DATE: May 24, 2007

TO: Les Grober, RWQCB cc John Herrick, Dante Nomellini Jr., Dean Ruiz

FROM: Alex Hildebrand, South Delta Water Agency

Dear Les:

We were very disappointed with the South Delta salinity meeting on May 16.

The agenda proposed that we continue to analyze measures that would clearly either be ineffective in complying with salinity standards, or contrary to law. Releases from the Sacramento River system are obviously ineffective. It is technically impractical and contrary to recent federal law to propose increased releases from the overcommitted New Melones Reservoir to provide flow needed for salinity compliance downstream of Vernalis. The proposal that we examine compliance only with a higher salinity standard is blatantly biased. It is also procedurally impermissible prior to any determination that a higher salinity would fully protect beneficial uses.

It appeared that DWR is still making technically invalid analyses to foster their pretense that they do not cause the salinity problem, and that compliance is not reasonably feasible. The agenda appeared to lend itself to that pretense.

In order to determine what measures (tools) would be effective it is first necessary to understand the causes of high salinity that must be overcome. There was no suggestion that this should be understood.

The objective should be to develop measures that could achieve compliance with the current salinity standards at all times, and throughout the four main channels in the South Delta - the San Joaquin River channel, Middle River, Grantline Canal, and Old River.

Export operations have distorted circulation in Delta channels. In order to comply with the standards there must be a net daily unidirectional flow through each channel. This is necessary because neither salinity nor dissolved oxygen (DO) for fish can be controlled in stagnant channel reaches. When a reach is stagnant, the water to meet local channel depletions flows in from both ends of the channel to the stagnant reach. This reach then becomes a salt sink for the salt in those inflows. Furthermore, to avoid a salinity buildup the salinity and quantity of the unidirectional inflow to each channel must be adequate to provide the consumptive use of channel water in each channel (which concentrates the incoming salt load) while still meeting the salinity standard in the water exiting from the channel. This must be the case at all times including during periods of hot weather, and neap tides, and during concurrent export rates that reduce the

capture of high tide water at the tidal barriers. The tools must also combine to maintain a net daily downstream flow through the four main channels as a group in order to flush the incoming salt out of the South Delta.

Prior to the CVP there was no salinity problem in the South Delta. The in-channel salinity was typically lower than 0.7 EC. There was therefore enough assimilative capacity to allow some concentration of salt by consumptive use of water. The reason this changed was because (1) tidal flows bring salt water from the Bay into the western Delta; (2) the CVP and SWP combine to create an unnatural north to south flow in the Delta; (3) This abnormal flow entrains Bay salt in the water that reaches the export pumps; (4) the DMC therefore exports between half a million and a million tons of this salt in most years and delivers it to farms and wetlands in the west side of the San Joaquin watershed; (5) crops and wetland plants necessarily consume most of the delivered water, but the salt that was in the consumed water is rejected by the roots and remains in the root zone; (6) the drainage water from the root zone is therefore concentrated to far above the 0.7 EC salinity standard; (7) part of this salt load remains in the CVP service area, but several hundred thousand tons of this imported salt drains into the San Joaquin River in most years. New Melones is required to dilute this salt in the river to 0.7 EC at Vernalis, but the imported salt load is still there and it flows into the South Delta. Consumptive use of water in the South Delta, then necessarily reconcentrates this imported salt load just as it was previously concentrated in the CVP service area. There must be a net downstream flow through South Delta channels to flush this imported salt out of the South Delta. The river flow available to provide this flush has been greatly reduced by upstream exports from Friant and Hetch Hetchy, and because consumptive use of water in the watershed has increased in order to produce food for the growing population.

It should be clear from the above discussion that the tools must (a) provide enough inflow to each of the four channels to avoid stagnant reaches by maintaining net daily unidirectional flow through each channel, and (b) that the inflow to each channel must be of adequate quality, and (c) there must be an adequate flow at Vernalis at all times to enable those unidirectional flows. The baseline for modeling is existing conditions including a full range of year types, tides, export operations, etc. Before doing this modeling the process should take full advantage of prior modeling by DWR, MWD, and other parties, to the extent that there were not biased assumptions associated with that modeling.

It was agreed at the meeting that a technical subcommittee would recommend to the full committee the measures/tools which could combine to meet the standard. I will recommend to the subcommittee that the following tools be considered and modeled...

- The salt load that is imported by the DMC and which is conveyed to the South Delta could be promptly reduced if DMC deliveries into the San Joaquin watershed were stopped until the drainage of that salt to the river was stopped. The portion of this salt load that enters the river by subsurface accretion would

take a few years to diminish. This measure would reduce the minimum flow needed at Vernalis.

- A minimum Vernalis flow and quality should be established such that it would combine with water management within the South Delta to prevent any stagnant channel reaches and to flush the imported salt load out of the South Delta. This Vernalis flow could be provided when and as needed by (a) recirculation of DMC water, (b) releases to the river from San Luis Dam when concurrent pumping into the DMC causes fishery problems, and (c) water purchases and exchanges to provide river flow.
- The needed Vernalis flow can be reduced and the salinity reduction below 0.7EC needed in that flow can be minimized by using low lift pumps to augment upstream inflow at one or more tidal barriers. For example, low lift pumps at the Middle River barrier could bring high quality water up through Middle River and into Old River. Low lift pumps at either the Grantline or Old River barrier could assure a unidirectional inflow of good quality water in one of those channels and a unidirectional outflow in the other.

Thank you for considering these comments.

Alex