

MEMBER UNITS EXHIBIT NUMBER 75

**Summary Consensus Statement  
for the HYDRODYNAMICS Group  
Models of Santa Ynez River & Lompoc Plain  
Groundwater, an Evaluation  
March 25, 2000**

**Introduction**

To attempt to reach technical agreement on complaints that the Cachuma Project or its operations have had a negative effect on the water quality in the Lompoc Groundwater Basin, a Memorandum of Understanding (MOU) was drafted by interested parties in December of 1996, and a Steering Committee was established to initiate a phased study to develop consensus on the use of existing surface and groundwater models and evaluation of the water quality estimates predicted by those models in order to evaluate the impact, if any, of the Cachuma Project on the City of Lompoc's groundwater quality. The Steering Committee was comprised of representatives from the following agencies: City of Lompoc, Santa Ynez River Water Conservation District, Improvement District No. 1, Cachuma Conservation Release Board, U.S. Bureau of Reclamation, Santa Ynez River Water Conservation District, Santa Barbara County Water Agency, and Regional Water Quality Control Board (*ex officio*). The HYDRODYNAMICS Group was hired as the consulting firm to carry out this work, with Dr. John Bredehoeft as the principal groundwater hydrologist.

The intent of the study and the expectation on the part of the Steering Committee was that the existing suite of models that describes the hydrology, both flow and quality, of the Santa Ynez River system and the Lompoc Plain Groundwater Basin, would be evaluated on a technical quantitative level as to their ability to provide results that satisfied technical experts and managers representing the agencies with interests in settling this dispute. The project was phased: if the first phase, which focused on evaluation of existing models, was successful, additional phases would be used to more completely investigate groundwater quality issues and solutions.

The Steering Committee was not able to agree on a consensus document for the first phase of this project. Consensus was reached among the parties that the study approach, technical evaluation, and methodology used by the HYDRODYNAMICS Group could not satisfactorily answer questions about the impact of the Cachuma Project. One of the major purposes of the Work Plan Manager concept was to present a unified position with regard to a mutual understanding of the water quality issues in the Lompoc Basin to the State Water Resources Control Board (SWRCB) at the Cachuma Project water rights hearings. There was full agreement that the contents of the draft Phase I report did not produce a basis on which consensus could be reached. Consequently, for the SWRCB to rely on this report for both the EIR being prepared for the WR 94-5 hearings and for Cachuma Project water rights decisions resulting from those hearings would not be in the best interests of any of the parties. It is, therefore, the decision of the

Steering Committee that the HYDRODYNAMICS Group's draft report should not be completed for more general distribution.

The Work Plan Manager process has enabled the parties to establish a cooperative technical forum that encouraged frank discussion of conflicting and often controversial viewpoints. This resulted in true progress being made in the evaluation and modification of certain assumptions and parameters of the models. The hydrologic consultants retained by the parties are working collectively together on the water quality modeling being carried out for the WR 94-5 EIR. This next phase of the work involves utilizing an operation model of the Santa Ynez River through an enhancement to the Santa Ynez River Hydrology Model by adding a surface water quality component. The operation model will include releases of water for downstream water rights and from the fish reserve account, delivery of State Water Project (SWP) water to the reservoir, and blending of SWP water during downstream water rights releases. This new operation model will be used to more thoroughly evaluate and understand TDS contributions from various salt sources, including tributaries between Bradbury Dam and the Narrows, as well as Cachuma Reservoir. The water quality component will be constructed into the operation model to provide a relatively accurate measure of the water quality of flows reaching the Lompoc Narrows. The output from the operation model will be input to the Durbin/Lefkoff and USGS groundwater flow and solute transport models.

Although Dr. Bredehoeft's effort has not resulted in resolution of the ongoing controversy over the effect, if any, of the Cachuma Project on the groundwater quality in the Lompoc Plain, it has provided a forum for everyone involved to become more fully informed, and has refined the questions that need to be resolved. Because of this cooperative and consensus-based effort, the Cachuma Project Member Units and the City of Lompoc have made additional efforts to reach a mutual agreement on how best to evaluate the groundwater quality problems in the Lompoc Plain, and how to address them.

### **Groundwater Flow and Quality Models**

The study began with a review of the USGS and Durbin/Lefkoff groundwater models starting with the flow models. The level of conceptual agreement was high and the primary areas of disagreement were in the details of the models. A comparative analysis between the USGS and Durbin/Lefkoff flow models indicated that when used over the long term, the two models yield similar results. The Steering Committee determined the two flow models were fairly comparable in their representation of the real system, although questions remain about how groundwater flows between zones. For the groundwater quality models, the Steering Committee agreed that the Durbin/Lefkoff model was more complete than the USGS model because it included all three zones in the Upper Aquifer of the Lompoc Plain, whereas the USGS model looked at only the main Zone of the Upper Aquifer. Consensus was reached that the Durbin/Lefkoff water quality model, in concert with the groundwater flow model, were appropriate models to investigate groundwater quality changes within the Lompoc Plain, although improved calibration of the water quality model would improve its effectiveness in predicting

groundwater quality changes. Even though there are still suggested changes, progress toward the technical reconciliation of the USGS and Durbin/Lefkoff groundwater models was one of the main accomplishments of the study.

#### **Surface Water Flow and Quality Models**

The Steering Committee did not reach consensus on the use of the Durbin/Lefkoff surface water models. Because the Durbin/Lefkoff model was the only surface water quality model available, the HYDRODYNAMICS Group chose to use it in their analysis. This was not acceptable to the Steering Committee. The parties have since agreed to add a surface water quality component to the Santa Ynez River Hydrology Model.

#### **Conclusion**

The Steering Committee has determined that the draft Phase I report should not be circulated and a final report should not be produced. Although the Work Plan Manager process has not resulted in resolution of the various issues relative to water quality in the Lompoc Plain, it has provided a forum for the parties to become more fully informed, and has refined some of the questions that need to be resolved. It has provided the basis of the forum for the groundwater analysis that will be included in the WR 94-5 EIR.