand when filling Los Vaqueros Reservoir, to meet peak summer demand, and future demand

When CCWD's Old River intake (with its capacity of 250 cfs) became operational in 1997, CCWD had the ability to temporarily reduce or cease its diversions from Rock Slough, both to perform maintenance and to divert better quality water from the Old River intake. Figure 2 shows the Pumping Plant #1 diversions from Rock Slough from January 1997 through December 2004. The other sources referred to in the figure are diversions from the Old River intake and releases from Los Vaqueros Reservoir. The data show periods when diversions from CCWD Pumping Plant #1 were minimal or close to zero. The data also show periods after 1997 when CCWD relied almost fully on Rock Slough to meet its customers' demands.

Currently, during periods when CCWD is filling Los Vaqueros Reservoir from the Old River intake, very little pumping capacity remains at the Old River intake to meet service area demands, so the remaining demand must be met from Rock Slough at Pumping Plant #1. In the next 30 to 50 years, CCWD's peak summer demands are forecast to increase to approximately twice the capacity of the Old River intake. CCWD will need to use diversions from Pumping Plant #1 to meet a significant part of that demand. The increasing demand within the CCWD service area will reduce the current cyclical nature of diversions at Pumping Plant #1.

Figure 3: CCWD diversions from Rock Slough at Pumping Plant #1 have reduced significantly since 1997, but CCWD still relies on this intake during periods of service area high demand and outages at the Old River intake, and will rely on it to meet increased future demands



January 1997 to December 2004

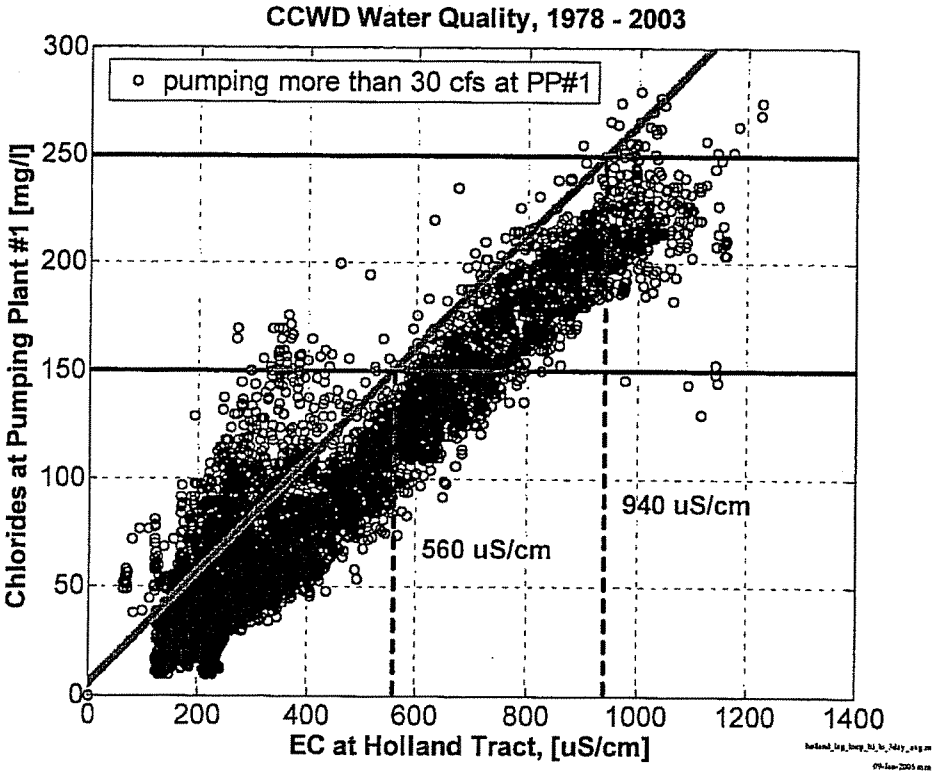
It is worth noting again that the M&I objectives at Pumping Plant #1 also provide important protection against seawater intrusion and water quality impacts at the Old River intake and at the State Water Project's Banks Pumping Plant and the Central Valley Project's Tracy Pumping Plant.

Source water protection efforts in Veale Tract and the Contra Costa Canal immediately east of Pumping Plant # 1, in concert with increased usage of the Rock Slough intake to meet future CCWD demands, will likely reduce or eliminate the occurrence of conditions in which water quality at Pumping Plant #1 is not directly reflective of water quality in Old River. Nonetheless, until these changes have occurred, CCWD believes it is necessary to define conditions under which DWR and Reclamation can be considered unable to control water quality at Pumping Plant #1 through their Delta operations.

Adding an additional method of assessing compliance appropriately addresses the difficulty in controlling water quality at Pumping Plant #1 during low pumping conditions

CCWD, DWR and Reclamation have developed an additional compliance method based primarily upon the relationship between Holland Tract EC and the corresponding chloride data measured at Pumping Plant #1. Figure 3 compares the historical measurements of daily Holland Tract EC and Pumping Plant #1 chlorides since the M&I chloride objectives were first established in 1978.

Figure 4: The relationship between Pumping Plant #1 chlorides and water quality in Old River at Holland Tract



A lag of 3.5 days has been applied to the data presented in Figure 3 to account for typical travel time between Holland Tract and Pumping Plant #1. As may be seen in Figure 3, water quality at Holland Tract and Pumping Plant #1 have been closely linked historically, but there is some

natural variability in the data. The solid diagonal (green) line shown on Figure 3 represents the typical upper range expected chloride concentrations at Pumping Plant #1 for a given Holland Tract EC value. CCWD recommends that the intersections of the diagonal line with the 150 mg/L and 250 mg/L chloride values represent the most appropriate Holland Tract EC criteria for ensuring that the SWP and CVP have properly exercised their operational control to ensure compliance at Pumping Plant #1, given the natural variability in the data.

These criteria, however, should only be used to assess the SWP and CVP's responsibility for meeting the M&I objectives at Pumping Plant # 1 when CCWD is diverting less than 30 cfs at Pumping Plant #1. When CCWD is pumping more than 30 cfs, the seepage into the Canal near Pumping Plant #1 is diluted by the larger flow toward the pumping plant and not detectable within the range of measurement error. When CCWD is diverting more than 30 cfs, the SWP and CVP can control water quality at Pumping Plant #1 through their Delta operations.

Attachment B: Previous correspondence regarding exceedances to M&I chloride objectives

State of California

Memorandum

Date : DEC 2 7 1999

To :

Mr. Walter Pettit
Executive Director
State Water Resources Control Board
Post Office Box 100
Sacramento, California 95812

From : Department of Water Resources

Subject: Municipal and Industrial Water Quality Objective Under D-1485
For Contra Costa Canal Pumping Plant No. 1

This is to confirm our previous communications with your staff that the D-1485 water quality standard at Contra Costa Canal Pumping Plant No. 1 of 250 mg/l was exceeded on December 20, 1999 with an average daily chloride value for that day of 258 mg/l.

The salinity in the interior and southern Delta gradually increased following closure of the Delta Cross Channel gates on November 26, 1999. The gates were closed to provide protection for outmigrating spring-run chinook salmon during the first spring tidal cycle of November. The increase in salinity continued during the following neap tidal cycle despite substantial reductions in export operations and Sacramento River flows at Freeport in excess of 14,000 cfs. The Delta Cross Channel gates were fully opened on December 15, 1999 and salinity conditions in the interior and south Delta are beginning to improve. However, the current conditions in the vicinity of Old River and Rock Slough may result in additional exceedences in the near future. We are continually monitoring water quality conditions and working with the other CALFED agencies to prevent a recurrence of the events leading to the poor water quality conditions in the Delta.

Attached are graphs of salinity conditions along Old River, Delta inflow, and Delta outflow. A detailed report of the increasing salinity and actions taken to improve water quality conditions will be provided as soon as the Department of Water Resources and the U.S. Bureau of Reclamation are confident the SWRCB water quality standard for Contra Costa Pumping Plant No. 1 will not be exceeded again. We will continue to keep you and your staff informed on conditions as they improve.

If you have any questions concerning this matter, please call Victor Pacheco, DWR's Chief of Delta Environmental Compliance at (916) 574-2662, or Paul Fujitani, Hydraulic Engineer for the USBR's Central Valley Operations Office at (916) 979-2197.

Larry K. Gage, Chief
Operations Control Office
Division of Operations and Maintenance
Department of Water Resources

Lowell F. Ploss
Operations Manager
Central Valley Project Operations
Bureau of Reclamation
U.S. Department of Interior

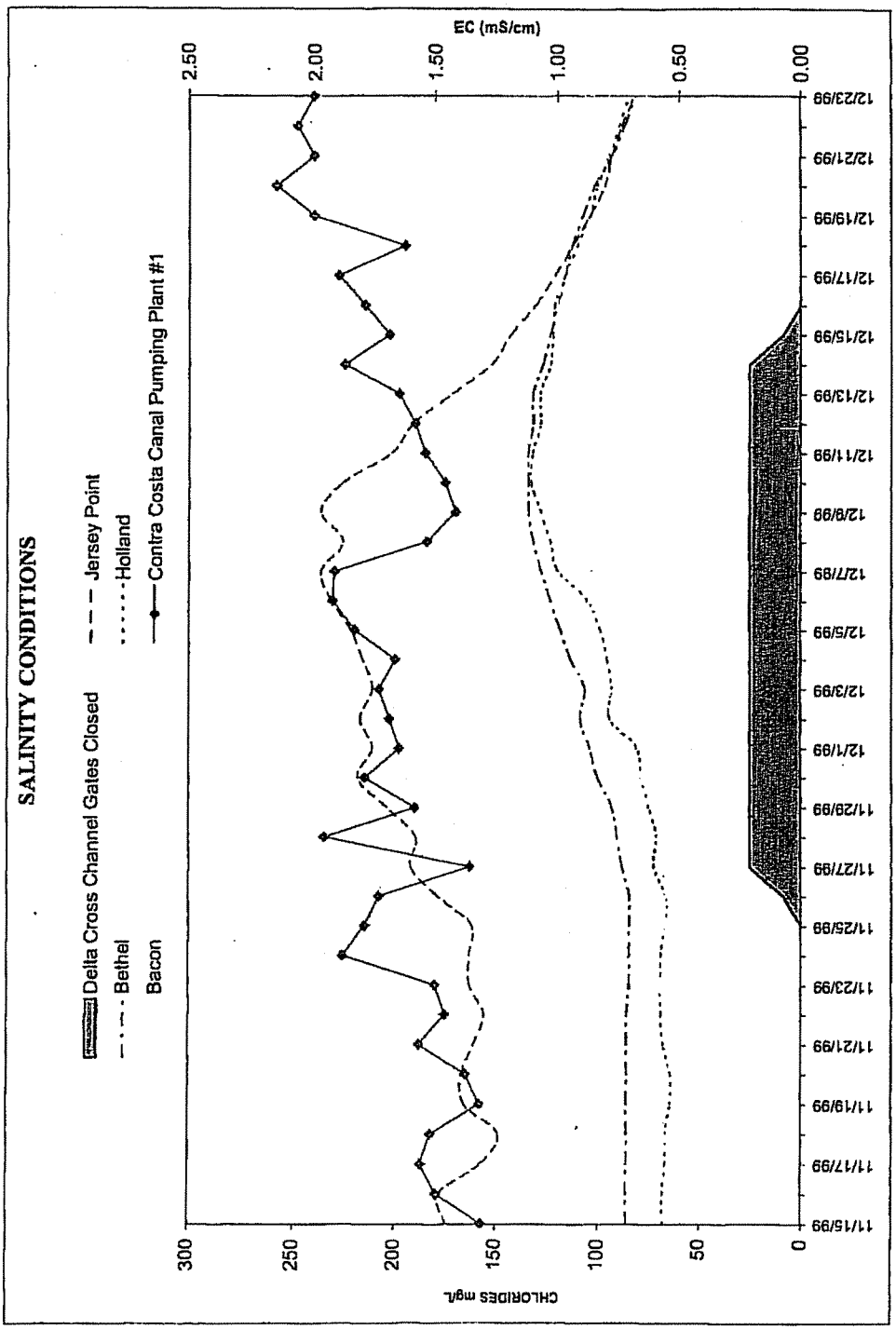
Attachments

cc: Mr. Thomas Hannigan, Director
Department of Water Resources
1416 Ninth Street, Room 1115-2
Sacramento, California 95814

Steve Macaulay, Chief Deputy Director
Department of Water Resources
1416 Ninth Street, Room 1115-2
Sacramento, California 95814

Mr. Lester Snow, Regional Director
U.S. Bureau of Reclamation
Department of the Interior
2800 Cottage Way, Room W1105
Sacramento, California 95825-1898

Mr. Greg Gartrell
Contra Costa Water District
1331 Concord Avenue
Concord, California 94524


SALINITY CONDITIONS
Della Cross Channel Gates Closed
Jersey Point
Bethel
Holland
Bacon
Contra Costa Canal Pumping Plant #1
EC (mS/cm)
2.50
2.00
1.50
1.00
0.50
0.00
CHLORIDES mg/L
300
250
200
150
100
50
0
11/15/99
11/17/99
11/19/99
11/21/99
11/23/99
11/25/99
11/27/99
11/29/99
12/1/99
12/3/99
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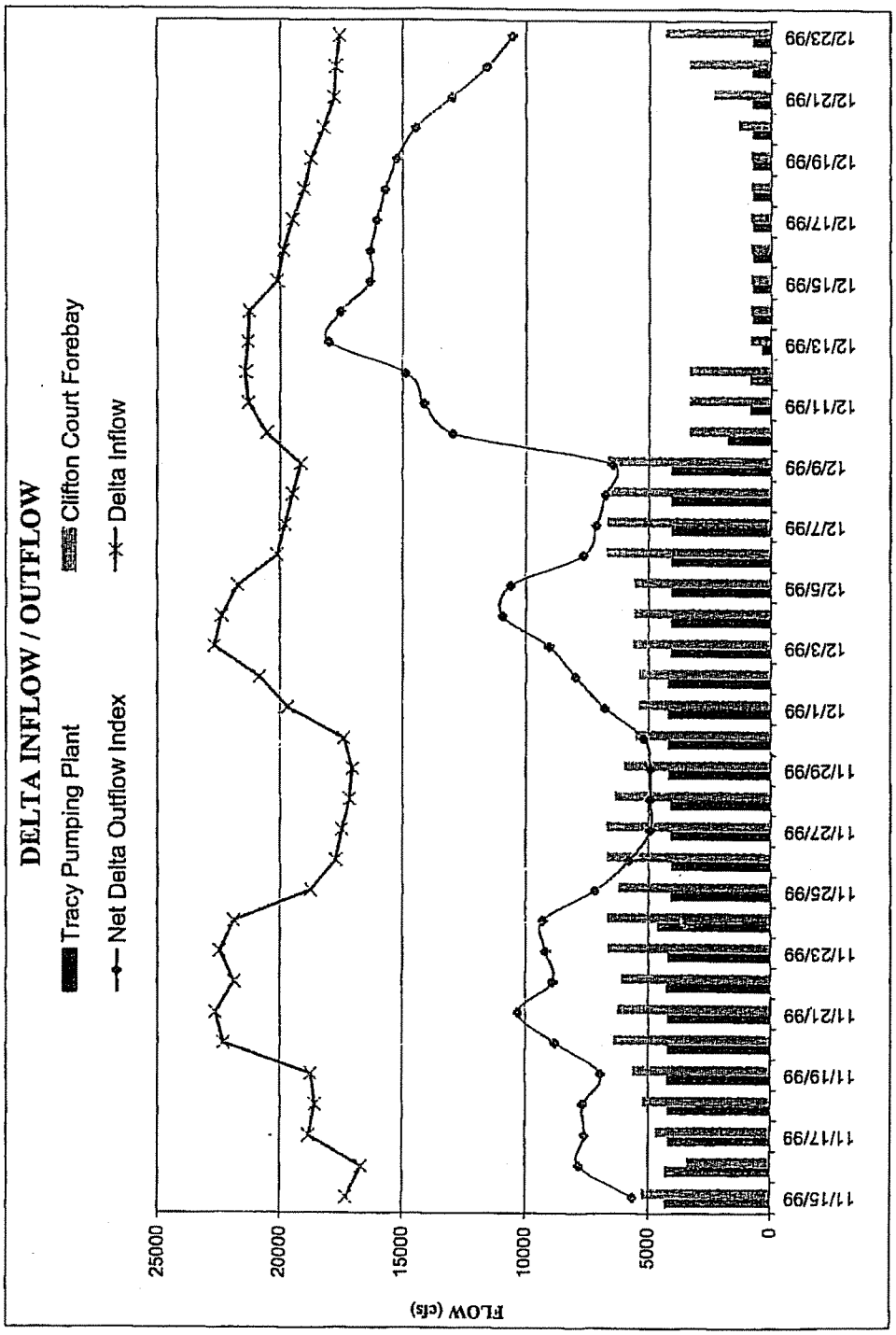
DELTA INFLOW / OUTFLOW
Tracy Pumping Plant
Clifton Court Forebay
Net Delta Outflow Index
Delta Inflow
FLOW (cfs)
25000
20000
15000
10000
5000
0
11/15/99
11/17/99
11/19/99
11/21/99
11/23/99
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12/23/99

Page 5

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

November 1, 2001

Ms. Celeste Cantu
Executive Officer
State Water Resources Control Board
Post Office Box 200
Sacramento, California 95812-2000

Water Quality Standard at Contra Costa Canal Pumping Plant #1

Dear Ms. Cantu:

This letter is to inform you that the maximum daily chlorides standard of 250 mg/l at the Contra Costa Canal Pumping Plant No. 1 was exceeded on October 14, 16 and 17, 2001. SWRCB Water Right Decision 1641 imposes the 250 mg/l chloride standard as a condition to the water right permits of the State Water Project and Central Valley Project. On October 14, 16, and 17 the daily chloride values were 263, 257, and 257 mg/l respectively despite the continued efforts of the SWP and CVP to maintain compliance.

We believe this exceedence was the result of high salinity seepage from surrounding lands coupled with the low pumping rate at Contra Costa Canal Pumping Plant No. 1. Over the two weeks leading up to the exceedences, Contra Costa Water District pumping from Rock Slough averaged less than 17 acre-feet per day. Current maintenance activities at the pumping plant have precluded drawing fresher water into the canal to mix with the poor quality water. In addition, we believe the water quality is impacted in part by Ironhouse Sanitation District spreading its treated discharge of wastewater on lands adjacent to the canal. This is supported by data collected at CCWD stations as well as at our stations located in the central and western part of the Delta. Although high electrical conductivity values at nearby interior Delta stations were indicative of poor water quality into Rock Slough in mid-September, EC values at Jersey Point, Bethel Island, and Holland Tract did not reach levels usually associated with values over 250 mg/l chlorides at Rock Slough in the weeks proceeding the exceedences. Chloride readings at CCWD's Old River intake were in the range of 140 to 160 mg/L over the same period.

These exceedences occurred at relatively low combined project export levels and adequate Vernalis flows. Combined exports were about 4,400 cfs, 300 cfs at Clifton Court and about 4,100 cfs at Tracy Pumping Plant. The CVP has since dropped one unit and is targeting pumping at about 3,350 cfs or lower for the rest of October.

Vernalis flows were about 1,500 cfs, which is higher than we had expected in a dry year. Recently Vernalis flows have risen as part of the October pulse flow. We believe that under the circumstances we are taking all reasonable actions to comply with the chloride standard.

We have expressed our concerns in the past about the inability of the CVP and SWP to meet the Rock Slough Standard under certain conditions. Contra Costa Water District and others echoed this concern in petitions before the Board regarding the Ironhouse Sanitary District discharge onto lands adjacent to the Contra Costa Canal. If you wish to discuss this matter further or have any questions please contact Curtis Creel, DWR at (916) 574-2722 or Paul Fujitani, USBR at (916) 979-2707.

Sincerely,

for Carl A. Torgersen, Chief
SWP Operations Control Office
Division of Operations and Maintenance

Date 11/2/01

for Chester Bowling, Operations Manager
Central Valley Operations
Bureau of Reclamation

Date 11/2/01

cc: Mr. Richard Denton
Contra Costa Water District
Post Office Box H^2O
Concord, California 94524

CONTRA COSTA
WATER DISTRICT

1331 Concord Avenue
P.O. Box H20
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122

November 26, 2001

Ms. Celeste Cantú
Executive Director
State Water Resources Control Board
P.O. Box 200
Sacramento, CA 95812-2000

Subject: Water quality standard exceedances at Contra Costa Canal Pumping Plant #1

Dear Ms. Cantú:

The District is in receipt of the November 1, 2001 letter from the Department of Water Resources (DWR) regarding the exceedances of the 250 mg/L chloride standard at Contra Costa Canal Pumping Plant #1 in SWRCB Water Right Decision 1641. Mean daily chloride concentrations were 263, 257 and 257 mg/L on October 14, 16, and 17, respectively.[1]

The District agrees with DWR that the exceedances were due in part to sources of water quality degradation along the Contra Costa Canal, and in particular to seepage of high salinity groundwater along the Ironhouse Sanitation District (ISD) project area. The District has raised this issue with ISD and the Central Valley Regional Water Quality Control Board and requested actions to eliminate this contamination of CCWD's drinking water supply as part of the renewal of ISD's Waste Discharge Requirements (WDR) for land discharge of high salinity treated wastewater. The District, DWR and the State Water Contractors recently petitioned the SWRCB to review the ISD WDR adopted by the Regional Board because the WDR fail to address this drinking water and water supply impact.

The District will continue to work with DWR and other agencies to address local sources of water quality degradation in Rock Slough and the Contra Costa Canal. Because the exceedances on October 14, 16 and 17 were not caused by Central Valley Project or State Water Project operations, the District recommends that no action be taken regarding these three exceedances.

[1] Note. The mean daily electrical conductivity (EC) data on these three days were actually lower than those on the days before. The chloride and EC readings were measured at the same time and location. The reason for the higher chloride to EC ratio on the three days is uncertain.

If you have any questions regarding this issue, please contact me at (925) 688-8187.

Sincerely,

Richard A. Denton
Acting Director of Planning

cc: Carl A. Torgersen, Chief, SWP Operations Control Office, DWR
Chester Bowling, Operations Manager, Central Valley Operations, USBR

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

October 16, 2002

Ms. Celeste Cantú
Executive Director
State Water Resources Control Board
Post Office Box 200
Sacramento, California 95812-2000

Water Quality Standard at Contra Costa Canal Pumping Plant #1.

Dear Ms. Cantú:

This letter is to inform you that the maximum daily chlorides objective of 250 mg/l at the Contra Costa Canal Pumping Plant No. 1 per State Water Resources Control Board Decision 1641 was exceeded on October 7, 12, 13, and 14, 2002. Chloride values were 257 mg/l on October 7; 252 mg/l on October 12; 258 mg/l on October 13; and 252 mg/l on October 14. The exceedences occurred despite actions taken by the Department of Water Resources and Bureau of Reclamation to arrest salinity intrusion into the central Delta.

The Department and Reclamation have been coordinating State Water Project and Central Valley Project operations to reduce combined exports and subsequently increase Delta outflow beginning the first week of September. Additional export reductions began September 21; electrical conductivity levels peaked at Holland Tract on September 19 at 0.95 mS/cm. Since September 19 combined daily exports averaged 6,719 cfs and the daily Net Delta Outflow Index averaged 4,884 cfs. As of October 15, 2002 EC at Holland Tract was 0.68 mS/cm. Although a concern, water quality conditions never exceeded levels historically associated with chlorides greater than 250 mg/l at Pumping Plant No. 1.

We can only speculate as to why the water quality at Pumping Plant No. 1 continued to degrade despite improving water quality conditions in Old River for the proceeding eighteen days. EC at the mouth of Rock Slough peaked on September 19 at 0.95 mS/cm and has since improved reaching 0.76 mS/cm on October 7; these EC values correlate to chlorides of 231 mg/l on September 19, and 175 mg/l on the October 7. EC at Old River at Bacon Island also peaked on September 19 at 0.92 mS/cm and has since improved reaching 0.74 mS/cm on October 7; these EC values correlate to chlorides of 218 mg/l on September 19 and 165 on the October 7. Nevertheless conditions in Rock Slough continued to degrade; EC in Rock Slough near Sand Mound Slough was 0.94 on September 19, peaking at 0.98 on October 3, then dropping to 0.94 by the October 7. EC at Pumping Plant No. 1 was 0.88 mS/cm on September 19 and seems to have

peaked at 1.07 mS/cm on October 8. We are not sure what effect local drainage or seepage may have had on water quality in Rock Slough and Contra Costa Canal. Pumping rates at Pumping Plant No. 1 averaged 14 cfs September 19 through October 7.

We have expressed our concerns in the past about the inability of the CVP and SWP to meet the Rock Slough Standard, especially during times of low diversions at Pumping Plant No. 1. There appears to be a significantly different water quality relationship between Old River and Rock Slough since the inception of the Los Vaqueros project than occurred historically when Pumping Plant No. 1 was Contra Costa Water District's main diversion location. Nevertheless the Department and Reclamation will continue to adjust SWP and CVP operations as needed to assure adequate water quality exists in Old River to meet the 250 mg/l chloride standard at Pumping Plant No. 1.

10/16/02 — 10/16/02

Carl Torgersen — Date — Chester Bowling — Date
Chief — Operations Manger
SWP Operations Control Office — Central Valley Operations Office
Department of Water Resources — Bureau of Reclamation

Enclosure

cc: Mr. Richard Denton
Contra Costa Water District
Post Office Box H20
Concord, California 94524

Specific Conductance Data ~ (9/1/02 - 10/8/02)
24hour running average (except PP#1)
Old River @ Bacon Island
Rock Slough Near Sandmound Slough
Rock Slough @ CCWD Trash Rack
Pumping Plan #1
Holland Cut @ Holland Riverside Marina
Specific Conductance (uS/cm)
1200
1100
1000
900
800
700
600
500
400
9/1/02
9/8/02
9/15/02
9/22/02
9/29/02
10/6/02
Date

Page 12

CONTRA COSTA
WATER DISTRICT

1331 Concord Avenue
P.O. Box H20
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122

November 4, 2002

Celeste Cantú
Executive Director
State Water Resources Control Board
P.O. Box 2000
Sacramento, California 95812-0100

Subject: Exceedances of water quality standard at Contra Costa Canal Pumping Plant #1 in October 2002

Dear Ms. Cantú:

Contra Costa Water District (CCWD) has reviewed the California Department of Water Resources (DWR) and U.S. Bureau of Reclamation (Reclamation) letter to you dated October 16, 2002 (Carl Torgersen and Chester Bowling to Celeste Cantú) regarding water quality standard at the Contra Costa Canal Pumping Plant #1 (PP#1) and would like to provide CCWD's perspective and clarification on the reasons for the recent exceedances of the 250 mg/L chloride standard.

Note that the Projects' October 16 letter addresses exceedances that occurred on October 7, 12, 13, and 14. The PP#1 M&I standard was also exceeded on October 20, 21, and 22. A summary of the chloride concentration measurements at PP#1 (three per day and the daily average) and the single daily measurement at the Delta Road Bridge in Rock Slough east of the Sandmound Slough tide gate for October 1 through October 28 is given in the attached table.

There are three factors that may have contributed to the Rock Slough standard being exceeded on seven days between October 7 and October 22.

1. **Low Delta outflow** – The chloride concentrations in Rock Slough and Old River are largely determined by the cumulative effect of the previous Delta outflows; if outflow averaged over one or two months drops below about 3,700 cfs, the chloride concentrations in Rock Slough can be expected to rise to 250 mg/L. The effect is not immediate, however, and the Rock Slough salinity peak may not occur for about a month after the low outflows. Once the salinities become high in the western Delta, exceedence of the standard at Rock Slough becomes very likely and it is generally too late to prevent exceedance by increasing Delta inflow or reducing exports. The Delta outflow was low in late August and early September, with the 7-day average minimum outflow dropping to 2,650 cfs

on September 1. Tables of Delta outflow data for August-October, 2002, are also attached. The lowest daily outflows occurred at a time when the water levels in the Delta were increasing (based on the Antioch tide gage) which exacerbated intrusion of seawater into the Delta. If somewhat higher Delta outflows had been maintained during that period, the salinity intrusion could have been better controlled and would have been easier to arrest before the chlorides at the entrance to Rock Slough approached 250 mg/L.

2. **Low Pumping Plant #1 Diversion Rate** – Pumping Plant #1 draws water out of Rock Slough through the intake section of the Contra Costa Canal. On October 2, the PP#1 chlorides were 242 mg/L. Because of the poor water quality at PP#1, pumping at that location had to be reduced to protect the quality of water delivered to CCWD customers. PP#1 pumping averaging about 10 cfs from October 1 through October 22. The high salinity water that had previously entered the Contra Costa Canal therefore moved slowly through the Canal. At 10 cfs, it is estimated to take about 7 days for the water to move the length of the 4-mile intake section of the Canal.

3. **Local Drainage or Seepage** – As was explained with regard to the exceedances of the Contra Costa Canal standard that occurred in October 2001 (Richard A. Denton, CCWD, to Celeste Cantú, SWRCB, letter dated November 26, 2001), seepage of salty groundwater into the Canal in the vicinity of the Ironhouse Sanitary District can increase Canal chloride concentrations. This effect is most pronounced at low CCWD diversion rates. Your December 21, 2001 letter to the Projects acknowledged this issue and suggested that the petitions filed by DWR, the State Water Contractors and CCWD with the State Board appear to be the appropriate process for resolving this issue. Unfortunately, the State Board declined to hear these petitions leaving no mechanism to resolve this. The State Board Water Rights section referred it to the Water Quality section and the Water Quality section determined there were no policy issues and did not refer it to the Board. CCWD respectfully suggests that such a situation creates a significant policy issue.

   An underlying concern is that the State Board and Central Valley Regional Board lack a clear policy on protection of the Delta as a drinking water supply. Given the importance of these issues, CCWD strongly urges the SWRCB to adopt a clear comprehensive drinking water policy that elevates the priority of drinking water protection and results in consistent regulatory actions that protect and improve the water quality of the Delta and the State's drinking water sources. The CALFED Record of Decision calls for the development of such a policy by 2004. There is currently an effort underway by CALFED to draft a workplan for the development of a policy. This effort would greatly benefit from SWRCB participation and leadership.

In summary, the recent exceedances of the 250 mg/l chlorides standard at PP1 were triggered by low Delta outflows in late August and early September which allowed the water quality in Old River near Rock Slough to degrade to close to 250 mg/L chlorides.[1] This water was drawn into

[1] In their October 16 letter, DWR and Reclamation reviewed specific conductance (EC) data from Holland Tract and the mouth of Rock Slough and found that both peaked on September 19 with a daily-

Rock Slough and into the Contra Costa Canal, where, it was likely exposed to additional contamination by local seepage. Once the standard was exceeded, the high chlorides persisted in the Canal because of the low rate of diversion, which was required to protect CCWD's customers from the poor water quality.

The Projects did take action to increase Delta outflows in the second half of September and CCWD's measurements at Delta Road Bridge[2] show that after reaching a maximum value of 245 mg/L on October 7, the Delta Road chlorides decreased significantly and on the day of the last exceedance (October 22), the Delta Road chloride reading was down to 195 mg/L.

CCWD acknowledges that one of the contributing factors, local drainage and seepage, is beyond the Projects' operational control, but is inherent throughout the Delta and was known when the standards were set. This should be taken into account as part of Project operations. The local drainage and seepage in Rock Slough and the intake section of the Contra Costa Canal is currently being studied by CCWD as a local project and as part of a broader CALFED Bay-Delta Program, described in the CALFED ROD, to eliminate local drainage.

The 250 mg/L M&I standard at PP#1 provides protection for beneficial uses of water throughout the central and south Delta, including CCWD's intake on Old River, the Tracy Pumping Plant and the Banks Pumping Plant, and not just M&I uses at CCWD's PP#1 intake. It should also be noted the M&I standard of 250 mg/L chlorides in the WQCP was promulgated on the basis on taste, and quite simply is set far too high to ensure protection of public health. In fact, the CALFED Record of Decision, on page 56 sets a Delta source water salinity target for drinking water of 50 µg/L bromides (or about 20 mg/L chlorides) to protect public health.

CCWD would like to work with DWR and Reclamation and other CALFED Operations Group stakeholders in reviewing the minimum Delta outflows needed to control seawater intrusion when the Rock Slough standard is likely to govern in the fall. Waiting too long to increase Delta outflow will result in "overshooting the target". It is also likely that maintaining slightly higher minimum outflows earlier to control the rate of increase in salinity requires less water than making larger outflow increases later as a corrective action.

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averaged EC of 0.95 mS/cm or about 231 mg/L chlorides. The maximum hourly EC at Holland Tract from DWR's CDEC website was 1085 mS/cm on September 26 or more than 260 mg/L chlorides.

[2] The Delta Road Bridge measurement is taken at Lindquist Marina in Rock Slough to the east of the Sandmound Slough tide gate (and 1.5 miles east of the intake to the unlined Contra Costa Canal). This reading generally represents the quality of Old River water circulating through Rock Slough and seawards through the Sandmound Slough tide gate. The water quality at Delta Road Bridge is not affected by the local seepage into the unlined Canal. During wet periods, it can be impacted by agricultural discharges from Veale Tract but this was not a factor in October 2002.

When the water in the Delta degrades, CCWD cannot deliver it to its customers and CCWD forced to reduce its diversions from Rock Slough. However, CCWD will also work with DWR and Reclamation on how to best deal with the issues related to seepage and low pumping rates.

If you have any questions, please contact me at (925) 688-8187 or Samantha Salvia at (925) 688-8057.

Sincerely,

Richard A. Denton
Water Resources Manager

cc: Chester Bowling (USBR)
Carl Torgersen (DWR)
Nick Wilcox (SWRCB)

Attachment: October titrated chlorides and August-October Tides and Delta outflows

When the water in the Delta degrades, CCWD cannot deliver it to its customers and CCWD forced to reduce its diversions from Rock Slough. However, CCWD will also work with DWR and Reclamation on how to best deal with the issues related to seepage and low pumping rates.

If you have any questions, please contact me at (925) 688-8187 or Samantha Salvia at (925) 688-8057.

Sincerely,

Richard A. Denton
Water Resources Manager

cc: Chester Bowling (USBR)
Carl Torgersen (DWR)
Nick Wilcox (SWRCB)

Attachment: October titrated chlorides and August-October Tides and Delta outflows

Celeste Cantú
Exceedances of water quality standard at CC Canal PP#1 in October 2002
November 4, 2002
Page A-1

CCWD Chloride Titration Data -- October 1-28, 2002

	Canal Pumping Plant One Chlorides (PP#1)				Delta Road Bridge	PP#1 Pumping
	Midnight	7:30 AM	3:30 PM	Daily Average	8:30 AM	
Day	Cl	Cl	Cl	Cl	Cl	acre-feet
1	235	235	235	235	240	30.50
2	245	245	235	242	235	7.31
3	225	225	225	225	225	11.67
4	245	235	235	238	235	17.25
5	245	245	240	243	230	21.05
6	245	250	240	245	235	20.15
7	250	255	265	257	245	18.53
8	250	250	250	250	225	39.81
9	250	240	240	243	220	25.51
10	240	255	245	247	225	16.93
11	250	240	255	248	185	1.88
12	255	255	245	252	200	25.97
13	N/A	260	255	258	200	24.45
14	245	255	255	252	200	18.34
15	245	240	245	243	190	31.84
16	N/A	255	240	248	170	30.28
17	250	250	250	250	170	19.22
18	240	240	245	242	175	16.88
19	245	250	255	250	175	5.03
20	255	255	245	252	185	18.98
21	260	255	260	258	190	19.69
22	255	255	250	253	195	17.31
23	245	235	250	243	190	12.53
24	240	240	245	242	180	20.24
25	240	230	240	237	180	15.52
26	230	225	230	228	180	13.57
27	230	225	225	227	170	19.16
28	230	200	195	208	175	34.69

August Tides and Delta Outflow

Mth	Day	Year	Antioch Tides High (feet)	Antioch Tides Half (feet)	Delta Outflow (cfs)	7-Day Delta Outflow (cfs)
8	1	2002	2.97	1.19	4,899	6,034
8	2	2002	3.33	1.35	4,608	5,812
8	3	2002	3.57	1.67	4,078	5,530
8	4	2002	3.41	1.45	3,623	5,215
8	5	2002	3.41	1.38	4,551	5,041
8	6	2002	3.63	1.38	4,206	4,678
8	7	2002	3.62	1.27	4,700	4,381
8	8	2002	3.59	1.17	4,526	4,327
8	9	2002	3.48	1.13	4,121	4,258
8	10	2002	3.43	1.26	3,715	4,206
8	11	2002	3.26	1.34	3,462	4,183
8	12	2002	2.99	1.37	3,207	3,991
8	13	2002	3.02	1.36	3,548	3,897
8	14	2002	3.27	1.39	3,541	3,731
8	15	2002	3.47	1.43	**2,999**	3,513
8	16	2002	3.61	1.53	3,281	3,393
8	17	2002	3.67	1.68	3,241	3,326
8	18	2002	3.67	1.61	3,346	3,309
8	19	2002	3.73	1.64	3,424	3,340
8	20	2002	3.61	1.48	3,073	3,272
8	21	2002	3.39	1.28	4,049	3,345
8	22	2002	3.30	1.27	4,113	3,504
8	23	2002	3.12	1.12	3,841	3,584
8	24	2002	2.79	0.97	3,954	3,686
8	25	2002	2.52	0.83	3,088	3,649
8	26	2002	2.15	0.72	**2,586**	3,529
8	27	2002	2.34	0.78	2,590	3,460
8	28	2002	3.03	1.19	2,725	3,271
8	29	2002	2.96	1.46	2,718	3,072
8	30	2002	3.05	1.33	2,688	2,907
8	31	2002	3.03	1.33	**2,604**	2,714

September Tides and Delta Outflow

Mth	Day	Year	Antioch Tides High (feet)	Antioch Tides Half (feet)	Delta Outflow (cfs)	7-Day Delta Outflow (cfs)
9	1	2002	3.12	1.26	2,639	**2,650**
9	2	2002	3.35	1.32	2,642	2,658
9	3	2002	3.35	1.41	3,074	2,727
9	4	2002	3.49	1.36	3,098	2,780
9	5	2002	3.42	1.21	3,379	2,875
9	6	2002	3.36	1.20	3,901	3,048
9	7	2002	3.26	1.12	3,732	3,209
9	8	2002	2.90	0.95	3,898	3,389
9	9	2002	2.59	0.90	3,111	3,456
9	10	2002	2.90	0.95	3,558	3,525
9	11	2002	3.12	1.07	**2,450**	3,433
9	12	2002	3.27	1.31	2,509	3,308
9	13	2002	3.33	1.42	3,090	3,193
9	14	2002	3.24	1.43	3,609	3,175
9	15	2002	3.25	1.45	3,155	3,069
9	16	2002	3.05	1.25	3,388	3,108
9	17	2002	3.05	1.25	3,985	3,169
9	18	2002	3.11	1.19	3,690	3,347
9	19	2002	3.05	1.17	3,712	3,518
9	20	2002	3.05	1.27	4,585	3,732
9	21	2002	2.96	1.29	5,534	4,007
9	22	2002	2.80	1.24	5,315	4,316
9	23	2002	2.55	1.11	5,250	4,582
9	24	2002	2.76	1.16	5,206	4,756
9	25	2002	2.85	1.24	4,844	4,921
9	26	2002	3.21	1.52	4,929	5,095
9	27	2002	3.20	1.68	4,173	5,036
9	28	2002	3.14	1.52	4,752	4,924
9	29	2002	3.12	1.49	5,594	4,964
9	30	2002	3.06	1.42	4,641	4,877

October Tides and Delta Outflow

Mth	Day	Year	Antioch Tides		Delta Outflow	7-Day Delta Outflow
			High (feet)	Half (feet)	(cfs)	(cfs)
10	1	2002	3.00	1.30	5,014	4,850
10	2	2002	2.79	0.95	4,670	4,825
10	3	2002	2.79	0.94	4,831	4,811
10	4	2002	2.87	0.95	4,485	4,855
10	5	2002	2.77	0.92	4,986	4,889
10	6	2002	2.52	0.82	4,760	4,770
10	7	2002	2.80	0.87	4,804	4,793
10	8	2002	3.06	1.00	4,417	4,708
10	9	2002	3.41	1.22	3,736	4,574
10	10	2002	3.46	1.44	3,576	4,395
10	11	2002	2.99	1.21	3,541	4,260
10	12	2002	2.75	1.05	4,452	4,184
10	13	2002	2.60	0.99	4,117	4,092
10	14	2002	2.60	1.01	3,975	3,973
10	15	2002	2.65	1.16	3,804	3,886
10	16	2002	2.65	N/A	3,747	3,887
10	17	2002	2.57	N/A	3,977	3,945
10	18	2002	2.43	0.91	3,806	3,983
10	19	2002	2.21	0.76	4,146	3,939
10	20	2002	2.46	0.85	4,256	3,959
10	21	2002	2.71	0.98	3,753	3,927
10	22	2002	3.00	1.25	3,604	3,898
10	23	2002	2.86	1.20	3,069	3,802
10	24	2002	2.94	1.15	3,962	3,799
10	25	2002	3.09	1.24	4,005	3,828
10	26	2002	3.28	1.44	3,930	3,797
10	27	2002	2.97	1.38	3,786	3,730
10	28	2002	2.77	1.26	3,530	3,698