

**SWRCB Workshop on Amending the 1995 WQCP  
Comments on Topic 4**

**By**

**Department of Water Resources and U.S. Bureau of Reclamation <sup>1</sup>  
January 10, 2005**

The State Water Resources Control Board (SWRCB) has requested comments on issues described in the September 30, 2004 Staff Report "Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary" to consider amending the 1995 Plan. The Department of Water Resources (DWR) and U.S. Bureau of Reclamation submit these joint comments regarding Workshop Topic 4 on three issues: chloride objectives, compliance location at Pumping Plant #1, and potential new objectives. Our comments follow the specific issues as described by the SWRCB in its Revised Notice of Public Workshop (Sept. 17, 2004).

**A. 150 mg/l Chloride Objective**

**Should the SWRCB amend the value or description of the 150 mg/l Chloride Objective in the Water Quality Objectives for Municipal and Industrial Beneficial Uses (Table 1 of the 1995 Plan)? How should the value or description be modified and what are the scientific and legal arguments in support of and against such modifications?**

Reclamation and DWR recommend that the SWRCB not change the 150 mg/l Chloride (150 Cl) objective for Municipal and Industrial (M&I) beneficial uses found on Table 1 of the 1995 Water Quality Control Plan (WQCP), except with respect to the compliance location under specified conditions as discussed below in Section B. The objective requires that the maximum mean daily chloride level be no more than 150 mg/l for a minimum number of days each calendar year, varying between 155 to 240 days depending on the water year type. The objective is measured at either Antioch Water Works or Contra Costa Canal Pumping Plant #1 (PP#1). In Section B below, Reclamation and DWR recommend adding an additional compliance station for the 150 Cl and 250 Cl objectives to be located in Old River, at Holland Tract.

Reclamation and DWR agree with the SWRCB staff that the 150 Cl objective provides ancillary protection for other M&I beneficial uses in the absence of more specific objectives. The SWRCB may at some later time determine that some other objective should be adopted in which case the 150 Cl may not be appropriate. In addition, we do not recommend changing the time period of measurement for achieving the objective from a calendar year to a water year. This change was suggested with the expectation that it might reduce

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<sup>1</sup> For purposes of this Workshop on Topic 4, U.S. Bureau of Reclamation is representing the Department of Interior.

the water supply impact of complying with the objective. DWR and Reclamation staff have reviewed historical data and determined that this change would not result in any significant difference in availability of water for other beneficial uses and therefore is unnecessary.

#### Discussion

In 1978 the SWRCB adopted the 150 mg/l Cl objective in its Bay-Delta WQCP to protect industrial uses in the vicinity of Antioch. At that time manufacturers producing salt sensitive paper diverted water directly offshore of Antioch. However, all the principal water users in the vicinity of Antioch have alternate sources of water from the Contra Costa Canal and the SWRCB included both areas to measure the 150 mg/l Cl objective. CCWD supplied higher quality water from the Contra Costa Canal to the paper manufacturers when the industrial process required improved water quality. In the 1990's DWR entered into settlement agreements with these users to compensate them for increased costs of diverting water from the Canal.

Many changes have occurred in the Delta since the 1978 adoption of the 150 Cl objective, including the closure of the paper production industries, increases in required Delta outflow, the commencement of Los Vaqueros Reservoir operations, and commencement of the CALFED Bay Delta Program projects and actions. Thus, the purpose of continuing the 150 Cl objective is ripe for review.

In the 1995 WQCP the SWRCB maintained the 150 Cl objective to provide "ancillary protection" for M&I uses related to drinking water needs. In 1991, the SWRCB reviewed potential objectives to protect source water used in drinking water treatment operations from high levels of source water constituents, such as bromides and organic carbons. Some of these constituents are considered precursors to trihalomethanes and other byproducts of water treatment disinfection processes, and are considered to be carcinogenic. As discussed below in the Section C, the CALFED Bay-Delta Water Quality Program is preparing a proposal regarding how to best implement water quality protection for municipal diversions from the Delta. The California Bay Delta Authority (CBDA) administers the CALFED program and after it has prepared a proposal, it could present the information to the SWRCB for consideration in a future review of the Bay-Delta WQCP, if appropriate. Therefore, DWR and Reclamation believe it is reasonable to maintain the 150 Cl objective for protection of these ancillary purposes until the CBDA develops a proposal for consideration by the SWRCB.

As to the issue of changing the period for measuring the number of days of 150 Cl objective to the water year, October through September, DWR and Reclamation staff reviewed the historical seasonal CVP-SWP compliance with the 150 Cl objective. Based on this review, we found that water used to achieve the required days of the objective was not significantly different during a water

year compared to a calendar year. In other words, we did not find any benefit to changing the WQCP time period for this objective.

Therefore, DWR and Reclamation recommend that the SWRCB continue to include the 150 mg/l Cl objective on Table 1 and continue to apply the time period based on a calendar year. However, as discussed below in Section B, we recommend that an additional compliance location for this objective be established.

### **B. Chloride Objective Compliance Location**

**Should the SWRCB amend compliance location C-5 (CHCCC06) in the Water Quality Objectives for Municipal and Industrial Beneficial Uses (Table 1 of the 1995 Plan)? This location is at the entrance to the Contra Costa Canal at Pumping Plant #1. How should the location be modified and what are the scientific and legal arguments in support of and against such a modification?**

DWR and Reclamation recommend that the SWRCB amend Table 1 to provide a second way to achieve the 250 and 150 mg/l Chloride Objectives at Pumping Plant #1 (PP#1). The WQCP establishes the 250 Cl objective at PP#1, as well as at four other municipal intakes in the Delta.<sup>2</sup> The 250 Cl objective applies all year and measured chloride is not to exceed the maximum mean daily value of 250 mg/l. This objective is consistent with the Environmental Protection Agency's secondary maximum contaminant level for chloride and protects the public drinking water as to health and taste considerations. The 150 mg/l Cl value is described above in Section A

DWR and Reclamation met with CCWD to discuss developing an alternative to achieving the existing objectives of 250 and 150 Cl at PP#1. The agencies have reached agreement on the basis of an alternative, i.e. using a second compliance location under specified conditions when chlorides measured at PP#1 are not a reliable indicator of CVP/SWP management of water quality in Old River, near Rock Slough. However, some details are not yet resolved, such as specific values to use at the new measurement location. Subject to discussions that take place during the SWRCB Workshop, DWR and Reclamation may request the SWRCB allow the agencies to return to this topic in a later Workshop.

In brief and for the reasons discussed below, DWR and Reclamation propose that a reasonable objective for protection of M&I uses in the Rock

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<sup>2</sup> The four other locations in the Delta with the 250 mg/l Chloride objective are: West Canal at the mouth of Clifton Court Forebay; Delta-Mendota Canal at Tracy Pumping Plant; Barker Slough at North Bay Aqueduct Intake; and Cache Slough at City of Vallejo Intake.

Slough area would include a water quality objective at a second compliance point when the 250 mg/l Cl and 150 mg/l Cl objectives at PP#1 are exceeded during specified pumping rates at PP#1. The existing objectives would continue to apply, but if measurements of 250 and 150 Cl at PP#1 are exceeded, then the second compliance location would be used to determine if the basis of the exceedence was local water quality problems and not related to water quality available in Old River. Ancillary to the recommendation to add a second station as part of the objective, Table 4 of the WQCP that describes the Water Quality Compliance and Baseline Monitoring stations would need revision to include the station. Reclamation and DWR have been collecting data from a station in Old River at Holland Tract that could be considered by the SWRCB as appropriate for this objective, depending on the outcome of these Workshops.

DWR and Reclamation believe change to the WQCP is necessary because water quality objectives are to provide reasonable protection of beneficial uses. DWR and Reclamation, when required to implement the objective through their water rights, cannot reasonably achieve this objective under certain conditions and therefore cannot reasonably protect the beneficial uses. Thus, DWR and Reclamation propose amending the objective through use of an additional compliance location in Old River near the mouth of Rock Slough to avoid the unreasonable use and waste of water to meet an objective where other actions can and should be taken to meet that objective. To show support of such actions, the agencies recommend the SWRCB update the WQCP Program of Implementation with respect to CBDA agricultural drainage projects in the Rock Slough and Contra Costal Canal area that will be implemented in the near future and will improve local water quality conditions in the area.

#### Discussion

In 1998, the Executive Director of the SWRCB sent a letter to DWR and USBR noting the concern of DWR and USBR regarding degradation of water quality in Rock Slough and their suggestion to move the compliance location of the 250 Cl and 150 Cl objective from PP#1 to Old River, an area more controllable by the State Water Project (SWP) and Central Valley Project (CVP) (**Attachment 1**, Letter from Walt Petit to Larry Gage and Lowell Ploss, January 27, 1998). The Executive Director indicated that this issue could be raised at the next review of the Bay-Delta water quality objectives or as an issue during the Bay-Delta water rights hearing. DWR and Reclamation have for many years informed the SWRCB of their concern with the chloride objectives measured at PP#1 because of their responsibility for meeting the objectives as a condition of their water rights.

As noted in the 1998 letter, DWR and Reclamation have found that SWP and CVP operations cannot reasonably control salinity and/or chlorides in Rock Slough. Accordingly, they have had significant difficulty at times in achieving the 250 Cl objective at PP #1. Part of the difficulty occurs because of the physical

structure of Rock Slough, which is essentially a dead-end slough with poor circulation. Although a tide gate is located in approximately the middle of Rock Slough, at Sand Mound Slough, unless PP#1 is operated by CCWD at a rate sufficient to pull water through the slough, tidal circulation is not effective in significantly moving water to clear accumulated poor water quality.

The existing water quality monitoring site for the 250 and 150 chloride objectives is located within the Contra Costa Canal just downstream of PP#1 and about 4 miles from the canal intake at one end of Rock Slough (See **Attachments 2 and 3**, Maps showing Delta and Rock Slough). Rock Slough is about 3 miles long and connects at its other end to Old River. Consequently, between the chloride monitoring station at PP#1 and Old River there are about seven miles of canal and slough that are subject to seepage and local drainage that degrade water quality and are out of the control of the Projects. Old River in the vicinity of Holland Tract is a location where the Projects can reasonably control water quality.

The CVP and SWP operations<sup>3</sup> cannot control salinity within Rock Slough under certain conditions related to diversion rates at PP#1. Factors affecting water quality in Rock Slough and the relationship of salinity in Rock Slough, Old River and the changes in pumping rate at PP#1 are discussed below. Reclamation and DWR have prepared graphs of data that support the conclusion that the operations at PP#1 since Los Vaqueros became operational have exacerbated DWR and Reclamation's inability to control water quality in Rock Slough and at PP#1.

- In late 1997, CCWD began diverting water from its then new Los Vaqueros Reservoir Intake Facility on Old River. Since then CCWD has significantly changed its diversion practices and seasonal operation at PP#1. With the addition of CCWD's Old River diversion facility, significant PP#1 diversion rates occur only seasonally and under specific conditions. (DWR and Reclamations consider a significant diversion rate as greater than 70 cfs.) PP #1 is generally used to meet CCWD diversion needs when good water quality in the interior Delta can be put into Los Vaqueros storage. When water quality in the Delta has seasonally degraded, CCWD's operations generally favor the better quality water at the Old River diversion facility. Thus, the CCWD operations used to attain Los Vaqueros water quality goals since 1998 result in PP #1 diversion rates that are much lower than occurred before the Los Vaqueros Project. This change in operations greatly affects water circulation patterns in the Rock Slough vicinity.

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<sup>3</sup> CVP and SWP operations that are used to control Delta water quality conditions include reservoir storage releases, changes in Delta pumping, and operating the Delta Cross Channel gates.

**Attachment 4**, is a graph showing EC at Old River (Bacon Island) compared to EC at PP#1 before and after Los Vaqueros began operating and the change in pumping rate at PP#1. After November 1997, when PP#1 pumping rate is significantly reduced, the EC measurements between Old River and PP#1 diverge. **Attachment 5** shows a graph depicting changes in PP#1 during the period October 1997 through April 1998 when Los Vaqueros intake diverts water and PP#1 diversions are significantly reduced, and chloride levels measured at PP# 1 rise.

- Local drainage facilities and land practices can introduce land based salts, rather than ocean based salts, into Rock Slough and channels draining into Rock Slough. CCWD, through the California Bay Delta Authority (CBDA) CALFED Program, is actively addressing local drainage problems to reduce effects in Rock slough. CBDA is funding the project, which is being implemented in 2005 and will redirect local agricultural drainage away from Rock Slough. **Attachment 6** demonstrates the apparent effect of precipitation on EC values measured at 4 locations in the Rock Slough vicinity, with increased EC measured near the Veal Tract drain during December 2002.
- Local land based salts seep into the unlined Contra Costa Canal upstream of the PP#1 compliance location affecting Chloride measurements at PP#1. CCWD, through CBDA, has proposed a project to reduce seepage into the Canal.
- Rock Slough is essentially a dead-end slough with poor water circulation and mixing characteristics. CVP and SWP operations do not significantly influence the water circulation pattern in the Rock Slough vicinity. Although there is a one-way tidal gate at Sand Mound Slough, circulation through this gate appears to be limited unless PP#1 pumping rate is sufficiently high to pull water through the Slough.

**Attachment 7** graphs the difference in Electrical Conductivity (EC) between Old River and PP#1 (the vertical axis) as a function of the pumping rate at PP#1 (the horizontal axis). The graph demonstrates that when the pumping rate at PP#1 is significantly reduced, the "difference" between EC in Old River and P#1 increases. In other words, when PP#1 diversions are significantly low, water quality in Old River does not influence water quality at the PP#1 compliance location.

#### Proposed Amendment

Reclamation and DWR propose that the SWRCB adopt a secondary compliance location in Table 1 of the WQCP to protect M&I uses in the vicinity of Rock Slough as this would result in an objective that could more reasonably protect these beneficial uses. Also, recognizing that local issues affect water

quality in Rock Slough, DWR and Reclamation recommend that the SWRCB affirm support, in the WQCP Program of Implementation, of the continuing efforts by CBDA to remedy the introduction of land based salts in Rock Slough drainage channels by improving facilities or relocating drainage facilities.

DWR and Reclamation have discussed with CCWD a second way to achieve the 250 and 150 chloride objectives at PP#1. Although some details remain to be resolved, the following proposed amendment to the WQCP would settle the basic disagreement regarding the uncontrollable factors that can cause chloride objectives to increase as measured at PP # 1. The proposed amendment could be inserted as a footnote to the 250 and 150 CI objectives in Table 1. The objectives at PP#1 would continue to be effective but the second way to achieve compliance when 250 CI or 150 CI were exceeded would be to measure compliance at a new compliance location in Old River, near Rock Slough and Holland Tract.<sup>4</sup> The new location would only be used when the pumping rate at PP#1 is less than a 3-day average of 70 cfs.

The proposed amendment could read as follows:

"Footnote 4. If measurement at PP#1 is greater than 250 mg/l Chloride when the pumping rate at PP #1 is less than a 3-day average of 70 cfs, then the 3-day running average electrical conductivity as measured in Old River, near Rock Slough and Holland Tract, on a daily basis must be equal to or less than 1.00 mS/cm, and these conditions must exist on the 3 days prior to the exceedence of 250 mg/l Chloride at PP#1. The measurement in Old River is only used when the pumping rate at PP#1 is less than a 3-day average of 70 cfs.

In the above circumstance, even with a low pumping rate at PP#1, if the value of 1.00 mS/cm in Old River is exceeded, it is likely that ocean salt contributed to the exceedence within Rock Slough. However, if pumping at PP#1 is less than 70 cfs and the measurement at Holland Tract is less than 1.00 mS/cm, a measurement of greater than 250 CI at PP#1 indicates a local problem most likely caused by lack of circulation in Rock Slough and local drainage. Achieving the objective at PP#1 under the second circumstance is beyond the reasonable control of project operations by DWR and Reclamation.

In addition to the second way to achieve the 250 CI objective, DWR and Reclamation propose a second way to achieve the 150 CI objective using the

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<sup>4</sup> DWR and Reclamation currently operate a monitoring station near this location. Historically Reclamation and DWR use monitoring at Holland Tract in Old River as a point of operational control to achieve the chloride objectives at PP#1. Also, much of the salinity data used to develop the graphs attached to these comments were collected at this station.

same method of alternate compliance location in Old River measured at Holland Tract. The proposed amendment would read:

"Footnote 5. If measurement at PP#1 is greater than 150 mg/l Chloride when the pumping rate at PP #1 is less than a 3-day average of 70 cfs, then the 3-day running average electrical conductivity as measured in Old River, near Rock Slough and Holland Tract, on a daily basis must be equal to or less than 0.7 mS/cm, and these conditions must exist on the 3 days prior to the exceedence of 150 mg/l Chloride at PP#1." The measurement in Old River is only used when the pumping rate at PP#1 is less than a 3-day average of 70 cfs.

As explained above, exceedence of 150 mg/l Chloride at PP#1 when pumping is less than 70 cfs and Old River at Holland Tract measures less than 0.7 mS/cm, then an increase of chlorides at PP#1 is a local problem most likely caused by lack of circulation in Rock Slough and local drainage.

The addition of the second location to measure the chloride objectives at PP#1 would provide an equivalent protection of M&I beneficial uses in this area of the Delta as provided by the CVP and SWP prior to operation of the Los Vaqueros Project. DWR and Reclamation intend that the values proposed will provide the same water quality benefits in the area without impacting water supply. Reclamation and DWR determined that 1.0 mS/cm and 0.7 mS/cm (also referred to as electrical conductivity (EC)) in Old River are appropriate values to provide equivalent water quality protection by analyzing historical data prior to 1998.

**Attachment 8** shows a regression line through data points of measured chloride at PP#1 compared to EC at Holland Tract in Old River. This line demonstrates that a value of 1.0 mS/cm in Old River is about the same as the 250 mg/l Cl value at PP#1 and that a value of 0.7 mS/cm in Old River is about the same as 150 mg/l Cl at PP#1. Although there is some scatter in the data, the regression line provides a statistical basis for the relationship between mS/cm in Old River and chloride at PP#1. Some of the scatter appears to be due to effects of local drainage in Rock Slough. Some of the data points are above the regression line because it is a line representing averages of the data to establish the best fitting line. If local drainage effects are reduced, the data probably would be closer to the line. In addition, operators of the CVP and SWP would actually be maintaining EC in the Old River at lower levels than required as a buffer to avoid exceeding the objectives, i.e. resulting in an EC value closer to an equivalent level of about 230 Cl instead of 250 Cl. **Attachment 9** shows data that includes measured values after Los Vaqueros operations began. The graph demonstrates how the reduced pumping rates at PP#1 changes the regression line slope, affecting the relationship of EC and Cl.



The addition of a second compliance location for the PP#1 objective would enable DWR and Reclamation to more directly manage the CVP and SWP to achieve the objectives through reservoir release and export management changes. This would eliminate the need of CCWD or Reclamation and DWR to send letters to the SWRCB when local conditions degrade water quality and result in increased chlorides, as has been occurring fairly regularly since CCWD began operating the Los Vaqueros Reservoir. The effect of a second location should not result in changes in Delta water quality conditions but would better describe a water quality objective that provides reasonable protection of the intended beneficial uses. From an operational perspective, revising the objective to include a second location will enable the SWP, CVP and Los Vaqueros Reservoir Projects to be operated more effectively.

However, as mentioned previously, CCWD and DWR and Reclamation have not yet reached agreement on the specific values that would apply at the new compliance location in Old River. Although DWR and Reclamation believe their analysis supports their values proposed above, the agencies are willing to continue discussing the issue with CCWD during the next few weeks to come to resolution. The agencies might then be able to propose a mutually agreeable value to the SWRCB.

### **C. New Water Quality Objectives for M&I**

**Should the SWRCB adopt new water quality objectives for the Municipal and Industrial Beneficial Uses (Table 1 of the 1995 Plan) for constituents such as bromides and total organic carbons or other precursors of disinfection by-products? What are the scientific and legal arguments in support of and against the adoption of such objectives?**

DWR and Reclamation recommend that the SWRCB not adopt new water quality objectives for M&I beneficial uses in the Delta because the California Bay Delta Authority (CBDA) CALFED Water Quality Program is developing proposals and projects related to drinking water quality in the Delta that the SWRCB should first consider before addressing new objectives.

### **Discussion**

The CALFED ROD Water Quality Program adopts a general target of continuously improving Delta water quality for all uses by developing a goal through achieving either bromide and total organic carbon (TOC) values or an equivalent level of public health protection (ELPH) using a combination of cost effective actions (CALFED ROD p. 65). The CALFED ROD identifies drinking water targets for bromide and total organic carbon with the understanding that these targets could rarely be achieved without substantial changes in the Delta's water conveyance facilities and operations. The California Bay-Delta Public Advisory Committee (BDPAC) Drinking Water Subcommittee and other

stakeholders determined that due to the complex geographical distribution of utilities receiving Delta water, one set of standards would not provide equitable protection for all. Therefore, CBDA developed the following approach:

"The CALFED Program is committed to achieving continuous improvement in the quality of the waters of the Bay-Delta system with the goal of minimizing ecological, drinking water and other water quality problems. CALFED Agencies' target for providing safe, reliable, and affordable drinking water in a cost-effective way, is to achieve either: (a) average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 ug/L bromide and 3.0 mg/L total organic carbon, or (b) an equivalent level of public health protection using a cost-effective combination of alternative source waters, source control and treatment technologies. Work is progressing on all of the Record of Decision commitments with emphasis on source water improvement and treatment technologies."

(From the Drinking Water Quality Program, Multi-Year Program Plan (Years 5 – 8) (July 2004) (Implementing Agencies: State Water Resources Control Board, Regional Water Quality Control Boards, Department of Health Services, United States Environmental Protection Agency))

Because it is infeasible to use outflow in the Delta to achieve the ROD bromide and TOC targets, a reasonable focus to achieve the CALFED goal to improve Delta water quality is through development of the ELPH alternative. CBDA's Drinking Water and Conveyance Programs are evaluating the feasibility of several projects to reduce bromide and carbon concentrations in water diverted from the central and south Delta as part of the ELPH.

DWR and Reclamation support the CBDA approach that is investigating means to achieve the ELPH through projects or facilities as well as advances in treatment plant technology. DWR and Reclamation believe it is appropriate to provide information to the SWRCB on the work being done to develop the ELPH but believe it is premature for the SWRCB to take any action regarding this matter. The CBDA Drinking Water Program is in the process of defining the ELPH strategy and until this culminates as a final proposal, the protection of municipal uses in the area could continue through application of the 150 mg/l Chloride objective. As discussed above in Section A, Reclamation and DWR agree with the SWRCB staff that the 150 mg/l Cl objective at the Contra Costa Canal PP#1 provides ancillary protection of municipal beneficial uses until the ELPH is obtained. Therefore, the SWRCB need not address this issue in the WQCP for purposes of adopting new water quality objectives for M&I uses at this time.



Pete Wilson  
Governor

JAN 27 1998

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Dear Messrs. Gage and Ploss:

MUNICIPAL AND WATER QUALITY OBJECTIVE FOR CONTRA COSTA CANAL  
PUMPING PLANT #1

This letter is in response to your December 3, 1997 memorandum regarding compliance with the municipal and industrial water quality objective established for chlorides at Contra Costa Canal (CCC) Pumping Plant #1. You point out in your letter that chloride concentrations have been steadily rising due to a combination of unfavorable tides, declining Delta inflow, and the shifting of Contra Costa Water District (CCWD) pumping operations to their new Old River intake. You express concern that CCWD has not provided monitoring data from Pumping Plant #1 in a timely manner since mid-November and that the mean maximum daily chloride concentration of 250 mg/l may be exceeded under current operating conditions.

State Water Resources Control Board (SWRCB) staff has been in contact with Mr. Greg Gartrell of CCWD and received a letter from CCWD manager Walter Bishop regarding this matter. The data which they supplied indicate that the objective was exceeded on December 4 and 5 and that concentrations have declined in an irregular fashion since that time. CCWD investigated the problem and found a significant chloride source associated with levee repair work about 100 feet upstream of CCC Pumping Plant #1. CCWD considers the high values to be an anomaly related to the repairs, and not an indication of noncompliance with the objective.



Messrs. Gage and Ploss

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JAN 27 1993

In your memo, you also raise a general concern regarding the chloride objective at CCC Pumping Plant #1. You point out that Rock Slough is a dead end slough susceptible to degradation from local sources. In the past, when CCWD used the Rock Slough intake as the sole point of diversion, the effects of additional sources of chlorides along the slough were minimized. With CCWD temporarily moving their diversion point to Old River, as allowed under their Los Vaqueros water rights, stagnant conditions in Rock Slough could develop which might result in a violation of the standard. You suggest that moving the compliance point to Old River, an area directly controllable by State Water Project/Central Valley Project operations, would be desirable from the perspective of the projects. You have raised this issue before the SWRCB in past Bay/Delta hearings. This issue could be raised in connection with the SWRCB's next triennial review of Bay/Delta water quality objectives. Alternatively, you could raise the issue of the projects' relative degree of responsibility toward meeting the water quality objectives at the existing location during the upcoming Bay/Delta water right hearing.

Thank you for informing us of your concerns. If you have any questions please call Victoria Whitney at 916 653-2516.

Sincerely,

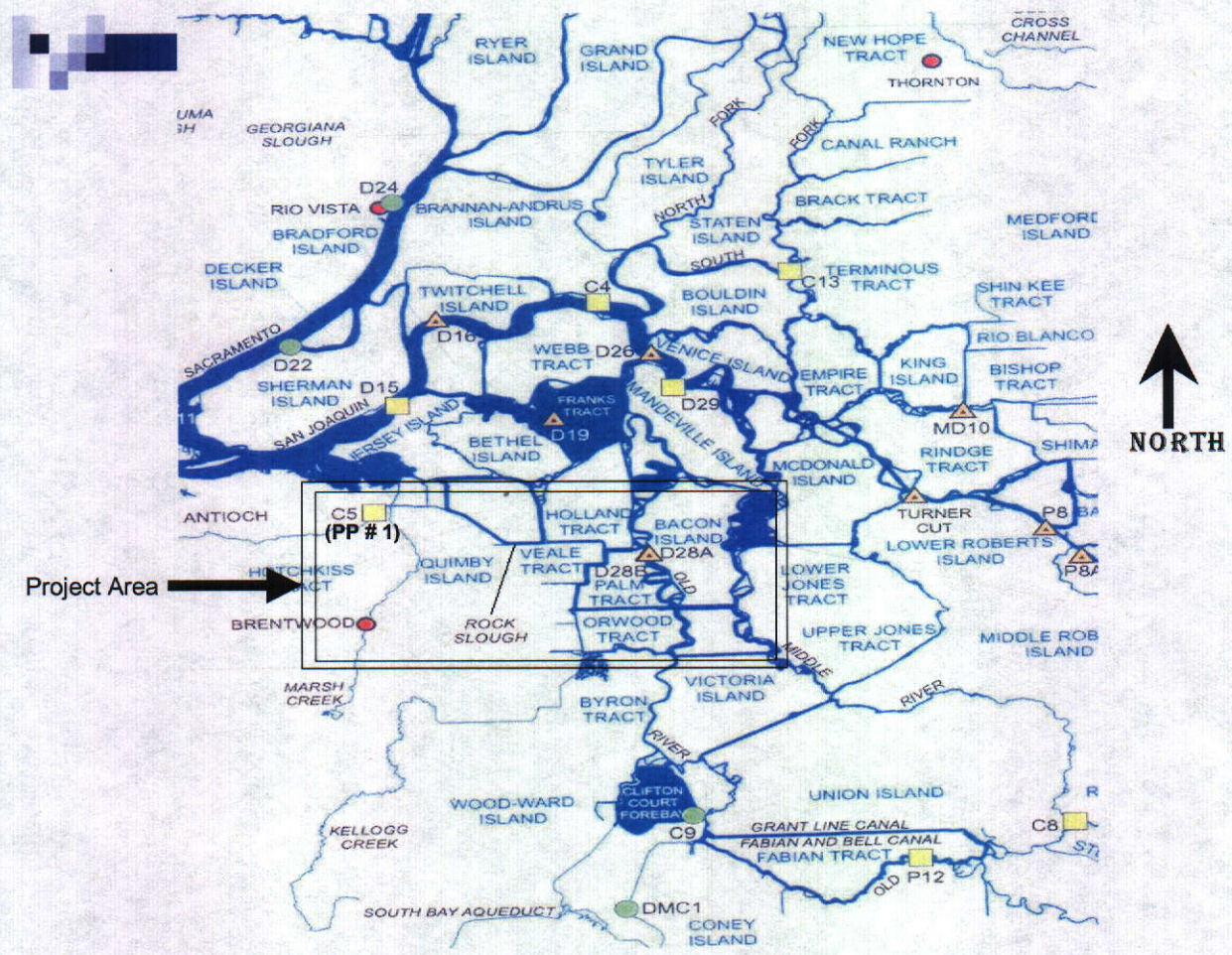
Original Signed By:

Walt Pettit  
Executive Director

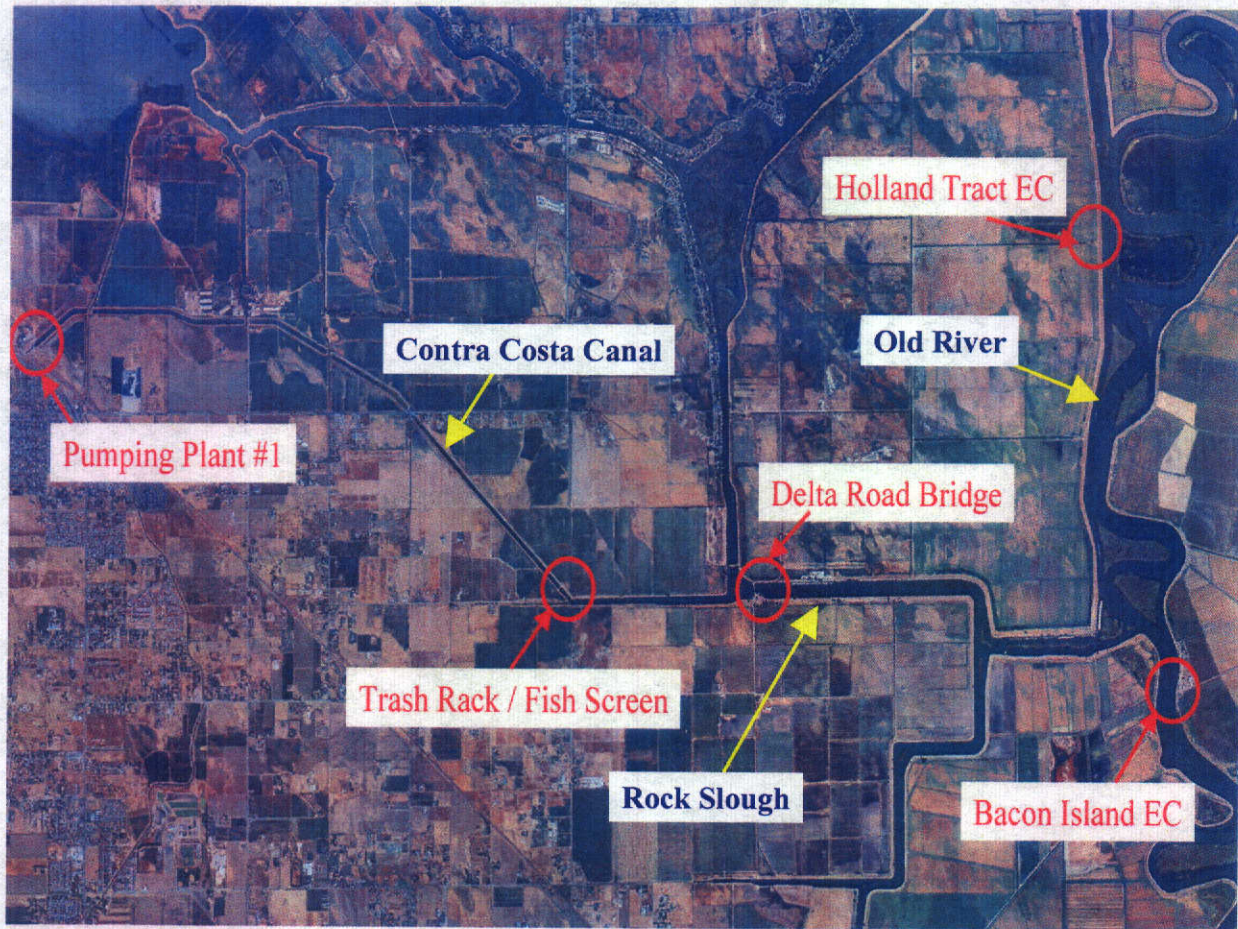
cc: Mr. Greg Gartrell  
P.O. Box H2O  
Concord, CA 94524

✓ Mr. Robert G. Potter  
Department of Water Resources  
1416 9th Street  
Sacramento, CA 95814

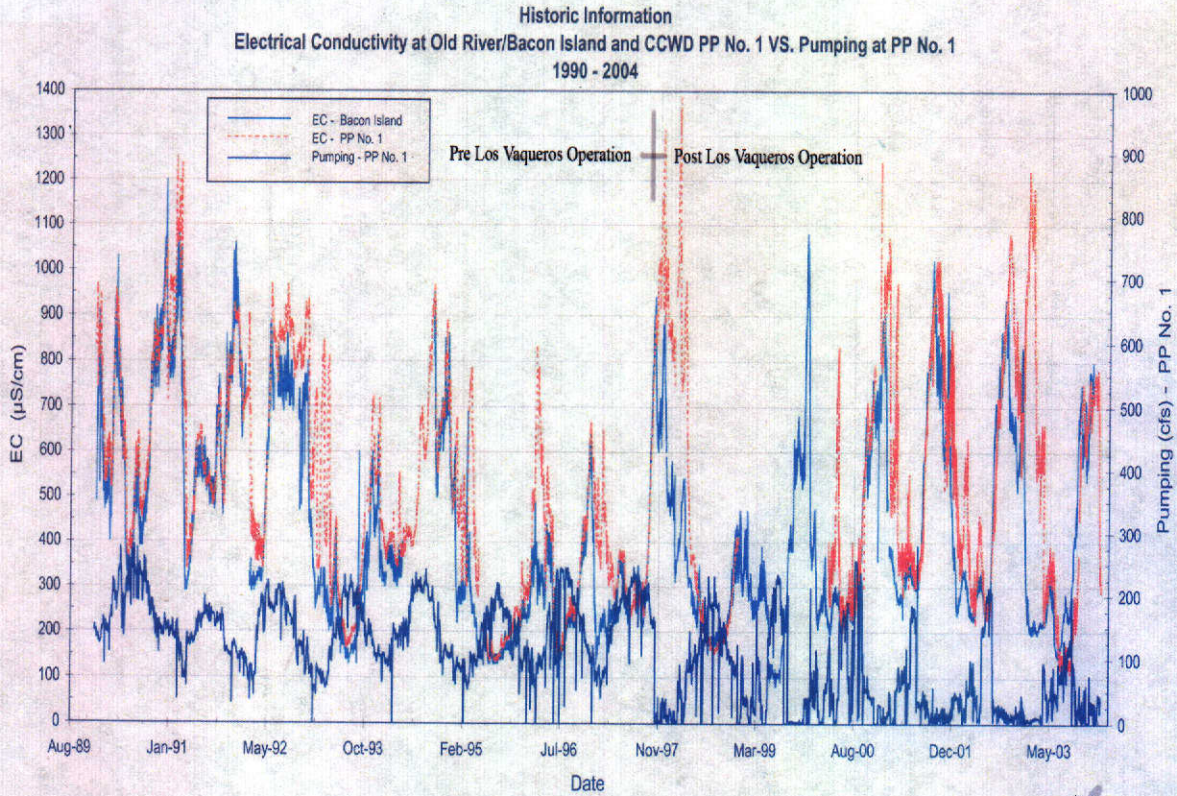
Map of Delta and Location of Old River, Rock Slough, Contra Costa Canal, and Monitoring Compliance Location at Station Number C5 at PP#1.



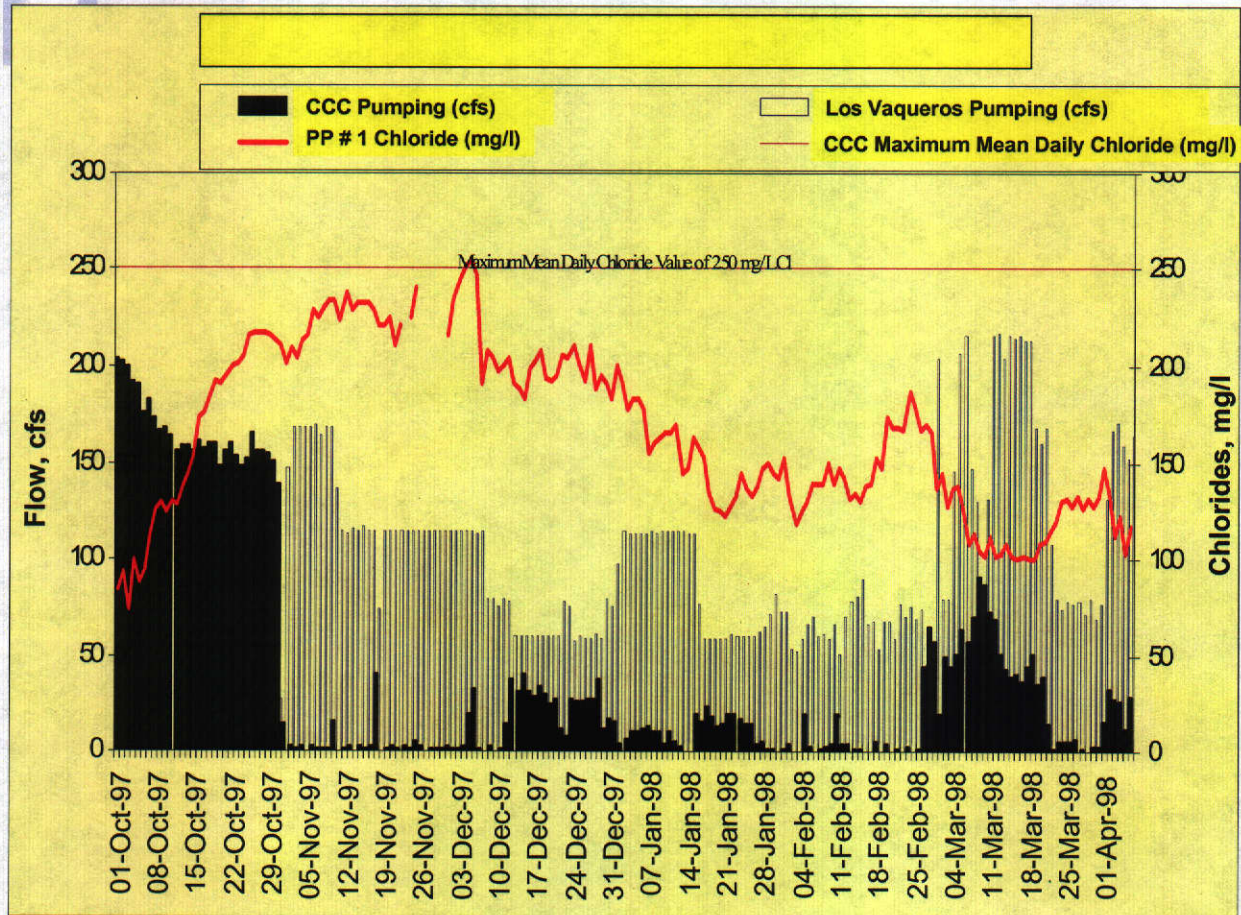
Map of Old River, Rock Slough, Contra Costa Canal and facilities.



Comparison of EC in Old River and at PP#1 before and after Los Vaqueros Reservoir Project began operations and change in pumping rate at PP#1.



Comparison of changes when Los Vaqueros Reservoir Project operations began with PP#1 pumping rates and Chloride measurements at PP#1.





Difference in EC between Old River and PP#1 compared to the pumping rate at PP#1 from June 1978 to June 2002.

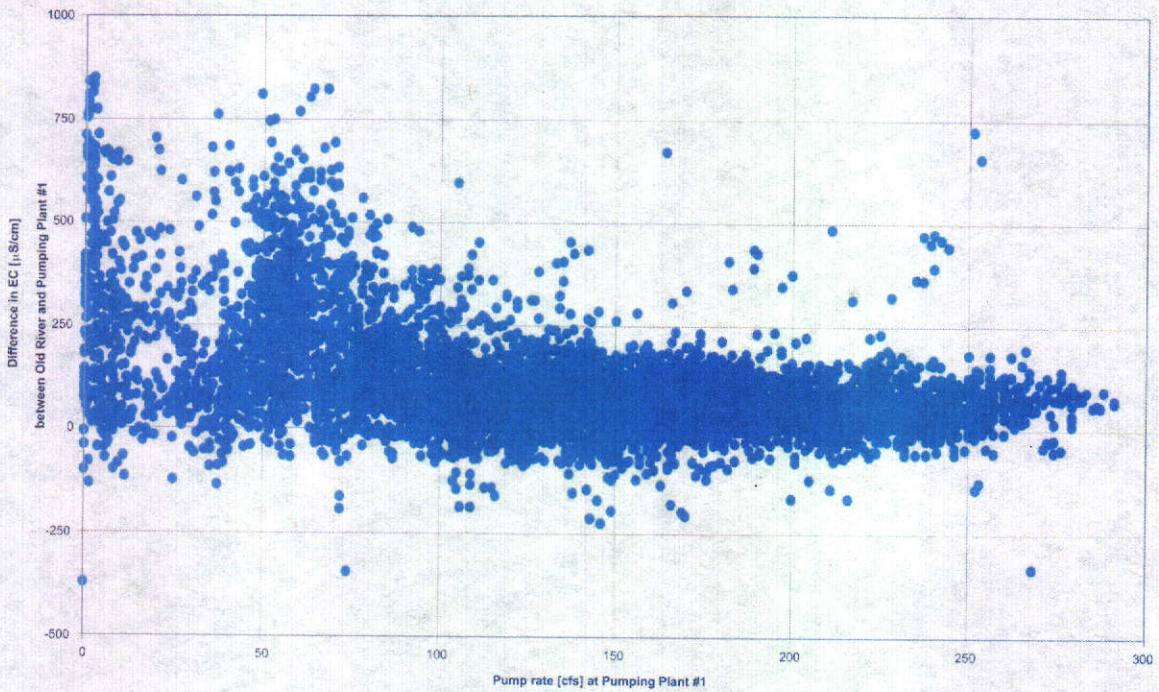
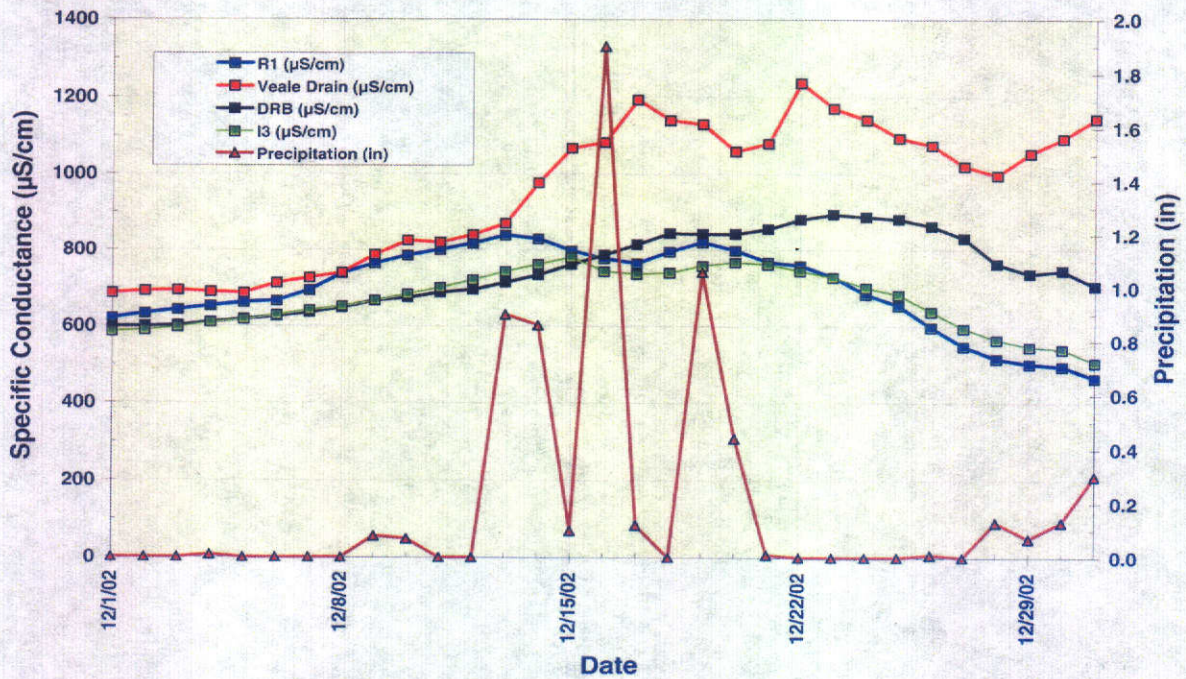


Figure 1.7  
DIFFERENCE IN ELECTRICAL CONDUCTIVITY  
BETWEEN OLD RIVER AND PP1  
AS A FUNCTION OF THE PUMP RATE AT PP1 (6/78 - 6/02)  
CALFED ROCK SLOUGH DRAINAGE MANAGEMENT PROJECT

Monitoring results of measuring EC in Rock Slough area showing increase in EC near the Veal Tract Drain after increased precipitation in December 2002.

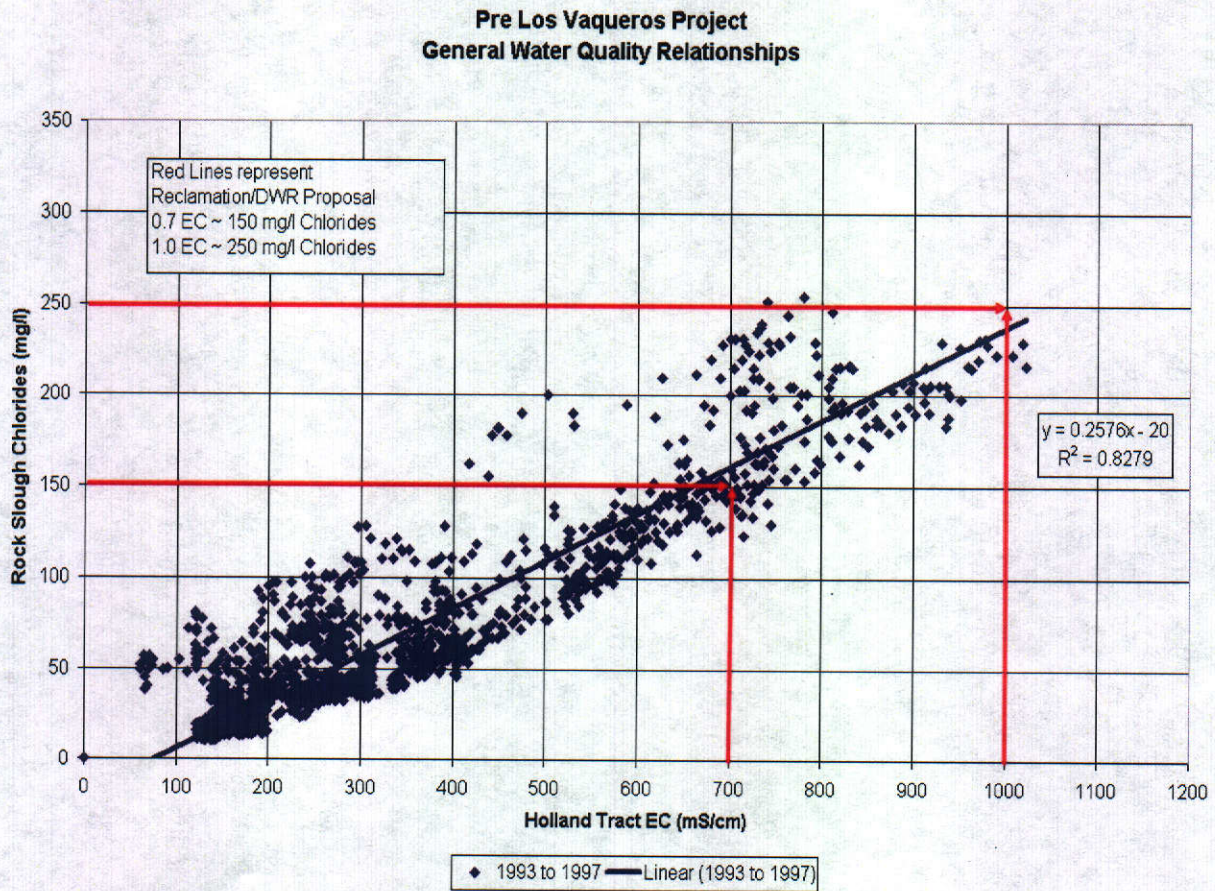
**Comparison of Daily-Averaged (15-Minute) Specific Conductance Data for Four Sites within Rock Slough Area (12/1/02 - 12/31/02)**



Monitoring Station Locations

- R1 = monitoring site in Rock Slough near connection to Old River.
- Veale Drain = monitoring site in Rock Slough near Veale drain.
- DRB = monitoring site in Rock Slough near Delta Road Bridge.
- I3 = monitoring site in Indian Slough near Rock Slough.

Statistical analysis showing relationship of Old River at Holland Tract EC and PP#1 Chloride values obtained during 1993 to 1997, prior to Los Vaqueros Reservoir Project operations.



Statistical analysis showing relationship of Old River at Holland Tract EC and PP#1 Chloride values obtained during 1998 to 2003 after Los Vaqueros Project began operations, and 1993 to 1997 prior to Los Vaqueros Project began operations.

