

M-156

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 14, 1981

Forwarded to:
Admiral John B. Hayes
Commandant
U. S. Coast Guard
Washington, D. C. 20593

SAFETY RECOMMENDATION(S)
M-81-55 through -61

At some time on October 25 or 26, 1980, the 523-foot-long U. S. freighter SS POET disappeared in the North Atlantic Ocean about 500 nautical miles east of Delaware Bay. No distress signal was heard from the POET, and no trace of the ship or its 34-person crew has been found. The estimated loss for the ship and its cargo was \$4,250,000. 1/

Federal Communications Commission (FCC) regulations require that Emergency Position Indicating Radiobeacons (EPIRB) transmit on 121.5 MHz and 243 MHz, frequencies which most ships are not capable of receiving. Although EPIRB's are most effective as a detection device by aircraft, the Safety Board believes that the FCC should investigate the development of EPIRB's which, in addition to transmitting on 121.5 MHz and 243 MHz, can generate a signal that could be received by most ships, and together with the U. S. Coast Guard establish national and propose international listening watch requirements on the selected frequency. If the POET's EPIRB had been capable of broadcasting a distress signal that most ships were capable of receiving, such as 156.8 MHz, VHF Channel 16, those ships near the position of the POET sinking may have heard the EPIRB's signal.

The institution of a worldwide satellite system such as Search and Rescue Satellite-Aided Tracking (SARSAT), which will pick up a distress signal from a new type of EPIRB, should greatly improve the detection of ships in distress. A satellite system should have been able to locate the position of the sinking of the POET within a matter of hours. Both the National Aeronautics and Space Administration (NASA) and the Coast Guard are working towards achieving such a system. The Safety Board has urged NASA to expedite its SARSAT program and urges the Coast Guard to obtain as soon as possible the necessary legislation to require satellite EPIRB systems on U. S. vessels.

1/ For more detailed information, read Marine Accident Report--"Disappearance of U.S. Freighter SS POET in North Atlantic Ocean about October 25, 1980" (NTSB-MAR-81-6).

The Safety Board believes that there is a need for improvement and consolidation of the Coast Guard's AMVER ^{2/} system and the USMER ^{3/} system operated by the U. S. Maritime Administration (MARAD) of the U. S. Department of Commerce for U. S.-flag vessels. This accident highlights several problems that are common to both systems and a duplication of effort in part by both agencies and the U. S. Navy. The Safety Board recognizes that the two systems were developed for different purposes. AMVER is a voluntary system for search and rescue and USMER is a mandatory system for mobilization of the U. S. merchant fleet. However, both systems compile the same information for U. S. ships and enter the same information in two separate computers. Neither the Navy nor the Coast Guard determines if the MARAD-required position data on U. S. ships is being submitted regularly. MARAD, which does not directly use the data, checks every 3 months and writes letters to owners if their ships are not complying with the mandatory USMER reporting requirements. The Safety Board believes that the Coast Guard, MARAD, and the Navy should try to consolidate the compilation of position data on U. S. ships so that only one agency needs to store the information.

The disappearance of the POET also shows a need for the AMVER system to be modified so that the Coast Guard is alerted when U. S.-flag ships are not reporting as required. An unreported ship would not necessarily mean that a distress situation exists, but would alert the Coast Guard to a possible problem. The Coast Guard could then make inquiries to the owner and other sources regarding the vessel. If such a system had been in effect in October 1980, the Coast Guard and the owner would have been alerted days sooner of the POET's failure to report and the search for the POET may have begun many days sooner.

For AMVER to be more effective, mandatory reporting should be required for U. S. vessels on both foreign and domestic voyages. In March 1971, the TEXACO OKLAHOMA sank 120 miles northeast of Cape Hatteras, North Carolina, while en route from Port Arthur, Texas, to Boston, Massachusetts. ^{4/} The crew was unable to send a distress signal, and the Coast Guard was not notified of the accident until 1 1/2 days later when the ship did not arrive at its destination on schedule. Similarly, in November 1966, the DANIEL J. MORRELL sank in Lake Huron. ^{5/} No distress signal was received, and the Coast Guard was not notified for 1 1/2 days. In February 1963, the MARINE SULFUR QUEEN sank somewhere between Beaumont, Texas, and Norfolk, Virginia. ^{6/} No distress signal was received, and the ship was not reported overdue for 3 days after sinking. The POET, TEXACO OKLAHOMA, DANIEL J. MORRELL, and MARINE SULFUR QUEEN accidents show a need for a mandatory reporting system for U. S. vessels. The Safety Board believes that the Coast Guard and MARAD should develop a mandatory reporting system for U. S. vessels on foreign and domestic voyages consistent with the existing AMVER system. The Safety Board does not believe that a mandatory reporting system for U. S. vessels, with an alerting feature for when a ship fails to report, would be incompatible with the voluntary and private aspects of AMVER.

^{2/} An international Automated Mutual-Assistance Vessel Rescue System.

^{3/} U. S. Merchant Vessel Locator Filing System.

^{4/} Marine Casualty Report--"Structural Failure and Sinking of the TEXACO OKLAHOMA off Cape Hatteras on March 27, 1971, with loss of 31 lives."

^{5/} Marine Board of Investigation--"SS DANIEL J. MORRELL Sinking with Loss of Life, Lake Huron, November 29, 1966."

^{6/} Marine Board of Investigation--"Disappearance of the SS MARINE SULFUR QUEEN at sea on or about 4 February 1963 with presumed loss of all persons on board."

The Safety Board believes that the air search conducted by the Coast Guard from November 8 to 17 was extensive and exhaustive considering the limited information about the position of the POET and the lack of a distress signal. The search covered the entire estimated trackline of the POET from Cape Henlopen to the Straits of Gibraltar. If the POET still had been afloat during that period, it probably would have been detected. The total area searched was 297,400 square miles--an area approximately the total area of all the eastern United States from Maine to South Carolina, including New York and Pennsylvania. The detailed search area was concentrated along the first 72 hours of the POET's estimated trackline. Any lifeboat, liferaft, or significant concentration of debris should have been detected in the detailed search area but, because of the search pattern needed to cover so vast an area, anything smaller would have been difficult to detect. Although crewmembers may have survived for 2 weeks in a lifeboat or liferaft if the conditions were favorable, a person would survive for less than a day in the water in October in the North Atlantic. Therefore, the possibility of finding any survivors or debris smaller than a liferaft by November 17 was very small. There still exists the probability of finding some debris from the POET. However, when the Coast Guard made its initial decision on November 13 to consider suspending the search if nothing was found, the possibility of finding survivors was extremely small.

The Safety Board believes that had the air search commenced sooner, the probability of finding survivors or debris would have been greater. When the Coast Guard was notified on November 3 that the POET had not been heard from since October 24, it already may have been too late to rescue any survivors if the POET sank about October 25. However, a search and rescue expert testified before the U. S. House of Representatives Merchant Marine and Fisheries Committee on April 9, 1981, that the Coast Guard should have completed its communication checks and begun planning for an air search within 24 hours. Although over 90 percent of unreported and overdue vessels are located through communication checks, the Coast Guard should have made plans for an active search while it was completing its communication checks on November 3, 4, and 5. When Lloyds of London informed the Coast Guard on November 5 that it had no record of the POET passing Gibraltar, the location the ship should have reached by November 3 if it had steamed at 15 knots, the Coast Guard should have then commenced an air search. By November 5, 12 days had passed since the POET had last been heard from. If the POET had suffered a casualty, it was important that the Coast Guard act quickly. The only new information the Coast Guard had on November 7 that it did not have on November 5 was that the POET had an excellent past record for reporting every 48 hours to USMER and that it was likely that the POET had passed through a storm on October 25 or 26.

Stability and seakeeping calculations were performed by the Coast Guard Merchant Marine Technical Division ^{7/} to verify the POET's grain stability calculations and to determine the maximum angle of heel of the POET when subjected to quartering and following seas. The calculations show that the most likely cause of the loss of the POET was a sudden capsizing in quartering seas due to synchronous rolling. The computer simulation showed that in less than 3 minutes the POET would have capsized in three out of four quartering seas conditions investigated. As the wind and waves shifted through the south to the southwest on October 26, the master would have resumed an easterly heading exposing the ship to quartering seas. The Safety Board believes that the capsizing in beam or quartering seas on October 26 is the most likely explanation for the sudden loss of the POET. In both cases, the ship could have capsized and sunk within a matter of minutes.

^{7/} "U.S. Coast Guard, Technical Investigation of Stability, Strength, and Seakeeping Characteristics of the SS POET," April 23, 1981.

The failure to incorporate the effect of the ventilation ducts in cargo hold No. 3 into the volumetric heeling moments in the POET's Trim and Stability Booklet was not a factor in this accident. However, the Trim and Stability Booklet of the SS PENNY, a sister ship, should be checked in this respect and corrected if necessary.

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

Establish national and propose international listening watch requirements, in conjunction with the Federal Communications Commission, that would enable the distress signal from an Emergency Position Indicating Radiobeacon to be received by other ships. (Class III, Longer-Term Action) (M-81-55)

Seek standby legislative authority at an early date to require satellite Emergency Position Indicating Radiobeacons on U. S. vessels as soon as a satellite system is operational. (Class II, Priority Action) (M-81-56)

Modify the AMVER system so that Coast Guard search and rescue coordination centers are notified when U. S. ships fail to report as required by the U. S. Maritime Administration. (Class II, Priority Action) (M-81-57)

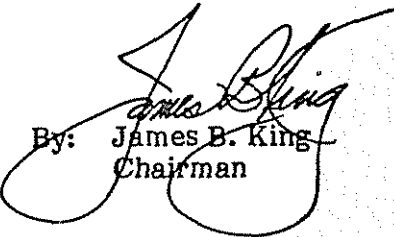
Review the procedures contained in the National Search and Rescue Manual regarding unreported and overdue vessels required by the U. S. Maritime Administration to report every 48 hours. Determine the adequacy of these procedures and make modifications if necessary. (Class II, Priority Action) (M-81-58)

Revise its search and rescue procedures to provide that, when a U. S. ship is unreported or overdue, the search and rescue mission coordinator check with USMER immediately regarding the regularity of the ship's reporting. (Class II, Priority Action) (M-81-59)

Check the SS PENNY's Trim and Stability Booklet to determine if the ship's volumetric heeling moments were calculated correctly, and revise the ship's stability information if necessary. (Class II, Priority Action) (M-81-60)

Conduct further studies to determine if synchronous rolling in quartering seas is a safety problem on ships similar to the POET, and promulgate operational guidance if necessary. (Class III, Longer-Term Action) (M-81-61)

DRIVER, Vice Chairman, and McADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations. KING, Chairman, did not participate.


By: James B. King
Chairman