

UNITED STATES COAST GUARD

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



MVI 11 FEB 1958
(USNS MISSION SAN MIGUEL
C-11 Bd)

Commandant's Action

on the
report of

Marine Board of Investigation; USNS MISSION SAN MIGUEL;
loss of by stranding on Maro Reef, Hawaiian Archipelago,
8 October 1957

1. Pursuant to the provisions of Title 46 CFR Part 136, the record of the Marine Board of Investigation convened to investigate subject casualty, together with its Findings of Fact, Opinions, and Recommendations, has been reviewed.
2. The USNS MISSION SAN MIGUEL, a T-2 type tanker of 10,461 gross tons, built in 1944, owned by the U. S. Navy, civilian manned and operated in the Military Sea Transportation Service, departed Guam, M. I., in ballast, on 1 October 1957 bound for Seattle, Washington, under USN sailing orders which included positions to be traversed along a track passing through the Hawaiian Archipelago about 23 miles south of Maro Reef. In the evening of 8 October while proceeding at full speed - about 15 knots - weather overcast with rain squalls, the vessel struck this reef, piercing her bottom. Because of jammed valves, the cargo pumps were unuseable to counteract the progressive flooding which followed through failure of pump room, engine room and cargo space bulkheads previously weakened by extensive wastage. On 10 October all personnel were removed by other U. S. Navy ships without injury or loss of life. The vessel valued at \$2,000,000 was abandoned as a total loss.
3. The Board concluded that although weather conditions for several days preceding this casualty had prevented obtaining a "fix" by celestial observations, and Loran, Radio Direction Finding and other aids to navigation were not available in this particular location, the cause and extent of the casualty were directly attributable to certain errors by several officers with regard to the navigation of the vessel and an absence of damage control. Accordingly, the Board recommended that appropriate disciplinary action be taken under R. S. 4450 against the licenses issued to these officers, which action was commenced.
4. The Findings, Opinions, and Recommendations of this Board are approved.

A handwritten signature in dark ink, appearing to read "A. C. Richmond".

A. C. RICHMOND
Vice Admiral, U. S. Coast Guard
Commandant

REPORT OF

MARINE BOARD OF INVESTIGATION

Convened at Long Beach, California
on 15 October 1957

To inquire into the circumstances surrounding
the stranding of the USNS MISSION SAN MIGUEL
on Maro Reef, 8 October 1957

After full and mature deliberation, the Board finds as follows:

FINDINGS OF FACT

1. At or about 1944, Zone plus 12, on 8 October 1957, the USNS MISSION SAN MIGUEL (T-AO-129) in ballast on a voyage from Guam, Marianas Islands to Seattle, Washington, grounded on Maro Reef (latitude 25° 22.3' N and longitude 170° 34.1' W), Hawaiian Archipelago, Territory of Hawaii, during rain squalls.
2. The USNS MISSION SAN MIGUEL (T-AO-129), O. N. 244 739, of 10,461 gross tons, is an undocumented T2-SE-A2 tankship built at Sausalito, California in 1944. She is owned by the United States Navy and operated by Joshua Hendy Corporation, 612 South Flower Street, Los Angeles, California. Perry K. Countryman was the Master. Articles were opened for this voyage and a crew signed on board on 29 June 1957 at Texas City, Texas.
3. The MISSION SAN MIGUEL was last drydocked on 19 November 1956 at Oakland, California and was last inspected on 30 November 1956 at San Francisco, California at which time a Certificate of Inspection was issued. The vessel was classed by the American Bureau of Shipping, Class **A1 (E)** oil carrier. The Load Line Certificate was last endorsed on 30 November 1956. The Master and crew were required to be licensed and/or certificated by the Coast Guard.
4. The MISSION SAN MIGUEL was equipped with magnetic compasses, gyro compass with repeaters, course recorder, Sperry gyro pilot, Submarine Signal fathometer registering up to 250 fathoms, radio direction finder, Raytheon radar and RCA Loran receiver. All other navigational and ship control equipment complied with the requirements of the existing rules and regulations for vessels of her class and service.
5. The vessel was propelled by a turbo-electric unit of 10,000 horsepower, turning one 19.6' diameter and 17.5' pitch propeller capable of approximately 17.5 knots at 104 RPM. The machinery spaces were fitted with two bilge pumps. In addition thereto, the two fire pumps could be used as bilge pumps. The main circulating pump, required as an emergency bilge pump by 46 CFR 55.10-25(f), had a capacity of over 7,000 GPM when used as a bilge pump to remove water from the machinery spaces.

6. The MISSION SAN MIGUEL departed Apra Harbor, Guam at 1645, Zone minus 10, on 1 October 1957 in accordance with the sailing orders of the U. S. Naval Control of Shipping Organization which the Master received from CO-MSTS, Guam. The sailing orders included the route positions, latitude and longitude, of points which were to be intersected by the vessel on her voyage from Guam to Seattle, Washington. The speed of advance was estimated to be 15 knots. The course between positions "VF" and "VG" passed 23 miles to the southward of Mare Reef and through the Hawaiian Archipelago, continuing between positions "VG" and "VH." There are no navigational aids in this area and no Loran coverage due to the area being within the base line extensions of Loran Rates 2L4, 2L5 and 2L6.

7. At the time of the departure from Guam on 1 October 1957, the MISSION SAN MIGUEL was manned in accordance with her Certificate of Inspection and had on board 42 persons, including the Master. The vessel's draft was approximately 12' forward and 24' aft. There were slight variations in draft due to tank cleaning operations during the course of the voyage. Generally, the same trim was maintained for the duration of the voyage.

8. The licensed deck officers were divided into three watches. The Chief Mate, who held a Chief Mate's License, was assigned the 0400-0800 and 1600-2000 watches. The Second Mate, who held a Second Mate's License, was assigned the 0000-0400 and 1200-1600 watches. The Third Mate, who held a Master's License, was assigned the 0800-1200 and 2000-2400 watches. The deck officers were directed by the Master to take celestial observations only on their respective watches. The Second Mate was designated as the navigating officer, but neither he nor any other officer maintained an independent running "day's work" of the ship's advance.

9. The vessel proceeded along her designated courses after departing Guam; her positions were determined by both Loran and celestial observations until noon of 7 October, and her speed varied between 14.5 and 15.5 knots because of tank cleaning operations. The weather during this period was good with the wind and sea northeasterly. The International Date Line was to be crossed during the morning of the following day, and so, 7 October 1957 was repeated, the noon position of Meridian Day, determined by dead reckoning due to overcast skies, being Latitude $23^{\circ} 40' N$ and Longitude $179^{\circ} 39' W$. The last position fix by celestial observation was obtained by the Chief Mate at 1730, Zone minus 11, 6 October, and was found to be Latitude $21^{\circ} 34.5' N$ and Longitude $169^{\circ} 37' E$ with a resulting course and speed

made good from 1200, 6 October, of 078° true and 15.0 knots. the vessel's last observed noon (Zone minus 12) position, Latitude $22^{\circ} 39' N$ and Longitude $173^{\circ} 56' E$, was determined on 7 October by the Master and Second Mate using morning and noon observations of the sun. The gyro error was negligible and the last azimuth was obtained on 7 October. Tank cleaning and ballast operations were virtually completed during the afternoon of Meridian Day (second 7th of October). The weather was overcast, becoming squally with the wind and sea commencing to veer southeasterly, and the vessel continued on a dead reckoning course of 080° true and 92 RPM for an estimated speed of 15.0 knots.

10. The Second Mate came on watch shortly before 1200 (Zone plus 12), 8 October and at 1200 managed to obtain a poor to fair observation of the sun which he worked as an ex-meridian altitude, using Hanson's Ex-Meridian Tables, and which he laid down on the plotting sheet in use (Exhibit 5) as Latitude $25^{\circ} 25' N$. At 1215, both the Second Mate and the Master obtained fair observations of the sun, one of which was worked by H. O. 214 and laid down as a line of position on the same plotting sheet. An illogical plot consisting of a line perpendicular to the course line at the 1200 dead reckoning position was laid down to intersect the line of position. This intersection gave a Latitude of $25^{\circ} 17' N$ and Longitude of $173^{\circ} 25' W$. This position is 44 miles, 350° from the 1200 dead reckoning position, Latitude $24^{\circ} 33' N$ and Longitude $173^{\circ} 18' W$. The 1215 line of position was then plotted on USC&GS Chart 4183 (Exhibit 2), two miles south of the same line as laid down on the plotting sheet. The 1200 dead reckoning position was also incorrectly plotted on Chart 4183 as Latitude $24^{\circ} 23' N$ and Longitude $173^{\circ} 18' W$. Inspection of Chart 4183 indicates further inconsistencies not only in that the assumed position on the line of position was obtained by the intersection of a line drawn perpendicular at the course line, but that apparently, a course of 070° instead of 080° was used. The estimated position so obtained, was Latitude $25^{\circ} 19' N$ and Longitude $173^{\circ} 40' W$. From this estimated position, the Master then plotted a course of 080° true and assumed that Laysan Island would be observed by radar at 1800, broad on the port bow, range 18 miles. The track as laid down on the plotting sheet from the 1200 Meridian Day dead reckoning to next position point "VQ" indicates 082° true. At this time the wind and sea were observed to be from a southwesterly direction and continued so up to the time of stranding. The United States Coast Pilot for the Hawaiian Islands was not consulted although this publication was aboard.

11. The Chief Mate relieved the Second Mate of the bridge watch at 1600, 8 October. Both he and the Master, who was in the chart room, examined the plotting sheet at this time. The ship's radar and fathometer had been warmed up and were in operation and the vessel was being

steered by gyro pilot, the helmsman in attendance. The weather was overcast, with passing rain squalls, visibility varying from two to ten miles and a lookout was posted on the bow at 1700. Except for a short period of a half hour when he went below for his evening meal, the Chief Mate remained on the bridge, along with the Master, until the time of the casualty.

12. A target was observed at 1835 on the radar scope by the Master and the Chief Mate, bearing 040° true and range of 7 miles. Soundings on the fathometer were observed simultaneously and indicated a least depth beneath the keel of 16 fathoms. The Master then plotted the bearing and range on large scale chart USC&GS 4183 (Exhibit 2), assumed the target to be Laysan Island, and changed the vessel's course to 090° true. The vessel continued at full speed. At 1845 the target was observed bearing 011° true range 5.4 miles, the fathometer showed 10 fathoms under the keel, and course was altered to 130° true. This course was maintained until 1900 when the target bore 350° true at range 8.5 miles. No soundings were observed on the fathometer at this time and course was changed to 080° true. The above course changes were made on the basis of the observed radar bearing and ranges. From this time until the vessel stranded, the Master states that he observed no soundings on the fathometer, although the Chief Mate indicates in his testimony that at approximately 1905 and 1911, he observed soundings of 16 fathoms under the keel. The Chief Mate did not recall whether or not he called the attention of the Master to the last soundings observed.

13. The 100-fathom curve as shown on Chart 4183 (Laysan Island to Kure Island) extends a maximum distance of five miles within an arc southeast through southwest from Laysan Island. The radar bearings and ranges laid down on Chart 4183 by the Master, places the vessel outside the 100-fathom curve at all times. Back plotting by the Board on USC&GS Chart 4174 (Maro Reef), indicates that the vessel was on soundings from approximately 1800 until time of stranding. This plotting further shows that the vessel was in average depths of sixteen fathoms throughout the period from the first plotted radar bearing until stranding, a period of approximately 39 minutes. At no time was the speed of the vessel reduced. It was testified that small scale USC&GS Chart 4174 of Maro Reef was not aboard and hence not used.

14. The Master left the bridge at about 1910, testifying he believed the ship to be clear of all dangers at that time and informed the Chief Mate that he would return in a few minutes. He went below to his quarters and while in the head, felt the vessel run aground. He called to the Chief Mate to put the engines full astern and when gaining the bridge, found the engine order telegraph at full astern and the engines going full astern. Various engine maneuvers were ordered until 2208 when it became apparent that the vessel would not back off. The engines were then stopped.

15. The Chief Mate took a round of soundings about the vessel and found the least depth of water to be 21 feet abreast #7 port cargo tank and 24 feet abreast of #7 starboard cargo tank, with 56 feet at the bow and astern. A drift lead was put over the side and when it was determined that the vessel was being driven farther on the reef by a heavy southwesterly swell, the port anchor was let go.
16. Sea water ballast had been placed in port, starboard and center cargo tanks 3, 5 and 7 after Butterworth operations were completed on 7 October; #3 one-third full and #5 and #7 full. However, due to extensive internal bulkhead leaks, the ballast water had leveled off to approximately the same heights in center tanks 2, 3, 4, 5, 6 and 7, and wing tanks 3, 5 and 7. The water also leaked into #6 wing tanks, but these tanks had been stripped. Examination subsequent to stranding disclosed that cargo tanks 6, 7, 8 and 9 center and 9 starboard were broached. An attempt was made to transfer ballast from the after tanks to the forward tanks, but it was discovered that the main cargo suction line valves or their operating mechanisms in all the after cargo tanks were jammed in the closed position. In order to weigh down the ship and keep her from pounding and being driven farther on the reef, two fire hoses were led into the forward tanks and ballasting begun.
17. By this time, it became apparent that the internal bulkheading between the after cargo tanks had been damaged, including the bulkhead between #9 center and the after pump room, and that progressive flooding was taking place. The vessel began developing a port list and an effort was made to correct this situation by using the cargo steam stripping pump in the after pump room and transferring water from the port side aft to the starboard side forward. This measure was found ineffectual when it was noted that the water level in the port after tanks was increasing rather than decreasing.
18. An examination was made of the after pump room by the Chief Engineer and Chief Mate and two fractures were found in the forward bulkhead; a diagonal crack approximately 18 inches long and a welded seam opened to about one inch in width and unknown length. Water was observed entering the pump room through these cracks from #9 center tank and the steam stripping pump was placed in operation on the pump room bilges. Later examination revealed that the diagonal crack had extended several feet in each direction and that the flooding water in the pump room could no longer be controlled. No effort was made by any of the ship's personnel to plug these cracks or retard the ingress of flooding water in any way.

19. The main machinery spaces were said to have been found dry and undamaged by the stranding, but as the water level rose in the after pump room to about 10 feet, water began entering the engine room through the forward bulkhead. Examination disclosed that the welding around the five-inch diameter exhaust line from the steam stripping pump, where it penetrated the bulkhead between the pump room and engine room, was fractured, and that the recessed explosion-proof lights and pump drive shaft stuffing boxes in the same bulkhead were leaking. The engineers took up on the rim bolts of the light fixtures and the stuffing box packing glands and succeeded in reducing the amount of water flooding through these fittings. Nothing was done to restrict the flow of water around the five-inch exhaust line.

20. The Chief Engineer had in operation one bilge pump and one fire pump draining the machinery space bilges. However, water continued to rise in the machinery space, and the Chief Engineer ordered the fires in the boilers secured. The main circulating pump was not utilized to dewater the machinery spaces.

21. As the MISSION SAN MIGUEL continued to settle by the stern, all watertight and weathertight doors, ports, skylights and such other openings were closed and secured, and preparations made to abandon ship. The USNS T-LST 664 had been diverted by the Navy and was standing by on the scene. The port list assumed alarming proportions during the evening of 9 October 1957, and the Master ordered the ship abandoned in the early morning hours of 10 October. Because of the heavy swell running at the time, it was decided to use the LST's motorboats to evacuate the MISSION SAN MIGUEL personnel. All hands were safely removed from the vessel and subsequently transported back to the United States. Prior to departing from the ship, the Master placed the Official and rough log books in a briefcase; but this briefcase, along with some personal belongings, were reported lost overboard during the transfer to the T-LST 664. There were no lives lost or injuries sustained as a result of this casualty. The value of the vessel is estimated at \$2,000,000, and the vessel has been stricken from the records of the Navy as a total loss.

OPINIONS

1. That the Master's practice of requiring all deck officers, including the Second Mate who was the Navigating Officer, to take celestial observations only on their respective watches, was not in accordance with the established standards of prudent navigation. This precluded the Navigating Officer, as well as any other deck officer, from maintaining an independent running day's work of the ship's advance.

2. The vessel's estimated position on the 1215 sun line on 8 October was improperly determined by the Master. Additional errors were made in transferring the estimated position from the plotting sheet in use to USC&GS Chart 4183. The use of proper navigational methods would have indicated that a course of 080° true would bisect Maro Reef. In spite of numerous small errors in navigation, careful evaluation of all information at hand on noon of 8 October, should have clearly indicated to the Master that he was standing into danger.
3. That in estimating the speed of advance, the Master failed to take into account a possible increase in speed made good on 7 and 8 October by the veering of the wind and sea to the southwest.
4. The Master and Chief Mate incorrectly evaluated the radar target of 1835 on 8 October to be Laysan Island, failing to check the radar ranges and bearings with available information from the fathometer.
5. The fact that soundings of less than 20 fathoms were obtained between 1835 and 1905, should have warned the Master that the ship was not in the vicinity of the target he assumed to be Laysan Island. Ordinary prudent navigation would have indicated a reduction in speed under the existing circumstances of a doubtful position in the vicinity of reefs and reduced visibility from heavy rain squalls.
6. The Master failed to take into account the possibility of obtaining a radar bearing and range of the rock and breakers at Maro Reef. This should have been apparent to him had he consulted the United States Coast Pilot.
7. The foregoing acts by the Master, Chief Mate and Second Mate all contributed to the grounding of the vessel on Maro Reef.
8. Failure on the part of the Chief Engineer to restrict the flow of sea water which was entering the machinery spaces in the way of fractured weld around the five-inch steam exhaust line, as well as in the way of other small bulkhead penetrations, together with his failure to utilize the main circulating pump to dewater these spaces, contributed to the total loss of the vessel.
9. The numerous minor cracks existing in the main cargo tank bulkheads contributed to the rapid flooding of the grounded vessel and contributed to the total loss of the vessel.
10. No failure of machinery or equipment contributed to the grounding.

RECOMMENDATIONS

1. Upon completion of the taking of testimony by the Board of Investigation, it was recommended by the Board that Perry K. Countryman, Master, License No. 183247; Benny Holderson, Chief Mate, License No. 148878; and Manuel Ansotigue, Second Mate, License No. 141975, be served with a charge of negligence under authority of Title 46 USC Section 239 (RS 4450).
2. Perry K. Countryman, Benny Holderson and Manuel Ansotigue were duly charged, hearings were held in Room 1114, Times Building, Long Beach, California on 23, 24 and 25 October 1957. See files P13/S-4084, 4091 and 4085.
3. The Board further recommends that Albert C. Johnson, Chief Engineer, License No. 188948, be officially admonished for his inattention to duty.
4. On 22 October 1957, Albert C. Johnson, Chief Engineer, was duly admonished. See file P13/S-4094.

(signed) E. W. HOLTZ
E. W. Holtz
Captain, U. S. Coast Guard
Chairman

(signed) JAMES McINTOSH
James McIntosh
Commander, U. S. Coast Guard
Member

(signed) LIONEL H. de SANTY
Lionel H. de Santy
Commander, U. S. Coast Guard
Member and Recorder