

AI-4  
M-196

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: July 8, 1982

Forwarded to:

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

SAFETY RECOMMENDATION(S)

M-82-35

About 0300 on February 15, 1982, the U.S. mobile offshore drilling unit OCEAN RANGER sank about 175 nautical miles (nmi) east of St. John's, Newfoundland, Canada; there were 84 persons aboard at the time of its sinking. Twenty-two bodies have been recovered and the remaining persons are missing and presumed dead. The OCEAN RANGER is presently resting in an inverted position in about 250 feet of water; its estimated value was \$125 million.

At the time of the sinking of the OCEAN RANGER, the sea temperature was  $-0.7^{\circ}\text{C}$  ( $31^{\circ}\text{F}$ ) and the air temperature was  $-4.5^{\circ}\text{C}$  ( $24^{\circ}\text{F}$ ). The winds were about 60 knots and the seas about 33 feet. Records from the Registrar, Vital Statistics Division, Department of Health, St. John's, Newfoundland, indicate that all 22 persons whose bodies were recovered died of hypothermia, the loss of body heat to the water. The following chart contained in U.S. Coast Guard regulations (33 CFR 181.705) shows the effects of hypothermia:

Water Temperature	Exhaustion or Unconsciousness	Expected Time of Survival
( $^{\circ}\text{F}$ )	(Time)	(Time)
32.5	Under 15 min.	Under 15 to 45 min.
32.5 to 40	15 to 30 min.	30 to 90 min.
40 to 50	30 to 60 min.	1 to 3 h
50 to 60	1 to 2 h	1 to 6 h
60 to 70	2 to 7 h	2 to 40 h
70 to 80	3 to 12 h	3 h to Indefinite
Over 80	Indefinite	Indefinite

About 0105, the master of the M/V SEAFORTH HIGHLANDER, the OCEAN RANGER's standby vessel 1/ lying about 8 nmi away because of severe weather conditions, received a request from the OCEAN RANGER to move in closer. He

1/ Each drilling unit operating off Newfoundland had, at all times, a vessel stationed nearby to provide assistance in case of an emergency on the drilling unit.

immediately got underway. At 0150, the SEAFORTH HIGHLANDER was about 0.5 nmi downwind of the OCEAN RANGER and spotted a red flare from an OCEAN RANGER lifeboat. The SEAFORTH HIGHLANDER proceeded to the vicinity of the lifeboat. The lifeboat came alongside the SEAFORTH HIGHLANDER and a line with a ring buoy attached was passed to a person in the lifeboat. However, as the occupants scrambled out, the lifeboat capsized. The master of the SEAFORTH HIGHLANDER saw eight or nine men clinging to the lifeboat but the men became immobilized and unable to assist the rescuers before they could be pulled from the ocean. By 0400, both the M/V BOLTENTOR and the M/V NORDETOR, standby boats for other drilling units nearby, were in the area where the OCEAN RANGER sank. The BOLTENTOR, NORDETOR, and the SEAFORTH HIGHLANDER continued to search for survivors during the night but found no one alive. One body was clothed with a type of survival suit used when riding in a helicopter to and from the drilling rigs. However, this type of survival suit provided only limited thermal protection.

Several experimental studies <sup>2/</sup> have shown that the use of exposure suits which provide proper thermal protection can extend an individual's survival time in cold water by several hours. Coast Guard regulations (46 CFR 94.41) currently require each vessel operating on the Great Lakes to carry an exposure suit which provides thermal protection for each person on board.

On May 22, 1979, the Safety Board recommended that the Coast Guard:

Require that exposure suits be provided for each crewmember on vessels that routinely operate in areas of cold air or sea temperatures.  
(M-78-65)

On May 19, 1980, the Coast Guard responded as follows:

The Coast Guard concurs with this recommendation. The Coast Guard does not intend to require oceangoing vessels with enclosed lifeboats to have exposure suits. The best opportunity for survival is provided by keeping the survivors out of the water and dry. Even the best exposure suits cannot compare with the potential for survival provided by enclosed boats. Improvement in the launching systems for these boats significantly increase the probability that they will be successfully launched. It, therefore, appears to be an unnecessary additional cost burden on the operator to require exposure suits in addition to enclosed lifeboats for 200% of the persons on board and float-free liferafts for 100% of the persons on board. It is not expected that the exposure suits will be needed. The situation on the Great Lakes is somewhat different. Because of the nature of the Lakes, rescue is never far away. We will be requiring lifeboats for only 100% of the persons on board. In a final rule which is expected to be published in the next few weeks (CGD 76--033a), the Coast Guard will require exposure suits on Great Lakes vessels. The exposure suits can provide a reasonable measure of "back-up" capacity since it is probable that survivors would be picked up quickly.

<sup>2/</sup> Harnett, R.M., O'Brien, E.M., Sias, F.R. and J.R. Pruitt (1979) "Experimental Evaluations of Selected Immersion Hypothermia Protection Equipment," U.S. Coast Guard Report No. CG-D-79-79, October 12, 1979. Hayward, J.S., Lisson, P.A., Collis, M.L. and J.D. Eckerson (1978) "Survival Suits for Accidental Immersion in Cold Water: Design-Concepts and their Protection Performance," University of Victoria, January 1978.

With regard to the U.S. proposal in IMCO, it is expected that two more meetings of the Lifesaving Appliances Sub-Committee after 1979 will be required before a firm position to be [sic] confirmed by IMCO's Maritime Safety Committee and the IMCO Assembly. Since the Lifesaving Appliances Sub-Committee will probably meet once a year in the future, the Coast Guard should be able to begin a rulemaking project at the end of 1981, without waiting for IMCO to complete the formal approvals. A final rule could then be in effect by mid-1983 which should roughly correspond to the time of the final IMCO action.

The Safety Board believes that some of the persons aboard the OCEAN RANGER may have been saved if they had been wearing exposure suits similar to those required on Great Lakes vessels. Even though the OCEAN RANGER was equipped with enclosed lifeboats for 150 percent of the persons on board plus life rafts for 200 percent of the persons aboard and the SEAFORTH HIGHLANDER arrived in the area within 45 minutes of the OCEAN RANGER's initial call for assistance, no one was saved. The OCEAN RANGER's lifeboats provided some exposure protection, but many persons aboard entered the water before the rescue boats arrived and others entered the water when the lifeboat capsized as they attempted to board the SEAFORTH HIGHLANDER. At the 31° F water temperature, survival time without thermal protection was under 15 to 45 minutes. Had the persons aboard the OCEAN RANGER been wearing exposure suits, their survival time would have been extended by several hours, increasing their chances for rescue.

Therefore, the National Transportation Safety Board recommends that the U.S. Coast Guard:

Require that all U.S. mobile offshore drilling units that operate in waters where hypothermia can greatly reduce an individual's survival time carry an exposure suit for each person on board, similar to that required by 46 CFR 94.41-5(c). (Class II, Priority Action) (M-82-35)

BURNETT, Chairman, McADAMS and BURSLEY, Members, concurred in this recommendation. GOLDMAN, Vice Chairman, did not participate.

  
By: Jim Burnett  
Chairman