



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: September 27, 2000

In reply refer to: P-00-17 and -18

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The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendations in this letter. The Safety Board is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

These recommendations address the effectiveness of safety measures provided for the permanently moored vessel (PMV) *President Casino on the Admiral (Admiral)* and the adequacy of public safety for PMVs. The recommendations are derived from the Safety Board's investigation of the April 4, 1998, marine accident concerning the ramming of the Eads Bridge by barges in tow of the M/V *Anne Holly* with subsequent ramming and near breakaway of the *Admiral* in St. Louis Harbor, Missouri,¹ and are consistent with the evidence we found and the analysis we performed. As a result of this investigation, the Safety Board has issued 30 safety recommendations, 2 of which are addressed to the American Public Gas Association. Information supporting the recommendations is discussed below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendations.

About 1950 on April 4, 1998, a tow of the M/V *Anne Holly*, comprising 12 loaded and 2 empty barges, which was traveling northbound on the Mississippi River through the St. Louis Harbor, struck the Missouri-side pier of the center span of the Eads Bridge. Eight barges broke away from the tow and drifted back through the Missouri span. Three of these barges drifted toward the *Admiral*, a permanently moored gaming vessel below the bridge on the Missouri side of the river. The drifting barges struck the moored *Admiral*, causing 8 of its 10 mooring lines to

¹ For additional information, see forthcoming Marine Accident Report NTSB/MAR-00/01: *Ramming of the Eads Bridge by Barges in Tow of the M/V Anne Holly with Subsequent Ramming and Near Breakaway of the President Casino on the Admiral, St. Louis Harbor, Missouri, April 4, 1998*, (Washington, DC: National Transportation Safety Board, 2000).

break. The *Admiral* then rotated clockwise downriver, away from the Missouri riverbank. The captain of the *Anne Holly* disengaged his vessel from the six remaining barges in the tow and placed the *Anne Holly*'s bow against the *Admiral*'s bow to hold it against the bank. About the time the *Anne Holly* began pushing against the *Admiral*, the *Admiral*'s next-to-last mooring line parted. The *Anne Holly* and the single mooring wire that remained attached to the *Admiral*'s stern anchor held the *Admiral* near the Missouri bank. No deaths resulted from the accident; 50 people were examined for minor injuries. Of those examined, 16 were sent to local hospitals for further treatment. Damages were estimated at \$11 million.

The National Transportation Safety Board determined that the probable cause of the ramming of the Eads Bridge in St. Louis Harbor by barges in tow of the *Anne Holly* and the subsequent breakup of the tow was the poor decision-making of the captain of the *Anne Holly* in attempting to transit St. Louis Harbor with a large tow, in darkness, under high current and flood conditions, and the failure of the management of American Milling, L.P., to provide adequate policy and direction to ensure the safe operation of its towboats.

The National Transportation Safety Board also determined that the probable cause of the near breakaway of the *President Casino on the Admiral* was the failure of the owner, the local and State authorities, and the U.S. Coast Guard to adequately protect the permanently moored vessel from waterborne and current-related risks.

A natural gas leak resulted when the natural gas supply line to the *Admiral* was severed in the course of the accident. When the line broke, natural gas began escaping. Although the escaping gas did not ignite, one of the first priorities in any situation during which natural gas is released should be to curtail the escape of product.

An emergency repair team was summoned from the Laclede Gas Company (the supplier of natural gas to the PMV) to deal with the situation. The Laclede team could not shut off the natural gas from the regulator pit because, due to high water, the pit had filled with muddy water that prevented them from reaching the shutoff valves. The team was able to clamp off the ruptured natural gas hose, but by then, the leak had continued for about 3 hours.

High water is not particularly unusual in this area; on the average, the river stage at St. Louis is 30 feet or higher more than 20 days a year. The river stage is 20 feet or higher nearly 70 days a year, on the average. Given this environment, the designers of this system should have considered that a facility set so close to the river might be difficult to access, depending on the river level. Laclede should have been aware of this design weakness and of the need to prepare its personnel to respond to emergencies affecting this regulator pit (and others on the waterfront) under all river conditions. But the Laclede response team had received no special preparation for responding to an emergency during high water and had to take a trial-and-error approach to shutting off the broken line. Therefore, the Safety Board concluded that Laclede Gas Company's emergency responders had not been adequately prepared to stop the uncontrolled flow of natural gas resulting from this accident. To enable Laclede personnel to become more familiar with the special challenges associated with riverside emergency responses, the Safety Board has recommended that Laclede Gas Company require that its emergency response teams participate in port contingency plan drill exercises involving PMVs that are supplied with natural gas.

Because inadequate emergency response preparation may be a concern for natural gas providers to PMVs in other jurisdictions, the Safety Board believes that the American Gas Association and the American Public Gas Association should advise their members of the natural gas leak that resulted from the April 4, 1998, accident affecting the *Admiral* in St. Louis Harbor and recommend that they participate in port contingency plan drill exercises involving PMVs that are supplied with natural gas.

Federal regulations (49 *Code of Federal Regulations* [CFR] 192.365) require that natural gas service line valves be placed in “a readily accessible location.” Based on the Laclede responders’ inability to reach the valve, the Safety Board concluded that, at the time of the accident, the *Admiral*’s natural gas shutoff service valve was not readily accessible.

Laclede has taken actions to provide the *Admiral* and its other floating facility customers in St. Louis Harbor with improved means of stopping the flow of gas in emergencies. In the case of the *Admiral*, Laclede intends to provide a new service line and meter station with accessible shutoff valves when the *Admiral* relocates to a position north of the Martin Luther King, Jr., Memorial Bridge in 2000. Laclede informed the Safety Board that it selected the new meter station location specifically because it is removed from areas affected by flooding. Laclede has also informed the Safety Board that it has installed valve key guides that allow service valves to be readily accessed and operated, even during periods of high-water conditions, for the *Admiral* (in its current location) and the other floating facilities in St. Louis Harbor.

Natural gas lines serve other PMVs in U.S. ports, so inaccessible shutoff valves may be a safety hazard common to pipelines that supply natural gas to PMVs during high-water conditions. In the case of the *Admiral*, it took about 3 hours to stop the escape of gas from the service line. The delay in this instance did not have serious consequences, but a future incident involving release of gas could have far more unfortunate results. The Safety Board concluded that the flow from the *Admiral*’s ruptured natural gas supply line was not secured in a timely manner, and such a delay could be hazardous should such an incident recur. The Research and Special Programs Administration (RSPA) is the Federal agency with the responsibility for ensuring that local gas companies comply with the requirements of 49 CFR 192.365. The Safety Board has recommended that RSPA require corrective action as appropriate to ensure that pipeline operators have the means to shut off the flow of natural gas to PMVs in a timely manner, even during periods of high-water conditions. In the interim, the Safety Board believes that the American Gas Association and the American Public Gas Association should urge their members to take corrective action as appropriate to ensure that they can shut off the flow of natural gas to PMVs in a timely manner, even during periods of high-water conditions.

Therefore, the National Transportation Safety Board makes the following safety recommendations to the American Public Gas Association:

Advise your members of the natural gas leak that resulted from the April 4, 1998, accident affecting the *President Casino on the Admiral* in St. Louis Harbor, and recommend that they participate in port contingency plan drill exercises involving permanently moored vessels that are supplied with natural gas. (P-00-17)

Urge your members to take corrective action as appropriate to ensure that they can shut off the flow of natural gas to permanently moored vessels in a timely manner, even during periods of high-water conditions. (P-00-18)

The Safety Board also issued safety recommendations to the U.S. Coast Guard, RSPA, the States of Missouri and Illinois, the cities of St. Louis and East St. Louis, the National League of Cities, the American Association of Port Authorities, the American Gas Association, President Casinos, Inc., Laclede Gas Company, and American Milling, L.P. In your response to the recommendations in this letter, please refer to Safety Recommendations P-00-17 and -18. If you need additional information, you may call (202) 314-6170.

Chairman HALL and Members HAMMERSCHMIDT, GOGLIA, BLACK, and CARMODY concurred in these recommendations.

By: Jim Hall
Chairman