SJR DO TMDL Funding Needs

August 28, 2000

At the last SJR DO TMDL Steering Committee meeting, the Steering Committee requested that the Technical Advisory Committee conduct a review of the SJR DO TMDL development and allocation activities that need to be undertaken during the next year for which there is need for funding beyond that available within the CALFED 2000 grant. Prior to the last Steering Committee meeting, I distributed an initial list of project areas that I feel need funding. Subsequently, I have modified my original list to include several other areas that need immediate funding. This information is presented here in.

In accord with the Steering Committee's request, please consider these areas as well as other areas that you are aware of where there is need for funding to provide information that the Steering Committee should have prior to the initiation of the CALFED 2001 project.

Also consider any other areas that will need funding which are not now proposed for funding in the 2001 project.

As Kevin indicated in the summary of the August Steering Committee meeting, the Steering Committee requests that the TAC develop information on the amount of funds needed and the priority of funding for each proposed project area. These issues will be discussed at the September 7 TAC meeting. If you wish to send me materials on this issue prior to that meeting, please do so.

DO Depletion Within the Central and South Delta

Because of the potential importance of SJR flows and associated oxygen demand loads into the South Delta, or at high SJR flows through the DWSC into the Central Delta causing low DO problems in these areas, it is important to determine as quickly as possible whether SJR flow at Vernalis with a high BOD causes low DO problems in the South or Central Delta. This information is essential to determining the potential of manipulating SJR flows to minimize DO depletion within the DWSC. While some funds were made available in the CALFED 2001 grant for these studies, there is need for immediate funding to conduct these studies during this summer and fall, 2000.

November Monitoring of the SJR and DWSC

A major information gap is going to develop this year since the currently planned SJR and DWSC monitoring does not include collection of samples during November, 2000. This is a significant deficiency in the current monitoring program. In 1999, significant DO depletions occurred in November. There is immediate need to develop funding to continue the SJR and DWSC monitoring until at least December 1, 2000.

DO Crashes

Periodically there are major DO crashes within the DWSC where the DO will suddenly decrease to below 3 mg/l. Since DOs less then about 3 mg/l are known to be lethal to some fish even under short exposure, it is important that studies be conducted to determine when the DO crashes occur and, most importantly, their cause. These DO

crashes could ultimately become the controlling conditions for oxygen demand loads to the DWSC. Funds should be made available for a small team of individuals to immediately begin work on this issue.

Characteristics of the Shallow Water Areas of the DWSC

No information is apparently available on the diel dissolved oxygen changes that occur in the shallow water areas next to the DWSC channel. These areas are also influenced by the oxygen demand load discharge to the channel from upstream as well as local sources. There is need to expand the current monitoring program to include selective measurements in the shallow water along the ship channel.

Translation of CALFED Study Reports to a Form Useful by the Steering Committee

There will be need for funding to support an individual or a group of individuals to review/translate the information developed in the individual CALFED 2000 studies so that it can serve as a basis for TMDL development and allocation. In the fall of 1999, a series of studies was conducted that generated reports on the study area. These reports, then, served as a basis for development of the synthesis/issues report that translated the results of the individual studies to information that could be used by the Steering Committee. A similar situation will exist with the development of the CALFED 2000 studies. This funding issue needs to be addressed now so that funds will be available next winter as the results from the various CALFED-supported 2000 studies become available. These types of activities are not likely to be funded by CALFED, since they are directly related to TMDL development and allocation.

Groundwater as a Source of Nitrogen

There is concern that a significant part of the nitrate/algae present in the San Joaquin River at Vernalis is derived from nitrate input to the San Joaquin River and its tributaries from groundwater sources. Areas of particular concern are groundwater discharges from wetland/grassland areas through drains (agricultural, and other), as well as nitrate derived from municipal and industrial wastewaters that are spread on land, where the organic nitrogen, ammonia, or nitrate infiltrates the shallow groundwater system, and this groundwater system then transports the nitrate introduced or formed to surface waters that enter the San Joaquin River drainage system. Another area of concern is tiled ag lands, where, because of high groundwater, the areas are drained via subsurface pipes to surface waters. These drains can potentially contribute nitrate to surface waters. Further information on the potential significance of groundwater-derived nitrate as a source of nitrate that leads to excessive algae may become available from the Kratzer rough-cut analysis report that is scheduled to be completed in August 2000

It is my understanding that, while several of the CALFED projects will provide some information pertinent to this issue, there are no funds to develop a comprehensive review of it. One of the major problems with the CALFED projects is that the information that will be developed pertinent to groundwater (and, for that matter, several other areas) will not be available until winter/spring of 2002. This will leave very little time for development of a comprehensive review of the groundwater issue and, most importantly, inadequate time to conduct additional studies that will likely be needed to

fill important information gaps that will exist on groundwater as a source of nitrate that is important in causing excessive algal growth in the San Joaquin River at Vernalis and/or within the Deep Water Ship Channel. There is need to immediately develop an overview report on groundwater discharges that could be significant sources of nitrate to surface waters, to help guide groundwater studies that are going to be needed.

Oxygen Demand in Irrigation Return Water

At this time as far as I have been able to determine, there is no information on the BOD of ag drains and irrigation return water. Funding is needed to conduct studies this year to determine if ag drains are significant sources of BOD.

Work With the Cities on Wastewater Discharge Monitoring and Assessment

In the summer of 1999, the TAC developed a study program that was to be followed by the municipal wastewater dischargers to provide additional data on the characteristics of their discharge and the San Joaquin River upstream and downstream of the discharge. In the fall of 1999, upon review of some of the data that was developed from one of the municipalities, it became clear that there was need for someone with high degrees of expertise and experience to work with the cities in developing this database. Recently Karl Jacobs, who is under contract to accept this data for incorporation into the IEP database, has indicated an interest in starting to receive it. Before this data is put into a database, there is need to review the data for their reliability. This review will require funding to cover the time for someone to work with the cities and Karl in developing this program/database.

Technical Resource to Stakeholder Groups

There is need for funding to support one or more individuals familiar with the details of the technical aspects of SJR DO TMDL development and it's allocation to serve as a technical source to various watershed stakeholder groups. This individual(s) would attend stakeholder constituent group meetings, make presentations on technical issues, answer technical questions, etc.

Participate in CALFED Workgroup and Phase III Implementation Activities

As I have reported in previous correspondence, CALFED is moving aggressively to develop a number of programs that will influence SJR flow into the DWSC. There are a number of CALFED workgroups that are actively considering these issues. Further, CALFED is in the process of developing a seven year implementation plan that is to be initiated this fall once the Record of Decision is released. This plan, "California's Water Future: A Framework for Action, June 9, 2000," establishes an aggressive comprehensive program for managing Delta water quality issues. A number of these implementation activities could have a significant impact on SJR flows through the DWSC.

The CALFED Drinking Water Constituents Workgroup is conducting a comprehensive review of the existing database on the Delta tributaries as well as within the Delta for TOC/DOC, nutrients, salts, and several other constituents that potentially impact the use of Delta water for domestic water supply purposes. Last week, a draft report was released on this data review which showed that the San Joaquin River

watershed is one of the major contributors of constituents to the Delta that adversely impact the use of Delta waters for domestic water supply purposes. There can be little doubt that the San Joaquin River watershed will be targeted for control of TOC/DOC and nutrients in order to reduce the input of these constituents to the Delta from this watershed. Ultimately, these efforts could lead to significant impacts on both domestic and agricultural activities within the SJR watershed.

As an example of the importance of SJR watershed stakeholder participation, the TOC load to the Delta from the SJR watershed is a significant source of TOC for Delta waters. My review of this TOC, however, shows that about half of it is in the form of algae/BOD that will not contribute TOC to water supply intakes, i.e., it will decay within the Delta. Without this type of consideration, the SJR watershed could be targeted to remove a much greater TOC load that is necessary to achieve TOC goals at water supply intakes. It is only through an active involvement in the SJR DO TMDL development activities as well as the CALFED Drinking Water Constituents Workgroup that it would be possible to be certain that the TOC load from the SJR watershed is properly considered when evaluated sources of TOC for domestic water supply intakes that use Delta waters as a source.

The US EPA Region 9, in cooperation with regional boards, is developing nutrient (nitrogen and phosphorus) chemical specific numeric water quality criteria that could readily restrict N and P loads to the SJR DWSC significantly below those necessary to control the DO depletion problem within the DWSC. It will be extremely important for SJR watershed stakeholders to become active participants in the nutrient criteria development issues.

Overall, there is need for funding so that one or more individuals can actively participate in the CALFED and US EPA Region 9 activities that could impact SJR flow into the DWSC as well as constituent loads to the Delta from the SJR watershed. This individual(s) would serve as liaison between the SJR DO TMDL Steering Committee and CALFED workgroups as well as the US EPA Region 9 Nutrient Criteria Development Group (RTAG). In addition to keeping the Steering Committee informed, this individual should be actively involved in the CALFED and Region 9 RTAG activities to be sure that these activities properly consider SJR watershed stakeholder interests. Without this active participation, the SJR watershed stakeholders could find that their interests will not be adequately considered in CALFED and US EPA Region 9 RTAG activities.

If there are questions on these areas of funding needs, please contact me.

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