



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: February 17, 2000

In reply refer to: M-99-24 and -25

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On May 14, 1997, the U.S. Coast Guard buoy tender *Cowslip* and the Panamanian container ship *Ever Grade* collided in the Columbia River near Astoria, Oregon. One person was injured as a result of the accident. The *Ever Grade* was only slightly damaged in the collision, but the *Cowslip* sustained serious damage to its hull and superstructure. The cost of repairs for both vessels was estimated at more than \$1.2 million.

The National Transportation Safety Board determined that the probable cause of the collision between the Panamanian container ship *Ever Grade* and the U.S. Coast Guard buoy tender *Cowslip* was the failure of the pilot of the *Ever Grade* to gauge the turn at Tansy Point properly due to imprecise radar estimations of his vessel's position and late application of rudder, which combined to cause the ship to swing excessively wide in the turn and to strike the *Cowslip*. Contributing to the accident was the joint decision of the pilot of the *Ever Grade* and the commanding officer (CO) of the *Cowslip* to attempt a meeting at a sharp bend in the channel during a period of severely reduced visibility.

Safety Board Vice Chairman Robert T. Francis II issued the following statement regarding the adopted probable cause with his concurrence:

I believe that the probable cause statement is sufficient as far as it goes, but it does not go far enough. Bridge resource management techniques and effective ship-to-ship communications are enormously important tools to enhance safety in maritime operations. Our failure to note breakdowns in communication on and between the vessels as a contributing factor in the collision does not, in my opinion, enhance either the safety of marine operations or the advancement of these issues in the maritime pilot community.

The Columbia Bar Pilots Association pilot involved in the accident boarded the *Ever Grade* at 2055 at the pilot station east of the Astoria Bridge, where he relieved the two Columbia

River Pilots Association pilots who had conducted the vessel downriver from Portland, Oregon. At that time, the visibility was reduced to about 200 yards by dense fog. By 2100, the river pilots had disembarked and, by 2102, the vessel was underway, continuing its outbound voyage under the advice of the bar pilot.

The bar pilot had a brief exchange of information with the river pilots before their departure. According to the bar pilot, the river pilots informed him that the vessel had 1° of gyro error, that the port radar was “better” to use than the starboard (without providing information as to why this radar was preferred), and that the ship’s radios were set to VHF–FM channels 13 and 16. The bar pilot, who had never before piloted the *Ever Grade*, had no other discussions with the off-going river pilots. He did not, for instance, discuss the maneuvering characteristics of the vessel, the performance of the ship’s navigation crew, the ability of the navigation crew to communicate in English, or the fact that one of the vessel’s radars apparently had a large blind spot forward. Furthermore, the extremely short period of time that the river pilots remained on board after the bar pilot arrived did not afford the oncoming bar pilot sufficient time in which to have a thorough discussion with the vessel master concerning the remainder of the voyage before he had to assume piloting duties. The Safety Board therefore concluded that the procedures followed afforded insufficient time for the bar pilot to become acclimated to the ship’s bridge, navigation equipment, and personnel before he had to commence major course adjustments, and he may, therefore, have been ill-prepared to safely execute the turn at Tansy Point, where the collision occurred.

In October 1997, the American Pilots’ Association (APA), which represents virtually all groups of State pilots in the United States, adopted a resolution¹ regarding the respective roles and responsibilities of the pilot and the master. The resolution addressed pilot-to-pilot transfer procedures. It stated, in part:

The transferor pilot should request the master’s presence during transfer.

Recognizing that the circumstances of many pilot-to-pilot transfers do not allow sufficient time for extensive discussion among the two pilots and the master, pilots should develop techniques for quickly exchanging the most critical information in the time available.

Where practical, the transferor pilot should give the present status of the vessel to the transferee pilot, as well as any unusual or problematic handling or operational characteristics of the vessel.

Where practical, the transferor pilot should repeat to the transferee pilot information previously given by the master, in the master’s presence, and ask the master to confirm that the information is correct.

In places where the pilot boarding location or procedures impose significant constraints on the time or attention that can be devoted to the initial master-pilot

¹ Adopted by the APA Board of Trustees on October 8, 1997.

conference, pilot groups and regulatory authorities should review whether changing the boarding location and/or the procedures would be feasible and would produce significant benefits that could not be obtained through improvements in the conference process.

The Safety Board considers proper pilot-to-pilot transfer procedures of paramount importance to the continued safe conduct of a vessel in pilotage waters and endorses the operations delineated in the 1997 APA resolution. When a river pilot of an outbound vessel in the Columbia River is relieved by a bar pilot near Astoria, Oregon, the oncoming bar pilot must immediately begin to initiate major course changes to pilot the vessel under the Astoria Bridge, followed very shortly by another major course change to execute the turn in the channel at Tansy Point. Current practices, as evidenced by the actions of the pilots serving the *Ever Grade* on the night of May 14, 1997, do not comport with the recommended practices cited in the 1997 APA resolution. The Safety Board therefore believes that the Oregon Board of Maritime Pilots should review, and require revision as necessary to, the pilot transfer procedures used by the river and bar pilots in the Columbia River to bring them into compliance with the APA resolution of October 8, 1997, concerning pilot transfer procedures.

In its investigation of the collision between the *Ever Grade* and the *Cowslip*, the Safety Board also reviewed the role that bridge resource management (BRM) procedures may have played in the events leading to the collision. BRM is a concept that the Safety Board developed as a marine parallel to cockpit resource management in aviation safety. BRM principles are designed to help mariners maximize the effective utilization of all resources, including personnel, equipment, and information, available for the safe navigation of a ship. BRM requires communication, cooperation, and coordination between and among the bridge navigation personnel, including the pilot. In the case at hand, the pilot of the *Ever Grade* had very little, if any, verbal interaction with the master or navigation watch up to the time of the vessel's collision with the *Cowslip*. The pilot, by his own admission, kept his attention focused on the radar the entire time that he was piloting the vessel. He had no discussion with the master concerning his piloting plans, including the manner in which he intended to maneuver the ship through the Tansy Point turn and the manner in which and location at which he intended to meet and pass the *Cowslip*. The pilot was not plotting the *Cowslip* as the vessels converged at the turn, and he did not ask the master or mate on watch to do so for him.

When the pilot discovered, to his surprise, that the *Ever Grade* had a significant blind spot on the port radar, he did not discuss this with the master. If he had, he would have learned that the master, who was monitoring the vessel's progress on the automatic radar plotting aid (ARPA) radar, did not experience the same blind spot. In fact, according to the master's testimony, he was able to track the *Cowslip* on the ARPA radar up to the time that he visually sighted it coming out of the fog. The pilot testified that he had lost radar contact with the *Cowslip* for about a minute before it appeared out of the fog, moments before impact. The Safety Board concluded that numerous resources were available to the pilot that, had he chosen to use them, might have aided him in avoiding the collision.

In an October 5, 1993, resolution,² the APA recommended that all APA member pilots take a BRM training course. The resolution states:

WHEREAS, the American Pilots' Association (APA) has examined Bridge Resource Management (BRM) training as a means for enhancing the safety performance of individuals involved in the navigation of vessels; and

WHEREAS, the APA believes that BRM training has the potential for improving the practice of vessel navigation and for making an additional contribution to safety; and

WHEREAS, the APA further believes that in order for BRM and BRM training to be effective in improving navigation safety, BRM concepts must address the preeminent role that pilots play in vessel navigation, and pilots should receive BRM training through courses that are specifically designed for pilots;

NOW THEREFORE, BE IT RESOLVED that the Board of Trustees of the American Pilots' Association hereby adopts the following as official policy of the APA:

1. The APA supports the concept of BRM and supports BRM training for pilots.
2. BRM principles and BRM training must recognize the role and function of the compulsory, licensed pilot, who is not a member of the vessel's crew but comes aboard a vessel for a specific vessel movement or operation.
3. Suitable BRM training courses for pilots are those that have been specifically designed for pilots and meet the APA's "Guidelines for Bridge Resource Management Courses for Marine Pilots" dated October 5, 1993, as the same may be amended.
4. All APA member pilots should take a BRM course and should take a refresher course at least once every 3 years.
5. Pilot associations should provide or require BRM courses for their trainees and include BRM courses in their continuing training programs.
6. Pilot licensing authorities should require completion of a BRM course for pilots as a prerequisite for an initial pilot license and completion of a refresher BRM course for pilots within 3 years of each pilot license renewal.

The Safety Board is pleased that the APA has made such a strong policy statement in support of BRM training for pilots. However, the APA statement places no obligation on pilots to complete BRM training. In fact, the pilot of the *Ever Grade* had not completed any BRM training, and he was not required to do so. In light of the BRM deficiencies identified in this investigation,

² Adopted by the APA Board of Trustees on October 5, 1993.

the Safety Board believes that the Oregon Board of Maritime Pilots should require all State pilots under its jurisdiction to complete periodic BRM training, in accordance with the October 5, 1993, resolution of the APA concerning BRM training.

Therefore, the National Transportation Safety Board makes the following safety recommendations to the Oregon Board of Maritime Pilots:

Review and require revision as necessary to the pilot transfer procedures used by river and bar pilots in the Columbia River to bring them into compliance with the American Pilots' Association resolution of October 8, 1997, concerning pilot transfer procedures. (M-99-24).

Require all State pilots under your jurisdiction to complete periodic bridge resource management training, in accordance with the October 5, 1993, resolution of the American Pilots' Association concerning bridge resource management training. (M-99-25)

Also, the Safety Board issued a safety recommendation to the U.S. Coast Guard.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations M-99-24 and -25 in your reply. If you need additional information, you may call (202) 314-6455.

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

By: Jim Hall
Chairman