Review of the Quinn/Tulloch "San Joaquin River Diversion Data Assimilation, Drainage Estimation and Installation of Diversion Monitoring Stations," Draft Report, dated January 15, 2002

Submitted by G. Fred Lee
February 28, 2002

Overall Comments

Several members of the TAC at the last meeting were critical of some of the estimates of ag diversions and discharges contained in this report. These issues need to be fully addressed in the revision of this report.

This report stated in the Executive Summary that it contains the best estimate available of the amount of ag diversions and ag discharges to the San Joaquin River between June and November for 1999, 2000 and 2001. As it stands now, it is difficult to extract out of the report these so-called best estimates. As suggested at the recent TAC meeting, a table should be developed for each reach of the River providing the best estimate of ag diversions and discharges. The River should be divided into sections where there are stream gages and that have been used for monitoring of constituent concentrations by the USGS and/or Dahlgren. The ultimate purpose of this estimate for each reach is to be able to provide an estimate of the amount of oxygen demand diverted from the River between monitoring points. A discussion needs to be provided on the reliability of the estimates that are provided, and the factors influencing this reliability. If there are sections of the SJR and its tributaries where reliable estimates cannot be made, a discussion should be included as to why this is not possible. Further, there is need to discuss how future work will help refine or fill in this database.

The report seems to consist of a number of sections of old reports that Quinn has submitted previously for other purposes. Many of these other reports do not address the issues of primary concern to the SJR DO TMDL Steering Committee. These sections need to be deleted, and include in the report only those sections directly pertinent to the SJR DO TMDL issues.

The section on municipal discharges is highly deficient and needs to be more appropriately done with respect to where and when the municipalities discharge, the flows, the concentrations/loads of constituents, etc., with particular reference to those that are directly or could become oxygen demanding materials. Particular attention needs to be given to the potential for groundwater transport of wastewater discharges to land, which then reach the SJR or its tributaries through groundwater discharge or fall rainfall runoff events. A discussion of the municipal wastewater and stormwater runoff management appropriate for each municipality should be provided. Also, a discussion needs to be provided on the discharges that take place to the river system in the fall. The issue of population growth, planned expansion of treatment plants, etc., needs to be addressed. Further, a discussion of the potential for stormwater runoff and its associated chemical characteristics and potential loads from urban areas during the fall needs to be provided.

The report was submitted for review without adequate proofreading, based on the number of typographical errors, problems with listings of references and citations, etc. This detracts from being able to effectively review the report. Only some of these errors have been noted below. The report needs to be more carefully proofread, in accord with the guidance provided to the TAC last November, before any further review.

As discussed in the guidance provided to the TAC, any use of color in these reports must be accompanied by a distinguishing characteristic that enables a reader of the report whose copy is in black and white to understand the diagram or figure. For example, for any colored data points or bar graphs, be sure to use different symbols, so that they are distinguishable in black and white.

Specific Comments

Page ii, Executive Summary, first paragraph, mid-paragraph, the statement is made that, *"*[The San Joaquin River between Vernalis and Mendota Pool] *is also not typically affected by tidal flows."* Is there any time that tidal flows affect the San Joaquin River above Vernalis? To my understanding, this never occurs. Why is the word "typically" included?

In the next sentence, I assume that "delas" should have been "deals."

Page iii, top line, USBR 1993 is not included in the references. As indicated in my guidance for preparation of reports, a properly prepared report would include checking to see that all references cited in the text are listed in the reference section, and all references listed in the reference section are properly cited in the text.

Page iii, last line of the second paragraph, the reference to the USGS 1991 needs to be clarified.

The percent flows presented on page iv should be referenced to a particular period and base-flow conditions. This should be specified.

Page 1, second paragraph has the same problems with respect to *"... not typically affected by tidal ..."*

Page 2, in the last paragraph states that the SJR is typically dry between Mendota Pool and Bear Creek. Does that apply to the new conditions, where increased flows from Friant are occurring? Does any of that water get all the way down to this reach?

Page 9, under "West Stanislaus Irrigation District diversions," the second paragraph states that the Central Valley Project which was developed to prevent further overdraft of aquifers in the San Joaquin Basin, led to the construction of Friant Dam. I do not think that it is appropriate to call it the "San Joaquin Basin." Friant Dam discharges to the Friant/Kern Canal, most of which is in the Tulare Lake Basin. There is need to make a distinction between the San Joaquin Valley groundwater

basin south of Fresno, and the San Joaquin River watershed and its associated groundwater basin north of Fresno.

Page 11, last line under "El Solyo Water District diversions" has a typographical error in the first word "Water."

Page 13, under "Municipal discharges," there is need to indicate that this is above Vernalis, or list Stockton as a discharger.

Page 16, last line of the next to last paragraph, 500 ppm is low for crop damage. Typically, concentrations higher than this are allowed for many crops.

Page 20, you may want to revise the report in accord with the actual concentrations of BOD that Chris Foe has reported in the Strawman at Vernalis. The 2.6 mg/L that you have assumed seems to be low.

With respect to the section discussing the discharges by POTWs, there are additional data that are needed beyond what is provided. Specifically, the ammonia and organic nitrogen, or the sum of the two – total Kjeldahl nitrogen – and also any chlorophyll measurements that are made should be included, since those are loads that are potentially important as oxygen demand sources.