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April 14, 2010

Division of Water Rights  
State Water Resources Control Board  
Attention: Phil Crader  
P.O. Box 200  
Sacramento, CA 95812-2000

**Subject: Sacramento Regional County Sanitation District  
Participant Closing Comments for the State Water  
Resources Control Board Informational Proceeding to  
Develop Flow Criteria for the Delta Ecosystem Necessary  
to Protect Public Trust Resources, April 14, 2010**

Dear Mr. Crader:

The Sacramento Regional County Sanitation District (SRCSD) appreciates the opportunity to have collaborated in the Informational Proceeding through the submission of expert testimony and participation on the Other Stressors and Hydrodynamic Panels. We found the proceeding informative and respect the challenging task the State Water Resources Control Board (State Water Board) has before it to develop flow criteria for public trust resources in the Delta. Following the receipt of evidence, the State Water Board issued the following instruction:

*Closing comments from participants should summarize what flow criteria, including the volume, quality, and timing of water, are necessary to protect public trust resources in the Delta under current conditions. Please include a table or tables with numerical flow criteria. Participants may also include summary recommendations regarding: adaptive management; variable flows; flow measures that can and should be developed and implemented immediately; and possibilities for future scientific collaboration on flow-related measures. The comments should cite to the written testimony and exhibits to support all scientific information addressed in the closing comments.*

SRCSD's comments below address these subjects.

**FLOW CRITERIA**

SRCSD has no specific recommendations with respect to the amount or timing of flow to protect public trust resources. However, in light of the limited time and resources available to the State Water Board to complete

its work, and based on the testimony received, we believe it is clear that these subjects are the appropriate focus for the State Water Board's work over the upcoming four months.

Based on the testimony received, SRCSD supports flow criteria in Old and Middle Rivers which would reduce and limit entrainment at the South Delta pumps.

## **WATER QUALITY AND OTHER STRESSORS**

The evidence does reflect that factors other than flow are important to fish populations. However, efforts to divert attention away from the effects of pumping operations and related hydrologic modifications to the system should not be accepted. In this regard, it is telling that the resources agencies and the organizations organized to protect public trust values did not focus on the issue of water quality, and specifically potential effects of nutrients/ammonia. Please note that the only expert on the Other Stressors panel that focused on nutrients as the primary cause for a decline of the Delta was representing the State Water Contractors, and she offered no evidence, research, or testimony pertinent to actual conditions in the Delta.

Scientific information does not support the hypothesis that ammonium has contributed to the collapse of pelagic fish species or that ammonium is responsible for undesirable changes at lower trophic levels in the food web that supports them (Testimony of Diana Engle and Cameron Irvine).

Regarding the potential for toxicity to fish and invertebrate species from ammonia in the Delta, recent studies have repeatedly shown that ambient ammonia concentrations are well below those acutely toxic to sensitive fish (Exhibit 1CC, Werner et al. 2009).

Another area under investigation focuses on ammonia levels and their effect on the production of *Microcystis*. There are theories that ammonia levels in the Delta might be contributing to the occurrence or toxin-production of *Microcystis*. However, these theories are primarily based on information from highly nutrient-rich estuaries or laboratory work outside the Delta; available field studies from the Delta do not confirm a relationship between ambient ammonia levels and the abundance or toxicity of *Microcystis*. Instead, physical factors such as water temperature, flow, and turbidity best explain *Microcystis* abundance and toxicity in the San Francisco estuary (Exhibit 1M, Lehman et al 2010)

Research that took place last year by Dick Dugdale and Alex Parker in the Sacramento River showed that the consequences of ammonium uptake may be very different for phytoplankton in the freshwater Delta than in Suisun Bay or more brackish bays to the west. Repeated, detailed rate measurements (nitrogen and carbon uptake rates) last year showed that ammonium uptake does not explain patterns of phytoplankton growth in the Sacramento River along its course through the Delta. This more recent work contradicted several elements of the ammonium inhibition hypothesis, as it has been applied to the Delta and the POD. As we now know, it is a false generalization that ammonium uptake limits the production of phytoplankton biomass in the San Francisco Estuary (Exhibit 1P and 1Q, Parker 2009, Testimony of Diana Engle pgs 14-16).

With respect to pyrethroids, recent studies have shown that toxicity can occur at extremely low levels. However, the discharge of low levels of pyrethroids from urban and agricultural sources has not shown toxicity to even the most sensitive species in the Sacramento River (Exhibit 2I, Weston et al in press).

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## CONCLUSION

SRCSO is committed to ensuring sound science as a basis for decisions regarding ecosystem protection and water supply in the Delta. Additional research to address evolving hypotheses related to water quality, including ammonia/um, is appropriate, and SRCSO is supporting that ongoing research. However, the Informational Proceedings confirmed that the best available evidence and scientific studies provide no evidence of effects associated with other stressors that would provide a basis for shaping any decisions regarding flow criteria for the Delta. Moreover, the potential effects of water quality constituents on the Delta are being addressed in other venues and need not be included in the State Water Board's present efforts to establish Delta flow criteria.

Many of the panelists discussed the need for a comprehensive ecosystem model for the Delta to help with making adaptive management decisions. SRCSO also recommends developing an ecosystem model that begins with hydrology of the system, including exports, and then evaluates other stressors. SRCSO supports projects as well as future research regarding the relationship between flows and ecosystem health that may inform subsequent revisions to the flow criteria for the Delta that the State Board will identify in August.

SRCSO thus concurs with the State Water Board expert panel's recommendations that the Board focus its efforts in meeting its legislative mandate to identify flow criteria that address the magnitude, frequency and duration of Delta flows for public trust resources. As noted above, SRCSO does not have specific recommendations on this issue.

SRCSO again thanks the State Water Board for the opportunity to participate in the proceeding and to provide these closing comments.

Sincerely,



Stan R. Dean  
Director of Policy Planning

cc: Mary Snyder  
Terrie Mitchell