

Inspectors say Casitas Dam needs upgrade

QUAKE FEAR: *Work to prevent embankments from crumbling could cost \$15 million.*

By Jim McLain
Staff writer

Casitas Dam near Ojai should undergo \$10 million to \$15 million worth of dirt work to strengthen it against earthquakes, a newly completed federal study says.

A gravelly dirt used as fill to build the lower portions of embankments at both ends of the dam could flow like water during an extremely strong earthquake beneath it, possibly compromising the 40-year-old structure, says the study by the Federal Bureau of Reclamation. While the chances of that happening are extremely small, a dirt exchange would prevent it, according to the study.

"They can just take one type of dirt out and put another type in," said Casitas Municipal Water District General Manager John Johnson. "They want to replace the gravelly dirt with a structural fill that won't liquefy."

Completed a few weeks ago, the study was done over several months and included laboratory analysis of material from deep inside the dam. Numerous holes were drilled into the 334-foot-high earthen structure last summer and fall to obtain the core samples, Johnson said. The study was part of a survey that evaluates all dams the Bureau of Reclamation owns every six to eight years for possible safety problems.

Details of the study's findings and recommendations are to be presented during a public meeting at 2:30 p.m. Tuesday at the Casitas Municipal Water District office, 1055 N. Ventura Ave., Oak View.

The latest geological discover-

ies and scientific techniques are employed in the BOR studies, Johnson said. It was findings made by geologists in the aftermath of the disastrous 1995 earthquake in Kobe, Japan, that inspired the Casitas Dam dirt trade idea.

Gravelly dirt in the foundations of some of the Japan city's buildings underwent a process called liquefaction during the Kobe quake, which occurred exactly one year after and was slightly stronger than the 1994 Northridge quake. Geologists had known for years that sandy soil would move almost like water in an extremely violent temblor, but liquefaction had not been observed in gravelly soil before the Kobe quake, he said.

The BOR engineers believe it could happen at Casitas if a magnitude 8.0 or greater quake occurred immediately beneath the dam, Johnson said. The Northridge quake had a Richter scale magnitude of 7.1. The dam is not on a major fault, though several minor faults are nearby. Hundreds of earthquake faults are spread throughout Ventura County.

Gravelly soil is used only in embankments at the sides of the dam, Johnson said. The foundation at its center was excavated down to bedrock. BOR engineers made a similar dirt trade recommendation for the Bradbury Dam north of Santa Barbara, which holds the Lake Cachuma reservoir. Lake Casitas, Ventura County's largest reservoir and the main water supply for much of the Ojai Valley, the Rincon and West Ventura, is behind Casitas Dam.

If the proposal is approved, the federal government would pay 85 percent of the cost, with the Casitas district picking up the rest, Johnson said. Work would probably not begin until the fall and would take at least several months.