



# National Transportation Safety Board

Washington, DC 20594

## Safety Recommendation

---

**Date:** May 8, 2009

**In reply refer to:** M-09-8

Captain Michael R. Watson  
President  
American Pilots' Association  
499 South Capitol Street, SW  
Suite 409  
Washington, DC 20003

---

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 recommendation in this letter. The Safety Board is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

This recommendation is derived from the Safety Board's investigation of the November 7, 2007, allision of the M/V *Cosco Busan* with the Delta tower of the San Francisco–Oakland Bay Bridge. As a result of this investigation, the Safety Board has issued eight safety recommendations, one of which is addressed to the American Pilots' Association. 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 recommendation.

On Wednesday, November 7, 2007, about 0830 Pacific standard time, the Hong Kong-registered, 901-foot-long containership M/V *Cosco Busan* allided with the fendering system at the base of the Delta tower of the San Francisco–Oakland Bay Bridge. The ship was outbound from berth 56 in the Port of Oakland, California, and was destined for Busan, South Korea. Contact with the bridge tower created a 212-foot-long by 10-foot-high by 8-foot-deep gash in the forward port side of the ship and breached the Nos. 3 and 4 port fuel tanks and the No. 2 port ballast tank. As a result of the breached fuel tanks, about 53,500 gallons of fuel oil were released into San Francisco Bay. No injuries or fatalities resulted from the accident, but the fuel spill contaminated about 26 miles of shoreline, killed more than 2,500 birds of about 50 species, temporarily closed a fishery on the bay, and delayed the start of the crab-fishing season. Total monetary damages were estimated to be \$2.1 million for the ship, \$1.5 million for the bridge, and more than \$70 million for environmental cleanup.<sup>1</sup>

---

<sup>1</sup> For more information, see *Allision of Hong Kong-Registered Containership M/V Cosco Busan With the Delta Tower of the San Francisco–Oakland Bay Bridge, San Francisco, California, November 7, 2007*, Marine

The National Transportation Safety Board determined that the probable cause of the allision of the *Cosco Busan* with the San Francisco–Oakland Bay Bridge was the failure to safely navigate the vessel in restricted visibility as a result of (1) the pilot’s degraded cognitive performance from his use of impairing prescription medications, (2) the absence of a comprehensive pre-departure master/pilot exchange and a lack of effective communication between the pilot and the master during the accident voyage, and (3) the master’s ineffective oversight of the pilot’s performance and the vessel’s progress. Contributing to the accident was the failure of Fleet Management Ltd. to adequately train the *Cosco Busan* crewmembers before the accident voyage, which included a failure to ensure that the crew understood and complied with the company’s safety management system. Also contributing to the accident was the U.S. Coast Guard’s failure to provide adequate medical oversight of the pilot in view of the medical and medication information that the pilot had reported to the Coast Guard.

A ship’s master bears primary responsibility for the safe passage of the ship.<sup>2</sup> The presence of a pilot, even if required, does not absolve the master of responsibility for overseeing the safe navigation of the ship to and from port. It is now an accepted maritime rule that a pilot is on board to provide assistance, a service, to a ship’s master and is not there to take command of the vessel. Nonetheless, a pilot does bear significant responsibility for the safe passage of the vessel to which he or she is providing navigational assistance.

The pilot is retained by the ship to provide local knowledge of the harbor, familiarity with the unique tides and currents in that body of water, understanding of local procedures, and a thorough knowledge of the topography of both the coastline and the harbor bottom. The master is ultimately responsible for ensuring that the instructions and operations of the pilot result in the safe passage of the vessel through the harbor and to or from a berth. The master must be prepared to act if the pilot, or any crewmember for that matter, endangers the ship or places at risk any other vessels or property along the ship’s intended route.

With regard to the *Cosco Busan*, according to the notations on the vessel’s “Bridge Checklist 4 – Master/Pilot Exchange” form, at 0630 on the morning of the accident, the pilot had been provided with the vessel’s pilot card, and the pilot and the master had engaged in a master/pilot exchange; that is, they had discussed and agreed to the proposed passage plan, weather conditions, un-berthing procedures, and use of the assist tug. The form also indicated that the progress of the ship and the execution of orders would be monitored by the master and the officer of the watch. The third officer and the master signed this form.

---

Accident Report NTSB/MAR-09/01 (Washington, DC: NTSB, 2009), which is available on the Safety Board website at <http://ntsb.gov/publictn/2009/MAR0901.pdf>.

<sup>2</sup> The responsibilities of vessel masters are established in both U.S. and international regulations. U.S. navigation safety rules at 33 CFR 164.11 require that the master or person in charge of a vessel shall ensure that the wheelhouse is constantly manned by competent persons who control and direct the movement of the vessel and fix its position. International regulations at STCW Code Section A-VIII/2, part 3-1 states, in part, that despite the duties and obligations of pilots, their presence on board does not relieve the master or officer in charge of the navigational watch from his/her duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions, and the ship’s characteristics. The master and/or the officer in charge of the navigational watch shall cooperate closely with the pilot and maintain an accurate check on the ship’s position and movement.

However, the notations on the form with regard to a formal master/pilot exchange were not confirmed by the voyage data recorder (VDR) recording. Immediately after the pilot arrived on board, the master asked if the vessel would be able (because of the fog) to depart, and the pilot replied that they would “talk about it.” The VDR audio recording did not document an exchange of pilot cards (the San Francisco Bar Pilots pilot card from the pilot and the vessel’s pilot card from the crew). During interviews the pilot told investigators, “I handed him [the master] the document, and he took it. I think he read it, but I don’t recall him discussing it with the mates or the helmsman. . . . I handed it to him and was expecting him to read it. It says right on it, if you have any questions, ask.” The pilot said that the master had no questions. Even if the brief exchange of cards had occurred exactly as described by the pilot, this master/pilot exchange would have failed to satisfy several components expected in a well-managed exchange of information between master and pilot. At no time did the VDR recording provide evidence that a more formal meeting between the pilot, the master, and the rest of the bridge team took place with regard to visibility, un-berthing, or the details of the proposed passage.

The pilot told the master of his plan to have the tug shift to the stern before they started out of the entrance channel, but this was part of a conversation on the bridge wing that was not specifically related to voyage planning. No discussion was documented about the challenges associated with the severely limited visibility or the guidance that the master might be operating under with regard to the company’s safety management system (SMS).

The pilot did not inform the master, and the master did not ask, about the pilot’s planned maneuvers during un-berthing, his planned route of travel, his anticipated heading changes, concerns over any anticipated obstacles or hazards, or the speed at which they would likely proceed. They did not discuss the ship’s suite of electronic navigation equipment, any known malfunctions, or how to use the bridge crew during the harbor passage. Further, the pilot did not inform the master of his plan to release the tug once the vessel had departed the Bar Channel. In a postaccident interview, the master said he believed that the pilot discouraged an exchange about the navigation plan and thus, because the master did not insist on a thorough master/pilot exchange, he was unaware of how the pilot intended to proceed with the *Cosco Busan*.

Rather than “talking” with the master about the visibility, as he had indicated he would, the pilot, at 0650, told the master that a tug and a barge were coming down the entrance channel and suggested that visibility was improving because “you can see the other side now, and there’s no more traffic—this looks good.” The pilot told the master that he thought they would be able to depart as soon as the barge passed, to which the master responded “yeah, yeah, yeah.”

About 1 minute later, the pilot advised the master that he could “single up” as soon as the tug passed. This was a clear indication that the pilot intended to proceed to sea under the existing conditions and was only waiting for traffic to clear. If either the master or the rest of the bridge team had any reservations about departing the berth in the current conditions, this was the time to make them known, but nobody did. The VDR recording documents one of the *Cosco Busan* crewmembers commenting, “For American ships under such conditions, they

would not be under way,” clearly indicating that at least one among the bridge crew was concerned about the fog.

Given the minimal visibility prevailing at the time, the master, at a minimum, should have questioned the pilot more carefully about the decision to depart the dock. As the vessel master, he was ultimately responsible for the vessel and its safety, and the limited visibility at the time should have been sufficient to have raised questions about the safety of the passage under those conditions. The visibility was so poor that the bow of the ship could not always be seen from the ship’s bridge. A prudent master would have questioned the pilot fully about the advisability of departing the dock under such conditions. Once the master did agree to sail, he should have sought additional information from the pilot about the actions that the pilot intended to take to ensure a safe passage. The master did neither, and the pilot did not assist by volunteering any information.

About 0721, the pilot told the master, “single up, if you want.” The master then gave orders to single up, thereby again tacitly agreeing to depart without ever having engaged in a discussion about whether departing under those conditions was prudent.

The master told investigators that he believed that he had little input into the decision to depart in the restricted visibility conditions. His previous experience led him to assume that controlling authorities would close ports in the type of weather conditions that existed at the time. The absence of such closure in San Francisco led him to conclude, erroneously, that vessel operations were approved by that authority—in this instance, the Coast Guard. He appears to have been unaware of the fact that, unless the port is closed, it is the vessel master and not the port authority that ultimately decides whether a vessel can depart. Further, the master deferred to the pilot without questioning him on the wisdom of sailing or the pilot’s navigation plan. For a variety of reasons, including his previous port experiences that influenced his decision-making, the master exerted no authority in the decision to sail in the existing conditions.

The master interpreted from the pilot’s demeanor that the pilot would not be particularly communicative with him, even discouraging communication regarding the pilot’s navigation plan. Although the pilot may not have intended such a perception, the master believed that the pilot’s displaying a “cold face,” as he told investigators, discouraged discussion of critical navigational issues. In addition, although the master may have incorrectly perceived the pilot’s attitude and though the master should have exercised his authority and firmly requested information regarding the pilot’s navigation plan, the pilot’s history of adversarial conduct with persons in positions of authority lends credence to the master’s interpretation of the pilot’s attitude. In the incident involving the *USS Tarawa*, the pilot was accused of cursing U.S. Naval officers. The physician who conducted the pilot’s medical evaluation in January 2007 described the evaluation as “adversarial” and stated that, in decades of medical practice, he had not witnessed behavior during an examination as that which the pilot exhibited.

Further, the attitude implicit in the pilot’s postaccident statement concerning his providing the master with his pilot card after he boarded the vessel supports the master’s perception. The pilot told investigators, “I handed [the pilot card] to him and was expecting

him to read it. It says right on it, if you have any questions, ask.” This statement suggests a belief that providing his pilot card to the master was comparable to engaging the master in a master/pilot exchange. By simply handing the master the pilot card and expecting him to ask any questions he may have had, rather than inviting the master to discuss the matter, the pilot accepted no responsibility for determining whether the master understood and agreed to the pilot’s navigation plan. Such an attitude is not only counter to the American Pilots’ Association’s view of the role of pilot cards (that is, to “supplement, not substitute for, the master/pilot information exchange”), but also to the most fundamental precept of vessel safety—that the master and the pilot together will use all available bridge resources to maximize vessel safety. Pilots are integral members of the bridge team, and to discourage communication limits not only their effectiveness but that of the master and other crewmembers as well. Such actions create dysfunctional bridge teams with limited effectiveness in maintaining safe vessel operations, as appears to have happened on the *Cosco Busan*. Therefore, the Safety Board concludes that the pilot and the master of the *Cosco Busan* failed to engage in a comprehensive master/pilot information exchange before the ship departed the dock and failed to establish and maintain effective communication during the accident voyage, with the result that they were unable to effectively carry out their respective navigation and command responsibilities.

The National Transportation Safety Board therefore makes the following safety recommendation to the American Pilots’ Association:

Inform your members of the circumstances of this accident, remind them that a pilot card is only a supplement to a verbal master/pilot exchange, and encourage your pilots to include vessel masters and/or the officer in charge of the navigational watch in all discussions and decisions regarding vessel navigation in pilotage waters. (M-09-8)

The Safety Board also issued safety recommendations to the U.S. Coast Guard and Fleet Management Ltd.

In response to the recommendation in this letter, please refer to Safety Recommendation M-09-8. If you would like to submit your response electronically rather than in hard copy, you may send it to the following e-mail address: [correspondence@ntsb.gov](mailto:correspondence@ntsb.gov). If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our Tumbleweed secure mailbox. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

Acting Chairman ROSENKER and Members HERSMAN, HIGGINS, and SUMWALT concurred in this recommendation. Member Hersman voted to disapprove the marine accident report and filed a dissenting statement concerning the findings and probable cause for this accident, which is attached to the report.

*[Original Signed]*

By: Mark V. Rosenker  
Acting Chairman