Study -- Santa Clara County's Anderson Dam at risk of collapse in major earthquake

Sandra Gonzales, Bay Area News Group, 10-14-10

Santa Clara County's largest dam -- Anderson Reservoir -- is at risk of collapsing in a major earthquake, potentially releasing billions of gallons of water that could flood Morgan Hill and San Jose within just minutes in a worst-case scenario, new tests show.

"We're not crying wolf. We're saying it's here and we have to deal with it," said Richard Santos, chairman of the Santa Clara Valley Water District's board of directors. "We're not going to run from it."

Confirming a problem highlighted in studies a year ago, preliminary findings released Wednesday indicate that Anderson Dam could experience significant slumping -- but only if a magnitude 7.25 earthquake were to occur on the Calaveras Fault within two kilometers of the dam.

As a result, the district's dam operators plan to keep the reservoir no more than 56 percent full until further analysis is completed and until it can be retrofitted to survive such an earthquake. Currently, Anderson Reservoir is 54 percent full.

"The first order of business is protecting public safety, and we plan on doing that by maintaining water at a low enough elevation so if there was an earthquake that the water is contained behind the dam," said Frank Maitski, deputy operating officer at the Santa Clara Valley Water District. "We're committed to doing a remediation as quickly as we can."

Since January 2009, Anderson Reservoir has been no more than 74 percent full -- a restriction set by the California Division of Safety of Dams based on information then that indicated the dam's foundation contains sand and gravel that could liquefy in a big quake.

Ever since the district hired outside consultants to evaluate the seismic stability of the dams, engineers have been using drilling machines, barges and other heavy equipment to take geologic samples on both sides of the dams.

Maitski said the district must determine how much the dam would slump, and that will require two more months of analysis. Fixing the problem, he noted, requires lengthy construction that would take up to six years and cost as much as $100 million.

"We're going to take the necessary steps to get all the designs and studies completed and, unfortunately, it takes a tremendous amount of money," Santos said. "Right now, it doesn't affect the water supply or safety, but we want to take steps to remediate it."

Built in 1950, Anderson Reservoir sits on Cochrane Road, east of Morgan Hill, and along the Calaveras Fault, which runs from Hollister to Milpitas. It holds 90,000 acre-feet of water when full -- more than the other nine reservoirs in the county combined.

Although the chances are very remote, a complete failure of Anderson Dam could send a wall of water 35 feet high into downtown Morgan Hill in 14 minutes, and 8 feet deep into San Jose within three hours.

The Oakland firm AMEC Geomatrix is expected to complete the final report on Anderson Dam in May. Seismic safety evaluations at seven more dams are expected to be completed by 2013.

State and federal authorities ordered the studies because of concern that the aging dams could collapse in a major earthquake.