



# National Transportation Safety Board

Washington, D. C. 20594

## Safety Recommendation

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Date: June 26, 1992

In Reply Refer To: M-92-48 through -53

Major General C. E. Edgar III  
Acting Commander  
U. S. Army Corps of Engineers  
20 Massachusetts Avenue, N.W.  
Washington, D.C. 20314-1000

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About 2350 on August 15, 1990, the 843-foot Hong Kong-registered motor tank ship MANDAN experienced a steering malfunction. Shortly thereafter, it rammed a U.S. Army Corps of Engineers' (USACE) barge flotilla positioned at mile 10.5 Above Head of Passes near Venice, Louisiana, on the right descending bank of the lower Mississippi River. All personnel aboard the 13 barges were successfully evacuated. Quarters barge 4302 then capsized and sank. Crewmembers on the barges sustained minor to moderate injuries; no fatalities occurred. The MANDAN had minor damage; its crewmembers were uninjured.<sup>1</sup>

The USACE decision not to hold drills because of possible injury to employees practicing evacuations was questionable. The purpose of emergency drills should be to demonstrate the crew's ability to proceed to their emergency stations, to perform their duties at those stations, and to make sound decisions in an emergency. In the evacuation of barge 4302, the temporary employees sustained minor injuries. However, had the USACE supervisors and foremen conducted emergency drills, the severity of the injuries might have been minimized because the temporary crew would have known their expected performance in an emergency, as well as the location of and most direct route to their abandon-ship and muster stations.

According to the chief steward, the muster of personnel ashore took approximately 2 hours. This excessive time to muster indicated that the temporary crew had not been instructed how to muster. A muster identifies the number of crewmembers believed to be missing so that a search may be initiated. No instructions had been given to the temporary crew about where to muster ashore or

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<sup>1</sup>For more detailed information, read Marine Accident Report--"Collision of the Hong Kong-Registered Motor Tank Ship MANDAN with the U S Army Corps of Engineers' Barge Flotilla at Mile 10.5 Above Head of Passes in the Lower Mississippi River near Venice, Louisiana, on August 15, 1990" (NTSB/MAR-92/04)

to whom to report after an evacuation. Had abandon-ship and person-overboard drills been conducted before the work commenced, the temporary crew would have known their shore muster stations. Furthermore, after arriving at their muster stations, they would have known to report to their supervisors, who could have then reported to the chief steward.

The Safety Board concludes that the 2 hours that it took to account for the barge crew was excessive and that the unnecessary river searches, which the Coast Guard and Plaquemines Parish services conducted, could have been avoided. Had emergency drills with muster instructions been performed, the time to muster personnel could have been substantially reduced.

The USACE Safety and Health Requirements Manual requires drills to be conducted at least monthly; when employees are quartered overnight, every fourth drill is to be at night. However, the USACE does not require any drills to be held within the first month of operations. Had the mat-sinking unit complied with the manual, the first drill could have been scheduled for September 13, a month after their arrival. The fourth drill, to be conducted at night, could have been scheduled as late as October 13. The Safety Board believes that the USACE Safety and Health Requirements Manual should require that controlled emergency drills be effected within the first 24 hours of quarters barge occupancy and weekly thereafter and that one night drill be performed within the first 2 weeks of operation.

Had emergency drills been conducted before the work began, the crew would have been acquainted with the 13 emergency instructions of the Station Bill. The first instruction directed the entire crew to familiarize themselves with the location and duties of their emergency station immediately after reporting on board. The second instruction stated that the entire crew should be instructed in the performance of their special duties. These two Station Bill instructions are meaningless unless the USACE conducts emergency drills to acquaint employees with their emergency stations and to instruct them on their special duties.

The pilot aboard the MANDAN had sounded that ship's whistle well before the collision with the barges. In addition, he contacted the HARRISON by radio and advised its crew that the MANDAN had lost steering control. The initial action taken by the HARRISON's crew was to notify the Coast Guard and to request medical assistance.

The HARRISON's crew concluded that the MANDAN's distress signal was "more than sufficient" and did not further warn the personnel on the flotilla. However, the MANDAN's distress signal was insufficient to alert either the chief of the mat-sinking unit, who had to be awakened by the foreman, or the employees on quarters barge 4302, who were thrown from their bunks by the impact. According to the Station Bill, the pilot aboard the HARRISON was required to alert the USACE personnel on the barges of an emergency situation. Therefore, the Safety Board concludes that the decision not to use the HARRISON's whistle to alert the USACE employees was inappropriate, considering the time and imminent threat of danger.

Furthermore, to activate the barge flotilla alarms and to use its public address system, a member of the HARRISON's crew would have had to leave that vessel and go to the communications center aboard barge 6008. An alternative action would have been to alert a foreman by portable radio and request that he sound the alarm. However, either procedure would have taken valuable time.

Had the foreman or others who heard the MANDAN's distress signal been able to sound an alarm throughout the flotilla, the chief of the mat-sinking unit could have been awakened in time to take charge and to give instructions over the public address system. Certainly, an alarm could have been heard by working USACE personnel and probably could have awakened those who were asleep on board barge 4302, allowing additional time to evacuate.

Because most USACE personnel on the quarters barges were not seamen, they probably were unfamiliar with the meaning of the standard ship alarms. Strategically placed alarms, activated by remote switch devices in accessible areas throughout the flotilla, could warn USACE personnel and signal them to go to emergency stations. The Safety Board believes that the USACE should require a sufficient number of remote switch devices in placarded accessible areas that activate strategically placed alarms on quarters barges to alert USACE personnel of emergencies.

Had the HARRISON been performing other assignments within the mat-sinking unit, its crew's only link to the barge flotilla would have been by radio communications. Since no personnel on the barge flotilla were assigned to continuously monitor the marine radio and the USACE radio, calls for emergencies could have gone unanswered. The best alternative to relying on the HARRISON's crew for emergency information would have been to have on board the barge flotilla a permanent 24-hour radio watch, who could have interacted with the river vessel traffic and coordinated the activities of the USACE vessels, at the construction site, on the barge flotilla, and at the shore facilities. Consequently, the Safety Board believes that the barge flotilla needs a 24-hour radio watch on board in the operations/communications center to monitor the USACE vessels and construction operations, as well as river traffic during mat-sinking operations.

Therefore, the National Transportation Safety Board recommends that the U.S. Army Corps of Engineers:

Amend the Safety and Health Requirements Manual to require abandon-ship/boat, fire, and person-overboard drills within the first 24 hours of barge flotilla occupancy. (Class II, Priority Action) (M-92-48)

Amend the Safety and Health Requirements Manual to require weekly drills, with one weekly drill to be performed at night within the first 2 weeks of barge flotilla occupancy. (Class II, Priority Action) (M-92-49)

Implement procedures to verify that all chief supervisors of barge flotillas hold emergency drills for all personnel living and working aboard vessels and barge facilities in compliance with the U.S. Army Corps of Engineers station, fire, and abandon-ship bills and the Safety and Health Requirements Manual. (Class II, Priority Action) (M-92-50)

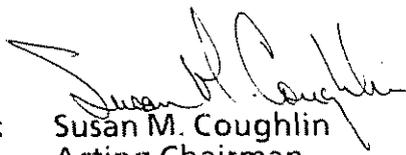
Equip quarters barges with a sufficient number of strategically placed alarms, activated by remote switch devices in placarded accessible areas throughout the barge flotilla, to alert personnel to muster in an emergency. (Class II, Priority Action) (M-92-51)

Require and maintain aboard occupied barge flotillas a full-time, centrally located radio watch, who is experienced in marine radio communications and U.S. Army Corps of Engineers emergency procedures. (Class II, Priority Action) (M-92-52)

Amend the abandon-ship and person-overboard procedures to include instructions for mustering barge flotilla personnel. (Class II, Priority Action) (M-92-53)

Also, the Safety Board issued Safety Recommendations M-92-38 and -39 to the International Association of Classification Societies and M-92-40 through -47 to the U.S. Coast Guard.

COUGHLIN, Acting Chairman, and LAUBER, KOLSTAD, HART, and HAMMERSCHMIDT, Members, concurred in these recommendations.

By:   
Susan M. Coughlin  
Acting Chairman