

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

SP-20
log M-304

ISSUED: DEC 5 1985

Forwarded to:

Admiral James S. Gracey
Commandant
U.S. Coast Guard
Washington, D.C. 20593

SAFETY RECOMMENDATION(S)

M-85-108 through -110

On January 31, 1985, the U.S. fishing vessel ATLANTIC MIST was en route to Ocean City, Maryland, with a full load of clams. Shortly before 1915, the master discovered flooding in the fish hold. The vessel's crewmembers, unable to control the flooding, donned exposure suits and at 1946 abandoned the sinking vessel. Of the five crewmembers aboard, one died and one is missing and presumed dead. The ATLANTIC MIST was valued at \$300,000. ^{1/}

The exposure suits worn by the crewmembers of the ATLANTIC MIST were not equipped with clamps over the connection of the separate parts of the inflator tube. When the inflator tube assembly separates, the auxiliary buoyancy ring cannot be inflated and although the wearer's nose and mouth are kept at least 2 inches above the surface of the water, the suit does not aid the person in keeping his head tilted above the horizontal. In rough seas 8- to 10-feet in height, such as those at the time of the accident, it would be very difficult to prevent waves from submerging the wearer's face even if the face flap is being used. The crewmembers of the ATLANTIC MIST stated that they had to assist other crewmembers, whose inflator tubes had separated, in keeping their heads above the water. If the wearers had been alone, or the other crewmembers had been injured and unable to support them, the separation of the inflator tube would have greatly reduced the wearers' chances of survival. The chances of the mate's survival might have been greater if the owner had been notified of a defect in the inflator tube assembly and it had been modified. If the tube had not failed on the mate's suit, he might have been able to overcome the problem of poor fit discussed hereafter.

The U.S. Coast Guard (USCG) issues the construction and performance requirements and approval tests for exposure suits and can withdraw an approval if the regulatory requirements are changed or if defects are found in the safety equipment. In this case, the manufacturer modified his product to maintain USCG approval. However, the exposure suits worn by the crewmembers of the ATLANTIC MIST were not in compliance with the current approval requirements. Nevertheless, they were permitted to be aboard because they were not required equipment or being carried as substitutes for the required life preservers.

^{1/} For more detailed information, read Marine Accident/Incident Summary Report--"Sinking of the United States Fishing Vessel ATLANTIC MIST, January 31, 1985, about 15 nmi East of Chincoteague Island, Virginia" (NTSB/MAR-85/03/SUM).

The exposure suits saved the lives of several of the crewmembers in this incident; however, the chances of the mate's survival might have been greater if the owner had been notified of a defect in the inflator tube assembly and it had been modified. The USCG has the authority in limited areas to require defect notifications. The Safety Board believes the USCG should have the authority to require manufacturers to notify distributors and purchasers of all USCG approved safety equipment, such as exposure suits, of any defects that are found in the safety equipment that would affect its performance so as to correct problems that may be due to defects found in the future.

After abandoning the ATLANTIC MIST, the mate complained of water entering the suit around the collar area. In addition to the problem of the inflator tube having separated, the suit was too large. Substantial amounts of cold water entered the mate's suit. The constant ingress of cold water into the suit increased the mate's rate of body heat loss and, when combined with his movements to keep his head out of the water in the heavy seas, circulation and flushing of the cold water in the suit occurred. The constant circulation and flushing of the cold water between the suit and his body compromised the thermal protection offered by the suit and rendered it ineffective.

According to current USCG regulations, the adult-sized exposure suit must fit persons weighing from 110 to 330 pounds and from 59 to 75 inches in height. This allows one suit to be designed to fit persons differing in weight by as much as 220 pounds (the earlier standard to which the mate's suit was built allowed a 242-pound range). The mate of the ATLANTIC MIST was in the lower quarter of the current weight range and was not adequately protected by the adult-sized exposure suit. While the mate survived for at least 2 hours after the ATLANTIC MIST sank, a properly fitted exposure suit probably would have saved his life.

The Safety Board recognizes that the custom fitting of exposure suits would be impractical on vessels with constantly changing crewmembers. However, one adult size suit cannot be expected to provide adequate protection against the effects of hypothermia for all adults included in the current weight and height requirement as evidenced by the problems of the 66-inch-tall, 145-pound mate. The USCG recognizes the importance of a properly fitted garment as applicable to its own operations and should apply this to commercial vessel safety.

After the crew abandoned the ATLANTIC MIST, they saw several vessels pass by during the night, but the crewmembers were not able to attract their attention and they were not rescued until the next morning. A personal flotation device light on the life preserver or exposure suits worn by the crewmembers of the ATLANTIC MIST might have enabled the search and rescue vessels to locate the men during the night. The ATLANTIC MIST had been boarded at the dock by USCG personnel at least twice since the regulations requiring lights on the life preservers of most uninspected commercial fishing vessels engaged in coastwise voyages had become effective; however, the master stated that he did not know life preserver lights were required when his vessel operated offshore.

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the U.S. Coast Guard:

Seek authority to require manufacturers of U.S. Coast Guard approved safety equipment to notify distributors and purchasers of any alteration or improvements that need to be made because of defects that would substantially affect the performance of the safety equipment. (Class II, Priority Action) (M-85-108)

Conduct tests to determine the adequacy of current adult-sized exposure suits when worn by physically smaller adults, and, if necessary, revise the exposure suit sizing requirement to provide more than one size suit for adults, or alternatively require modification of currently approved suit designs to provide a better fit and better immersion hypothermia protection for all adults included in the present weight and height requirement. (Class II, Priority Action) (M-85-109)

Require U.S. Coast Guard boarding personnel to notify masters and owners of noncomplying uninspected commercial fishing vessels, known to operate in coastwise, ocean, or Great Lakes waters, in writing of the regulation requiring these vessels, when operating in such areas, to equip life preservers and exposure suits substituted for life preservers with lights even if the vessel is boarded in waters in which the regulation does not apply. (Class II, Priority Action) (M-85-110)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in these recommendations.

By: 
Jim Burnett
Chairman