

Nutrient Criteria Development for the San Joaquin River Watershed

January 15, 2002

Mary Hildebrand and Members of the SJR DO TMDL Steering Committee,

Over the past couple of years that I have been involved with the Steering Committee, I have mentioned on a couple of occasions the potential importance of the US EPA's efforts in developing chemical-specific nutrient criteria which would be used to regulate the amount of nutrients (nitrogen and phosphorus compounds) in a waterbody. In accord with US EPA proposed policy, the US EPA nutrient criteria would have to be adopted by the Regional Water Quality Control Board as water quality objectives; concentrations of nutrients above the criterion/objective value would then be used to establish violations of the objectives and the listing of the waterbody as 303(d) impaired based on excessive nutrients, which leads to a TMDL to control the nutrients at their sources. As I have discussed in previous emails, this situation is of great importance to the municipal, industrial and agricultural dischargers in the San Joaquin River watershed since, while the default nutrient criterion values have not been proposed for this region, there can be little doubt that the concentrations of nitrogen and phosphorus compounds throughout many parts of the SJR watershed will be in excess of the criterion values.

As discussed in my most recent Stormwater Runoff Water Quality Science/Engineering Newsletter, until recently, there have been questions as to whether the Bush Administration would support the Clinton Administration's approach toward nutrient criteria development. This Newsletter contained a policy statement from Geoffrey Grubbs, Director of the US EPA Office of Science and Technology, indicating that the Bush Administration plans to continue to require nutrient criteria development, and is prepared to impose default nutrient criteria on those state agencies that are not well on their way toward developing acceptable nutrient criteria/water quality objectives by the 2004 deadline.

The Agency allows for two different approaches. One of these is the default ecoregion-based nutrient criteria that basically reflects pre-cultural conditions in a waterbody's watershed. The other is site-specific nutrient criteria development, where nutrient criteria based on how nutrients impact the beneficial uses of waterbodies in the region of concern are developed to protect the uses without unnecessary nutrient control from ag and urban sources.

Last July I submitted a proposal to CALFED to support developing site-specific nutrient criteria for the Delta watershed and within the Delta. Recently the CALFED Drinking Water Program has indicated that it is not interested in funding this proposed project. This means that, since the Central Valley Regional Water Quality Control Board does not have the funds and personnel to devote to this topic, compliance with the 2004 deadline could mean having to accept US EPA-imposed default nutrient criteria. Certainly for the San Joaquin River and many of its tributaries, the nutrient concentrations that are found in the River will be well above any default criterion values. This could translate into the ag and urban dischargers in the San Joaquin River watershed having to control nutrient discharges through a TMDL process to avoid violations of the nutrient objectives that will evolve from the nutrient criteria.

This situation is significantly different from the current situation with respect to having to control nutrients as they may be developed into algae which, in turn, lead to low DO in the Deep Water Ship Channel. As I have discussed, that situation is related to the discharge of nutrients during the summer and fall months. The nutrient criteria, however, will apply to year-round situations, where the elevated concentrations that are derived from urban and ag areas during the winter months associated with stormwater runoff will have to be controlled to avoid violations of the water quality objectives. Further, it appears that the level of nutrient control needed to prevent excessive algal growth that leads to low DO will be much less than will be needed to meet the nutrient criteria that can evolve from the US EPA's default criteria development approach.

Basically, as I see the situation, the San Joaquin River nutrient dischargers who have the potential of having to control nutrients in their discharges/stormwater runoff to meet the default nutrient criteria can do nothing, and thereby have to accept US EPA's proposed default criteria, or over the next two years they can begin to work toward developing a more technically valid approach, involving site-specific criteria development along the lines that I proposed in the proposal submitted to CALFED Drinking Water Program last July. Anyone who is interested in receiving a copy of my proposal that CALFED Drinking Water Program chose not to support, let me know and I can email a copy. It discusses the steps that need to be taken to develop appropriate nutrient criteria for the San Joaquin River watershed.

The "do nothing and let the EPA impose default criteria" approach will almost certainly end up in litigation that could result in the court deciding the nutrient criteria. If there is interest in the stakeholders in the San Joaquin River watershed exploring conducting the studies needed to develop appropriate nutrient criteria for this system, which will protect the beneficial uses without unnecessary expenditures for nutrient control, please contact me.

I also wish to bring to your attention that the journal *Stormwater* has just published an article, Lee, G. F., "Evaluating Nitrogen and Phosphorus Control in Nutrient TMDLs," *Stormwater*, 3:10-24, January/February (2002).

This article is available online at
<http://www.gfredlee.com/Nutrients/StormwaterNutrientTMDL.pdf>.

If there are questions about these matters, please contact me.

G. Fred Lee