

EXAMINER PHOTOS BY KURT ROGERS

Collapse of levee no surprise, expert says

Break occurred just 1,500 feet from spot Palo Alto engineer pinpointed in '91 testimony

By Lance Williams
 OF THE EXAMINER STAFF

Five years before the worst single disaster of the flood of 1997 — a Jan. 2 levee collapse that flooded 15 square miles of the Central Valley near Marysville — a flood-control expert pinpointed the levee as a “hot spot” where a failure was likely, court records show.

Richard Meehan, a civil engineer from Palo Alto, testified in a 1991 trial in Sacramento that three major factors indicated the structure was prone to collapse during high water: the unusual geology on the Feather River in an area called Star Bend, a mistake in the placement of the levee there, and a history of problems with the levee itself.

Meehan said the doomed levee was “generally similar” to two nearby levees that failed in previous disasters — the Christmas Eve 1955 levee break on Shanghai Bend south of Yuba City that killed 38 people, and a break near the Yuba County town of Linda in 1986 that produced \$500 million in damage claims.

Both of those levees failed, Meehan contended, because flood wa-

[See LEVEE, A-12]

Clinton, Jones duel goes to top court

Jurists will decide when president must contend with her allegations

By Holly Yeager
 EXAMINER WASHINGTON BUREAU

WASHINGTON — Paula Corbin Jones, who is suing President Clinton for sexual harassment wants her day in court — soon.

But Clinton says that as chief executive, he is too busy running the country to deal with the civil suit and should be immune from such a judicial proceeding while he is in office.

Arguments in the case will be heard by the Supreme Court on Monday. It will consider whether Jones' litigation — based on Jones' allegations that Clinton sexually harassed her while he was governor of Arkansas — should proceed or be postponed until Clinton moves out of the White House in 2001. The issue before the justices i

Who survived

In flood waters, river dwellers find ways to keep going



Jay Mills, top, owner of the Tobin Resort, stands on a piece of a Feather River bridge that was washed away by the floods. When the flood waters came to Tahiti Village, Rick Wheeler and his family, above, camped out on the roof of their house for three days to keep looters out.

◆ LEVEE from A-1

Expert predicted levee collapse

ter had saturated a subsurface layer of gravel, then flowed underground far to the landward side of the levees and erupted, geyser-like, undermining the structures and causing their collapse.

Identical conditions prevailed at Star Bend, said the engineer, who studied the area on behalf of victims who successfully sued the state after the 1986 flood. He also testified that his research showed that the Star Bend area had been hit with "sand boils" — surface eruptions of water that can precede a levee collapse — on four occasions since 1955.

In an interview, Meehan said the state's experts disputed his testimony about the cause of the levee breaks and dismissed his proposed remedies to prevent future ones.

"I feel the state was pretty hard on me — they said it was a wild theory," Meehan said. "They were skeptical, and at the end of the trial there were comments about my testimony that were almost ad hominem — basically calling me a hired gun."

Nevertheless, at 7:30 p.m. on Jan. 2, witnesses said a series of leaks developed on the levee just north of Star Bend, and 1,500 feet from the area that Meehan, in his 1991 testimony, had pinpointed as prone to failure.

Crews from the state Department of Forestry and Fire Protection tried to wall off the boils with sandbags. But witnesses said a 30-foot-high geyser suddenly erupted near the base of the levee. The workers fled for their lives, and within minutes a 600-foot-long stretch of levee collapsed and the river roared through the breach.

The flood's toll

The flood that followed inundated the town of Olivehurst and 15 square miles of farmland and towns. One man is known dead and two other people are missing, 180 homes and businesses were destroyed and another 480 were damaged, according to the state Office of Emergency Services, which put preliminary damage estimates at \$200 million.

The flood also has left a messy cleanup problem because the area is saturated with agricultural chemicals and littered with the carcasses of hundreds of drowned farm animals.

About 80,000 people in the area were forced from their homes, although most were evacuated as a precaution and did not suffer flood damage.

The state flood experts who squared off against Meehan in the trial were not available for comment because they "have their hands full" with the ongoing floods, said Neil Gould, a lawyer for the Department of Water Resources.

He said the state experts strongly disputed Meehan's theory about what caused the levee collapse in 1986. But he said they long had known, based on U.S. Army Corps of Engineers studies, that the levee at Star Bend needed work.

"Mr. Meehan's testimony at the trial about what the situation was at Star Bend was nothing new to the public agencies," he said. "We had all read the Corps of Engineers report."

Gould said the corps, which controls when levee repairs will begin because the federal government pays 75 percent of the cost, had scheduled work to start this summer on the levee that collapsed.

"Obviously now, in hindsight, we wish the repairs had been done last year, but this is the process that exists," he said.

Peter Weisser, a Department of Water Resources spokesman, said levee safety would be addressed at a legislative briefing in Sacramento on Tuesday.

Meehan served in the U.S. Army Corps of Engineers and has built dams in Southeast Asia and studied flood control in the Mississippi River Valley.

In 1990, he went to work for the lawyers for 1,500 plaintiffs who had been flooded out when a levee on the Yuba River washed out at Linda in 1986, flooding a shopping mall and hundreds of homes.

Did they do all they could?

The state and the local reclamation district contended they should be held blameless because they had done all they could to prevent the flood, which they said occurred simply because the levee was breached by rising water.

In searching for another explanation, the engineer said he became convinced that the region's geology was the best predictor of where floods might occur.

He theorized that the Valley south of Marysville was underlain at a depth of 40 feet with a thick layer of gravel — "a confined aquifer" through which water flows easily. The gravel layer is the prehistoric channel of the Feather River, he theorized.

Atop the gravel layer, near the surface of the soil, is a thick layer of debris put there in the 19th century as a result of hydraulic gold mining in the Sierra. Where the upper layer has been disturbed — either naturally or by excavation — water soaks into the gravel subsoil.

During floods, the water can migrate through the subsurface gravel layer and erupt on the surface in other places where the upper layer has been disturbed, Meehan theorized.

The theory had implications for predicting floods because in some places along the Feather the levees had been constructed far out over the river's prehistoric channel.

There floods were likely to produce "sand boils" on the landward side of levees — and, in the worst event, collapsed levees and flood-



An aerial view shows the remains of Olivehurst, a small town on the Feather River south of Marysville, after a levee broke on Jan. 2 and allowed flood waters to inundate the town. One man is known dead, two other people are missing and 180 homes and businesses were destroyed by the flooding.



EXAMINER/CHRISTINA KOCH HERNANDEZ

Richard Meehan said five years ago that the levee was likely to fail.

ing.

In his testimony, Meehan identified three such places: the sites of the 1955 and 1986 levee breaks, and the spot where the levee was to break in 1997.

In all three places, he testified, "the levee is built out into the flood plain. It sticks out into the river (channel), cuts more than halfway across the river (channel)."

"That's a bad sign," he said.

In the trial, state experts disputed that the gravel layer existed as Meehan described it and that it acted as he said it did. Lawyers for the flood victims also blamed the levee break on poor maintenance and inspection.

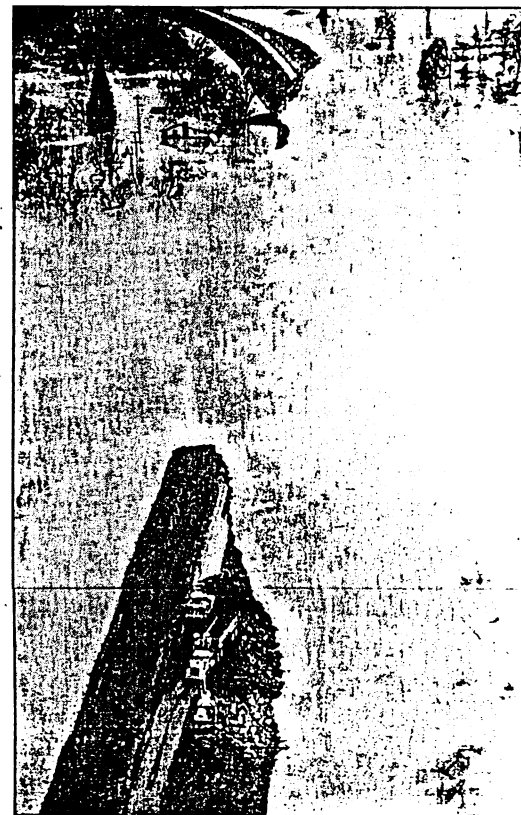
"The whole state inspection system is a joke, if what I saw in the Yuba City case is representative," said plaintiffs' lawyer David Collins.

In the trial, a judge ruled in favor of the victims, but an appeal by the state is still pending.

To ward off floods along the Feather, Meehan proposed building "pressure relief wells" in areas where underground movement of flood water is suspected to occur.

The wells bring underground water to the surface, bleeding off pressure that might otherwise erupt in a "sand boil," he said. Rare in modern California, these wells are successfully used in the Mississippi Valley, he said, and might well have forestalled the Star Bend break.

After the trial, Meehan said he learned that the Department of Water Resources had done a series of test borings on the land side of the levee at Linda, apparently to discover whether the subsurface gravel layer actually existed.



BRANIMER KVARTUC/APPEAL DEMOCRAT VIA AP

Flooding water flows through a gap in the Feather River levee as trucks haul fill material into the damaged area of Yuba County.

In a 1993 letter, he asked the Department of Water Resources to make results of the study public.

"If, as may be reasonably inferred, the state's tests indicate that a dangerous condition exists beneath the levee ... simple steps can be taken to correct the danger now," he wrote to David Kennedy,

Water Resources director.

In reply, Department of Water Resources counsel Susan Weber declined to make the test data public because her department hoped to win a retrial on appeal and did not want to "disclose important elements of the state's factual or legal case."

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