National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: DEC 22 1995

In Reply Refer to: M-95-63

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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 problems in the area of survival factors, including an inadequate Hess Oil Vessel Islands Corporation (HOVIC) emergency plan for the refinery, which resulted in a partial lack of effectiveness in the response effort by the HOVIC fire brigade.

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 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, or address the potential need for consultative marine expertise.

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[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).*

Because of the inadequacies in the HOVIC emergency plan, the refinery fire brigade lacked the knowledge, experience, and specialized equipment that was necessary to effectively fight a shipboard fire. For example, 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. The brigade did not know the location on the ship of the fire control plan, which was important in developing firefighting strategies. Further, the firefighters were not familiar with how shipboard construction and the layout of compartments differed from shoreside structures. 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. Further, 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 for the first time.

The Safety Board is concerned that the safety problems identified in this accident relative to the HOVIC response to a ship fire may be present at other refineries that operate marine oil transfer facilities. The Board therefore believes that the lessons learned from this accident should be disseminated as widely as possible. The Board further believes that the National Petroleum Refineries Association (NPRA), whose membership includes 464 petrochemical manufacturers and petroleum refinery operators, is the appropriate organization to take this action.

The National Transportation Safety Board therefore issues the following recommendation to the National Petroleum Refineries Association:

> Inform member refineries that operate marine oil transfer facilities of the circumstances in the SEAL ISLAND accident and stress that they need to have an international shoreside hose connection at their facilities. (Class II, Priority Action) (M-95-63)

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-95-60 through -62 to the Hess Oil Virgin Islands Corporation.

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 recommendation in this letter. Please refer to Safety Recommendation M-95-63.

Chairman HALL, VICE Chairman FRANCIS, Member HAMMERSCHMIDT, and Member GOGLIA concurred in this recommendation.

By: Jim Hall
Chairman