

Army engineers move fast to repair levees on rivers

By BOB SMITH
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The Army Corps of Engineers will probably award two contracts next week to repair earthquake-damaged levees along the Pajaro and San Lorenzo Rivers.

Lt. Gen. Henry J. Hatch, chief of the Corps of Engineers, toured quake-damaged downtown Santa Cruz and the shattered levees along the San Lorenzo River before announcing that the corps will spend an estimated \$1.9 million to rebuild sections of the two levees before winter rains begin in earnest.

Army engineers say there are 4,300 feet of damaged levee on the Santa Cruz County side of the Pajaro River and at least 2,300 feet on the Monterey County side.

In Santa Cruz, there are 4,530 feet of damaged levees, mostly near the mouth of the San Lorenzo River, opposite Ocean Street and Beach Flats.

In both cases, Hatch told reporters, engineers believe that the quake weakened the levee to the extent that they would not withstand the water pressure generated by even a 3-5 year storm — a storm that statistics say will occur in Santa Cruz County every 3 to 5 years. (The 1982 floods were ranked in the 30-40 year frequency range and most flood-control projects are designed to accommodate at least 100-year storms.)

Hatch said a contract to begin repairing the San Lorenzo River levee will probably be let Monday.

Damage-assessment work on the Pajaro River levees is about two days behind that in Santa Cruz, primarily because initial damage reports provided the corps showed most of the levee damage to be through the agricultural areas of the valley, not the urban areas of Watsonville and Pajaro.

Engineers began working on the Pajaro River levee in earnest when the corps inspection showed damage far greater than earlier believed.

It will cost approximately \$1.25 million to complete the temporary repairs to the San Lorenzo River levees and about \$700,000 for the Pajaro River.

Army engineer John Azevedo, chief of the corps' newly established Santa Cruz office, explained the difference in cost, saying that the San Lorenzo levees are higher because the channel is narrower than the Pajaro. Also, rip-rap (large rocks or boulders) is used on the San Lorenzo River to prevent erosion of the levee bank.

Both contracts should be completed in 30 days, Hatch said. But the work is only being regarded as temporary — enough to carry Watsonville and Santa Cruz through the winter flood season. Once the flood danger is past next spring, the Army will be back with new contracts to make permanent repairs.

Like the Pajaro River levee, the San Lorenzo River levee near the now-condemned Riverside Avenue bridge into Beach Flats was torn



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Gen. Henry Hatch (facing camera in center) inspects cracked levee on the San Lorenzo River

apart by the Oct. 17 earthquake.

The San Lorenzo levee was built in 1957 after the devastating 1955 floods.

The Pajaro River levees, 21 miles long, were constructed in 1949, an engineer said yesterday.

In both cases, surveying engineers found deep cracks running both the length and breadth of the levees in numerous places. Most of the cracks on the San Lorenzo levee are four to six feet deep; some on the Pajaro levee go down eight feet.

The cause in both cases is believed to be liquefaction of underlying sand.

Tightly packed sand, even when saturated with water, can appear to be reasonably solid. But when it's jarred, as in a strong earthquake, it will turn instantly into a fluid, allowing anything built on it to tilt or sink.

That's what happened Oct. 17 on both the San Lorenzo and Pajaro Rivers, the engineer explained yesterday.

Hatch said that 300 civilian and a few military engineers from all

over the United States have been flown into Northern California since Friday to begin inspecting damaged homes.

The engineers have been loaned to the Federal Emergency Management Agency and will be verifying damage claims on private residences so that disaster aid can be paid out quickly to disaster victims.

In many cases, Hatch said, engineers will be verifying and returning the damage claims to FEMA for processing in less than 48 hours.

Hatch, who holds a master's degree in geodetic science, toured the destroyed portions of the Pacific Garden Mall yesterday.

He said improvements in the last few decades in building codes probably saved many lives and property.

"The older, unsupported masonry buildings fell," Hatch said. "The newer buildings survived except for those where older, falling buildings fell through them. If we had not had a continual evolution in the building codes, there would have been a lot worse damage."

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