TEMECULA VALLEY: Vail Dam may fail in large earthquake

Rancho Water looking into building new dam next to existing dam on Vail Lake to make the structure safer in the event of an earthquake.

Aaron Claverie, The Press Enterprise, 4-8-16

The Rancho California Water District is looking into the feasibility of building a new dam at Vail Lake to augment the existing structure, a 68-year-old mass of concrete that has been deemed "deficient" by a state agency.

The dam, about 10 miles east of Temecula at the northwest corner of the lake, was flagged by the state's Division of Safety of Dams in early 2013.

In the event of a large earthquake on one of the two faults in the region – a temblor of 7.4 magnitude or greater – there's a chance the dam could fail, the agency stated in its report.

District board member Danny Martin, elected in 2015, said he has been told there's no record of an earthquake of that size magnitude in the region and that the dam has overflowed only twice in its 68 years.

"It's a very remote possibility, very remote," Martin said about the odds of the dam failing.

The district hasn't issued public notification about the state's findings because there is no imminent danger.

"There were quite a few other dams facing the same thing because a lot of the regulations have changed," said district spokeswoman Meggan Valencia.

The dam, which stands 152 feet, was built on Temecula Creek in 1948-49 by the Vail Co. to service its ranching business.

The water district acquired the dam in 1978 from the Kaiser Corp. and Macco Realty Co. when it bought the lake to boost supply for its customers, which includes most of Temecula, a sliver of Murrieta and the unincorporated communities of the Temecula Valley Wine Country and De Luz.

In 2014, the district bought the land surrounding the lake in a bankruptcy proceeding to help preserve water quality.

There are two active fault zones of the San Andreas fault system in the region: the San Jacinto fault zone to the east of the lake and the Elsinore fault zone to the west. The Elsinore zone is closer, which means it is considered the "controlling fault" for purposes of the safety studies.

In its report, the Division of Safety of Dams said the stresses induced by strong ground shaking during an earthquake would exceed the dam's allowable strengths on the downstream (western) face of the structure.

"The extent and duration of the overstress is such that a failure of the dam could occur during a maximum credible earthquake," the report states.

The land surrounding the lake is mostly vacant, aside from an RV resort to the south and a winery and ranches to the west.

Per the state's rules, the district sought a second opinion by an independent consultant, which confirmed the state's findings. The consultant, Orange-based URS Corp., has presented two options to retrofit the dam.

Martin said both options are expensive. Option A, which involves "lowering" the dam by carving a 170-foot wide notch in the center, could cost around $50million. Option B, raising the dam by 6 feet and reinforcing some of the concrete, was estimated at $38.6 million.

In late March, the district's board of directors authorized increasing the budget for the consultant – which now stands at $710,000 – and asked the company to determine how much it would cost to build a new dam.

The district has until Oct.1 to select a plan, according to the state agency.

Martin said he hopes the analysis includes the possibility of building a hybrid dam that uses the silt from the lake that the district intends to remove. He also wants to know precisely how dire the situation is and when the work needs to be completed.

"Do we need to do it all right now, or can we parcel it out?" he asked. "I just want to get the best job done at the cheapest price."