



September 7, 2016

submitted electronically

Jeff Mosher  
National Water Research Institute  
18700 Ward St.  
Fountain Valley, CA 92708

**RE: Letter Proposal to Coordinate a Study of TDS Trends in Southern California**

*Dear Mr. Mosher:*

The Southern California Salinity Coalition's (SCSC) member agencies have expressed interest in supporting new regulatory policies that would provide greater regulatory flexibility to manage Total Dissolved Solids (TDS) during drought conditions. The rationale for such policies was summarized in several documents we previously prepared and submitted to SCSC. An annotated outline is attached to this letter proposal for your convenience.

The fundamental premise is that there is a long-term rising trend for TDS in recycled water. This trend is largely the result of implementing other policy mandates designed to increase water conservation. To date, wastewater treatment plants have generally been able to comply with permit limits but have very little margin for error. Consequently, TDS increases associated with periodic droughts can create short-term compliance problems.

To address the aforementioned challenges, dischargers want regulators to have the ability to consider and make some allowance for these factors when developing appropriate permit conditions for recycled water. In particular, it may be appropriate to reconsider the necessity of effluent limits restricting the "Increment of Use." And, it may be appropriate to consider using longer term averaging periods for TDS (especially for recharges to groundwater).

To support such recommendations, there must be objective scientific evidence to:

- 1) Document the long-term rising trend in TDS concentrations for recycled water.
- 2) Identify and characterize the primary factors responsible for those trends.
- 3) Describe how periodic droughts adversely affect regulatory compliance.
- 4) Demonstrate how proposed changes will not adversely affect beneficial uses.

SCSC has indicated its willingness to support the necessary studies.

Risk Sciences is proposing to assist SCSC by developing a Conceptual Study Design and preparing a draft Scope-of-Work (SOW). These work products would be used to support a Request for Proposals (RFP) for the recommended study to be performed by qualified consulting firms. Risk Sciences would be disqualified from bidding on the RFP but would continue to coordinate with SCSC and the selected contractor throughout the conduct of the study.

We recommend that SCSC form a Technical Advisory Committee (TAC) to facilitate development of the Conceptual Study Design and prepare the RFP. The TAC would also be responsible for reviewing proposals, selecting a contractor, and supervising completion of the contract SOW.

It is our understanding that SCSC would prefer to limit its role to development of objective scientific information to help inform development of any proposed drought policy. However, SCSC does not wish to be directly involved in advocating for any particular regulatory initiatives. SCSC is partnering with SAWPA's Basin Monitoring Program Task Force (BMPTF) for this project. And, the BMPTF will have primary responsibility for developing specific policy recommendations for consideration by the Regional and State Water Boards. Risk Sciences is under separate contract with the BMPTF to assist that effort. This approach creates a clear division of labor between those tasked with conducting the study and those responsible for using the study results to formulate appropriate policy proposals.

We estimate that the Conceptual Study Design and draft Scope of Work can be completed in 90 days. Risk Sciences is prepared to commence work on this project on October 1<sup>st</sup>. And, all deliverables would be due by the end of 2016 (see Table 1, below). The RFP would be distributed in early January (2017) and a contractor selected by mid-February.

Assuming that all of the essential water quality and flow data is available among the member agencies of SCSC and the BMPTF, then we estimate that it will take 6-9 months to complete the study depending on the complexity of the final SOW. The trend analysis is relatively straightforward task; as is the analysis needed to evaluate how periodic droughts affect that underlying trend. Assessing and quantifying the various factors contributing to the baseline trend is considerably more difficult. Risk Sciences will work closely with SCSC's TAC to determine whether the relative value of such information is worth the additional time and cost while preparing the Conceptual Study Design and RFP-SOW.

We recommend that SCSC be prepared to budget a total of \$120,000 to undertake this project over the next 12-15 months (encompassing two fiscal years). Risk Sciences will require approximately 40 hours to prepare the Conceptual Study Design and draft SOW and will do so for a total fee of \$15,000. This fee includes all costs associated with presenting the planned study idea at SCSC's workshop in November of 2016 and all related travel expenses (see Table 2, below).

Risk Sciences will continue to aid the TAC in overseeing completion of the study for an additional fee of \$15,000 (an additional 40 hours and including travel). The study itself will probably cost about \$90,000 provided that SCSC and BMPTF members can provide all of the long-term water quality and flow data needed to support the trend analysis.

**Table 1: Schedule of Deliverables for Risk Sciences**

Task	Description	Deadline
1	Presentation @ SCSC Workshop	Nov. 17, 2016
2	Draft Study Design	30 days after contract
3	Final Study Design	30-days after draft design
4	SOW for RFP	30 days after final design
5	Review Contractor Proposals	TBD
6	Review Draft Study Documents	TBD

**Table 2: Cost Estimate for Risk Sciences**

Description	Details	Cost
Phase 1: Study Design & SOW	40 hours	\$13,000
Phase 1 Travel Expenses	2 trips	\$2,000
Phase 2: Study Oversight	40 hours	\$13,000
Phase 2 Travel Expenses	2 trips	\$2,000
<b>Sub-Total for Risk Sciences</b>		<b>\$30,000</b>

Risk Sciences appreciates the opportunity to work on this important collaboration between SCSC and the BMPTF. Much of the data used to support current permitting strategies for TDS came from studies performed in the mid-60's and early 70's. SCSC's proposed study will provide essential insight into how widespread implementation of municipal water conservation requirements has made much of this prior information obsolete and unrepresentative. It is likely that the results of this study will help justify new approaches for establishing appropriate effluent limits which will, in turn, promote more consistent permit compliance while encouraging greater use of recycled water throughout Southern California. It is an exciting project and we look forward to working on it with SCSC.

*Respectfully submitted,*

Timothy F. Moore

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## **Developing TDS Permitting Strategies to Promote Greater Conservation, Encourage Increased Use of Recycled Water and to Address Drought-related Compliance Issues**

### **1) Background**

- a. All discharge permits in the Santa Ana region include limits on TDS primarily to protect the MUN & AGR beneficial uses in the underlying groundwater basins.
- b. Many dischargers (esp. POTWs) are approaching or exceeding these limits especially during drought conditions for reasons beyond their control.

### **2) Core Trends**

- a. Increased water conservation (low flow plumbing fixtures & appliances)
- b. Increased reliance on self-regenerating water softeners
- c. Increased TDS in imported water supplies (due to upstream discharges)
- d. Advanced wastewater treatment (disinfection, nutrient removal, odor control, etc.)

### **3) Cyclic Factors**

- a. Mandatory water conservation (temporary behavioral changes)
- b. Less high quality (low TDS) State Project Water available
- c. Increased reliance on higher TDS alternatives (Colo. River water & groundwater)
- d. Increased TDS in imported water supplies (due to reduced upstream precipitation)

### **4) Implications and Concerns**

- a. Permit violations (increment-of-use & annual averages); MMPs
- b. Potential 303(d) listings and probable TMDLs
- c. Discourages increased use of recycled water for irrigation and recharge

### **5) Potential Permitting Strategies**

- a. Update or delete "increment-of-use" effluent limitations
- b. Long-term rolling averages for TDS effluent limitations (esp. for MUN-exempt waters)
- c. Tiered effluent limits for TDS (normal and drought conditions)
- d. Compliance credits for TDS contributed advanced waste treatment
- e. Recognize offset credits from dedicated stormwater recharge projects
- f. Intake credits for TDS contributed by grandfathered water softeners
- g. Pre-allocate available assimilative capacity for drought-induced exceedances
- h. Clarify application of anti-backsliding requirements for TDS