

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 8, 1982

Forwarded to:

Mr. Hugh J. Kelley
 Chairman of the Board
 Ocean Drilling & Exploration Company
 P.O. Box 61780
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SAFETY RECOMMENDATION(S)

M-82-36

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°C (31°F) and the air temperature was -4.5°C (24°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 ^{2/} 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.

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. The SEAFORTH HIGHLANDER arrived in the area within 45 minutes of the OCEAN RANGER's initial call for assistance; however, no one was saved. 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 as protection from hypothermia, their survival time would have been extended by several hours, increasing their chances for rescue.

Therefore, the National Transportation Safety Board recommends that the Ocean Drilling & Exploration Company:

Provide all your mobile offshore drilling units that operate in waters where hypothermia can greatly reduce an individual's survival time with exposure suits for each person on board, similar to that required by 46 CFR 94.41-5(c). (Class II, Priority Action) (M-82-36)

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


By: Jim Burnett
Chairman

^{2/} 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 Suites for Accidental Immersion in Cold Water: Design-Concepts and their Protection Performance," University of Victoria, January 1978.