



# National Transportation Safety Board

Washington, D.C. 20594  
**Safety Recommendation**

**Date:** November 6, 1987

**In reply refer to:** M-87-105

Mr. C. L. DiBonna  
 President  
 American Petroleum Institute  
 1220 L Street NW  
 Washington, DC 20005

On December 20, 1986, the U.S. tank barge STC 410 was berthed at the Steuart Petroleum Company facility pier at Piney Point, Maryland. Barge tanks Nos. 1, 3, and 5 were being vacuumed or stripped of residual JP-4 jet fuel which was being loaded into a tank truck located on the pier astern of the barge. About 0230, while the vacuuming crew was at the No. 5 tanks and almost completed with vacuuming, an explosion occurred within the No. 5 tanks. The barge tankerman and three persons working on the barge were killed, and a pier gauger located on the pier was injured. The explosion destroyed the after end of the barge from the transverse bulkhead of the No. 4 tanks to the stern and ruptured petroleum pipelines on the pier. A fire ensued that was fueled by petroleum products running out of the ruptured pipelines. The explosion and fire damaged the after end of the barge, a portion of the T-pier, and three vehicles on the pier. The explosion blast caused damage to nearby buildings on shore. Estimated damages to the barge, the pier, vehicles, and nearby facilities exceeded \$2 million. <sup>1/</sup>

Although the exact source of ignition of the JP-4 vapors cannot be positively identified, the most likely sources would have been the lighting of cigarettes or a pipe by persons near an open tank hatch, a spark created by the breaking of a flashlight within a tank, or static discharge from the plastic polyvinyl chloride vacuum wand.

U.S. Coast Guard Safety Advisory, "Static Electricity and Tank Barge Explosions," cited static electric discharge as the most probable cause of explosions on several barges that were being vacuumed using portable equipment and cautioned that all pipe (wands), hose, and fittings lowered into a cargo tank should be electrically continuous and should be grounded to the vessel structure. However, there is little practical guidance to the barge operator regarding electrostatic discharges from wands that are being used in barge vacuuming operations. The American Petroleum Institute's (API) Recommended Practice (RP) 2003 does not address the hazards encountered when using mobile vacuum trucks in connection with barge vacuuming operations. Because of the risks involved in the vacuuming of vessels, the Safety Board believes that there is a need to provide the marine industry with clear, practical guidance about what precautions should be taken when using wands for vacuuming. The Board further believes that the API should include such information for the marine industry in RP 2003.

<sup>1/</sup> For more detailed information, read Marine Accident Report--"Explosion and Fire Aboard the U.S. Tank Barge STC 410, Steuart Petroleum Company Facility, Piney Point, Maryland, December 20, 1986" (NTSB/MAR-87/09).

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the American Petroleum Institute:

Include guidelines in Recommended Practice 2003 for using nonconductive materials, such as plastic wands, in conjunction with mobile facilities (vacuum trucks) or similar equipment when vacuuming barge tanks to prevent static electric discharges from the use of such equipment. (Class II, Priority Action) (M-87-105)

Also, the Safety Board issued Safety Recommendations M-87-95 and -96 to the U.S. Coast Guard, M-87-97 through -101 to the Stuart Petroleum Company, and M-87-102 through -104 to the Stuart Transportation Company.

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 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. Please refer to Safety Recommendation M-87-105 in your reply.

BURNETT, Chairman, and LAUBER, NALL, and KOLSTAD, Members, concurred in this recommendation. GOLDMAN, Vice Chairman, did not participate.

By:   
Jim Burnett  
Chairman