

MEMORANDUM



Date: August 17, 2010
From: Windell A. Curole
Re: The Levees Didn't Fail

The Association of Levee Boards is the only group whose interest is in flood protection for the communities of Louisiana before Hurricane Katrina and since. It is our belief that there exists some misunderstanding due to anger, lawsuits and the need to get answers quickly.

We believe that after five years it is time to discuss the issues again to insure that we understand accurately why the system failed. We should also ask why so many people did not understand their risk.

We ask that you help with the need to discuss these issues by forwarding the discussions on the enclosed paper.

WAC:mcp

PRELUDE

The Levees Didn't Fail

In 1965 Hurricane Betsy damaged the New Orleans area with high winds and extensive flooding in Plaquemines and St. Bernard Parishes and the lower 9th Ward of Orleans Parish.

The authorized projects for protection in the New Orleans area began with a barrier plan which would have protected the entire Pontchartrain basin, both north shore and south shore. Objections from an environmental organization and fishing groups forced the abandonment of the barrier plan.

The Corps was forced to develop the high level plan which consisted of flood protection, levees, gates, and walls protecting the populated areas on the south shore.

A major weakness of the high level plan was the failure to build flood protection at the lake where the drainage canals intersected the lake. Where levees were built along the lake, the canals were left open and used thousands of feet of walls to connect the levees to the pump stations which were near the heart of the city. These walls and their function were a constant point of conflict with landowners and drainage concerns.

The 1995 rainfall flooding event in New Orleans funneled flooding focus on rainfall flooding rather than the risk from tidal flooding. Resources and attention of the public and the leaders in New Orleans was directed to rainfall flooding. Although rainfall flooding is a great hazard, it cannot match the devastation from tidal flooding. Sadly, this fact was emphatically proven by Hurricane Katrina. In effect, the Katrina event was “a compromise to failure”. The compromise to satisfy special interest groups lead to a weakened system that destroyed a community; a community who misplaced its trust in a government that would not cater to special interest, but would do its job for the greater good.

THE LEVEES DIDN'T FAIL

Most of the information promoted post Katrina about flood protection and levees came from experts and other individuals who had little history or experience with flood protection in south Louisiana. Some of the best and most dependable information was not used because it did not fit the story they wanted to tell. The other reason was that they did not trust the people giving the information. The “they” are book authors, newspaper writers, radio talk hosts, bureaucrats and non-profit organizations who just ignored certain facts or refused to believe those facts. Some of these misrepresentations may seem irrelevant, but in fact, have cost the public in wasted resources.

One of the most inaccurate statements is that the levees failed. In fact, even the poorest levees in New Orleans held the water back until there was overtopping. Even with the overtopping, only the levees along the MRGO had a large amount of levees destroyed. Seven miles were lost out of a 14 mile segment. In all other areas, most of the damage was associated with floodwalls and other non-levee flood protection structures.

Prior to Katrina, if a levee held the water back until it reached the top of the levee, it was successful. If the water overtopped the levee, this was not considered a failure. It was understood the levee encountered a condition beyond the design of the levee. In other words, if the water level was higher than the level the levee was designed for, it was not a failure. The levee was considered a failure only if the levee collapsed before it was overtopped. This condition did not occur for any levees during Hurricane Katrina.

In comparison, the floodwalls along the 17th Street and London Avenue canals failed. These were considered failures because water had not reached the top of the wall before they broke, leading to the flooding of New Orleans proper.

Another major problem contributing to the flood was the difficulty in measuring elevation accurately. Although officials were aware of this problem, there was limited money to correct it. Only with the recent development of GPS technology can elevations be determined quickly and inexpensively.

The levees along the MRGO were known to be too low due to compaction. There were

plans and designs on the shelf waiting for the money to construct to a higher level. The water of Katrina came before the money. Local engineers believe that although the MRGO levees were made of weak material, had the designed levees been constructed, they would not have failed. The MRGO levees had been tested by other storms and performed as designed. Experienced engineers from that area believe these levees, with the properly designed height, would have been successful.

The decision to build walls along the drainage canals instead of building gates doomed New Orleans proper. Comparisons between East Jefferson and New Orleans proper make a good comparison.

The levees along Lake Pontchartrain for New Orleans and East Jefferson performed well. These levees were slightly overtopped, but performed well which resulted in no flooding directly from the lake.

Those levees were attached to the walls at the 17th Street canal and London Avenue canal because the city did not move its pumps to the lake. With the pump stations at the lake, the canals would have been closed by gates that would have stopped the waters of Katrina. Those floodwalls failed with the water two feet from the top. Those failures allowed for scour holes through the system, which allowed flood waters into New Orleans proper for over three days. Eighty percent of New Orleans flooded to a 4½ ft elevation due to these wall failures.

In contrast, East Jefferson suffered much less flooding because their side of the 17th Street canal floodwall did not fail and there were no other canals open to the lake. The majority of the flooding occurred because there was no pumping of rainfall and storm surge entering through the pump stations. Once the water level receded from Lake Pontchartrain, the flooding through the pump station stopped. There were no scoured holes to continue to allow flood waters in the system like New Orleans proper.

With the storm practically 5 years ago, a more rational discussion must continue outside of the anger, guilt and legalities of post Katrina. There were many issues which did not need changing, but have changed for the worst. And there are some changes which were needed, but have not changed. It is time to deal with a better truth about flood protection that existed

before and what has been built after Katrina for more efficient results. Misrepresentation of these issues affects our ability to protect the communities in south Louisiana.

Misunderstood Issues:

1. The 17th Street and London Avenue walls failed during the storm without overtopping and the levees that were not successful experienced excessive overtopping and erosion due to overtopping.
2. The US Army Corps of Engineers' high level plan along the east side of Lake Pontchartrain was abandoned because of a lawsuit by environmentalists, fishermen and lack of federal support.
3. The US Army Corps of Engineers' high level plan was to construct levees along the southern rim of Lake Pontchartrain to protect New Orleans. Gates were proposed to close the outfall canal, but the city did not relocate the city pump stations. Floodwalls along the canals replaced gates at the end of the canals.
4. The I-Walls' failure along the 17th Street and London Avenue canals caused most of the flooding in the New Orleans proper.
5. Water entered the city for over three days through the floodwall breeches on the two outfall canals allowing flooding up to 4½ feet above sea level inside the city, not through levees which had failed.
6. Had the walls along the outfall canals not failed, flooding would have been minimal in New Orleans proper.

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P://Papers/Hurricanes:tldf.doc (2009)
WAC-REV:10Feb-2010
WAC-REV:11Jun-2010
WAC-REV:11Aug-2010
WAC-REV:31Aug-2010

POST HURRICANE
The Levees Didn't Fail

The response to Hurricane Katrina demonstrated the greatness of the people of America and its not so great government. In an attempt to improve flood protection post Katrina, the government, through the US Army Corps of Engineers, has made it unaffordable to construct flood protection unless the federal treasury is paying the entire cost. The improved standards and techniques do provide a stronger and more resilient levee, but the cost is extremely high. That is the type of system that is being built around the New Orleans area.

But the consequences outside New Orleans are that you build no levees, or the levees that are built are considered substandard. The problem is we may build good, strong, dependable, well engineered levees, but because of the extremely high and expensive standards, these levees are not accepted. The comparison could be made to planning to survive a car wreck. Placing someone in a tank, which we could define as the standard, would certainly improve their chances of surviving a collision. We would argue that installing a seat belt in a car may be substandard, but it is an affordable way to greatly improve the survivability of a collision. This issue places many communities outside of many government programs involving flood protection.

We have viable communities of hard working people throughout Louisiana. It was always a fear that if New Orleans flooded, it would have negative long term affects on communities throughout Louisiana whether they flooded or not. Five years after Katrina, and many areas outside of New Orleans, have seen little to no improvement in flood protection.

We will always have a healthy discussion whether to leave or stay in a community with flood risk. At this time a reasonable discussion for flood protection infrastructure is not taking place due to the misinterpretation that the levees failed.