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Adopted 6-7-94

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C. 20594



Safety Recommendation

Date: JUN 30 1994

In Reply Refer To: M-94-12

Lieutenant General Arthur E. Williams
Chief of Engineers
U.S. Army Corps of Engineers
20 Massachusetts Avenue NW, Room 8228
Washington, D.C. 20314-1000

About 3:30 p.m. CDT on May 28, 1993, the towboat CHRIS, pushing the empty hopper barge DM 3021, collided with a support pier of the eastern span of the Judge William Seeber Bridge in New Orleans, Louisiana. The Judge William Seeber Bridge, known locally as the Claiborne Avenue bridge, carries Highway Route 39 over the New Orleans Inner Harbor Navigation Canal, known locally as the Industrial Canal. The impact severed bent 21, causing two approach spans (about 145 feet of bridge deck) and the two-column bent to collapse onto the barge and into the shallow waters of the canal. Two automobiles carrying three people fell with the four-lane bridge deck, resulting in one death and serious injuries to the other two people. As a result of the accident, the canal was closed to navigation traffic for 2 days and the bridge was closed to vehicle traffic for 2 months.¹

The Claiborne Avenue bridge was opened by the Louisiana Department of Transportation and Development (LADOTD) in 1957. It is 2,418 feet long and has multiple simply supported approach spans. It has a 360-foot steel-truss vertical-lift span, which is supported by two towers on concrete piers. The east tower pier is protected by a pair of corrugated-sheet pile caissons, one at the north end and one at the south end. Both tower piers have timber fendering.

¹For more detailed information, read Highway Accident Report--US Towboat CHRIS Collision with the Judge William Seeber Bridge, New Orleans, Louisiana, May 28, 1993 (NTSB/HAR-94/03).

The Safety Board concludes that the Claiborne Avenue bridge was vulnerable to vessel collisions because the approach piers were inadequately protected and that the design of the structure, including simply supported spans and the lack or redundancy in the substructure, made it vulnerable to collapse. For more than 10 years, bridge inspection reports had disclosed evidence of vessel collisions, including damage to the pedestals of bent 21. Although the damage did not compromise the structural integrity of the bridge itself, the officials responsible for inspection review should have recognized that the bridge was vulnerable to vessel impact and subsequent collapse.

During the November 1992 inspection, bridge inspectors had an opportunity to recognize the greatly increased accessibility of waterborne traffic to the bridge as a result of Saucer Marine's departure a month earlier. For more than 30 years, the facilities of this marine repair firm had protected, intentionally or unintentionally, the bridge's eastern approach spans from traffic transiting the canal. Saucer Marine, as its lease with the Dock Board required, also provided convenient, no-cost mooring for tows awaiting lockage. In fact, USACE based its policy of bringing vessels up between the bridges to wait for lockage on the availability of this mooring. However, when Saucer Marine went out of business in October 1992 and removed its equipment and spud-barge wharf, USACE continued to direct vessels to this area, and the Dock Board continued to charge for mooring at its own wharves. As a result, operators began pushing their vessels into the bank vacated by Saucer Marine. Less than 7 months after Saucer's departure, the CHRIS tow struck the north column of bent 21.

After the accident, Louisiana used the rubble to build an island 35 feet by 45 feet around the pedestal of bent 21 and then constructed eight 10-pile dolphins to protect bents 21 and 22. USACE, which assumed operation of the Industrial Canal in 1944 and has long recognized that the lock is a bottleneck in the waterway, has again recommended that a new lock be constructed. Plans for the proposed lock place it north of the Claiborne Avenue bridge and include large caissons to protect the bridge's east approach piers.

These efforts are moves in the right direction, but conditions in the Industrial Canal should be addressed now. The Safety Board believes that the heavy marine traffic, the transiting procedures, and the mooring changes due to Saucer Marine's departure are putting people, vessels, and bridges at risk. On an average day, 38,000 vehicles cross the Claiborne Avenue bridge while 135 towboats and barges transit the lock. The lock is only 600 feet long, 75 feet wide, and 31 feet deep; thus, it can accommodate at one lockage a maximum of six barges the size of the DM 3021. After the accident, USACE lock masters stopped advising tow operators to stand by at the former Saucer Marine area, but they are still telling them to bring tows up between the Florida Avenue and Claiborne Avenue bridges. As a result, tows consisting of 1 to more than 10 barges are standing by in that major marine thoroughfare for as long as 38 hours. While they are waiting, operators must ensure that their tows do not impede waterway traffic; therefore, they usually try to tie up at a mooring facility or push in at an area outside the navigational channel. However, the cost-free mooring that Saucer Marine had provided for more than 30 years is no longer available, and the Dock Board wharves closest to the lock are primarily cargo facilities that give low priority to tows wanting short-term mooring. In addition,

the Dock Board charges a mooring fee and its application process for mooring is complicated and inconvenient. Moreover, because the Dock Board's mooring policy is not posted or publicized, tow operators unfamiliar with the procedures move around the busy waterway trying to find a safe place to tie up.

Although several agencies were involved in the safety of the Claiborne Avenue bridge and vessel navigation in the Industrial Canal, the accident still occurred. These agencies failed to consider, either independently or collectively, the bridge's vulnerability to vessel collision and possible collapse. Seven bridges, both rail and highway, span the Industrial Canal. The Safety Board concludes that ongoing risk assessment is necessary to protect existing bridges from extreme events and changing conditions; no formal, comprehensive, or effective risk-assessment program existed in Louisiana at the time of this accident. Such a program could have determined that changed conditions had made bent 21 of the Claiborne Avenue bridge vulnerable to vessel collisions and that the bridge would be unable to withstand the lateral loads generated by collisions. Therefore, the National Transportation Safety Board recommends that the U.S. Army Corps of Engineers:

Cooperate with the U.S. Coast Guard to review conditions and practices in the Inner Harbor Navigation Canal, identify hazards to the safe transit of vessels through the canal and lock system, and implement measures to reduce those hazards. (Class II, Priority Action) (M-94-12)

Also, the Safety Board issued Safety Recommendations H-94-8 to the Federal Highway Administration, M-94-10 and -11 to the U.S. Coast Guard, M-94-13 to the Louisiana Department of Transportation and Development, H-94-9 to the American Association of State Highway and Transportation Officials, and M-94-14 to the Board of Commissioners of the Port of New Orleans. If you need additional information, you may call (202) 382-6850.

Acting Chairman HALL and Members LAUBER, HAMMERSCHMIDT, and VOGT concurred in these recommendations.


By: Jim Hall
Acting Chairman