

## Rebuttal Testimony of Timothy Durbin

November 12, 2003

As stated in my direct testimony, I have done consulting work for the City of Lompoc since about 1990 regarding the impacts of the Cachuma Reservoir on the groundwater supply and groundwater quality available to the City. My qualifications for doing this work were described in my direct testimony.

My testimony here is in response to CalTrout's proposal that the Cachuma Project be operated as described in the Alternative 3A2 of the Bureau of Reclamation's Cachuma Contract Renewal EIR/EIS. Alternative 3A2 involves making releases from Cachuma Reservoir to provide perennial streamflow at specified seasonal rates. CalTrout also proposed a modification to Alternative 3A2, which is referred to here as Alternative 3A2 Dry. Alternative 3A2 Dry is similar to Alternative 3A2, except that the specified seasonal rates for the former are reduced during dry years.

I analyzed the impacts of the Alternatives 3A2 and 3A2 Dry on the groundwater available to the City of Lompoc. My analysis involved comparing Alternatives 3A2 and 3A2 Dry with Alternative 3C from the State Water Resources Control Board's Draft EIR for these Cachuma Project Water Rights hearings with respect to quantity and salinity of groundwater recharge to the Lompoc basin from the Santa Ynez River. Alternative 3C involves the operation of Cachuma Reservoir under WR 89-18, WR 94-5, the Biological Opinion, and a 3.0-foot reservoir surcharge. Under Alternative 3C, the recharge to the Lompoc groundwater basin is the same as would occur in the absence of the Cachuma Project, with respect to both quantity and quality. This occurs in large part because the releases include direct and mixed releases of State Water Project water and because Alternative 3C preserves essential elements of WR 89-18.

The groundwater salinity within the Lompoc groundwater basin depends significantly on the Santa Ynez River streamflow salinity at the Narrows. That streamflow salinity in turn depends on the mixing of releases from Cachuma Reservoir with tributary streamflows downstream from Bradbury Dam. Different operations of the reservoir produce different mixing patterns and corresponding different streamflow-salinity regimens at the Narrows. While Alternative 3C creates a streamflow-salinity regimen that is functionally equivalent to that which would occur with the absence of Cachuma Reservoir, Alternative 3A2 does not create that equivalency.

Alternative 3A2 will result in significantly higher groundwater salinity within the Lompoc groundwater basin. This alternative will increase the average salinity of recharged streamflow by about 100 mg/L above that which will occur with Alternative 3C. This is the increase in the volume-weighted average recharge salinity. The average recharge salinity will be 770 mg/L with Alternative 3C, 900 mg/L with Alternative 3A2, and 860 mg/L with Alternative 3A2 Dry. Alternative 3A2 represents a 17 percent increase in the average recharge salinity over Alternative 3C, and Alternative 3A2 Dry represents a 12 percent increase in the average recharge salinity.

These conclusions were derived from simulations using the Santa Ynez River Hydrology Model. That model is described in the Cachuma Project Water Rights EIR. That model simulates streamflow and streamflow salinity within the Santa Ynez River basin. A model such as the Santa Ynez River Hydrology Model is essential to the proper evaluation of any operational scheme for Cachuma Reservoir. A model is needed in order to determine how an operation scheme affects the mixing of reservoir releases with tributary streamflows downstream from Bradbury Dam.