

# Army Corps Is Faulted on New Orleans Levees

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Panel Says Studies Foresaw Failure, Urges New Scrutiny

By Joby Warrick and Peter Whoriskey  
Washington Post Staff Writers  
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An organization of civil engineers yesterday questioned the soundness of large portions of New Orleans's levee system, warning that the city's federally designed flood walls were not built to standards stringent enough to protect a large city.

The group faulted the agency responsible for the levees, the Army Corps of Engineers, for adopting safety standards that were "too close to the margin" to protect human life. It also called for an urgent reexamination of the entire levee system, saying there are no assurances that the miles of concrete "I-walls" in New Orleans will hold up against even a moderate hurricane.

"The ability of any I-wall in New Orleans to withstand . . . is unknown," said the American Society of Civil Engineers' External Review Panel, which was appointed to oversee the Corps investigation of the levee system's collapse during Hurricane Katrina.

The civil engineers group also rejected the explanation given by the Corps that the system had failed because Katrina had unleashed "unforeseeable" physical forces that weakened the flood walls. In a letter to Lt. Gen. Carl A. Strock, the Corps' commander, the civil engineers cited three previous Corps studies that predicted precisely the chain of events that caused the city's 17th Street Canal flood wall to fail. The breach left much of central and downtown New Orleans underwater.

"It appears that this information never triggered an assessment . . . neither at the time of the design of the 17th Street Canal flood wall, nor following its construction," the letter said.

Corps officials said they had already taken steps to address problems identified in the letter, starting with an effort to replace miles of I-walls with sturdier structures. But agency officials insisted the Corps was not solely to blame for weaknesses in the system.

"We have done the best things we could have done. We live here," spokeswoman Susan J. Jackson said. During four decades of levee-building in New Orleans, Jackson said, the agency frequently found its hands tied because of restrictions imposed by budgets, by Congress or by local governments that often failed to meet financial responsibilities to help build and maintain the levees. Jackson added: "It was a question of who was going to pay, and how much."

The American Society of Civil Engineers panel is one of three independent teams investigating the failure of the New Orleans levees, and until now it has been the most cautious in its public criticisms. The other investigating teams quickly endorsed its findings.

"We agree that every single foot of the I-walls is suspect," said Ivor van Heerden, leader of a Louisiana-appointed team of engineers. "When asked, we have constantly urged anyone returning to New Orleans to exercise caution, because the system now in place could fail in a Category 2 storm. It has already failed during a fast-moving Category 3 storm that missed New Orleans by 30 miles."

Two weeks ago, the Corps proposed a new theory for why the 17th Street Canal flood wall collapsed on Aug. 29, despite never being overtopped by Katrina's floodwaters. Whereas previous investigations had pointed to weak soils beneath the flood wall, new data suggested a combination of factors: First, the force of rising floodwaters inside the canal bent the walls outward, creating a small gap between the walls and their earthen foundation. Then, water surged into the gap, pressing the walls further until they broke through a layer of weak soil piled up against the sides. In effect, the levee was sliced in half along its ridge.

Corps officials initially said they had never known a levee to fail this way, and they suggested that no one could have predicted it. But the civil engineers panel said yesterday that the failure was foreseen by the Corps' own studies, dating to the mid-1980s. It said the Corps' failure to anticipate the problem reflected an "overall pattern of engineering judgment inconsistent with that required for critical structures."

Throughout the design process, the civil engineers said, the Corps consistently failed to make the kinds of conservative judgments necessary when working in an environment where the soils are notoriously unstable and the stakes, as measured in human lives, are high.

"These findings present significant implications for current and future safety offered by levees, flood walls and control structures in New Orleans, and perhaps elsewhere," the letter to Strock said.

The civil engineers panel is due to release a formal report on its findings in two weeks, but its members chose to send the letter to Strock separately, citing the "gravity and potential impact" of their findings.

*Whoriskey reported from New Orleans.*

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