



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: August 8, 2001

In reply refer to: M-01-14 through -17

Mr. A. Kirk Lanterman
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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.

The recommendations address the following safety issues: the adequacy of shipboard training and drills for masters and other officers in firefighting management; the adequacy of policies, procedures, training and drills for limiting and controlling the spread of smoke during a fire; and the adequacy of internal and external audits of the company's safety management system. The recommendations are derived from the Safety Board's investigation of the fire on board the Netherlands-registered passenger ship *Nieuw Amsterdam* in Glacier Bay, Alaska, on May 23, 2000, and are consistent with the evidence we found and the analysis we performed. As a result of this investigation, the Safety Board has issued six safety recommendations, one of which is addressed to 13 cruise line companies, and one of which is addressed to the U.S. Coast Guard. The remaining four recommendations are addressed to Holland America Line Westours, Inc. (Holland America). Information supporting the recommendations to Holland America 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 recommendation.

On the morning of May 23, 2000, while the Netherlands-registered passenger ship *Nieuw Amsterdam* was en route to Glacier National Park carrying 1,169 passengers and 542 crewmembers, a fire broke out in a crew cabin. A premature effort to extinguish the fire by officers lacking proper gear and backup contributed to the spread of fire and smoke. The fire did not spread beyond the deck of origin; however, the untimely closing of fire screen doors (FSDs) and watertight doors (WTDs) allowed the smoke to migrate up eight decks, creating hazardous conditions in crew and passenger accommodations areas. Properly outfitted and equipped shipboard firefighting teams subsequently

extinguished the fire. One passenger sustained smoke inhalation injuries and had to be evacuated by medical helicopter to a shoreside hospital for additional medical treatment. Property damage to the vessel was estimated at more than \$360,000.¹

The Safety Board determined that the probable cause of the fire on board the *Nieuw Amsterdam* was the unauthorized use of a coffee maker that had been left unattended and plugged into an electrical outlet in a crew cabin. Contributing to the extent of the fire damage and spread of smoke was a breakdown in firefighting command and control by the vessel's master and senior officers.

The accident investigation revealed that, at 0911, the ship's fire detection system received an alarm indicating that a smoke detector had activated in a crew cabin on D deck (cabin D98). The third officer on duty in the pilothouse immediately notified the master and dispatched one of the duty quartermasters to determine whether the alarm was false. The quartermaster had a smoke mask and a UHF radio with which he could communicate with the bridge. When the quartermaster arrived at cabin D98, he noticed smoke coming through the louvers in the cabin door. He radioed his findings to the bridge and, with the assistance of another crewman, attempted to extinguish the fire with a portable fire extinguisher. When these efforts proved ineffective, the two crewmen closed the door, and the quartermaster reported the situation to the bridge.

The breakdown in the systematic handling of the emergency began with the master's actions on the bridge. When the third officer told the master of the quartermaster's account of the smoke, the master's first action was to violate his own shipboard fire plan. He ordered the chief officer to investigate the fire scene instead of having him immediately report to the bridge, his assigned duty station in the event of a fire. As the person in charge of the command and control of shipboard firefighting operations, the chief officer belonged on the bridge, where he had access to communications equipment, vessel plans, fire detection and suppression systems, and remote controls for the ventilation systems, FSDs, and WTDs and where he could receive reports of conditions, assess the situation, and plan the proper course of action. The master, however, assumed the chief officer's responsibilities, as well as his own, which included the safe navigation of the ship, the internal and external communications, and the overall management of the shipboard emergency to ensure the safety of the passengers and crewmembers.

Holland America's shipboard emergency procedures were based on the assumption that the existence of a fire would be verified before the ship's firefighting assets were mobilized. In this case, the quartermaster was tasked appropriately with this responsibility. However, despite the quartermaster's providing an early confirmation of the fire and follow-up calls advising the bridge on the status of the fire, the master did not

¹ For more detailed information, read: National Transportation Safety Board *Fire On Board the Netherlands Registered Passenger Ship Nieuw Amsterdam, Glacier Bay, Alaska, May 23, 2000*, Marine Accident Brief NTSB/MBR-01/01 (Washington, DC: NTSB, 2001). This report will be posted on the Web at <http://www.nts.gov>.

immediately react. He did not sound the general alarm signaling the fire teams to marshal or broadcast a message alerting crewmembers on D deck to evacuate their accommodations area until he received a call several minutes later from an officer who happened to be on D deck.

While the master was trying to juggle his own responsibilities and the firefighting responsibilities of the chief officer, additional crucial actions were not executed in a timely manner. The master lost some degree of control over external communications and did not ensure that the Coast Guard was contacted in a timely manner. About an hour elapsed after the fire alarm sounded before the Coast Guard received a relayed distress signal from another Holland America vessel and responded to the *Nieuw Amsterdam* emergency. If the fire on the *Nieuw Amsterdam* had been beyond the capabilities of the shipboard firefighters, the delay in contacting the Coast Guard and arranging for additional resources could have had tragic consequences.

Inefficient management contributed to the spread of smoke beyond the area of the fire and increased the risk of injury to passengers and crewmembers. Following the quartermaster's report of the fire, the master did not immediately order the ventilation secured in any area of the ship. He also did not immediately order the fire doors closed and the decks progressively cleared in response to his receiving continuous alarms and crewmembers' reports indicating the smoke was migrating to other decks. Any of these actions could have dramatically curtailed the spread of smoke throughout the *Nieuw Amsterdam*.

Smoke control problems were not limited to the bridge. Some crewmembers did not recognize the importance of promptly reporting smoke. For example, the chief officer, during his descent to D deck, failed to alert the bridge that he smelled smoke on C deck. Such information might have assisted the master in directing smoke control activities. The Safety Board notes that the ship's log indicates that the *Nieuw Amsterdam* conducted periodic fire drills as required by the *International Convention for the Safety of Life at Sea, 1974*, and that Coast Guard reports indicate that shipboard personnel had performed satisfactorily during a fire drill that was conducted as part of the Coast Guard's last quarterly examination.²

The focus during fire drills, however, is typically on firefighting. To maximize safety on a passenger ship, procedures for managing the evacuation of passengers and crew and for managing the control of smoke need to be established. For example, crewmembers need to be trained to immediately report any progression of smoke, to rapidly evacuate any passengers and crew from smoke-threatened areas, and to close FSDs to prevent the migration of smoke any farther. Officers, too, need to be trained to take proactive measures to prevent the migration of smoke and to direct the clearing of decks where passengers and crewmembers might be located. The officers should be able to use the fire control plan so that they can anticipate where smoke might migrate. They should interactively coordinate with crewmembers to clear the decks and close the FSDs.

² The examination was conducted on May 21, 2000.

They should be able to activate or shut down ventilation as appropriate. Drills should be devised and practiced that feature different scenarios to test the abilities of the officers and crewmembers to respond to different smoke conditions. The Safety Board, therefore, believes that Holland America should revise its shipboard procedures for controlling smoke to incorporate proactive measures that ensure the rapid clearing of passengers and crew from decks and that prevent the migration of smoke. Further, Holland America should devise and practice drills that feature different scenarios that test the abilities of officers and crew to respond to varying smoke conditions.

During the early stages of the fire, the chief officer and the chief engineer essentially abandoned their command roles, choosing to make a premature attack on the fire without obtaining proper gear and arranging for backup. Their inappropriate actions directly contributed to the spread of fire and smoke.

Some of the firefighting personnel handled the firefighting effectively, albeit not in accordance with the ship's station bill. The performance of the Bravo squad's members in attacking this fire demonstrated that they were trained and properly equipped to extinguish the fire. They used proper techniques in approaching the fire and backed one another up during the firefighting evolution. They maintained effective communications with each other and with the bridge via radio; their efforts resulted in the fire being extinguished in short order, with no injury to any of the firefighters. Had the chief officer and the chief engineer not acted precipitately during the early stages of the fire and left the door to cabin D98 ajar, the regularly constituted and properly outfitted fire squads would probably have extinguished the fire inside the cabin, and flames might not have spread to the adjoining passageways. The chief officer and the chief engineer took actions that compromised the effectiveness of the ship's firefighting capability, needlessly endangered themselves, and risked the safety of the passengers and crew.

That the Bravo fire squad members expeditiously extinguished the fire was a credit to their organization, training, and ability. However, like the chief officer, the Bravo squad officers, including the second engineer and the third engineer, elected to assume forward attack positions without arranging for replacements in their command and control positions. If they had been seriously injured or overcome by smoke, the handling of the emergency might have been adversely affected.

All of the officers in this firefighting effort were well qualified marine officers who had completed basic and advanced firefighting training and had participated in the regular fire drills conducted on board the ship. While the training may have prepared for some shipboard personnel to attack a fire, the drills apparently did not adequately prepare some officers to appropriately assess a fire emergency and/or manage firefighting assets. The Safety Board considers it essential to the safe operation of ships that masters and officers be able to fulfill their proper command and control functions during shipboard fires. The Safety Board, therefore, believes that Holland America should revise the shipboard training and drills for its masters and other officers to include emphasis on their management responsibilities during a fire emergency and the principles of command and control of onboard firefighting activities.

The “International Management Code for the Safe Operation of Ships and for Pollution Prevention” requires that shipping companies conduct periodic internal and external audits, i.e., management oversight, to ensure the continued adequacy of their safety programs and to identify nonconformities that must be corrected to improve safety. Shoreside management should be aware of whether shipboard activities during an emergency are conducted in accordance with the company’s written policies, procedures, and other directives, such as station bills. Only days before this accident, the company conducted a fire training drill aboard the *Nieuw Amsterdam* in which company officials evaluated the shipboard response as being in accordance with their policies, procedures, and directives. During a real-life situation, however, the ship’s officers seriously deviated from procedures. In particular, two senior officers attempted to fight a fire without protective equipment or gear and failed to secure a smoke-filled area, thus permitting smoke to travel upward through multiple decks. Because its most recent oversight review did not reveal deficiencies that could, in another emergency, seriously affect the safety of passengers, crew, and its ship, Holland America needs to reexamine its process for evaluating how its shipboard management team fights fires and controls smoke. The Safety Board, therefore, believes that Holland America should review and revise, as necessary, its safety oversight procedures for assessing the effectiveness of its training and drills for firefighting management and the effectiveness of its procedures for controlling the spread of smoke during a shipboard fire.

In summary, the National Transportation Safety Board makes the following safety recommendations to Holland America Line Westours, Inc.:

Revise shipboard training and drills for your masters and other officers to include emphasis on their management responsibilities during a fire emergency and the principles of command and control of onboard firefighting activities. (M-01-14)

Revise shipboard procedures for controlling smoke to incorporate proactive measures that ensure the rapid clearing of passengers and crew from decks and that prevent the migration of smoke. (M-01-15)

Devise and practice drills that feature different scenarios that test the abilities of officers and crew to respond to varying smoke conditions. (M-01-16)

Review and revise, as necessary, your safety oversight audits for assessing the effectiveness of your training and drills for firefighting command and control and the effectiveness of your procedures for controlling the spread of smoke during a shipboard fire. (M-01-17)

The Safety Board also issued a related safety recommendation to the U.S. Coast Guard and to the following passenger ship companies: American Classic Voyages, Carnival Corporation, Inc., Crystal Cruises, Disney Cruise Line, Norwegian Cruise Line,

Orient Lines, P&O Princess Cruises International, Ltd., Radisson Seven Seas Cruises, Regal Cruises, Renaissance Cruises, Inc., Royal Olympic Cruises, Royal Caribbean Cruises, Ltd., and Silversea Cruises, Ltd. In your response to the recommendations in this letter, please refer to M-01-14 through -17. If you need additional information, you may call (202) 314-6607.

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

By: Carol J. Carmody
Acting Chairman