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**Via E-mail [Glenn.Meeks@waterboards.ca.gov](mailto:Glenn.Meeks@waterboards.ca.gov)**

Mr. Glenn Meeks  
Central Valley Regional Water Quality Control Board  
11020 Sun Center Drive, #200  
Rancho Cordova, CA 95670-6114

Re: Draft Salt and Nitrate Management Plan

Dear Mr. Meeks:

The following comments are submitted on behalf of the South Delta Water Agency. In the weeks leading up to the deadline for these comments, high flows and potential flood issues arose and precluded a detailed review of the draft Central Valley Salt and Nitrate Management Plan ("SNMP"). These comments are therefore limited in scope. Additional comments will be presented at the board meeting considering the SNMP.

As part of the salt management strategy, the document recommends water quality standards for the lower San Joaquin River of 1,550 EC (30-day running average) and during "extended dry periods" 2,470 EC (also a 30-day running average). Such levels of concentration are not justifiable if the goal is to protect agricultural beneficial uses. Although there may some locations in California where soil conditions might allow for the application of 2,470 EC irrigation water, virtually no farmer would ever agree that concentration is protective. I note that "extended dry periods" includes times when drought emergencies are declared. Governor Schwarzenegger declared a drought emergency during non-drought times.

The error in the Regional Board's analysis arises from the use of the work previously done by Dr. Glen Hoffman, most specifically his report to the SWRCB dated January 5, 2010 and entitled Salt Tolerance of Crops in the Southern Sacramento-San Joaquin Delta ("Hoffman

Report"). In that report Dr. Hoffman concluded that applied water of 1.0 EC and above was fully protective of crop production. Unfortunately, Dr. Hoffman made a number of critical errors in his work. These errors were repeatedly brought to the attention of the SWRCB staff. It is unknown why SWRCB staff and the Regional Board's consultant CDM Smith have not acknowledged these problems or taken them into consideration when recommending salinity standards.

In order to calculate the leaching fractions being achieved in the south Delta Dr. Hoffman used applied water EC and drain water EC. This "salt in : salt out" approach is reasonable if the proper data is used. However, accurate, useful data was not used by Dr. Hoffman.

For the "salt in" data, Dr. Hoffman assumed that the water being applied was equal in quality to the standard at the time (700 EC April through August). Even a cursory investigation would have revealed that many areas of the southern Delta must and do apply water that exceeds the quality specified by the standard. Each year DWR reports to the SWRCB the water quality at three locations and daily data is available from many online sources. As just one example a large portion of Old River regularly experiences 1,000 EC during the irrigation season and some places approach 2,000 EC. Thus DR. Hoffman simply assumed the applied water quality was better than the actual data shows.

Secondly, since no actual study was done by Dr. Hoffman, he was unable to use drainage data associated with known applied water quality. Instead, he used old tile drain data taken almost exclusively from areas in the southwestern-most lands within the South Delta Water Agency boundaries. These areas actually rely mainly on water provided by the DMC of the CVP. Regardless, the tile drains in the area collect shallow, poor quality ground water. They do not collect only excess applied water that made its way through the soil profile, though some of that type of water may make its way to the shallow ground water.

Using tile drain data, one then sees worse quality water as the "salt out" which of course implies that more salt passed though the soil profile than actually did. Thus Dr. Hoffman used too little "salt in" and too much "salt out." It should be noted that no party, neither Dr. Hoffman, SWRCB staff or CDM Smith have or can assert that using the incorrect inputs is appropriate. The net result is that Dr. Hoffman concluded that more than adequate salts were leaching out/through the soil and was thus able to make his conclusions that worsening water quality in the southern Delta would not harm agricultural users. When these errors were raised, Dr. Hoffman merely added a new column to his work using a lower leaching fraction; still concluding everything was fine. Of course, whatever after-the-fact changes to his report were made, the underlying problem that incorrect data was used means that his work and approach are not just unscientific, but unusable.

Because the SWRCB staff was unwilling to accept the fact that the Hoffman Report was unreliable, SDWA in conjunction with UC Davis funds and personnel conducted an actual study to determine leaching fractions in the south Delta. The study, conducted by Michelle Leinfelder-Miles measured soil salinity during the season, salinity of all applied water, and soil salinity at the end of the season. Her report showed that in most areas tested, salts were not being adequately flushed through the soil profile but were in fact collecting in the soil. She found that in many areas the leaching fractions actually being achieved were much less than calculated by DR. Hoffman, including his after-the-fact changes to his original report.

As part of the SDWA case-in-chief for the WaterFix hearings SDWA also retained Terry Prichard to analyze impacts to southern Delta farmers resulting from the effects of the WaterFix. Although Mr. Prichard's analysis is focused on how WaterFix changes to EC result in impacts to agriculture, his analysis is instructive for consideration of the SNMP. Both the Leinfelder-Miles Report and the Prichard work are included herewith.<sup>1</sup>

The lesson from this is that the application of the Hoffman method may be appropriate in the abstract, but it cannot be used as a method by which to determine protective levels of salinity. Only through actual tests can one reliably determine if any particular soil in any particular area adequately leaches sufficient salt through the soil profile. Everything else is merely estimation and the Hoffman work regarding the southern Delta shows just how dangerous that is.

The SNMP and the Hoffman Report also references other models used to estimate where and what salinity is occurring in the soil; all designed to find a way to justify higher salinity in applied water. None of these models reflect the real world and should not be used to justify approaches or other model results especially when those results have been shown to be incorrect. It appears we are relying too heavily on models at the expense of facts.

The level of salinity which can be tolerated by upstream agricultural users is unknown. However, the approach used by CDM Smith and the Regional Board staff for the draft SNMP is not reliable. The notion that agricultural users could use 2,470 EC is certainly not supportable. It is important to note that San Joaquin River salinities were much less pre-CVP and pre tributary projects. Thus, before the impounding and export of water from the watershed and the importation of foreign salts into the river, users along the mainstem enjoyed good quality water even during drought times. Those responsible for the degradation of the river should be made to fully mitigate their impacts, they should not be allowed to cause poor quality just because it decreases their use or export.

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<sup>1</sup> The Prichard work included is an amended version of that presented at the WaterFix hearings, correcting a transcription error.]

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It is also noteworthy that this process, begun before CV-SALTS was constituted, sought to establish upstream (from the Delta) salinity standards in order to ease downstream burdens and impacts. By recommending the above ineffective standards, the Regional Board again fails to address the problem. The CVP continues to import hundreds of thousands of tons of salt into the basin each year and much of it ends up in the San Joaquin River. PL 108-361 mandates the USBR to meet its water quality obligations and decrease its use of New Melones for that purpose. The SNMP does nothing to further that federal mandate and would seem to excuse the Bureau's ongoing violations of the law.

As stated above, other comments will be presented at the board hearing considering the SNMP.

Very truly yours,



JOHN HERRICK

Attachments