UNITED STATES COAST GUARD

ADDRESS REPLY TO:
COMMANDANT
U.S. COAST GUARD
HEADQUARTERS
WASHINGTON 25, D.C.

MVI
(MARINE MERCHANT C-1 Bd)
4 JUN 1962

Commandant's Action

on

Marine Board of Investigation; structural failure and sinking of SS MARINE MERCHANT on 14 April 1961, Gulf of Maine

1. The record of the Marine Board of Investigation convened to investigate subject casualty, including its Findings of Fact, Opinions, Conclusions and Recommendations, has been reviewed.

2. At 2230, 13 April 1961, during heavy weather, the SS MARINE MERCHANT, a Liberty type freight vessel, while approximately 55 miles east of Portsmouth, New Hampshire, suffered a transverse fracture of the hull amidships from sheer strake to sheer strake through the keel and ultimately foundered 11½ hours later. There was no loss of life or serious injury to any of the crew members.

3. The MARINE MERCHANT was en route from Port Sulphur, La. to Portland, Maine with 8,125 long tons of sulphur cargo loaded in numbers 2, 3 and 4 holds. Numbers 1 and 5 were empty. During the early hours of 13 April 1961, while proceeding on a northerly heading off Nantucket Shoals, weather and sea conditions progressively worsened and by 0800 heavy seas were beginning to break over the starboard side, main deck. Speed was gradually reduced to prevent pounding. The storm reached gale proportions at about noon and the vessel was rolling heavily in an easterly swell. At about 1700 the vessel hove to in an effort to ease the force of breaking seas and shaft revolutions were maintained at the minimum necessary to hold the desired headings. By 2000 on 13 April major storm conditions prevailed. Seas had become extremely adverse; the wind was logged at force 10 and was accompanied by rain, snow, sleet and fog.

4. At about 2230, while the vessel was still hove to approximately 40 miles southeast of Portland Lightship, with the engine turning 32 RPM, a loud report was heard followed by an appreciable settling of the vessel amidships. Realizing that the vessel had suffered a major

structural failure the engine was stopped, the general alarm was sounded, the radio officer was instructed to send an SOS and the crew was directed to prepare and swing out the boats. The sending of the SOS was delayed when it was learned that the sagging condition of the vessel had caused the antenna to slacken and ground out on the radar scanner. After rigging an emergency antenna, an auto-alarm signal was transmitted on the distress frequency. The Coast Guard Radio Station, Boston, Mass. and several merchant vessels responded but the closest vessel was at least 5 or 6 hours away. In the meantime it was determined that the vessel had sustained a complete fracture of the sides and underbody just forward of the forward part of number 3 hatch coaming at about frame 73. The two halves were joined solely by the main deck plating which, though working with the seas, appeared to be holding. Due to the severe weather and sea conditions then prevailing the master elected to delay abandonment of the vessel as long as possible with the hope the halves would remain joined until daylight.

5. With the coming of daylight wind and sea conditions moderated somewhat. At about 0430, 14 April, the SS DARU and the SS ESSO RALEIGH were in the area and since the vessel's sagging condition had increased dangerously during the previous hour the master ordered the vessel abandoned. Fires to the boilers were secured. Life nets, Jacob's ladders and mattresses had previously been rigged over the side and since the vessel was nearly on an even keel no difficulty was encountered in lowering away the two lifeboats. Number 2 boat was on the lee side and was lowered away first and held alongside with 8 or 10 men aboard. The number 1 boat was then lowered with 9 men aboard but because she was on the weather side she had to be cast off to keep from being stove in. The remaining crew then disembarked into number 2 boat. Before departing the vessel, the Radio Operator locked the radio transmitter key in the "on" position on the distress frequency.

6. The crew members in the number 1 boat were picked up by the SS DARU and those in number 2 were picked up by the ESSO RALEIGH.

7. At 0910, 14 April, the vessel sank in 115 fathoms of water.

8. The Board took notice of the courage and unselfish regard for others displayed by Jose Aragao, Z-673131-D1, Fireman/Watertender, who, because he had no dependents, remained on watch in the engineering spaces from the time the vessel fractured until ordered abandoned rather than let some other crew member risk his life.

REMARKS

1. The Board concluded that the vessel broke in two primarily due to the coincidence of three factors:

1. The inherent weakness incident to structural notch sensitivity common to welded vessels of this class;

2. Stresses occasioned by extremely adverse sea conditions and

3. The sagging strain developed by the stress of cargo concentrated in the midbody of the vessel.

The reported air temperature of 37° was lower than the reported sea temperature of 44° yet the deck behaved very ductilely and acted as a plastic hinge for sometime after the fracture of the rest of the hull. Although the main hull fracture obviously proceeded very rapidly, i.e., suddenly, it appears from these facts that the fracture may have been predominantly ductile. Accordingly, the opinion by the Board that an inherent weakness incident to structural notch sensitivity was a factor does not appear to be supported. Sea conditions unquestionably contributed to the casualty to some degree but it is considered that the third factor, that is, the extremely unfavorable loading distribution was actually the principal cause of the fracture. Calculations indicate this was such as to result in a probable maximum wave sagging bending moment about 4 times that which would have been developed with homogeneous loading. The concentration of cargo in holds 2, 3 and 4 also resulted in an excessive unit loading on the tank tops. In the number 3 hold, where the fracture occurred, the average unit loading on the tank top was almost 1 ton per square foot, about 1.8 times that corresponding to full homogeneous loading and in excess of the maximum loading recommended by the Manual on the "Stowage of Bulk Cargoes Such as Ore, Ore Concentrates, and Similar Cargoes When Carried in General Cargo Vessels," issued by the National Cargo Bureau and referred to in 46 CFR 97.12, which in turn, requires that the owners of such vessels carrying bulk cargoes shall furnish their masters with guidance information pertaining to the safe stowage of these cargoes. Page 34 of the testimony indicates that the vessel apparently did have loading instructions but that these may have dealt with cargo distribution only from the viewpoint of efficient stevedoring, and of providing for possible taking on of another cargo at an intermediate port.

2. The Board also concluded that the vessel's prior history of groundings, her age and the sea water temperature may have contributed to the fracture and further that the previous groundings and storms encountered during her career could conceivably have resulted in a structural weakness which was not evident prior to sailing. While these opinions are speculative and not specifically supported by any evidence in the record, it is agreed that they do present possibilities and to that extent are generally concurred in subject to some reservation as to the part played by the sea water temperature which was discussed in paragraph 1 above.

3. The Board's conclusion 1d. that the fracture started at or near the turn of the bilge is not particularly supported by the data; however, it is obvious that it started somewhere in the bottom.

4. The Board's opinion in paragraph 1f. that the omission of cargo in numbers 1 and 5 holds though commonly practiced in the interests of efficiency is not deemed advisable, is considered correct. This principle applies generally to all vessels, not just welded vessels of this class. However, it should be noted that such loadings, at sufficiently less than full cargo dead weight, can be safely carried if the end tanks are ballasted.

5. The Board was of the further opinion that there was no evidence of imprudent seamanship, negligence or other personnel failure having caused or contributed to this casualty. To the extent that the reason for proceeding to sea with no cargo in holds 1 and 5 was not clearly established in the record it is agreed that no charge of negligence or lack of knowledge is assertible in this case; however, it is considered that this casualty clearly establishes the need for understanding the principles relating to safe distribution of bulk cargo in general cargo carriers. Acting on the report of the Marine Board of Investigation into the foundering of the barge ARIZONA SWORD on 13 January 1961, with a cargo of sulphur, the Merchant Marine Council was requested to initiate a study to determine the sufficiency of present regulations as they apply to vessels carrying cargoes of a corrosive nature, taking into account also the effect of cargo density and distribution, and to make appropriate recommendations in the premises. Since the same factors appear to have been present in this case, this report will also be referred to the Merchant Marine Council for consideration as a part of that study.

6. The commendatory conduct on the part of Mr. [redacted], Fireman/Watertender, will be referred to the Maritime Administration for possible consideration by the Merchant Marine Board of Awards.

7. Action with respect to the Board's recommendation for letters of appreciation to the SS DARU and SS ESSO RALEIGH for the assistance they rendered in this case will be taken.

8. With respect to the Board's recommendation that consideration be given to the advisability of requiring all welded vessels to be equipped with an auxiliary radio transmitter antenna, since radio installations are required by statutes and regulations under the cognizance of the Federal Communications Commission, a copy of this report will be referred to that agency for information and such action as they may deem appropriate. It would appear however that if the recommendation is valid for welded vessels it would be equally justified for vessels of other construction.

9. Subject to the foregoing remarks, the record of the Marine Board of Investigation is approved.

[redacted]

E. J. ROLAND
Admiral, U. S. Coast Guard
Commandant

UNITED STATES COAST GUARD

ADDRESS REPLY TO
COMMANDER
First Coast Guard District
1400 Custom House
Boston 9, Massachusetts

A25/4342
APR [illegible] 1961

From: Marine Board of Investigation
To: Commandant (MVI)
Via: Commander, First Coast Guard District

Subj: SS MARINE MERCHANT, O/N 245750; structural failure and ultimate sinking, 14 April 1961, Gulf of Maine

Ref: (a) COMDT (MVI) ltr 18 April 1961 (MARINE MERCHANT C-1 Bd)

1. In compliance with reference (a) and under the authority of Title 46 USC 239, a Marine Board of Investigation was convened on 20 April 1961 at the office of Officer in Charge, Marine Inspection, Boston, Massachusetts, for the purpose of inquiring into all facts surrounding the subject casualty. Parties in interest were duly represented by counsel and the proceedings were conducted pursuant to the provisions of Title 46 CFR 136. All witnesses testified under oath, and no difficulties were encountered during the course of the investigation. Testimony obtained during a preliminary inquiry conducted prior to receipt of reference (a) has been made a part of this official record inasmuch as certain witnesses were not available to testify during the formal proceedings. The Board adjourned on the evening of 21 April 1961 in order to review all pertinent documentary evidence relating to the casualty and all available inspection files covering prior conversions and overhauls.

FINDINGS OF FACT

1. At 2230, 13 April 1961, the SS MARINE MERCHANT, while en route Portland, Maine, suffered a brittle fracture in the lower portion of its hull which instantly progressed transversely and vertically and ultimately resulted in foundering approximately eleven and one-half hours thereafter with no loss of life nor significant personnel injuries involved.

2. The MARINE MERCHANT, O/N 245750, a steam screw Liberty-class cargo vessel certificated for ocean trade, built of steel in 1944 by New England Shipbuilding Corporation at Portland, Maine, was converted to a bulk carrier in 1947 and last inspected at Norfolk, Virginia, 10 March 1961. The vessel's registered dimensions are: Length 442.8 feet, breadth 57 feet, depth 34.8 feet; 6639 gross tons, 4038 net tons. Its home port is Wilmington, Delaware, and it is owned by Marine Navigation Company, Inc., Wilmington, Delaware. Original construction included the below listed structural alterations as set forth in "The Structural Alterations On Liberty Ships," CG-140 dated April 1946:

(1) Hatch reinforcement (#2, 3 & 4 in upper deck)
MCE Plan S16-2-3-102

(2) Deck crack arrester
USCG Plan M.I. 14-S11-17-1 Detail B

(3) Gunnel arrester
MC Plan EC2-S-C1-S11-6-6

(4) Bilge keel alteration
Serrated at bilge keel butts and D-strake plate butts

3. At the time of this casualty extremely adverse sea conditions prevailed. During the early afternoon hours of 13 April the winds, then E X NE, increased in intensity to gale force (50-55 MPH and occasional gusts to 65 MPH). At about 2030, the vessel was enveloped by a reduced visibility condition with attendant rain, snow, sleet and fog. Sea conditions were reported as extremely adverse, reaching a height of 20 feet and breaking in a confused and severe manner. Official weather messages for the area in question reported easterly winds to 50 knots with 15-foot easterly seas, period of sea 8-10 seconds; air temperature dropping to 40 degrees and sea temperature to 36 degrees. The vessel's deck logbook indicates E X NE winds reaching force 10 and high east-northeasterly seas. Last recorded log entry indicates air temperature 38 degrees, sea temperature 42 degrees.

4. At 1527 on 6 April 1961, the MARINE MERCHANT departed Port Sulphur, Louisiana, bound for Portland, Maine, with 8125 long tons of sulphur cargo which had been loaded progressively by means of a conveyor belt and distributed as follows:

No. 2 Hold - 3250 tons
No. 3 Hold - 2675 tons
No. 4 Hold - 2200 tons

Fuel on board - 4720 barrels
Fresh water - 230 tons

Nos. 3 and 4 holds were loaded to near capacity and the fresh water draft on departure was 24.9' fwd., 26.1' aft. On board was a crew of 35 men, including the Master. The vessel traversed normal shipping lanes and, although the greater portion of the voyage was uneventful, moderate to heavy swells were encountered daily. On the afternoon of 12 April, the ship's force was exercised at fire and boat drills at which time the davits were swung out. Commencing in the early hours of 13 April, while proceeding on a northerly heading off Nantucket Shoals, weather and sea conditions progressively worsened and by 0800 heavy seas were commencing to ship over the starboard side, main deck. The Master, [redacted], License No. [redacted], remained on the bridge almost continuously from this time on and

subsequently commenced a gradual reduction of speed to ease the strain and prevent pounding. By noon the storm had reached gale proportions and the vessel was rolling heavily in an easterly swell. Wind and sea conditions, accompanied by rain, sleet and snow, continued to increase in intensity until, at about 1700, the vessel was hove to on various northeasterly headings in an effort to ease the force of breaking seas and the shaft revolutions were no more than that necessary to maintain desired headings.

5. Soundings taken on 12 April revealed normal bilge readings as follows:

Port	Starboard
No. 1 - 21"	No. 1 - 23"
No. 2 - 18"	No. 2 - 11"
No. 3 - 3"	No. 3 - 6"
No. 4 - 2"	No. 4 - 2"
No. 5 - 3"	No. 5 - 7"

Noon readings obtained on 13 April revealed 3510 barrels of fuel oil and 140 tons of fresh water remaining on board. The greater portion of the remaining fuel was situated in No. 3 deep located in the forward part of No. 4 hold and approximately 280 barrels were contained in the settlers situated outboard (P&S) in forward part of engineroom. Except for potable water topside, all fresh water was contained in No. 4 double bottom. There was no salt water ballast on board. Both the forepeak and afterpeak were void.

6. At 2000 on 13 April, the Third Mate, [redacted], relieved the Chief Mate, [redacted]. The vessel was still hove to on an approximate heading of 060°T and major storm conditions prevailed. Since the Master was on the bridge, the Third Mate spent the early part of his watch obtaining RDF bearings for the purpose of fixing the vessel's position. Fog signals were being sounded at prescribed intervals and the lookout had been posted on the flying bridge due to green seas breaking over the starboard bow. At about 2230, with no prior warning, a loud report was heard followed by an appreciable settling in the midship section. The vessel at this time was approximately 40 miles southeast of Portland Lightship and the main engine was turning 32 RPM's. Realizing that his vessel had suffered a major structural failure, the Master rang up "stop" on the engine telegraph and sounded the general alarm signal. He thereafter proceeded to the boat deck and, meeting the Radio Officer en route, instructed him to release an immediate SOS. Upon reaching the boat deck, he ordered the men then present to prepare and swing out the boats, but to delay launching pending further orders.

7. The Radio Officer, [redacted], quickly discovered that the sagging condition of the vessel had caused the mainmast between Nos. 2 and 3 hatch to tilt aft and the resultant slack caused the antenna to ground out on the radar scanner. By improvising he was subsequently able

to rig an emergency antenna and immediately sent out an autoalarm signal on the distress frequency. First response came from the DARU of British registry followed by the ESSO RALEIGH which was then awaiting a Pilot to enter Boston Harbor. Coast Guard Radio Station, Boston, Massachusetts, then acknowledged receipt of the distress message and the Coast Guard Rescue Coordination Center, First Coast Guard District, went into immediate action. The ESSO RALEIGH expressed willingness to assist and was requested to proceed to the scene. Coast Guard Cutters CACTUS and LAUREL, and shortly thereafter the CGC ACUSHNET, then in repair status, were directed to proceed. Significant to note that, although undergoing major engine overhaul, the ACUSHNET was able to depart for the scene approximately one hour and fifty minutes thereafter.

8. Conditions of darkness and adverse weather prohibited a clear view of the extent of external hull damage. However, it was clearly obvious that a complete fracture of the underbody had occurred just forward of the forward part of No. 3 hatch coaming at about frame 73. The two halves appeared joined solely by the main deck plating which, though working with the seas, developed no visible cracks. The Master, greatly concerned over the safety and welfare of his crew, was faced with the decision of whether to effect an immediate abandonment under the adverse conditions then prevailing or to risk awaiting daylight with the hope that the two halves would remain joined. It was while weighing these factors that he was advised that the nearest help was five to six hours away and he thereupon chose to await daylight. To avert the ever-present risk of panic, the crewmembers were kept busily engaged in preparatory tasks associated with a future orderly abandonment. The evidence clearly indicates that, notwithstanding the constant risk of separation and sinking, the crew responded to the emergency in a highly commendatory manner.

9. At the time of the casualty, the engineroom was manned by the Third Engineer, [redacted], and [redacted], FWT. Although the forward engineroom bulkhead was in danger of collapsing at any moment due to the pressure of the seas, [redacted] declined to leave his post when it was suggested by the Watch Engineer and thereafter remained in the engineroom throughout the night until the order was passed to abandon ship. Boiler pressure was maintained in order to operate the generators supplying lighting and power to the radio transmitter. Continuous radio communications were maintained throughout the night and distress flares were fired from the bridge at regular intervals. Oil was discharged in an effort to moderate the seas and, although minor seepage was evident, the forward engineroom bulkhead remained intact.

10. With the coming of daylight, wind and sea conditions commenced to moderate and, knowing the DARU to be in close proximity, the Master decided to abandon ship without further delay. Emergency SOS signals sounded on the ship's whistle had brought response from an unidentified vessel in the area. This vessel has since been identified as the SS BROTHER GEORGE, a Liberty-class

cargo vessel under Liberian flag. However, having indicated that she had insufficient power to come about in the wind and seas then prevailing and since the DARU and ESSO RALEIGH were known to be nearby, the vessel was released to proceed on her scheduled voyage. At about 0430, 14 April, in approximate position 43-03N, 69-43W, the sagging condition of the hull having increased dangerously during the previous hour, the Master issued the order to abandon ship. The Engineers, prior to leaving the engineroom, secured the fires to the main boilers but left steam to the auxiliaries. Life nets, Jacob's ladders and mattresses having been rigged over the side, and the vessel being on a somewhat even keel, no difficulties were encountered in lowering away the two 38-person capacity oar-propelled lifeboats. The No. 2 boat being on the lee side was lowered away first and thereafter remained near at hand to pick up the remainder of its assigned crew. The No. 1 boat was launched with nine men aboard, but being on the weather side encountered severe sea conditions and, due to buffeting against the ship's side, was cast off before the remaining crewmembers could be taken aboard. It was the crew from this boat that was shortly picked up by the DARU. All remaining crewmen except the Master then disembarked by means of life nets to the No. 2 boat. The Master then jumped into the sea and was immediately brought aboard this same boat. The Radio Officer left the radio transmitter key locked in the "ON" position. All survivors in No. 2 boat were subsequently picked up by the ESSO RALEIGH which had arrived at the scene during the abandon ship operations.

11. The No. 2 lifeboat was recovered by the CGC ACUSHNET which subsequently arrived on the scene whereas the No. 1 lifeboat was destroyed by the CGC CACTUS when the Commanding Officer of that vessel determined recovery efforts to be too risky under sea conditions then prevailing. Unknown to personnel aboard the CACTUS, the No. 1 lifeboat contained certain of the vessel's official documents and engineers' licenses which were lost when the boat was destroyed. The nine crewmen picked up by the DARU were transported to Portland while the remaining twenty-six picked up by the ESSO RALEIGH remained aboard until that vessel's arrival at Boston. At 0910, in position 42-49N, 69-46W, the stern section of the MARINE MERCHANT sank beneath the surface causing the bow section to assume a vertical position after which it, too, passed beneath the surface in approximately 115 fathoms.

12. The subject vessel, originally named the JOSEPH A. CHEVALIER, was renamed MARINE MERCHANT in January 1947 at the time of its conversion to a bulk carrier by Todd's Shipyard, Erie Basin, N.Y. The records indicate this conversion was accomplished in compliance with Coast Guard and ABS approved standards covering this project. The following alteration plans apply:

Ref.	Dwgs	C.G.	61843 - 0101	Alt 2
Ref.	Dwgs	C.G.	61843 - 1106-1	Alt 2
Ref.	Dwgs	C.G.	61843 - 1104-1	Alt 2
Ref.	Dwgs	C.G.	EMM-17-S11-17-1	Detail A-B-C

The vessel suffered a grounding at Antwerp, Belgium, on 6 October 1950 and a drydock examination at Bethlehem Steel, Brooklyn, N.Y., on 14 November 1950 revealed damage requiring repairs in the vicinity of A and B strakes and some minor repairs in the vicinity of C strake. At this time repairs were made to the port bilge keel, but the extent and location are unknown. Another grounding was experienced in Savannah River on 13 November 1951 and again in Tampa Bay on 24 September 1953. Particularly significant is the Coast Guard Inspector's report of drydock inspection conducted on 12 November 1957 at Todd's Shipyard, New Orleans, Louisiana. The pertinent remarks are noted hereunder:

"11-12-57 Todd's Algiers, La.
Made drydock examination. Vessel showed evidence of working thwartships in way of mid ship house in several places but namely in two places. Vessel grooved all the way across & at turn of bilges between frames 86 & 87. Vessel grooved all the way across but not into bilge between frames 68 & 69.

Outline of tank top connection to hull all so very visible about hull and this visible 3" border shows signs of working.

At this time all tank top openings were ordered opened & double bottoms lighted for further inspection on 11-13-57. No decisions made at this time.

[redacted]

- in addition 11-12-57
Small hole found in fwd end of #3 deep tank port side. Metal thin in immediate area.

[redacted]

"11-13-57 Algiers, La.
Made survey of bottom plating & side plating in way of grooving.

Some forty full plates & six partial plates are going to be renewed. This extensive renewal is over and above USCG requirements to date on plate renewals. Internals are to be dealt with as plates are removed.

Bilge sheathing boards are being removed inside the hull for examination of the brackets. Vessel has recently experienced heavy weather and bottom damage has apparently been caused by this recent rough weather.

Tank top working as shown evident by side plate is still to be dealt with.

[redacted]

11-14-57 Algiers, La.
This inspector learned this date from insurers that vessel had new tank tops installed about March 1957. It may be that the border showing on outside plating in way of tank top was caused by welling of new tank tops.

Examination made this day of inside frames & brackets in way of tank top found to be normal. No evidence of tank top's working found in internals.

[redacted]

On 3 September 1959, the subject vessel sustained its fourth known grounding. In this instance the vessel, while loaded with 5000 tons of phosphate rock, was proceeding over the bottom at a speed which, due to the force of the current, was estimated at 14 knots when she fetched up hard and fast throughout the greater portion of its bottom. It was subsequently necessary to employ tugs to refloat the vessel. On 27 February 1961, a drydock examination revealed the presence of a 6-foot crack in the welded seam between C and D strakes portside at frames Nos. 66 and 67. This deficiency was corrected and, in addition to the renewal of plates A4 starboard side forward and A15 port side aft, approximately 100 feet of wasted seam and butt welds were rewelded in various sections through the length of the vessel.

13. At the time of this casualty, the MARINE MERCHANT was manned, equipped and operating in accordance with the provisions of a valid Certificate of Inspection issued at Norfolk, Virginia, on 10 March 1961. All hands were equipped with life jackets during the abandon ship operation and there was reportedly no failure or malfunctioning of any lifesaving apparatus. Crewmembers were as follows:

NAME	Z/L Number	ADDRESS	LIFEBOAT
[redacted]	[redacted]	[redacted]	

NAME	Z/L Number	ADDRESS	LIFEBOAT 2
[redacted]	[redacted]	[redacted]	

OPINIONS AND CONCLUSIONS

1. After full and mature deliberation of all of the above facts, as supported by the record, the Board has reached the following opinions and conclusions:

a. That the primary cause of this casualty was the existence of a situation involving the coincidence of three factors:

(1) The inherent weakness incident to structural notch sensitivity, common to welded vessels of this class;

(2) Stresses occasioned by extremely adverse sea conditions;

(3) The sagging strain developed by the stress of cargo concentrated in the midbody of the vessel;

b. That the vessel's prior history of groundings, age and sea water temperature conditions may have been contributing factors;

c. That, as the result of prior groundings and storms encountered throughout the vessel's history, the existence of a structural weakness prior to the outset of this voyage, though remote, is possible;

d. That the initial fracture occurred at or near the turn of the bilge, port or starboard, progressed across the bottom and up both sides simultaneously;

e. That the gunnel arrester straps, installed during original construction, were instrumental in preventing a complete severance of the hull sections;

f. That the omission of cargo in Nos. 1 and 5 holds, though commonly practiced in the interests of efficiency, is not deemed advisable in welded vessels of this class;

g. That there is no evidence of imprudent seamanship, negligence or other personnel failures having caused or contributed to this casualty;

h. That the inspection files and the testimony of witnesses clearly demonstrates thorough attentiveness on the part of the Coast Guard inspectors throughout the history of this vessel;

i. That neither the Coast Guard nor any other governmental agency or their representatives caused or contributed to this casualty;

j. That the absence of any loss of life was primarily due to the Master's decision to delay abandonment until daylight, coupled with the calm and courageous manner in which all hands responded to the emergency;

k. That the courage and devotion to duty exhibited by Jose Aragao in remaining in the engineroom until final abandonment was instrumental toward maintaining a high state of morale among his shipmates and was in keeping with the highest traditions of American seamen;

l. That the promptness with which the Masters of the DARU and ESSO RALEIGH responded to this emergency was instrumental in preventing what might otherwise have been a far more serious disaster;

m. That, since rescue vessels were on the scene at time of abandonment, it was imprudent to leave the radio transmitter in the "ON" position, thus tying up the distress frequency for an indefinite period;

n. That, had the MARINE MERCHANT been equipped with an auxiliary radio antenna, a more expeditious transmission of the distress message would have been possible;

o. That sinking was due to ultimate failure of the forward engineroom bulkhead;

p. That, in view of depth and location, the hulk does not present a menace to navigation.

RECOMMENDATIONS

1. Based upon the above facts, as supported by the record, it is recommended:

a. That Headquarters give consideration to the advisability of issuing a trim and stability booklet for Liberty bulk carriers which will enable operating personnel to distribute cargo and ballast in such manner as to minimize longitudinal bending stress;

b. That consideration be given to the advisability of requiring all welded vessels to be equipped with an auxiliary radio transmitter antenna;

c. That the Commandant issue letters of appreciation to the owners of the DARU and ESSO RALEIGH and a letter of commendation to Jose Aragao consistent with the proposed drafts forwarded as enclosures to this report;

d. Subject to the foregoing, it is recommended that no further action be taken and the case be closed.

[redacted]

C. L. HARDING
Rear Admiral, U. S. Coast Guard
Chairman

[redacted]

A. G. MOBERG
Captain, U. S. Coast Guard
Member

[redacted]

C. L. MASON
Commander, U. S. Coast Guard
Member and Recorder

Encl:
(1) Convening Order of 18 April 1961
(2) Transcript of Testimony (including Exhibits 1-6)
(3) Form CG-2692 (Report of Marine Casualty (or accident))
(4) Proposed letters for Comdt's release (3)
(5) Photographs (11)