



# National Transportation Safety Board

Washington, D. C. 20594

## Safety Recommendation

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**Date:** April 29, 1992

**In Reply Refer To:** M-92-20

Sir Brian Shaw  
Chairman  
International Chamber of Shipping  
30/32 St. Mary Ace  
London, EC3A 8ET  
England

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On February 20, 1990, the reflagged 760-foot-long U.S. tank ship SURF CITY, loaded with naphtha and automotive diesel oil, departed Kuwait en route to discharge ports in southern Europe. At 1012 on February 22, the master and the chief mate were standing at the No. 4 starboard water ballast tank access trunk when an explosion occurred in the tank. The tank and area aft to the deckhouse on the starboard side were immediately engulfed in flames. The crew abandoned ship in the port lifeboat and were rescued by the U.S. Navy guided missile frigate USS SIMPSON (FFG-56) at 1053. U.S. naval vessels recovered the master's remains but the chief mate is missing and presumed dead. The fire burned for 2 weeks and 196,985 barrels of the 606,215 barrels of cargo were lost. The value of the loaded cargo was \$12.88 million and its salvaged value was \$6.5 million. The vessel, valued at \$30 million before the accident was sold in its damaged condition for \$4.85 million. The damage loss resulting from this accident totaled \$31.53 million.<sup>1</sup>

The Safety Board determined from postaccident inspection and analysis that the accident resulted from a deflagration in the No. 4S ballast tank. To determine the conditions present on the SURF CITY that resulted in the explosion, Safety Board investigators focused on the source of the flammable vapors in the ballast tank, sources that could have ignited the vapors, and the ballast tank entry procedures that the master and the chief mate followed.

On the morning of this accident, the chief mate indicated to his watchstanders that he intended to check out the inoperable draft sensors in the bottom of ballast tanks Nos. 4P and 4S. The chief mate directed two ABs to install air blowers on the tank openings. When he tasked the seamen to install the ventilators, the chief mate

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<sup>1</sup>For more detailed information, read Marine Accident Report--"Explosion and Fire on the U.S. Tank ship SURF CITY Persian Gulf, February 22, 1990." (NTSB/MAR-92/02).

did not advise them to follow any special precautions or be alert for the smell of fumes. Neither the chief mate nor the master was on the main deck during the tank opening operations and they did not oversee the ventilation of the ballast tanks.

According to eyewitness accounts, the actions of the master and the chief mate indicate that they probably first became aware of the contamination in the 45 ballast tank when they initially looked into the tank. Although the master and the chief mate recognized that the tank atmosphere was not safe for entry without a breathing apparatus, witnesses did not see anyone test the tank atmosphere for flammability or safe levels of oxygen. After one descent into the tank, the chief mate returned to the deck. He and the master then removed the fans and used mirror(s) to reflect sunlight into the tank in an apparent attempt to locate the naphtha leak.

In addition to the company safety manual, the tank vessel personnel aboard the SURF CITY used the International Safety Guide for Oil Tankers and Terminals (ISGOTT) as their primary operating guide. The ISGOTT discusses gas tests before entry; it also identifies what levels are safe for entry. However, the ISGOTT currently does not provide any guidance about when to ventilate or not to ventilate a confined space. As this accident demonstrates, the ISGOTT should state clearly and emphatically that prior to entry or ventilation, one should always consider any tank potentially hazardous and test it first for explosive levels and then for oxygen levels. The operating guide should also specify what to do if a tank is found to contain explosive vapors and include the rationale for the procedures.

Therefore, the National Transportation Safety Board recommends that the International chamber of Shipping:

Revise the 1988 "International Safety Guide for Oil Tankers & Terminals" to include clear instructions that ballast tanks, cofferdams, and voids located in or immediately adjacent to the cargo block should be tested before tank entry for explosive levels and for oxygen levels to determine the condition of the tank atmosphere and procedures to follow before ventilating a tank. (Class II, Priority Action) (M-92-20).

Also, the Safety Board issued Safety Recommendations M-92-9 through -19 to the U.S. Coast Guard; Safety Recommendation M-92-21 to the International Association of Classification Societies; and Safety Recommendations M-92-22 through -24 to the Gleneagle Ship Management Company.

COUGHLIN, Acting Chairman, and LAUBER, HART, HAMMERSCHMIDT, and KOLSTAD, Members, concurred in this recommendation.

  
By: Susan M. Coughlin  
Acting Chairman