

Study: Santa Rosa could see 7.1 quake on Rodgers Creek fault

Julie Johnson, The Press Democrat, 10-17-14

The Rodgers Creek fault that cuts through the heart of Sonoma County is one of four major faults in the populous Bay Area primed with enough pent-up energy to produce a major earthquake, and it's overdue for a big one, according to a new study.

Scientists came to their conclusions, released ahead of Friday's 25th anniversary of the magnitude-6.9 Loma Prieta earthquake, after poring through historical data and making extensive new measurements of "fault creep" across the earthly fissures that define the 44-mile-wide San Andreas fault system.

Fault creep is the slip in the uppermost part of the earth's crust along a fault line. Stress in the earth's crust is released with this gradual creeping, diminishing the strain and potential energy of a given fault.

But Rodgers Creek is considered "locked" because it has had hardly any measurable creep and is therefore is likely to be "eventful," said geophysicist James Lienkaemper with the U.S. Geological Survey, a lead author of the study produced jointly with researchers from San Francisco State University.

Researchers estimate Rodgers Creek, which runs from San Pablo Bay to the northern outskirts of Santa Rosa, has accumulated enough strain to produce a magnitude-7.1 temblor. It is listed with three other fault segments in the Bay Area's earthquake system that have accumulated significant strain — the Hayward fault between Suisun Bay and San Jose, the Calaveras fault from Hollister to Danville and the Green Valley fault from Vallejo to Fairfield.

"They are loaded for an earthquake the size of which you would expect significant damage," Lienkaemper said.

This new research adds to a constellation of reports and findings that have put the entire Bay Area on alert for the next big one. It also comes two months after the Aug. 24 magnitude-6.0 quake in Napa that has already hastened emergency plans as well as inspections of buildings that potentially need retrofitting in Sonoma County, said Tennis Wick, director of Sonoma County's Permit and Resource Management Department.

Wick said department staff started examining buildings affected by the Napa quake and then expanded that list to inspect structures countywide that could present significant safety risks because of unreinforced masonry and other structural issues.

"We are halfway through," he said.

The Santa Rosa Plain is basically a "bowl full of alluvial soils" that liquefy during an earthquake, amplifying its strength, said Chris Helgren, Sonoma County's emergency manager.

