

Log M-369B



National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

Date: March 14, 1991

In Reply Refer To: M-91-6 and -7

Admiral J. William Kime
Commandant
U.S. Coast Guard
Washington, D.C. 20593-0001

At 1639 eastern daylight time on June 23, 1989, the Greek tankship WORLD PRODIGY, en route from Burgas, Bulgaria, to Providence, Rhode Island, carrying more than 195,000 barrels of gas oil (diesel), grounded on Brenton Reef in Rhode Island Sound off the coast of Rhode Island. At the time of the grounding, the vessel was under the navigational control of the master. As a result of the grounding, the hull of the WORLD PRODIGY sustained extensive damage, which allowed about 7,000 barrels of diesel oil to spill into the waters of Rhode Island Sound and Narragansett Bay. Because of the nature of the oil and because of the warm temperatures during the days immediately following the accident, much of the spilled oil quickly evaporated, minimizing the damage done to the nearby coastline. There were no deaths or injuries. Damage to the vessel was estimated at more than 1 million dollars.¹

The Safety Board is concerned about the effect that fatigue had on the master's performance prior to the accident. At the time of the accident, the master of the WORLD PRODIGY had been on duty on the bridge for more than 35 hours, and the chief officer probably knew that the master had been on duty without rest for many hours.

The Board is also concerned about the interaction between the master and his crew and how that interaction may have influenced their performance. The investigation focused primarily upon the actions of the master and the chief officer as the WORLD PRODIGY approached the entrance to Narragansett Bay.

During the afternoon of June 23, when the WORLD PRODIGY entered the Narragansett Bay Traffic Separation Scheme and headed toward the pilot boarding area near Brenton Reef Light, the need for a rested and alert navigation watch was particularly acute because the vessel's intended track passed through an area

¹For more detailed information, read Marine Accident Report--"Grounding of the Greek Tankship WORLD PRODIGY off the Coast of Rhode Island, June 23, 1989," (NTSB/MAR-91/01).

containing numerous hazards to navigation (Brenton Reef, Seal Ledge, assorted sunken wrecks, and other shallow areas) and large concentrations of commercial and small noncommercial vessels.

At 1622, when the master sent the chief officer to the cargo control room to perform draft and trim calculations, the master assumed the sole responsibility for the following tasks: conning the vessel, monitoring vessel traffic on radar, maintaining an awareness of the speed and location of the vessel (including the plotting of regular fixes), monitoring VHF-FM communications with the pilot boat, and serving as the vessel's sole lookout (the lookout had previously been dispatched to assist the bosun in rigging the pilot ladder). Under the best of circumstances, the master would have had difficulty performing these duties and responsibilities simultaneously.

The master's decision to dispatch the chief officer from the bridge to attend to nonnavigational duties while the vessel was approaching the pilot boarding area was also counter to commonly accepted industry practices. The chief officer apparently did not recognize the adverse impact his absence would have on the master's workload; if he did, he did not communicate his concern to the master. Had the chief officer recognized this situation and suggested an alternative to the master that would have reduced his workload, he may well have prevented this accident.

The Safety Board in previous accident investigations has recognized the consequences of poor crew coordination and communication. In January 1990, following its investigation of the 1988 ramming of a bulk carrier by a nuclear-powered aircraft carrier,² the Safety Board made the following recommendation to the U.S. Navy:

M-90-2

Develop and implement a program of bridge crew management and teamwork training for shipboard commanding officers, navigators, and other bridge navigation personnel.

The recommendation is classified as "Open--Awaiting Response."

Lack of proper crew interaction is a factor in a number of recent accidents currently under investigation, including the collision between a tankship and a loaded tank barge,³ the grounding of a passenger ship,⁴ and the grounding of a tankship.⁵

²Marine Accident Report--"Ramming of the Spanish Bulk Carrier URDULIZ by the USS DWIGHT D. EISENHOWER (CVN 69), Hampton Roads, Virginia, August 29, 1988" (NTSB/MAR-90/01).

³Collision of the Greek tankship SHINOUSSA with the U.S. barge (APEX) No. 3417 near Red Fish Island, Houston Ship Channel, Texas, July 28 1990.

⁴Grounding of the Panamanian passenger ship BERMUDA STAR near Cleveland East Ledge, Buzzards Bay, Massachusetts, June 10, 1990.

⁵Grounding of the U.S. tankship STAR CONNECTICUT, Pacific Ocean near Barbers Point, Hawaii, November 6, 1990.

The Safety Board has issued recommendations to the Federal Aviation Administration (FAA) and others calling for the development and implementation of cockpit resource management training programs for airline employees in an effort to prevent accidents. Such training is designed to enhance crew interaction by focusing on communication skills, teamwork, task allocation, and decision-making and is based on the FAA's recognition that 60 to 80 percent of air carrier accidents have been caused, at least in part, by the failure of the flightcrew to use resources available to them. The FAA has recognized the value of such training and has recently developed an Advanced Qualification Program for airline pilots that includes a requirement that the training be provided to all flightcrew members.

Neither the U.S. Coast Guard license regulations nor the provisions contained in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW) require bridge resource management training for applicants seeking to obtain an original, an upgraded, or a renewed deck license. The Safety Board believes that the maritime industry has not yet embraced these concepts nor endorsed their application to the operation of merchant ships, although it has begun to explore the relationship between vessel crew interaction and accident causation. The U.S. Merchant Marine Academy and the Maritime Institute of Technology and Graduate Studies (MITAGS),⁶ for example, have recently initiated bridge resource management training programs, and these programs are available to the maritime industry.

The Safety Board believes that providing bridge resource management training, which embodies the cockpit resource management concept, to licensed deck officers can prevent the type of crew interaction difficulties evident in this accident without eroding command authority or accountability. The Board also believes that the Coast Guard should propose to the International Maritime Organization (IMO) that STCW be amended to require such training for deck watch officers.

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

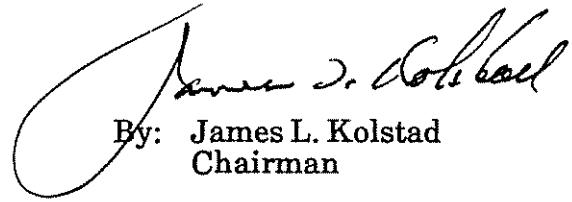
Require bridge resource management training for all deck watch officers of U.S.-flag vessels of more than 1,600 gross tons. (Class II, Priority Action) (M-91-6)

Propose to the International Maritime Organization (IMO) that the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers, 1978 (STCW) be amended to require bridge resource management training for deck watch officers (Class II, Priority Action) (M-91-7).

Also, as a result of its investigation, the Safety Board issued Safety Recommendations M-91-1 through -3 to the Rhode Island State Pilotage Commission; and Safety Recommendations M-91-4 and -5 to the National Oceanic and Atmospheric Administration.

⁶A maritime training facility for deck officers operated by the International Organization of Masters, Mates and Pilots (IOMM&P), Linthicum Heights, Maryland.

KOLSTAD, Chairman, COUGHLIN, Vice Chairman, and BURNETT, LAUBER, and HART, Members, concurred in these recommendations.



By: James L. Kolstad
Chairman