ADVICE AND ARBITRATION: THE ROLE OF NUMERICAL MODELS IN THE PUBLIC SECTOR

DANSKIN, Wesley R., U.S. Geological Survey, 5735 Kearny Villa Rd., Suite O, San Diego, CA 92123

Water-management studies conducted by the U.S. Geological Survey in cooperation with other public agencies are used to illustrate two dominant uses of numerical models within the public sector—advice and arbitration. Commonly, the particular use of modes, such as ground-water-flow, solute-transport, and optimal water-management models, depends on the specific agencies and individuals involved and the existing framework of water management.

In San Bernardino, ground-water-flow and constrained optimization models are being used to advise local water districts and the U.S. Environmental Protection Agency on optimal locations for new wells, improved operation of recharge ponds, and design of facilities to clean up a trichloroethylene plume.

In Owens Valley, increased ground-water pumpage and coincident decline in native vegetation resulted in litigation between Inyo County and Los Angeles Department of Water and Power. To help resolve the litigation, a cooperative study of the vegetation and hydrology was begun, including the development of detailed ground-water models. The models played a key role in the arbitration process by serving as unambiguous, quantitative representations of the physical systems and as a focal point for discussions and negotiations.

Danskin, W.R., Geological Society of America, 87th Annual, Cordilleran Section, v. 23, no. 2, p. 17, 1991.