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Engineer Research and
Development Center

Dutch Gulch Outlet Works Study

Description A physical model study was conducted to evaluate the hydraulic performance of the Dutch Gulch intake structure, transition, conduit, stilling basin and exit channel of Dutch Gulch Lake, California.

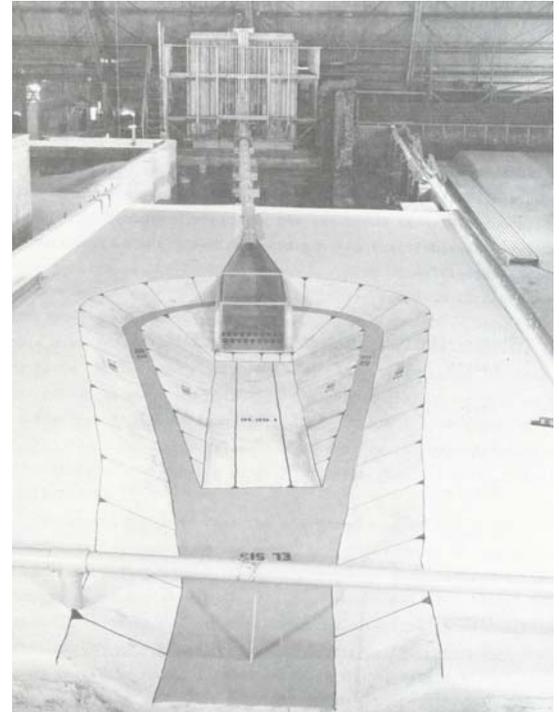
Issue The proposed Dutch Gulch Lake and outlet works will be located on the main stem of Cottonwood Creek about 11 miles west of the town of Cottonwood, California. The outlet works will consist of an approach channel, intake structure, multi level control tower, conduit transition, 1424-ft by 14-ft diameter conduit, stilling basin and exit channel.

Products At the request of the U.S. Army Engineer District, Sacramento, a 1:25 scale physical model was designed and constructed at the U.S. Army Engineer Research and Development Center by the Coastal and Hydraulics Laboratory. The model reproduces the Dutch Gulch intake structure, transition, conduit, stilling basin and exit channel. The model was used to evaluate and modify the design and performance of these proposed project features.

Benefits Results of the model study indicated the desirability of modifying certain elements of the outlet works as originally designed to provide adequate energy dissipation in the stilling basin, to reduce the range of slug flow, and to provide for a pressure-free turbine exit chamber.

Sponsors U.S. Army Engineer District, Sacramento.

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Physical model of Dutch Gulch Lake, CA