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National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: DEC 22 1995

In Reply Refer to: M-95-60 through -62

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On October 8, 1994, the Liberian tankship SEAL ISLAND was moored at the Hess Oil Refinery in St. Croix, U.S. Virgin Islands. About 0845, while engineering personnel were changing the lubricating oil strainer on the ship's service turbogenerator, lubricating oil sprayed onto the hot turbine casing and a fire erupted.

The fire resulted in the death of three crewmembers and serious injury of six other crewmembers. The fire seriously damaged the tankship's engineroom; heat, smoke, water, and soot badly damaged the accommodations and pilothouse. The tankship was declared "no longer a useful carrier" and its owner, the Seal Island Shipping Corporation, had it towed to Spain where it was sold as scrap for $12 million.[1]

During its investigation of this accident, the National Transportation Safety Board identified a number of problem areas, including a breakdown in the Hess Oil Vessel Islands Corporation (HOVIC) incident command system, an inadequate HOVIC emergency plan, and a partial lack of effectiveness in the HOVIC fire brigade response.

The HOVIC firefighters responded efficiently, probably as well as could be expected given that the focus of their training was on land-based fires. They arrived on scene in a timely manner, were well-organized, and expeditiously evacuated injured crew members to the local hospital. They followed proper firefighting procedures, such as donning emergency gear and testing for the presence of gases and carbon monoxide prior to entering the engineroom. They followed the orders given by the fire chief quickly and efficiently. However, the HOVIC fire brigade suffered a series of setbacks because they were not specifically trained and equipped for marine firefighting.

[1] For further information, read Marine Accident Report *Engineroom Fire On Board the Liberian Tankship SEAL ISLAND while moored at the Amerada Hess Oil Terminal in Ct. Croix, U. S. Virgin Islands, October 8, 1994 (NTSB-MAR-95/04)*

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The fire brigade lacked knowledge, experience, and specialized equipment that is necessary to effectively fight a shipboard fire. Firefighting operations were delayed about 30 minutes because the fire brigade did not have an international shore connection in order to pressurize the fire hoses. Under slightly different circumstances, such an excessive delay during firefighting operations could have had serious results.

The fire brigade had to borrow the ship's marine radios because their own radios did not work when they were below deck on the SEAL ISLAND. In addition, the brigade did not know the location of the fire control plan on the ship. This plan was important in developing firefighting strategies, yet it was not reviewed by the shoreside responders until 2 1/2 hours after they arrived on scene. Finally, shipboard construction and the layout of compartments were not like those which the firefighters dealt with on shore. Shipboard interior passageways are usually narrower and shorter than those in buildings ashore. Unlike shoreside buildings, which typically have many windows, a ship has very little natural lighting. Finally, unlike typical stairways in buildings, shipboard ladders are steep and narrow with multiple changes in direction. All such differences can present problems for firefighters entering a ship with firefighting equipment for the first time.

The Safety Board determined that the Incident Command System was not executed as designed. No one single person had overall charge of the incident. Both the master and the Incident Commander (IC) allowed individuals who were not in the incident command structure to usurp their authority and direct critical response operations. Throughout the response effort, separate operations occurred concurrently with very little communication, consultation, and coordination among the SEAL ISLAND master, the IC, the HOVIC firefighters, and an Atlantis Agency ship superintendent.

The HOVIC emergency plan did not address responding to a fire on board a ship moored at a terminal dock. It lacked provisions for an international shore connection, discussion of fire control plans, procedures for towing a burning vessel from the terminal, and procedures for maintaining inert gas levels in cargo tanks containing flammable products. The plan also did not list the duties and responsibilities of the emergency response team or address necessary communications equipment and other resources. It also did not include the role of other responding agencies and how to contact them. This accident demonstrated a need for consultative marine expertise, yet the HOVIC emergency plan did not address this need. The ship superintendent who provided marine expertise in this instance just happened to be working on a nearby vessel when the fire erupted.

The National Transportation Safety Board therefore issues the following recommendations to the Hess Oil Virgin Islands Corporation:

> Conduct a risk assessment to identify resources necessary to develop a comprehensive shipboard firefighting plan and revise the HOVIC emergency response plan accordingly. The assessment should identify, at a minimum:

(1) the marine technical expertise needs (Class II, Priority Action) (M-95-60);

(2) the duties and responsibilities of the emergency response team and other agencies (Class II, Priority Action) (M-95-61); and

(3) the names, addresses, and telephone numbers of agencies that can provide necessary resources. (Class II, Priority Action) (M-95-62)

Also, the Safety Board issued Safety Recommendations M-95-54 through -58 to the U. S. Coast Guard, M-95-59 to the Governor of the U. S. Virgin Islands, and M-95-63 to the National Petroleum Refineries Association.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations M-95-60 through -62.

Chairman HALL, VICE Chairman FRANCIS, Member HAMMERSCHMIDT, and Member GOGLIA concurred in these recommendations.

By: Jim Hall
Chairman