M-212

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 13, 1983

Forwarded to:

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American Welding Society
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SAFETY RECOMMENDATION(S)

M-83-44

About 0932 e.s.t. on February 26, 1982, while proceeding southbound in the East River of New York Harbor, the U.S. coastal tankship POLING BROS. NO. 9 exploded and burned. The tankship had discharged a cargo of gasoline a few hours before the accident, and its tanks were not free of gas fumes. The vessel was passing or had just passed underneath the Williamsburg Bridge when a fire followed by a series of explosions occurred. Workmen were reconstructing the south outer roadway on the bridge at the time of the accident, and there had been several previous reports of sparks, apparently slag from metal being cut with an oxyacetylene torch, falling from the bridge. In one reported instance about 2 weeks before the accident, hot slag landed on an oil barge passing under the bridge. After the explosions, the POLING BROS. NO. 9 immediately lost power and drifted to the Brooklyn side of the river a few hundred feet south of the bridge where it continued to burn, despite firefighting efforts, until it sank at about 1030. The force of the explosions hurled debris, including a cargo hatch cover and other pieces of metal, onto the bridge roadways and the electrified rail of one of the subway tracks on the bridge, shorting out the electrical system and stopping one subway train on the bridge. There were no injuries to persons on the bridge, and all commuters in the stalled train were transferred to another train without incident. One of the eight crewmembers of the POLING BROS. NO. 9 was killed by the explosion, and three others were injured. The damage to the tankship was estimated to be about $2 million. 1/

Earlier, after the POLING BROS. NO. 9 cargo had been discharged at 0410, the chief mate witnessed the securing of all cargo valves, and noted that the fixed cargo spill containment boxes under the hose connections were dry, that the hatch covers for all cargo tanks were closed but not dogged, and that flame screens for all ullage holes were in place but that the ullage covers were open. The chief mate and master testified that it was the master's policy to operate with the hatch covers and ullage holes in this condition, unless weather or sea conditions required that more positive securing of the hatches and ullage holes be accomplished.

At the time of the accident, the outer roadway on the south side of the Williamsburg Bridge was undergoing extensive renovation by a construction firm under contract to New York City. The work involved use of an oxyacetylene torch to burn off old rivet heads in

1/ For more detailed information read Marine Accident Report—"Explosion and Fire On Board U.S. Coastal Tankship POLING BROS. NO. 9, East River, New York Harbor, February 26, 1982" (NTSB/MAR-83/[illegible]).

support beams that were being replaced. While one man, a burner, was using an oxyacetylene torch, another man, a fire watchman, was assigned to keep a watch for approaching vessels. However, the fire watchman had left the work area sometime prior to the approach of the POLING BROS. NO. 9. Meanwhile, the burner continued working with the oxyacetylene torch without a fire watchman present.

A deckhand on a nearby tugboat testified that he saw sparks falling from the Williamsburg Bridge as the POLING BROS. NO. 9 was passing under the bridge. The deckhand stated that he had welding experience and that it appeared to him that the sparks probably resulted from metal being cut with an oxyacetylene torch. He estimated that the sparks were slightly inshore of the vessel's track. He said that flames erupted from the tankship almost immediately thereafter.

Vapors emitted from the No. 3 tanks via the open ullage holes or from the undogged hatches could have been ignited by sparks generated by debris falling from the bridge and striking the metal of the vessel. Calculations indicate that even after falling about 130 feet in 26° F air, a piece of slag as small as 1/8-inch spherical diameter still would be hot enough to ignite flammable vapors from gasoline by autoignition, based on an autoignition temperature for gasoline of 800° F. Larger diameter pieces of slag would be considerably hotter. The flame from the ignited vapor could have propagated into the cargo tanks either through a damaged flame screen or through an unsecured hatch opening.

Even if ullage holes and cargo hatches are closed properly, there is the possibility of flammable vapors being present on the decks of a tankship, since cargo tanks must be capable of venting to the atmosphere. The tank venting system is protected by flame arresters designed to reduce the possibility of flame propagating into the tanks, but like the flame screens in the ullage holes, these devices must be in good condition and be installed properly to provide any protection.

The facts that debris and sparks fell on a passing oil barge just 2 weeks before the accident involving the POLING BROS. NO. 9 and that sparks were seen falling from the bridge near the POLING BROS. NO. 9 immediately before the vessel exploded cause the Safety Board to conclude that the fire and explosion sustained by the POLING BROS. NO. 9 were initiated by debris, probably hot slag resulting from the cutting of metal with an oxyacetylene torch, falling from the Williamsburg Bridge onto the vessel.

Therefore, the National Transportation Safety Board recommends that the American Welding Society:

> Publish the circumstances of the tankship POLING BROS. NO. 9 accident in New York City on February 26, 1982, in your magazine "Welding Journal" to inform your members of the threat to vessels and vehicles engaged in transporting flammable products that is presented by hot slag falling from bridges when metal is cut with an oxyacetylene torch. (Class II, Priority Action) (M-83-44)

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." (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations, and would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, McADAMS, BURSLEY, and ENGEN, Members, concurred in this recommendation.

By: Jim Burnett
Chairman