STATE WATER RESOURCES CONTROL BOARD WORKSHOP
CONSIDERING THE SOUTHERN DELTA WATER QUALITY OBJECTIVES
FOR SALINITY IN THE BAY-DELTA WATER QUALITY CONTROL PLAN

January 16, 2007

Presentation by

SOUTH DELTA WATER AGENCY PRESENTATION

As part of this Workshop, and pursuant to the settlements in the CDO cases, the SWRCB intends to isolate the respective responsibilities of the SWP and CVP for the salinity problems in the San Joaquin River and Delta. In addition, the Workshop also seeks to " receive information and conduct detailed discussions on the southern Delta salinity objectives." The South Delta Water Agency therefore will participate in the Workshop, and those that follow to assist the Board in its investigations.

With regard to the causes of the salinity problem, SDWA believes that the contributions of CVP imported salts to the San Joaquin River, the decreased flows in the River due to CVP operations and the concentration of salts in Delta channels due to altered flow patterns are well known and documented. As provided in the presentation of Alex Hildebrand, the "indigenous salts" which weather out of the east and west sides of the San Joaquin Valley only enter the River (under natural condition) at concentrations well below the standards and have no appreciable effect on beneficial uses. Under those conditions, the amounts of added salts by urban (amount not yet determined) and agriculture would enter the River and be diluted to the point where no beneficial use would be adversely affected. Put another way, the River has sufficient assimilative capacity for most all other users absent the addition of imported salts.

The imported salts are the cause of the problem, and the "but for" condition which affects all other uses. As previously investigated and determined by the SWRCB, the importation of upwards of one million tons of salts per year by the CVP results in 4-600,000 tons of salt reaching the River in concentrations well in excess of the standards and at levels which impair other beneficial uses. Further, the CVP has resulted in significant decreases of "natural" flow, not only decreasing the upper watershed's contribution to the River, but replacing it with high saline return flows and accretions which preclude any other assimilation.

With regard to the South Delta, these two effects result in water entering the area which adversely affects crop production, and causes economic and environmental damage each year.

In recent years, the CVP has operated New Melones to dilute the high saline River down to the point where the standards are met at Vernalis. If the standard is the criteria below which damage to agriculture occurs, then only diluting at Vernalis prevents virtually all downstream consumptive uses. This is because any consumptive use will concentrate the existing salts and the result will be water in the River above the standard. When the CVP only dilutes to the standard at Vernalis, it precludes any downstream assimilation of water discharged by legal users.

In addition, the CVP and SWP export pumps alter the natural flows in the southern Delta as they attempt to pull Sacramento River water across the Delta. This action decreases water levels in the South Delta, often to the point where local diversion cannot operate. Just as importantly, the "pull" of the export pumps reverses the flows in certain channels, which when combined with the normal tidal actions, creates null or stagnant zones where salts accumulate because they are not flushed out.

In response to many years of legal fights and negotiations, the DWR now installs temporary barriers in the South Delta each year (when conditions exist). These barriers address the water level issues upstream of the barrier locations, but do not improve quality. Generally, the barriers have simply changed the location and size of the null zones in Middle River and Old River. Hence, the operation of the export pumps worsens water quality in the Southern Delta, and although the mitigation for the lowered level (i.e. the barriers) exacerbates the quality problem.

Finally with regard to the causes, the SWP operates in conjunction with the CVP. The SWP delivers water for CVP uses, they cooperate in transfers, EWA and Delta operations. The SWP adds to the pull of ocean salts into the system and facilitates the recirculation of the salts as they come back down the River. The SWP also independently adds to the ground water in the valley thus increasing the downslope migration of the poor groundwater. It is clear that the SWP is also responsible for the salinity problems in the River and Delta.

It should be clearly understood that the projects are not only undeniably the cause of the salinity problem, but the are also charged by statute to maintain salinity control in the Delta, regardless of the cause. [See for example the Delta Protection Act, Water Code Section 12202]

With regard to the effects on plant and crop production, SDWA will have Terry Prichard make a presentation. He has been intimately involved in both the underlying studies of the effects of salt on plants, as well as being involved in the prior SWRCB processes which developed the standards. Mr. Prichard will review the process by which the Board previously determined the standards, including the underlying science and studies which developed the data.

SDWA believes it is clear that the current standards are necessary to protect agriculture in the Delta, and has shown that when the standards are not met, significant local damage occurs.

It appears from prior hearings, meetings and workshops that other interests will assert that a less protective standard is desirable. However, none of the information presented by those interests addresses the salient point. The studies on plant tolerances and effects resulting from different salinities were based on general assumptions regarding such things as soil permeability and leach fractions. Each study included cautions that differences in any specific instance which were different than the assumptions would mean than the general conclusions would not apply ton that specific instance. The Delta has such different conditions which result in it needing better water quality than the recommended levels in the studies in order not adversely affect crop production. Such things as low soil permeability and shallow groundwater prevent present unique problems. Therefore, when the Board addressed the issue, it acknowledged these conditions and set the standards taking into account this need for better quality leach water. No other party or expert has been able to challenge this.

Given what is known, the Board seeks input on what additional information should be developed. With that in mind, the SDWA believes the following studies or investigations are necessary and relevant to any further consideration of the salinity issue:

Effect of CVP deliveries on San Joaquin Valley groundwater gradient;

Effect of CVP deliveries on San Joaquin Valley groundwater quality;

Effect of CVP deliveries on San Joaquin Valley groundwater entering S.J. River;

Effect of CVP deliveries on leaching of naturally occurring soil salts;

Location and anticipated movement of salts delivered to San Joaquin Valley by CVP which are not directly drained into River through surface channels or structures;

Water quality conditions in the River if Exchange Contractors received River water instead of DMC water;

Change to assimilative capacity of River due to increases in upstream consumptive uses and out of basin deliveries;

Change to assimilative capacity of River due to importation of CVP salts;

Expected location and movement of selenium and salts retained in Grasslands Bypass Project area;

Effect of additional deliveries to wetlands on groundwater quality and gradient;

Effect of additional deliveries to wetlands on River salinity;

Effect of transfers on River's assimilative capacity;

San Joaquin River bank storage and accretions under changing hydrological conditions;

Contribution of SWP to various effects of CVP on River and Delta salinity.

In addition, the workshop process should include the establishment of a salinity standard upstream of Vernalis.

If necessary, the SDWA can provide copies of the numerous documents previously submitted and/or used by the Board in the development of the salinity standards, although all of the documents are part of the various records from prior proceedings. Most recently, a substantial amount of information and summery were provided in the 2005 CDO Hearing against the DWR and USBR; all subject to cross-examination. The starting place for any review of the salinity problem is the 1980 joint report by the SDWA and USBR on the Effects of the CVP on the Delta. In addition, the Central Valley Regional Water Quality Control Board has compiled a large amount of information on this issue in the development of the salt/boron TMDL and the (to-be-set) upstream standard.

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