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## Army Corps Admits Flaws in New Orleans Levees

By [JOHN SCHWARTZ](#)

In a sweeping new study of the causes of the disaster in New Orleans, the Army Corps of Engineers acknowledged today that the levees it built in the city were an incomplete and inconsistent patchwork of protection, containing flaws in design and construction, and not built to handle a hurricane anywhere near the size of Katrina.

"The hurricane protection system in New Orleans and southeast Louisiana was a system in name only," said the draft of the nine-volume report.

The region's network of levees, floodwalls, pumps and gates lacked any built-in resilience that would have allowed the system to remain standing and provide protection even if water flowed over the tops of levees and floodwalls, the report's investigators found. Flaws in the levee design that allowed breaches in the city's drainage canals were not foreseen, and those floodwalls failed even though the storm waters did not rise above the level that the walls were designed to hold.

But the system was also overwhelmed in significant ways by Hurricane Katrina, and some degree of flooding would have happened even if the floodwalls had not been topped by the surging waters, the report stated.

"Regardless of breaching or no breaching, there would have been massive flooding and losses" from Katrina, said Dr. Ed Link, the director of the study and an engineering professor at the University of Maryland, in an interview. "The losses were increased because of the breaching that occurred," he said.

Several outside engineering panels that have been critical of the Army Corps of Engineers have come to similar conclusions about the failures of the region's hurricane protection system, and have found a more extensive chain of flaws in the design, construction and maintenance of the 350-mile levee system. But the 6,113-page report released today is remarkable for being a product of the Corps' own official investigation, which brought together 150 experts from government, academia and business to study what went wrong and how to build better systems for the future.

The chief engineer of the Army Corps, Lt. Gen. Carl A. Strock, said the report showed that "we missed something in the design," particularly in the construction of the drainage canal floodwalls that caused so much of the flooding.

According to the report, the Corps designers failed to anticipate the way that the floodwalls would fail as water climbed high against them: in several breaches, including the one at the 17th Street Canal, the force of the water pushed the floodwall back slightly, opening a gap deep into the earthen levee below that

allowed water to course down under high pressure and push the wall aside.

General Strock did not go so far, however, as to apologize on behalf of the Army Corps for the decades of decisions that went into the system. "I really try to stay as unemotional as I can on this," he said. For engineers, he said, "It's not about confessions, it was about analytics that led us to conclusions about what occurred."

So, he said, "It is what it is. Call it a mea culpa, or call it a dry recognition, or admission, or whatever — but we're not ducking our accountability and responsibility in this."

Nonetheless, he made it clear that he believed outside influences played a role in the problems of the flood protection system, though that did not absolve the Army Corps. As one example, he cited the Corps' plans in the 1970's to put large barriers at the narrow openings between Lake Pontchartrain and the Gulf of Mexico. The Corps backed off from that plan after a court challenge from environmental groups, and then proposed floodgates at the city's drainage canals — but local officials of the levee boards and sewerage and water boards blocked that plan as well, and so the Corps went with the next fallback plan of building floodwalls in the canals.

"Each time, we backed off," General Strock said. "Each time we did that, we assumed an increment of risk. I don't think anybody looked back and said risk, risk and risk adds up to unacceptable levels."

He added that this was not an attempt to lay blame at the feet of others, because ultimately the Corps has responsibility for what it builds.

"At the end of the day, we have to stand by the decisions," he said. If the Corps builds floodwalls, those floodwalls have to stand up to the test and the system has offer the intended level of protection. "And we didn't get there," he said.

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