

MVI
10 July 1952
(END B. WARNER -
MISSISSIPPI - a-2 Bd)

From: Chief, Merchant Vessel Inspection Division
To: Commandant
Via: Chief, Office of Merchant Marine Safety

Subj: Marine Board of Investigation; explosion, tank barge MISSISSIPPI
in tow of MV END B. WARNER Mile 580.2 Mississippi River 4 May,
1952 with loss of life

1. Pursuant to the provisions of Title 46 C.F.R., Part 136, the record of the Marine Board convened to investigate subject casualty, together with its Findings of Fact, Conclusions and Recommendations, has been reviewed and is forwarded herewith.

2. On the morning of 4 May 1952, the tank barge MISSISSIPPI of 1242 g.t., loaded with gasoline, together with the tank barge MEMPHIS in charge of the motor tug END B. WARNER was in the process of being moored at Malone Field Light, mile 580.2 AHP, Lower Mississippi River. A small fire of undetermined origin was observed in way of the starboard mushroom vent on the stern of the MISSISSIPPI. Immediate action was undertaken to extinguish this fire. Evidently this fire was of sufficient intensity either to melt the solder holding the flame screen in the vent, cause it to drop and thus permit the flame to follow and explode the vapors in the rake compartment, or to raise the temperature below the flame screen sufficiently to cause ignition of the explosive mixture in the compartment. The weather at the time of explosion was clear with light breeze. Temperature approximately 90 degrees. As a result of this casualty, 2 crew members, R. M. Davis and R. L. Sizsons lost their lives.

3. The Board made the following Findings of Fact:

"1. That the tank barge MISSISSIPPI, carrier of liquid cargo in bulk, unmanned, non-propelled, undocumented at the time of this casualty, constructed of steel, built in 1952, size 240' x 90' x 12', 1242 gross tons, 20,000 barrel capacity, owned and operated by Petroleum Barge Company, Inc., Memphis, Tennessee, was moored at Malone Field Light, Mile 580.2 AHP, Lower Mississippi River, at approximately 1215 CST, on 4 May, 1952, when explosion occurred.

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"2. That the uninspected, documented, diesel towing vessel EMD B. WARNER, of Memphis, Tennessee, Official No. 237271, gross tonnage 341, size 121.5' x 28' x 7.6', built in 1938, owned and operated by R. V. Warner, Memphis, Tennessee, was moored astern of the tank barge MISSISSIPPI when explosion occurred. That eight persons comprised the operating crew of the motor vessel EMD B. WARNER.

"3. That the tank barge MISSISSIPPI was built as the stern half of a two piece integrated tow, having one square end and one rake end. (The rake end hereinafter will be designated as the stern end.) The square end consisted of a non-cargo compartment the entire width of the barge and seven feet in length. The stern end consisted of a non-cargo compartment the entire width of the barge and twenty-two feet, six inches in length. A center line, liquid tight bulkhead extended from the cofferdam bulkhead on the square end to the collision bulkhead on the stern end. Three transverse, liquid tight bulkheads, evenly spaced between the cofferdam bulkhead on the square end and the collision bulkhead on the stern end, extended the entire width of the barge forming eight cargo compartments (four down each side) between the cofferdam bulkhead on the square end and the collision bulkhead on the stern end.

"4. The initial annual inspection of the MISSISSIPPI was completed at St. Louis, Missouri, 9 April 1952. Certificated for the carriage of inflammable or combustible liquids of Grades "B" and lower.

"5. That on 3 May 1952, this barge received its initial cargo which consisted of 82 octane gasoline, at the docks of the Triangle Pipe Line Company, situated six miles south of Arkansas City, Arkansas. That all hatches, including the hatches on the non-cargo compartments on each end, were sealed by the loading Terminal after a thorough check. That the non-cargo compartments were considered gasfree at this time but were sealed as a matter of custom of the Terminal. That the loading and sealing of this barge was completed at 0530 CST, on 3 May 1952.

"6. This barge, together with the tank barge MEMPHIS, a sister barge which was the bow half of the integrated tow, were taken in tow by the motor vessel EMD B. WARNER at 0300 CST, on 4 May 1952. The tank barge MISSISSIPPI was located in the tow between the barge MEMPHIS and the towing vessel and barges were being moored at Malone Field Light, mile 580.2 AHP at 1130 CST on 4 May 1952. That a head line had been run out from the lead barge

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MEMPHIS to shore. A second line was in the process of being run out from the juncture of the two barges when a small blaze was observed near the starboard mushroom vent on the stern of the tank barge MISSISSIPPI. That two deckhands, R. M. Davis and R. L. Simmons who were handling the mooring lines ran toward the fire with one quart Pyrene Fire Extinguishers procured from the barges. The remaining crew of the towing vessel EMD B. WARNER was also procuring extinguishers from that vessel when an explosion occurred on the tank barge MISSISSIPPI at approximately 1215 CST on 4 May 1952.

"7. As a result of the explosion, deckhand [REDACTED] was blown overboard, is still missing and presumed dead. Deckhand R. M. Davis was found on the river bank and taken to the hospital at Hopedale, Mississippi, then transferred to the King's Daughter's Hospital at Greenville, Mississippi where he died; [REDACTED] of [REDACTED] was found to have been severely burned about the face and hands and was taken to the Kennedy General Hospital in Memphis, Tennessee, where he is expected to completely recover.

"8. The crew of the motor vessel EMD B. WARNER freed their vessel from the burning end of the barge MISSISSIPPI and the barge drifted down stream in a burning condition and grounded. That the crew of the motor vessel EMD B. WARNER, together with the owners, extinguished the fire. The barge was then towed to Terrebe Landing, Mississippi, and moored.

"9. That the board examined the barge at Terrebe Landing, Mississippi, on 7 May 1952, and found that the entire rake or stern had been demolished; also that the deck plates over the two cargo compartments adjacent to the stern were ruptured and buckled. Remaining pieces of two rake compartment deck plates extending over the collision bulkhead and cargo compartments were found to be laminated.

"10. The weather at time of explosion was clear with light breeze. Temperature approximately 90 degrees."

4.

The Board made the following Conclusions:

"11. In the absence of specific facts based on the testimony, the board is unable to determine the exact cause of this explosion. A contributing factor to the explosion was the presence of gasoline vapors in the stern rake compartment of the tank barge MISSISSIPPI.

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"12. Testimony adduced indicates that a small fire was observed in the vicinity of the starboard mushroom vent of the rake compartment just before the explosion. However, there was nothing to indicate that might have caused the ignition of vapors emanating from the rake compartment vent or from any other source in the immediate vicinity.

"13. The board examined all remaining mushroom vents on board the tank barge MISSISSIPPI; also the sister barge MEMPHIS and found each fitted with flame screens. These screens were soldered to the bottom of vent nipple. The board is of the opinion that the fire consuming the gasoline vapors around the vent was of sufficient intensity to melt the solder causing the screen to drop off into the rake compartment, permitting the flame to follow the vapors into the rake compartment, thus, resulting in the explosion.

"14. The board examined the initial annual inspection record, Form CG 840 E, which was completed in St. Louis, Missouri, on 9 April 1952, and found that all cargo tanks and rake end compartments had been tested in accordance with existing rules and regulations.

"15. There is no evidence indicating any marine laws or Rules and Regulations were violated by any member of the crew of the motor vessel EMD B. WARNER.

"16. There were no Coast Guard vessels, personnel or aids to navigation involved in this casualty.

"17. The board is of the opinion that the owners and crew demonstrated exceptional courage and skill after the explosion by their actions, that of detaching the tugboat from the burning barge, then detaching the burning barge from the tank barge MEMPHIS and, subsequently, extinguishing the fire which was confined to the rake compartment and the after section of the adjacent starboard and port cargo tanks."

5. The Board made the following Recommendations:

"18. There is no evidence to substantiate the theory that the flame screen became detached from the underside of the mushroom vent as a result of the method of fastening. However, the board is of the opinion and recommends that 46 C.F.R. 32.55-25(d), 32.55-30(d) and 32.55-45 should be amended to include a method for securing the flame screen, particularly where it is fastened to the bottom of a vent pipe."

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REMARKS

6. 46 C.F.R. 32.55-25(a), 32.55-30(a) and 32.55-45 relate to the venting of cargo tanks and cofferdams. Since the subject casualty did not involve any such compartments, no necessity is established for the promulgation of additional regulations with respect thereto.

7. The venting of rake compartments on barges is covered by 46 C.F.R. 32.55-1 which provides that enclosed parts of a tank vessel other than cargo, fuel, water tanks and cofferdams, shall be provided with efficient means of ventilation. While flame screens are not specifically required by the regulations to be installed in void rake compartments of barges, the installation of such screens, where their retention in the vent is dependent exclusively upon the use of solder of a low melting point, is not considered the best practice. Since the evidence does not sustain the conclusion that the failure of such solder definitely caused the explosion on board the MISSISSIPPI and marine casualty records on file at Coast Guard Headquarters contain no positive facts of any such failures, there does not appear to be a basis for the establishment of detailed regulations with respect to the installation of vent flame screens. An article will be prepared and published in the "Proceedings of the Merchant Marine Council" bringing the facts of this casualty to the attention of the Industry with the recommendation for more positive installation means of retaining flame screen installations in vents under all conditions of operation and hazards.

8. Subject to the foregoing remarks it is recommended that the Findings of Fact, Conclusions and Recommendations of the Marine Board of Investigation be approved.

/s/P. A. OVENDEN
P. A. OVENDEN

Chief, MVI Division to
Commandant

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FIRST ENDORSEMENT to MVI memorandum of 10 July 1952

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17 July 1952

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To: Commandant

Subj: Marine Board of Investigation; explosion, tank barge MISSISSIPPI
in tow of MV EMD B. WARNER Mile 500.2 Mississippi River 4 May,
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Forwarded, recommending approval.

/s/ H. C. SHEPHEARD
H. C. SHEPHEARD

APPROVED July 21 1952

/s/ MERLIN O'NEILL
MERLIN O'NEILL
Vice Adm., U.S. Coast Guard
Commandant