SP20

National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 24, 1986
In reply refer to: M-86-51 thru M-86-66

Log M-317
7/29/86

Admiral Paul A. Yost, Jr.
Commandant
U.S. Coast Guard
Washington, D.C. 20593

At 1620 on July 28, 1985, the M/V PILGRIM BELLE, a U.S. registered, 192-foot, 96-gross ton, passenger vessel, ran aground on the Sow and Pigs Reef, Vineyard Sound, Massachusetts. After being informed that the vessel was taking on water, the master immediately ordered passengers and crew to abandon ship. He then broadcast a distress message to the U.S. Coast Guard (USCG). The 84 passengers and 16 crew members were taken to a nearby fishing vessel, the FARE LADY, and to Cuttyhunk Island by recreation boats and the PILGRIM BELLE II, the vessel's launch. They were later transferred to USCG Station, Woods Hole, Massachusetts. The remaining eight members of the crew and one shipyard/builder representative stayed with the vessel. There were no serious injuries on grounding or leaving the vessel. The PILGRIM BELLE did not sink. Damage and repair costs were $357,000, and the vessel was returned to service on August 31, 1985. 1/

In its investigation of the M/V YANKEE, 2/ the Safety Board found that it did not have a public address system. The Safety Board addressed this need following the M/V YANKEE and M/V HARBELL TAPPER accident when it recommended to the USCG:

> Require that passenger vessels with more than one passenger deck have installed an adequate loudspeaker system suitable for announcing passenger advisories, instructions, and emergency alerts from the navigation bridge. (Recommendation M-84-25).

On February 26, 1985, the USCG stated:

> The Coast Guard concurs with the intent of this recommendation. All passenger vessels should have an emergency loudspeaker system. This fact has been reflected in the 1983 amendment to the International Convention for the Safety of Life at Sea (SOLAS), 1974. The Coast Guard has initiated a regulatory project to incorporate the SOLAS provision in Title 46, Code of Federal Regulations, Subpart 113.50. This regulation will be applicable to all subchapter H passenger vessels and to certain small passenger vessels (subchapter T) when deemed necessary by the cognizant officer in charge of marine inspection.

1/ For more detailed information, read Marine Accident Report--"Grounding of the U.S. Passenger Vessel PILGRIM BELLE, Sow and Pigs Reef, Vineyard Sound, Massachusetts, July 28, 1985" (NTSB/MAR-86/08).

2/ Marine Accident Report--"Collision of the U.S. Passenger Vessel M/V YANKEE and the Liberian Freighter M/V HARBELL TAPPER in Rhode Island Sound, July 2, 1983" (NTSB-MAR-84-05).

On July 25, 1985, the Safety Board classified Safety Recommendation M-84-25 as "Open--Acceptable Action." The PILGRIM BELLE had a public address system which was used and demonstrated the importance of using it in an emergency. Therefore, this recommendation concerning public address systems is reiterated in this case.

Title 46 CFR Subchapter T part 185.25 requires only public announcements and/or placards for passenger safety orientations. The master showed good initiative when he provided a personal safety orientation to passengers after they boarded the PILGRIM BELLE. The master's safety orientation contributed significantly to the efficiency of the evacuation. Owners of passenger vessels should consider requiring such orientations on all voyages.

As a result of the investigation of the capsizing of the small passenger vessel SAN MATEO 3/ in Morro Bay, California, the National Transportation Safety Board issued Safety Recommendation M-83-79 to the USCG:

> Amend 46 CFR 185.25 to require that a safety orientation briefing, which includes a demonstration of the proper method of donning life preservers, be provided to passengers on board small passenger vessels that operate on other than protected waters. This briefing should include a statement that all passengers will be requested to don life preservers when possibly hazardous conditions may be expected to be encountered.

On February 23, 1984, the USCG stated:

> This recommendation is concurred with. A regulatory project will be initiated to review and revise as necessary, portions of Title 46, Code of Federal Regulations, Subchapter T (Small Passenger Vessels Under 100 Gross Tons). Included in the revision would be a proposal to change 46 CFR 185.25-1(d) which would require a safety orientation announcement rather than making it optional as is now the case. A requirement for operators to advise passengers of certain safety precautions will also be considered. Included would be a general list of conditions under which passengers will be requested or required to don life preservers.

On July 5, 1984, the Safety Board classified Safety Recommendation M-83-79 as "Open—Acceptable Action."

Passengers generally are not familiar with large vessels and in an emergency, and there is little time to read placards regarding lifesaving devices and emergency stations. The Safety Board reiterates recommendation M-83-79, and recommends that the USCG require masters of small passenger vessels that have overnight accommodations for 50 or more passengers on extended cruises to hold fire and boat (abandon ship) drills at least once a week. During the drills, a safety orientation should be conducted. Any passengers boarding the vessel at or after the first port of call for the remainder of a cruise should also be given a safety orientation.

3/ Marine Accident Report--"Capsizing of the Charter Passenger Vessel SAN MATEO, Morro Bay, California, February 16, 1983" (NTSB/MAR-83/09).

USCG regulations do not adequately consider the navigation hazards of operating passenger vessels on routes other than rivers. Passenger vessels like the PILGRIM BELLE, which operate off the New England coast, can unexpectedly encounter limited visibility conditions at any time of the year, especially from May to October when fog is expected about one-third of the time. The Safety Board believes that additional electronic navigational equipment, such as radar, loran, or a satellite navigation receiver, gyrocompass, and a fathometer, should be required on small passenger vessels which operate offshore.

On October 25, 1978, as a result of its investigation of the collision of the small passenger vessel CANDY BAR and the tankship STOLT VIKING 4/ in the Gulf of Mexico, the National Transportation Safety Board issued Safety Recommendation M-78-74 to the USCG:

> Require vessels carrying more than six passengers for hire and engaged in the offshore oil industry to have electronic navigational equipment including radar, loran and a fathometer.

On March 14, 1979, the USCG stated:

> The Coast Guard does not concur with this recommendation for the following reasons:
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> a. The crewboat CANDY BAR was equipped with all three electronic navigational aids and their presence did not prevent the collision with the M/V STOLT VIKING.
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> b. Radar range would be quite short due to the antenna height.
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> c. A study of Gulf of Mexico area vessels in the categories listed in this recommendation revealed that 86 collisions were reported in the period 1972 to 1977. The data showed that 56 of these collisions (65% of the total) occurred under weather conditions in which visibility was two miles or more, winds were less than 10 kts., and the skies were clear or partly cloudy. Examination of the 25 casualties which occurred at night identified only one incident in which radar was a contributing factor. In situations similar to this accident, lack of adherence to the existing International Regulations for Preventing Collisions at Sea, 1972, was identified as the most probable cause of the resulting collisions. Sixteen collisions (18.6% of the total) occurred in fog or rain and radar was not identified as a factor which might have prevented any of these casualties.

On May 22, 1980, the Safety Board classified Safety Recommendation M-78-74 as "Closed-Unacceptable Action." The Safety Board stated in its letter to the USCG that "the proper use of installed electronic navigational equipment on small passenger vessels would enhance the operational safety of these vessels and reduce the likelihood of accidents such as the collision of the STOLT VIKING and CANDY BAR."

4/ Marine Accident Report--"Collision of Liberian Tankship M/V STOLT VIKING and U.S. Crewboat CANDY BAR in Gulf of Mexico, January 7, 1978" (NTSB-MAR-78-9).

On August 23, 1984, as a result of its investigation of the collision of the U.S. passenger vessel YANKEE and the Liberian freighter HARBELL TAPPER in Rhode Island Sound, the National Transportation Safety Board issued Safety Recommendation M-84-24 to the USCG:

> Require passenger vessels subject to 46 CFR Subchapter H and small passenger vessels subject to 46 CFR Subchapter T which carry more than 150 passengers, engaged in coastwise, bays, sounds, or offshore service on extended routes, to be equipped with a gyrostabilized radar suitable for rapid plotting of radar contacts and for navigation.

On February 26, 1985, the USCG stated:

> This recommendation is not concurred with. Current regulations require passenger vessels of 1600 gross tons and over in ocean or coastwise service to have a marine radar. The need for a gyrostabilized radar is not justified. The desired effect can be attained by a general marine radar when used by a competent mariner.
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> The Coast Guard is currently reviewing its regulations concerning small passenger vessels. During this study, the need for radar on these vessels as well as on passenger vessels of less than 1600 gross tons will be examined. Depending upon the results of this study, the applicable regulations may be amended.

On July 22, 1985, the Safety Board classified Safety Recommendation M-84-24 as "Open-Unacceptable Action."

Although a magnetic compass may be sufficient to navigate a vessel, the use of additional electronic equipment can greatly improve the safety of its operation. Radar's principal uses are navigation and collision avoidance, which do not depend upon a vessel's size. Radar is most frequently used in coastal and restricted waters (the normal operating areas of the PILGRIM BELLE) where vessel traffic is heavy and the danger of grounding greatest. The cost of radar is not prohibitive and many owners voluntarily install radar on their small passenger vessels.

If the PILGRIM BELLE had been equipped with a gyrocompass, radar contact true bearing error could have been significantly reduced. A radar, stabilized with gyro input, would be more effective in monitoring radar contacts. It would also give the operator the means to further utilize the advantages of a gyrocompass by establishing courses to steer directly from the gyrostabilized radar during periods of limited visibility in a more accurate manner. If the PILGRIM BELLE had a gyrostabilized radar, the master could have determined his position more quickly, since he would have needed only one range and true bearing to an object rather than two or three ranges.

By using a fathometer and a series of soundings, a navigator can compare the depth with the soundings shown on the navigation charts to determine if the vessel is approaching shallow water and is in danger of grounding. A fathometer is a relatively inexpensive navigational device that can improve the safety of navigation. The loran receiver aboard the PILGRIM BELLE could have provided the master with the vessel's position at a touch of a button and the correct true course to the next desired position or way point at the touch of another button. There is a need for the USCG to require navigation equipment such as radar, loran or other electronic position fixing devices, and fathometers aboard small passenger vessels like the PILGRIM BELLE, which can improve their safe operation and provide a greater measure of safety.

The Safety Board recently investigated the grounding of a foreign passenger vessel, the M/V A. REGINA, which occurred on Mona Island, Puerto Rico, February 15, 1985. 5/ In the A. REGINA case, the grounding occurred at night with visibility of 8 to 10 nautical miles. At no time during the voyage did the master, who was conning the vessel, use the navigation equipment to fix the vessel's position on the chart. He did not make allowances for wind, sea, and current effects. Instead of taking position fixes to compare the vessel's movements with the intended course line, the master navigated "by the eye." The master said that this bad piloting habit resulted from "meeting the same things" on repetitive ferry routes.

There is evidence that in both the A. REGINA and PILGRIM BELLE accidents, complacency fostered lax navigation practices. The United States navigation and safety regulations, 33 CFR 164.41, require that masters of vessels of 1,600 or more gross tons, when operating in the navigable waters of the United States, use electronic and other navigational equipment to fix the vessel's positions on a chart. They are to consider current velocity and direction for the area to be transited, and adjust course for the effects of wind on the vessel. These navigation regulations would have applied to the PILGRIM BELLE if it was admeasured under the International Tonnage Convention of 1969 as the ship would admeasure well over 1600 gross tons. The need for accurate navigation becomes even more important when a vessel is navigating near the coast, as was the case with the PILGRIM BELLE, not only because of the increased volume of traffic near harbor approaches, but also because of the dangers inherent in shallow coastal waters. The potential for human loss is greater for a vessel like the PILGRIM BELLE because of the large number of passengers when compared with the largest freighters and tankships, which carry relatively small crews. Safe navigation, which requires the master to follow prescribed procedures for plotting courses and fixing positions, should be a concern of large and small vessels alike, especially those carrying passengers. Navigation watch personnel of small passenger vessels similar to the PILGRIM BELLE should be required to adhere to navigation procedures and equipment requirements similar to those contained in 33 CFR 164.

The Deputy Chief of the USCG Office of Merchant Marine Safety testified that delineation between lakes, bays, and sounds routes and coastwise routes varied depending on latitudes, distance from shore, and degree of access to the open ocean. The final determination of whether a particular body of water, such as Rhode Island Sound, is considered a sound or coastwise waters is left to the local OCMI or the appropriate USCG district commander. For instance, on March 23, 1983, the USCG district commander, Boston, Massachusetts, changed the licensing route designation in Rhode Island Sound for small passenger vessel licenses to ocean operator, using the territorial sea base lines marked on the navigation charts as the basis for the change. In 1984, the OCMI, Providence, designated Rhode Island Sound as coastwise waters for the purpose of lifesaving equipment requirements on passenger vessels. However, those passenger vessels on established ferry routes in Rhode Island Sound did not have to comply with the requirements for lifesaving equipment for coastwise routes. Also, cargo vessels with lakes, bays, and sounds routes between New York and Boston were not required to comply with coastwise lifesaving requirements in Rhode Island Sound.

5/ Marine Accident Report--"Grounding of the Panamanian Flag Passenger Car Ferry M/V A. REGINA, Mona Island, Puerto Rico, February 15, 1985" (NTSB/MAR-86/02).

When the owners of the PILGRIM BELLE originally requested certification by the USCG on November 30, 1983, the owner requested certification for a lakes, bays, and sounds route on the east coast with a limited coastwise route between Sandy Hook and Cape May, New Jersey. Since the owner wanted to operate the vessel between Eastport, Maine, and Key West, Florida, with a lakes, bays, and sounds route on its COI, the OCMI Mobile had to consult with each of the USCG OCMIs covering his part of the east coast to determine if the PILGRIM BELLE could be certificated for lakes, bays, and sounds and operate on its intended route. He determined that the vessel would have to be certificated for a coastwise route between Sandy Hook and Cape May, New Jersey. The certification was based on a lakes, bays and sounds route since it was questionable whether the PILGRIM BELLE could meet the USCG stability criteria for a coastwise route. Except for the required lifesaving equipment and stability standards, there were no major differences in certification requirements for the PILGRIM BELLE for lakes, bays, and sound service versus coastwise service. After the OCMI Mobile issued the initial COI to the PILGRIM BELLE, the owners installed fixed ballast, and the USCG Merchant Marine Technical Office in New Orleans, Louisiana, approved the vessel's stability for coastwise service, no more than 20 miles from a harbor of safe refuge.

The present method which the USCG employs for certificating small passenger vessels for offshore operations needs improvement. Many modern small passenger vessels are designed to operate offshore among a number of USCG OCMI zones. Stability standards are based on ocean service, partially protected waters (waters within 20 miles of the mouth of a harbor of safe refuge), or protected waters (sheltered waters presenting no special hazards, such as most rivers, harbors, lakes). There is no direct correlation between a lakes, bays, or sounds route and the stability requirements. While a lake may be protected waters, a sound could contain conditions similar to coastwise service. Rhode Island Sound, where the PILGRIM BELLE was operating at the time of the grounding, was considered a coastwise route by the USCG.

The Safety Board realizes that establishing firm criteria for categorizing in every case what is "lakes, bays, and sounds" versus "coastwise" would be unrealistic on a national basis due to the large number of variables involved. However, since the primary determinants for establishing those categories are operationally based rather then rescue oriented, the Safety Board believes that the USCG should either eliminate the lakes, bays, and sounds category or compensate by clarifying the parameters for such a route designation to ensure that a reduction in stability or in the amount or type of lifesaving equipment does not result. Such standards should be written to prevent administrative errors, such as the one that permitted the PILGRIM BELLE to operate on a coastwise route without the required liferafts, and to prevent the OCMI in one zone from making decisions concerning the operation of a small passenger vessel in other zones with which he may not be familiar.

The USCG regulations (46 CFR 74.20 and 46 CFR 74.25, relocated to 46 CFR 170.110 and 46 CFR 170.120) applicable to the PILGRIM BELLE state:

> The master of the vessels shall be informed of the conditions under which the damage stability calculations have been made and advised to what extent the vessel can safely withstand damage under these assumed conditions.
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> Each vessel subject to the requirements of this part shall have posted under glass in the pilothouse a stability letter issued by U.S. Coast Guard before the vessel is placed in service operation. This letter shall

> indicate, either by specific instructions embodied in the letter or by reference to separate instructions available to the master, the condition of operation under which the vessel will have satisfactory stability.

The only information available to the master regarding the stability of the PILGRIM BELLE was a stability letter posted in the pilothouse, which was issued by the USCG on March 20, 1985. The stability letter contained no information on the conditions under which the damage stability calculations were made, or the extent to which the PILGRIM BELLE could safely withstand damage under these assumed conditions. Furthermore, the master on the PILGRIM BELLE testified that he did not know if the PILGRIM BELLE was designed to withstand damage to its hull; the PILGRIM BELLE was, in fact, designed to withstand damage to one main underwater compartment. Calculations after the grounding showed that the PILGRIM BELLE probably would have capsized and sunk if the storeroom had flooded together with the crew's quarters.

Stability information regarding the PILGRIM BELLE's ability to survive damage should have been provided to the master of the vessel so that he could make informed decisions on whether to evacuate passengers and what damage control measures to take. The Deputy Chief of the USCG Office of Merchant Marine Safety stated that the USCG does not normally provide the operator of a small passenger vessel with information regarding the survivability of the vessel even though required by the regulations. Information on the survivability of small passenger vessels is more important, due to the number of persons on board, than on other types of vessels. The USCG should change its policy concerning this vital information.

Navigational and Inspection Circular (NVIC) 11-83 included some operational regulations and some emergency equipment requirements for passenger vessels over 100 gross tons. Under NVIC 11-83, the requirement for a fixed fire extinguishing system in the engineroom on the PILGRIM BELLE was eliminated because the engineroom was considered a manned engineroom (even though no engineers were required by the COI). Subsequently, the OCMI dropped his requirement for a fixed fire extinguishing system in the engineroom of the PILGRIM BELLE to conform with the USCG national policy.

It is important to have a fixed fire extingushing system in the engineroom which can be activated from outside the space because shipboard engineroom fires frequently prevent the crew from entering the space due to heavy smoke. The owners of the PILGRIM BELLE recognized this hazard, and, even though they had engineering crewmembers on board at all times, installed a fixed Halon fire extinguishing system in the vessel's engineroom. The Safety Board urges the USCG to require a fixed firefighting system in the engineroom on small passenger vessels which have overnight accommodations for 50 or more passengers.

Following the investigation of the collision of the U.S. Passenger Vessel M/V YANKEE and the Liberian Freighter M/V HARBELL TAPPER in July 1983, which occurred in Rhode Island Sound near the area of the M/V PILGRIM BELLE grounding, the Safety Board issued Recommendation M-84-29 on February 26, 1985, to the USCG:

> Reevaluate 46 CFR 75.10-20(a) to determine whether the primary lifesaving equipment required is adequate to safely support the entire crew and maximum embarked passengers in the water pending arrival of search and rescue assistance and amend the regulations, as necessary, to eliminate deficiencies in prescribed primary lifesaving equipment.

The USCG did not concur with the recommendation and stated:

> . . .the regulation delineating the amount of primary lifesaving equipment required on board should not be amended. Since the casualty occurred in July, the temperature was probably in the 60's (F), and persons in the water probably would not be subjected to an immediate threat from hypothermia. The M/V HARBELL TAPPER and yacht VICTORY were in the immediate vicinity and would have provided immediate rescue for those in the water had the YANKEE sunk. In addition, there were numerous other vessels close by that could provide assistance quickly. In the winter season when water temperatures are lower and fewer vessels are expected to be in the area, 46 CFR 75.10-20(A) requires primary lifesaving equipment for all persons on board.

On July 22, 1985, the Safety Board responded to the USCG:

> The threat of hypothermia is but one consideration in the event of an accident such as this. Had the YANKEE capsized and sunk, many passengers would have been forced into the water without adequate lifesaving devices at their disposal. With the prevailing heavy fog, it is quite possible that some of the passengers would not have been located promptly and might have perished. It should be noted that the HARBELL TAPPER, even with its radar, could not locate the YANKEE after the collision. Its chances of locating passengers in the water would have been even more unlikely. The Safety Board believes that there should be primary lifesaving equipment for all passengers and crewmembers embarked on passenger-carrying vessels such as this, without regard to water temperature. Therefore, Safety Recommendation M-84-29 has been classified as "Open--Unacceptable Action."

Following the investigation of the fire of the small passenger vessel M/V FANTASY ISLANDER 6/ in Charlotte Harbor, Florida, the Safety Board issued Recommendation M-85-88 on September 18, 1985, to the USCG.

> Amend 46 CFR 180.10 to require that the primary lifesaving equipment carried on small passenger vessels be adequate to safely support in the water 100 percent of the authorized number of passengers and crewmembers pending the arrival of assistance. (Class II, Priority Action) (M-85-88)

6/ Marine Accident Report--"Loss by Fire of the U.S. Passenger Vessel M/V FANTASY ISLANDER, in Charlotte Harbor, Florida, September 8, 1984" (NTSB-MAR-85-09).

On January 30, 1986, the USCG responded to the recommendation and stated:

> This recommendation is concurred with in part. The Coast Guard intends to propose regulations that would require life rafts for 100% of the persons on board many small passenger vessels not now required to carry primary lifesaving equipment for everyone on board. The requirement under consideration would apply to all vessels in ocean service, and in most other services at times of the year when the prevailing water temperature is 15° C (59° F) or lower. The circumstances of this casualty do not, however, justify a requirement for more primary lifesaving equipment. The life preservers and life float on board the FANTASY ISLANDER were adequate lifesaving equipment in the prevailing climatic conditions and limited area of operation. The operator erred in not having the passengers put the life preservers on when the fire was detected, as directed in the recommended emergency checkoff list under 46 CFR 185.25-5(c)(6).

The Safety Board is concerned about the use of buoyant apparatus and lifefloats aboard small passenger vessels in lieu of liferafts. Since neither buoyant apparatus nor lifefloats keep survivors from immersion in the water, potential hypothermal effects can result. Use of such buoyant apparatus or lifefloats is permitted between May 15 and October 15, north of the 33rd parallel on the U.S. east coast. However, National Oceanic and Atmospheric Administration (NOAA) data show that water temperatures can be quite low (below 50°) even during summer months along the east coast. In fact, the USCG requires most vessels that operate in waters where temperatures drop below 60° to carry exposure suits for all crewmembers in recognition of the potential for hypothermia.

In addition, such factors as passenger age and physical condition (the average age of PILGRIM BELLE passengers was over 60), difficulty of locating survivors in fog, and rough sea conditions can also reduce survivability by increasing the time of immersion of survivors, which greatly increases the threat of hypothermia.

The USCG concurs in part with recommendation M-85-88, and intends to propose regulations that would require liferafts for 100 percent of the persons on board small passenger vessels. This requirement would be limited to those vessels in ocean service and to vessels in other services when the prevailing water temperature is 59° F or lower.

Entering the water in the event of an accident is just as perilous for passengers and crew whether the vessel is operating an ocean, coastwise, lakes, bays, and sounds, or river route. The important elements are the promptness of rescue and the prevention of hypothermia. Primary lifesaving equipment, such as liferafts or lifeboats, keeps persons together for safer, more expeditious rescue after abandoning a vessel, and keeps persons from immersion in the water, thus preventing or reducing the effects of hypothermia. Because hypothermia is always a threat, especially to older people, when the water temperature is below body temperature, 100 percent liferaft capacity for all persons aboard passenger vessels should be required all year round for all services.

The Safety Board maintains that primary lifesaving equipment should be provided for all persons embarked on passenger vessels except ferries on river routes operating on short runs of 30 minutes or less. The Board has concluded that a somewhat broader approach is necessary than was recommended in M-84-29 and M-85-88. Accordingly, both of these recommendations are classified "Closed--Superseded Unacceptable Action" and the superseding recommendation is included in this letter.

After the master announced that "life jackets" should be worn, passengers and crewmembers who were not in their rooms had to go back to get them. Passengers who were not able to retrieve their life preservers because it was unsafe to enter their rooms were provided life preservers by crewmembers, who retrieved them from empty rooms. Crewmembers who could not retrieve their life preservers from their flooded quarters were provided them from the spares located in the passageway near the engineroom and galley. There is a need to review the stowage requirements to determine if the location in interior rooms of a vessel is detrimental to personal safety.

The PILGRIM BELLE was not required to have a rescue boat, but did carry two motor-propelled launches for sightseeing in port. However, there was no requirement to have the launches aboard and only one of the launches was in place on the day of the grounding. If for any reason both of the launches had been removed, the PILGRIM BELLE still would not have been in violation of its COI, even though it had no rescue boat to safely retrieve a person from the water. The 3 to 3 1/2 feet of freeboard (distance from lowest deck to the water) and the size of the PILGRIM BELLE do not allow for easy recovery of a person from the water. The COI should require a motorized rescue boat when both launches are not on board the PILGRIM BELLE.

The PILGRIM BELLE admeasured 96 gross tons and thus the USCG's required manning was two licensed operators and five unlicensed deckhands. In addition to the required crew, it had an unlicensed chief engineer, 2 unlicensed engineroom assistants, and 14 persons in the hotel staff. If the PILGRIM BELLE admeasured over 100 gross tons and operated on the same coastwise voyage, or on voyages of less than 400 miles, its COI would require a minimum crew of 11. The 11 crew members would consist of a licensed master, two licensed mates, one licensed chief engineer, one assistant engineer, and six deckhands (one of whom would be a watchman). The USCG gross ton admeasurement criterion frequently results in a tonnage that does not reflect the size of a vessel and is a poor and inadequate measure for determining crew size. The USCG Marine Safety Manual provides samples of representative levels of manning which are neither mandatory nor all-inclusive. The regulations let the local OCMI decide how many licensed persons and other crew are necessary for the safe operation of a small passenger vessel. The implementation of the regulations by local OCMIs can lead to significant variations in the manning of similar vessels in similar operations with resultant variations in passenger safety. Owners have great latitude in setting their own manning standards by designing their vessels to admeasure under 100 gross tons.

Although the manning levels suggested by the Marine Safety Manual may be acceptable for the safe operation of most excursion boats that operate only during the day, they are not sufficient for small passenger vessels in the cruise trade that have overnight accommodations for 50 or more passengers. Manning levels on these small passenger vessels should be based on the complexity of the design of the hull (number of decks and compartments) and the complexity of the engineering plant. Manning levels should also be based on the number of persons required to adequately cope with emergency situations, and to provide for the safe navigation of the vessel. In determining the number of personnel needed for emergency situations, the amount and type of lifesaving equipment, evacuation aides, and the type and location of firefighting equipment also should be considered. The USCG should require that manning levels for passenger vessels that have accommodations for 50 or more overnight passengers meet the requirements for passenger vessels over 100 gross tons.

The USCG should require that the masters of small passenger vessels attend approved schools in damage control, firefighting, first aid, and CPR before they can take the USCG license examination. In the case of the grounding of the PILGRIM BELLE on July 28, 1985, the safe and rapid evacuation of all passengers was successful because of the calm sea conditions and the vessel's proximity to shore. However, if the vessel had suffered hull damage or fire further off shore, in fog, or in rough seas, it might have been more prudent for the passengers to stay aboard and for the master to make some attempt at damage control or fighting the fire. Therefore, small passenger vessel masters should have training in damage control and lifesaving equipment, as well as firefighting training, so that they can make informed decisions about evacuating passengers and have some skills to control the damage or fire until help arrives.

USCG standards for passenger vessels are indexed to the vessel's gross tonnage. For example, a passenger vessel carrying seven passengers and operating on day cruises out of a single port and a passenger vessel carrying over 50 persons on overnight cruises on extended coastal voyages are presently required by regulation to meet the same structural fire protection standards if they admeasure under 100 gross tons. However, the potential for loss of life due to a fire is much greater on the overnight cruise vessel. NVIC 11-83 recognizes the need for different standards depending on the number of passengers and the hazards. The Safety Board urges the USCG to continue this concept in its effort to completely revise the regulations for small passenger vessels.

Since the regulations for small passenger vessels were first promulgated over 25 years ago, the operation of some of these vessels has changed, but the licensing regulations and the examination for an ocean operator or operator license has remained essentially unchanged over this time. The knowledge required to obtain a license to operate a vessel with overnight passenger accommodations, similar to the PILGRIM BELLE, is no different than that required for a daily excursion boat operation. These small passenger vessels have all of the characteristics of a passenger vessel (over 100 gross tons with its increased size and complexity of operation). Yet, most small passenger vessels are operated by persons who are generally not familiar with passenger vessel regulations (46 CFR Subchapter H).

The USCG NPRM published on October 24, 1985, proposes that applicants be tested in damage control procedures but does not stipulate any hands-on skill courses. The NPRM also does not require firefighting, first aid, or CPR training for small passenger vessel operators. With only limited manning by deck officers, who need not be qualified in first aid or CPR, the health and safety of passengers on small passenger vessels is severely compromised, especially when the average age of these passengers may be quite old.

Applicants for passenger vessel licenses for vessels that are over 100 gross tons or for those that are under 100 gross tons and have overnight accommodations for 50 or more passengers should meet specific regulations for damage stability and structural fire protection as stated in Subchapter H. Also, the applicants for these licenses do not have to know specific regulations in the passenger vessel (Subchapter H) regulations. Because passengers should be given protection above that given to the professional seaman who understands and is trained for the perils involved, the person in charge of a small passenger vessel should be better qualified in the area of passenger safety than one on a cargo vessel.

To overcome the deficiencies in the operator license requirements for small passenger vessels that have overnight accommodations for 50 or more passengers, the USCG should (a) require the masters of these vessels to pass a supplemental examination

on applicable sections of 46 CFR Subchapter H regulations, including subdivision damage stability, lifesaving equipment, and structural fire protection, (b) have those operator licenses endorsed to authorize service on small passenger vessels that have overnight accommodations for 50 or more passengers, and (c) amend the COI on those vessels to indicate the required license.

Therefore, in addition to reiterating Safety Recommendations M-83-79 and M-84-25, the National Transportation Safety Board recommends that the U.S. Coast Guard:

> Require all passenger vessels that have overnight accommodations for 50 or more passengers and that operate on all routes other than rivers be equipped with a gyrocompass. (Class II, Priority Action) (M-86-51)
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> Require all passenger vessels that have overnight accommodations for 50 or more passengers and that operate on all routes other than rivers be equipped with a gyrostabilized radar. (Class II, Priority Action) (M-86-52)
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> Require all passenger vessels on all routes other than rivers be equipped with a fathometer. (Class II, Priority Action) (M-86-53)
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> Require all passenger vessels that operate on all routes other than rivers be equipped with an electronic position fixing device such as a loran or a satellite navigation receiver. (Class II, Priority Action) (M-86-54)
>
> Require that masters and watchstanding officers on all passenger vessels that have overnight accommodations for 50 or more passengers on other than river routes comply with navigation procedures similar to those found at 33 CFR 164.11. (Class II, Priority Action) (M-86-55)
>
> Either clearly define lakes, bays, and sounds at 46 CFR Subchapter H and Subchapter T to provide for uniform application of the passenger vessel regulations or eliminate this route designation. (Class II, Priority Action) (M-86-56)
>
> Harmonize the intact stability requirements (ocean, partially protected waters, and protected waters) found at 46 CFR Subchapter S with the specified routes (ocean, coastwise, lakes, bays, and sounds, Great Lakes, and rivers) found at 46 CFR Subchapter H and Subchapter T to clearly define which stability criteria apply to which route. (Class II, Priority Action) (M-86-57)
>
> Require that the masters of all small passenger vessels be provided with information written in clear and precise language that can be readily understood by the master regarding the extent to which the vessel can safely withstand damage under the assumed loading conditions to which it was designed. (Class II, Priority Action) (M-86-58)
>
> Require a fixed firefighting system in the engineroom (without regard to the type of fuel used for propulsion) of all passenger vessels with accommodations for 50 or more overnight passengers. (Class II, Priority Action) (M-86-59)

Require fire and boat (abandon ship) drills which include passengers reporting to their emergency muster station on all passenger vessels within 24 hours of departure on cruises that are more than one day's duration. (Class II, Priority Action) (M-86-60)

Require that all passenger vessels except for ferries on river routes on short runs of 30 minutes or less have primary lifesaving equipment that prevents immersion in the water for all passengers and crew. (Class II, Priority Action) (M-86-61)

Conduct research to determine the best location for stowing life preservers on all passenger vessels. In the interim, require that life preservers be stowed outside of passenger and crew berthing rooms and closer to or at emergency stations. (Class II, Priority Action) (M-86-62)

Amend the Certificate of Inspection of the COLONIAL EXPLORER (EX PILGRIM BELLE) to require a motorized rescue boat if both launches are removed from the vessel. (Class II, Priority Action) (M-86-63)

Require all passenger vessels that have overnight accommodations for 50 or more passengers to meet the construction, licensing, and manning requirements for a passenger vessel over 100 gross tons. (Class II, Priority Action) (M-86-64)

Require the masters of all passenger vessels that have overnight accommodations for 50 or more passengers to pass an examination on applicable sections of 46 CFR Subchapter H regulations including subdivision damage stability structural fire protection and electronic navigation. (Class II, Priority Action) (M-86-65)

Amend the Certificates of Inspection on small passenger vessels that have overnight accommodations for 50 or more passengers to indicate that the master/operator must be examined in 46 CFR Subchapter H regulations. (Class II, Priority Action) (M-86-66)

GOLDMAN, Acting Chairman, and BURNETT, LAUBER, and NALL, Members, concurred in these recommendations.

By: Patricia A. Goldman
Acting Chairman