



MVI-3
5943/DYNAFUEL -
FERNVIEW (Nor)
C-5 Bd
3 Dec 1964

Commandant's Action

on

Marine Board of Investigation; collision
of the M/V DYNAFUEL and the M/V FERNVIEW,
in Buzzards Bay, on 14 November 1963,
without loss of life

1. The record of the Marine Board of Investigation convened to investigate subject casualty, together with the findings of fact, conclusions and recommendations, has been reviewed.
2. At about 0658, on 14 November 1963, the Norwegian freighter FERNVIEW collided in dense fog with the United States tank vessel DYNAFUEL in the western approaches to Buzzards Bay.
3. The collision occurred in daylight with otherwise good visibility being limited by fog, in patches, to a distance varying between 1/8 and 2 miles. The wind was from the north-west at about 17 miles per hour. The tidal current was nearly slack.
4. The collision occurred in Buzzards Bay main channel. The scene is bounded on the east by Buzzards Bay mid-channel lighted bell buoy BB, on the west by Hens and Chickens lighted gong buoy 3, on the south by Penikese lighted bell buoy No. 4 and on the north by Mishaum Ledge lighted gong buoy 3A. The channel which is about nine miles long and slightly over a mile wide is oriented in a 065° - 245° axis. Coast and Geodetic Survey Chart 1210 encompasses the area.
5. There is a discrepancy of approximately three minutes between the time kept by the two vessels. The time maintained by the DYNAFUEL is arbitrarily accepted as correct. Three minutes must be added to times given by witnesses of the FERNVIEW.



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6. The FERNVIEW, enroute New York to Boston passed Buzzards Bay Entrance Light abeam to starboard at a distance of 1/2 mile and steadied on course 024° True, speed about 18 knots. The Pilot, Master and Chief Officer were on the bridge. The radar was in operation on the six mile range and was being used to check the vessel's progress by observing buoys along the vessel's track. At about 0638, fog patches were encountered, fog signals commenced and a Lookout stationed at the bow. There was no reduction in speed. As Hens and Chickens lighted gong buoy 3 passed abeam to port, course was changed to the right, and at 0644 the vessel was steady on course 064° True, with the buoy 1/2 mile distant on the port quarter. The ship continued on and at 0653 was observed by radar to pass between Misham Ledge lighted gong buoy 3A and Penikese lighted bell buoy 4. The Master, who was observing the radar, testified that the vessel was to the right of the center of the channel. At 0654, the Master observed a weak radar contact about 10° on the starboard bow at a distance of approximately 1/2 mile. Moments later as the DYNAFUEL was sighted slightly on the starboard bow, the rudder of the FERNVIEW was ordered full right and the engines full astern. At 0655, the bow of the FERNVIEW collided with the port side of the DYNAFUEL just aft of the midship house at an angle of about 30°. Apparently, the only person on the FERNVIEW to hear fog signals from the DYNAFUEL was the Lookout who reported same immediately prior to collision.

7. Witnesses for the FERNVIEW testified that, following the collision, a series of tests revealed that when the cargo booms were topped-up as they were at the time of collision, they interfered with the radar and caused a "blind zone" from 005° to 007° relative on the starboard bow and from 353° to 355° relative on the port bow.

8. The DYNAFUEL enroute Cape Cod Canal to Newark, New Jersey, in ballast, passed Buzzards Bay mid-channel lighted bell buoy 1B close aboard to starboard at 0627 and steadied on course 294° True, speed about 10 knots. The Master, Chief Officer, Helmsman and Lookout were on the bridge. The radar was in operation and, since it was not connected to the gyro compass, presented a relative representation. Fog was encountered at about 0635; fog signals were commenced and the engines placed on standby. At about 0636, radar contact was made with the FERNVIEW bearing about 10° on the port bow, distance 8 miles. Engine speed was reduced to slow and the course changed to 259° True which placed the radar contact about 25° to 30° on the port bow.

The Master and Chief Officer continued to observe the radar contact; at 0653 with the contact still approximately 30° on the port bow at a distance of approximately 1-1/4 miles, course was changed to 269° True pgc and the engine stopped. The FERNVIEW was sighted through the fog on the port bow of the DYNAFUEL at a distance of about 1/8 mile at 0657. The rudder of the DYNAFUEL was placed hard right and the engine full astern. Backing and danger signals were sounded on the whistle; the general alarm was rung. The collision occurred at 0658 with the ship nearly dead in the water. Witnesses from the DYNAFUEL testified that they did not hear the FERNVIEW's fog signals. Neither the Master nor the Chief Officer of the DYNAFUEL maintained a radar plot of the FERNVIEW's approach.

9. Immediately following the collision, the fixed CO₂ fire extinguishing system for the cargo tanks of the DYNAFUEL were released. However, the engine room and after portion of the vessel was on fire; and the crew of the DYNAFUEL, four of whom were injured in varying degrees, abandoned the tanker and went on board the FERNVIEW. Coast Guard assistance arrived at about 0900, and by about 1200 the fire was under control and extinguished by late afternoon. The ships remained locked together until approximately 0730 on 15 November when they separated and the DYNAFUEL capsized and sank.

REMARKS

1. It is considered that the principal cause of this casualty was the failure of the M/V FERNVIEW to proceed at a moderate speed in fog.

2. The Board's conclusion that the DYNAFUEL was within the "blind zone" of the FERNVIEW's radar and remained undetected until about a 1/2 mile away is concurred in. However, this condition in no way lessens the fault on the part of the FERNVIEW for its failure to go at a moderate speed and serves to reiterate the hazards of relying solely on radar when navigating in fog and the necessity for Masters, Mates and Pilots to comply with their statutory responsibility to go at a moderate speed.

3. The Board's recommendations to cite the owners of the FERNVIEW for violation of 33 USC 192 and to institute further investigation under the Suspension and Revocation Proceedings against the Pilot of the FERNVIEW are concurred in; and action has been instituted in both cases.


4. The DYNAFUEL is considered to have, in the main, complied with its statutory responsibilities prior to and at the time of the collision. Upon entering the fog, the engines were placed on stand-by and the fog signals commenced; when radar contact was made with the FERNVIEW, speed was reduced to slow, and the course changed 15 degrees to the right; when the range closed to 1-1/4 miles, the engines were stopped and course changed another 10 degrees to the right; when collision was imminent, the engines were backed full, and rudder placed full right; and at the time of the collision, the vessel was dead in the water or nearly so. Although a radar plot would have confirmed a developing dangerous situation of which the Master was already innately aware, it is doubtful that any subsequent maneuver based on information obtained from such a plot would have placed the DYNAFUEL beyond the reach of danger. The purpose of Article 16 of the Rules of the Road is to remove from the potentially hazardous fog situation as much danger as possible. The Master of the DYNAFUEL had a right to expect the FERNVIEW to comply with its statutory responsibility and to proceed with caution. Accordingly, the Board's recommendations to cite the owners of the DYNAFUEL and to conduct an investigation under the Suspension and Revocation Proceedings with respect to the failure of the Master of the DYNAFUEL to plot the FERNVIEW are disapproved.

5. The Board's conclusion that the position of the collision was 41°, 28.2 N, 70°, 56.5 W, is not concurred in. Recognizing that it is difficult to establish the exact position of a collision which occurs in dense fog, it is considered that the position given by the Master of the FERNVIEW of 41°, 28.8 N, 70°, 55.8 W is more nearly correct. In this regard, there was no material change in the course and speed of the FERNVIEW between the time the Master, who was watching the radar, observed the ship pass between Michama Ledge lighted gang buoy 3A and Penikese lighted bell buoy 4 and the collision. Further, this position is in close proximity to those given by the licensed Pilot and the Chief Officer; and the position subsequently determined by the Coast Guard Hearing Examiner.

6. The Board's conclusion that the phenomena of the blind zone on either side of the FERNVIEW's bow was unknown to her personnel but that the possible existence of such blind zones was within the cognizance of the Pilot who neither mentioned it to the vessel's Master nor took steps to compensate for their possible existence requires considerable qualification. It appears that the vessel's personnel were not aware of the blind zones and in the absence of technical information concerning the radar installation and additional general information concerning the vessel's operation, the reason why the existence of the blind zones was undetected cannot be determined. However, the Board's implication that the Pilot was aware of the possible existence

of such blind spots and should have been mentioned to the Master or taken steps to compensate for their existence is not concurred in. Although the Pilot may have known from experience on other vessels that king posts and cargo booms could interfere with the operation of a vessel's radar, he cannot be expected to be completely familiar with each vessel's characteristics. The Master of a vessel is at all times ultimately responsible for its safety and bears the responsibility for informing the Pilot of any unusual peculiarities of the vessel's equipment and operation.

7. Subject to the foregoing remarks, the Record of the Marine Board of Investigation is approved.



W. D. SHINDLER
Vice Admiral, U. S. Coast Guard
Acting Commandant

UNITED STATES COAST GUARD



ADDRESS REPLY TO:
 Officer in Charge
 U. S. Coast Guard
 Marine Inspection
 Custom House
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5943/MMIS 04627
 28 April 1964

From: Marine Board of Investigation
 To: Commandant (MVI)

Subj: MV DYNAFUEL (O.N. 249771) and MV FERNVIEW (Norwegian); collision and fire in Buzzards Bay, Mass. on 14 November 1963 without loss of life

FACTS

1. At about 0658 hours EST on 14 November 1963, near the entrance to Buzzards Bay, Mass., the U. S. tanker DYNAFUEL which was outbound in Buzzards Bay collided with the inbound Norwegian freighter FERNVIEW in conditions of limited visibility due to fog. The collision resulted in fire on board the ballasted tanker and injury to four (4) of that vessel's personnel. Subsequently the DYNAFUEL capsized and sank while the FERNVIEW, with damage restricted to her bow, made safe harbor without assistance.

2. Vessel Data:

NAME	:DYNAFUEL	:FERNVIEW
OFFICIAL NO.	:249771	:None
NATIONALITY	:U. S.	:Norwegian
HOME PORT	:Philadelphia, Pa.	:Oslo, Norway
SERVICE	:Tanker	:Freighter
LENGTH	:309.1	:510'2"
BREADTH	: 47.4	
DEPTH	: 21.9	
GROSS TONS	:3100	:6732
NET TONS	:2033	:3778
PROPULSION	:Diesel	:Diesel
HORSEPOWER	:1400	:13,400
WHEN BUILT	:1946	:1961
WHERE BUILT	:Jacksonville, Fla.	
HULL MATERIAL	:Steel	:Steel
OWNER	:Sun Oil Co. 1608 Walnut St. Philadelphia, Pa.	:A/S Glitara and A/S Marina Box 355 Oslo, Norway
MASTER	: [REDACTED] Master, Any Gross Tons, Oceans, issue 12-8, Provi- dence, R.I. 9-30-60	: [REDACTED] Master (Norwegian) issued 7-4-49, Haugesund, Norway

CERTIFICATE	:Certificate of Inspection	:International Safety Equipment Certif.
DATE	:21 February 1963	:22 March 1963
PORT	:Philadelphia, Pa.	:Oslo, Norway
LAST INSPECTION	:Philadelphia, Pa.	:Oslo, Norway
DATE	:21 February 1963	:22 March 1963

3. Personnel Data:

A. FERNVIEW

(1) Master

[REDACTED]
 (Norwegian Master's License issued 4 July 1949
 at Naugesund, Norway)

(2) Pilot

Ellis W. Hildreth

[REDACTED]
 (Coastwise Master's License [REDACTED], issue #10-11,
 issued at New York, N.Y. with various First Class
 Pilot Endorsements including Buzzards Bay)

(3) Mate on Watch

[REDACTED] (Chief Officer)

[REDACTED]
 (Norwegian Master's License)

(4) Engineer on Watch

[REDACTED]
 (Norwegian Second Engineers License)

B. DYNAFULL

(1) Master/Pilot

[REDACTED]
 (Ocean Master's License [REDACTED], issue #2-6, issued
 at Providence, R.I. with various First Class Pilot
 Endorsements including Buzzards Bay)

(2) Mate on Watch

[REDACTED] (Chief Officer)

[REDACTED]
 (Ocean Chief Mate's License issued at Philadelphia, Pa.)

(3) Engineer on Watch [REDACTED] 1st Assistant Engineer)

(Chief Engineers License for motor vessels of not over 1500 horsepower and 1st Assistant Engineer of motor vessels of any horsepower)

C. Injured (Forms CG 924-E enclosed)

(1) [REDACTED]

(3) [REDACTED]

(2) [REDACTED]

(4) [REDACTED]

4. The weather conditions at the time of the casualty were:

A. Morning twilight with visibility 1/8 mile to 2 miles in light to heavy patches of fog.

B. The wind was from the Northwest at about 17 knots.

C. The tidal current was slack as the flood tide which had been setting 035°T at a velocity of less than 1 knot, ended at 0655 EST; however, the waters of Buzzards Bay were choppy from the wind.

D. The temperature was about 45°F; the barometric pressure was 29.74 inches.

5. Both the FERNVIEW and DYNAFUEL were appropriately manned and equipped; they were displaying proper lights as well as sounding fog signals required by the Inland Rules of the Road which governed the situation at the time of collision. Neither vessel experienced any failure of machinery, and the navigation equipment of both was operating effectively except for the radar of the FERNVIEW.

6. The FERNVIEW's radar, although the set (British made Decca) was operating properly, had a blind spot on each side of the bow. After the collision, tests were made which revealed that the radar was blind on the FERNVIEW's starboard bow from 005°R to 007°R and on the port bow from 353°R to 355°R. The blind spots were caused by the large cargo booms forward of the wheelhouse having been secured in an upright position (See enclosed photographs Exhibit E-11). It was common practice for the FERNVIEW to secure its booms in that position during coastwise voyages, yet none of her personnel was aware of the booms causing blind spots until the aforementioned tests. The tests were conducted upon the suggestion of Pilot Hildreth who, having experienced similar blind

spots on other vessels, thought the booms might have interfered, thereby accounting for the failure of the FERNVIEW's radar to pick up the DYNAFUEL prior to collision.

7. The FERNVIEW departed New York City enroute to Boston, Mass. with about 914 tons of general cargo, drawing 13 feet forward and 21 feet 10 inches aft. Pilot Hildreth boarded the vessel at about 1900 on 13 November 1963; however he did not take over his coastwise piloting duties until the morning of the 14th when he came onto the bridge at about 0600 as the FERNVIEW neared Buzzards Bay. Up to that point, the FERNVIEW's voyage from New York was uneventful and will not be commented upon except to note that observations during that time showed the gyro compass to have a 1° westerly error.

8. When Pilot Hildreth came onto the bridge, the FERNVIEW was on course 052° and at full speed of about 18 knots; Buzzards Light (LL 465) was off to port and the Pilot gave courses to bring Buzzards Light to starboard; at about 0630 the FERNVIEW passed that light abeam, one-half mile off to starboard and was, at the time, steady on a course of 025° pgs, speed 18 knots. Chief Officer Langeland, the helmsman and the lookout had been in the wheelhouse prior to the Pilot's appearance. When Captain Olsen came up on the bridge at about 0625 EST, he saw Buzzards Light abeam to starboard and heard the Pilot order course 025° shortly after he arrived. The Master, Pilot and Mate checked the FERNVIEW's progress by observing the buoys ahead on the radar which had been in operation for several hours previously. At about 0638 fog patches were encountered and Pilot Hildreth left the radar navigation to the Mate and Captain Olsen while he maintained a visual lookout and started sounding fog signals of one prolonged blast every minute. The lookout was sent to the bow with instructions to sound the ship's bell, located about 40 feet aft of his lookout station, inasmuch as the bow telephone was inoperative. If the lookout saw or heard anything, the signals to be used were as follows: if anything was seen or heard to starboard, one ring; to port, two rings; ahead, three rings. The FERNVIEW continued through the worsening fog patches on course 025° pgc at 18 knots; nothing was sighted visually or on the radar which was then on the 6 mile range, except the anticipated buoys and land marks which were seen in their true presentation on the scope.

9. At 0644, the FERNVIEW was steady on course 065° pgc with Hen and Chickens Buoy "3" (LL 467) about one-half mile on her port quarter. The vessel was still at 18 knots and continued sounding fog signals as visibility decreased. From radar observations by the Master, it was determined the FERNVIEW was on course, as Mishawam Ledge Buoy "3A" (LL 470) and Penikese Island Buoy "4" (LL 469) were about equal distance on the port and starboard bows respectively. At about 0653, the vessel passed between buoys "3A" and "4" with buoy "4" about one-quarter mile off to starboard. Pilot Hildreth had made no allowance

for the 1° westerly error of the gyro compass as he calculated that the NW wind would offset that error and the FERNVIEW would make good a course of 065°T.

10. At about 0654, Captain [redacted] saw in the radar what he thought to be a weak pip about one-half mile away 10° on the starboard bow. He then made an attempt to alert the lookout and at about the same time he looked up and saw the DYNAFUEL on the starboard bow. The Pilot ordered the helm hard astarboard and the Master threw the engine telegraph to full astern. Meanwhile the bow lookout had heard a weak, seemingly far off, fog signal and had gone aft to ring the bell. He was returning to his station when he saw the DYNAFUEL; and as collision was imminent, the lookout abandoned the FERNVIEW's bow and proceeded aft for safety. At 0655, the FERNVIEW, her engines not yet going astern, plowed into the port side of the DYNAFUEL striking the tanker with her bow, just aft of the midship deck house at an angle of about 30 degrees. At the time of collision the FERNVIEW was heading 070°T at a speed of about 18 knots.

11. The DYNAFUEL departed Newington, New Hampshire at 2000 on 13 November 1963 enroute to Newark, N. J. without cargo but in a ballasted condition with a draft of 6 feet forward and 14 feet 6 inches aft. The tanker proceeded through the Cape Cod Canal at full speed, about 9½ knots., and first encountered fog at Bourne Bridge; the fog became very dense when the DYNAFUEL was abreast Wings Neck but cleared up at about 0535 when the vessel was abeam Cleveland Ledge Light (LL 477). From Cleveland Ledge, the DYNAFUEL proceeded on course 214°T, 215 pgc at about 9½ knots with Chief Officer [redacted] the only officer on the bridge, until Captain [redacted], who went below at that point, returned at about 0620; both remained in the wheelhouse thereafter. The DYNAFUEL's radar (Raytheon CX 1002) was in operation and was observed by both the Chief Officer and the Master; the radar presented only a relative picture as it was not connected to the gyro compass, which, like the FERNVIEW's, had a 1° westerly error.

12. At 0627 the DYNAFUEL, with Buzzards Bay Fairway Buoy (LL 473) close abeam to starboard, changed course to 245° pgc and proceeded down the Bay at 9½ knots. At 0636 radar contact was made with the FERNVIEW, that vessel bearing about 10° on the port bow at a distance of 8 miles. The DYNAFUEL then altered course to 260° pgc and reduced speed to slow ahead, about 3 knots. At minute before, at 0635, the engine room had been given standby on the telegraph as the tanker had encountered fog, and at the same time the Chief Officer commenced appropriate fog signals. The lookout was in the wheelhouse standing at an open porthole listening for an answering fog signal. However, the lookout nor other personnel heard any signals from the FERNVIEW. After the DYNAFUEL was steady on course 260° pgc, the radar pip of the FERNVIEW was about 25° - 30° on the port bow. The Master and Chief Officer continued to observe the radar and changed from the 8 to the 4 to the 2 mile range as the pip came closer, occasionally switching to larger scales to see if there was other traffic in the area. At 0653, with

the FERNVIEW radar pip showing 30° on the port bow at a distance of about 1 1/4 miles (see sketch A-5), the DYNAFUEL altered course to 270° pgc and stopped engines. At 0657, about the same time the DYNAFUEL had steadied on 270° pgc, the engines were rung full astern and the rudder order hard right as the FERNVIEW came into sight about one-eighth mile on the port bow. Appropriate backing and danger signals were sounded, the general alarm was rung, the fixed CO2 system was released and the engines stopped. The collision occurred at 0658 with the bow of FERNVIEW penetrating the DYNAFUEL's hull just aft of the deck house on the port side, at an angle of about 30°, with the DYNAFUEL on a heading of 274° pgc and dead in the water at the time.

13. From 0636 until the collision at 0658, the time that the DYNAFUEL had the FERNVIEW on radar, no plot of the Norwegian ship was maintained except for the mental plot maintained by Captain [REDACTED] which he formulated by observing the bearing and range changes of the FERNVIEW by keeping the cursor on the pip. Captain [REDACTED] stated that it looked like the vessel was going to clear us most of the time, up until the last few minutes. He also said he went back and forth between the radar and porthole as many as 15 - 20 times during that interval. Both the Captain and Chief Officer of the DYNAFUEL have Radar Observer endorsements on their licenses. Neither felt that the wind had any appreciable effect upon the navigation of the lightly laden T-1 tanker.

14. After the collision the DYNAFUEL's personnel abandoned the tanker for the safety of the FERNVIEW as the DYNAFUEL was on fire following an explosion shortly after the vessels collided. The Coast Guard was called for assistance and arrived on the scene approximately 0900 and began firefighting operations. Prior to the Coast Guard's arrival, the FERNVIEW had tried to free itself from the burning tanker by backing with the tanker's anchors both having been dropped. However, this was to no avail as the two vessels remained locked together until about 0700 on 15 November when the vessels were parted and the DYNAFUEL capsized and began to sink.

15. The DYNAFUEL was considered a total loss valued at \$2,000,000. A detailed list of the damage to that vessel is contained in enclosure (9) to this report. The damage to the FERNVIEW was limited to the bow area of that vessel and estimated at \$20,000.

16. The four injured crewmen of the DYNAFUEL were taken aboard the FERNVIEW and later transported by Coast Guard helicopter to local medical facilities: Oiler Robert Mickey, Z-319896-BL was incapacitated a total of 6 days due to elbow and shoulder injuries which he received when he was slammed against the bulkhead of his room at the impact of the collision; Messman Louis F. Little, Z-690223 was incapacitated for 16 days as a result of abrasions and lacerations of the left leg which he received from being knocked off his feet while preparing breakfast in the galley; Chief [REDACTED] was incapacitated

for 22 days as a result of second degree burns about the face and arms which he received as a result of the fire following the collision as he was attempting to leave the galley where he had been preparing food for the morning meal; Ordinary Seaman [REDACTED] was incapacitated for 45 days as a result of a broken nose and fractured ankle which he received while climbing out of the porthole of his stateroom as the bow of the FERNVIEW had penetrated the DYNAFUEL near his stateroom and the porthole was the only escape therefrom. There were no personal injuries on the Norwegian freighter.

17. The DYNAFUEL sank in approximate position 41°28'18" North, 70°51'12" West and was abandoned to the Secretary of the Army on 22 November 1963, (see enclosure (9)). After the vessels were parted, the FERNVIEW continued to Boston without further mishap.

- Conclusions -

1. It is concluded that the M/V FERNVILW was proceeding up Buzzards Bay in the early morning of 14 November 1963 in conditions of moderate to heavy fog on course 065°T.
2. It is concluded that the speed of the vessel as set by the master was concurred in by both the mate on watch and the pilot, Captain Hildreth, all three of whom were on the bridge and none of whom recommended a reduction in the speed.
3. It is concluded that the speed of the FERNVILW was in excess of 17 knots prior to and at the time of the collision, that this speed was excessive and was the cause of the severity of the collision.
4. It is concluded that proper fog signals were being sounded and that normal watch standing procedures were in effect.
5. It is concluded that the FERNVILW's radar was in good operating condition but that there were 2 narrow zones of 3 to 5 degrees on either bow in which targets were undetected because the vessel's topped-up booms obscured radar contacts within these two affected areas.
6. It is concluded that the DYNAPUELL was within the FERNVILW's starboard bow "blind zone" and that this caused the tanker's approach to be undetected until she was less than one-half mile away. When the DYNAPUELL's presence was suspected, an unsuccessful attempt was made to alert the lookout, but no other action was taken.
7. It is concluded that avoiding action was initiated when the DYNAPUELL was first seen visually, but due to the freighter's high speed, this evasive action was initiated too late to be successful.
8. The FERNVILW collided with her bow striking the port side of the DYNAPUELL at about an angle of 30° just forward of the latter's after deck house and it penetrated the after tank and the engine room. Position of the collision was 41° 28.2' N.; 70° 56.5' W.
9. It is concluded that the phenomenon of the blind zones on either side of the FERNVILW's bow was unknown to her personnel, but that the possible existence of such blind spots was within the cognizance of the pilot who neither mentioned it to the vessel's master nor took steps to compensate for their possible existence.
10. It is concluded that the DYNAPUELL was bound south westward in moderate to heavy fog in Buzzards Bay during the early morning of 14 November 1963 at a speed of about 10 knots. Proper fog signals were being blown and the master and chief mate were on the bridge.

11. It is concluded that the DYNAFUELL's lookout was standing his watch on the bridge by an opened porthole but that his failure to be on the bow did not contribute to the collision.
12. It is concluded that the DYNAFUELL's radar was operating normally and that when the FERNVIEW was observed slightly on the tanker's port bow 8 miles distant, the DYNAFUELL slowed to 3 knots and her course was altered to starboard from 240° to 265° with the intention of assuring a port to port passing.
13. It is concluded that the said course and speed alterations were not based on interpretive radar analysis as no graphic plot of the FERNVIEW was made before or after the course change, nor in fact, at any time.
14. It is concluded that the 20 knot wind on the DYNAFUELL's starboard bow, coupled with her reduced speed, resulted in her making appreciable leeway and crabbing along a course which was approximately a reciprocal of that being made good by the FERNVIEW and it is conclusive to this Board that the DYNAFUELL, light as she was, made in effect an approach directly down the FERNVIEW's starboard radar blind zone.
15. It is concluded that the changes in the freighter's relative bearing, which were observed on the DYNAFUELL's radar scope, were essentially the result of course changes and speed reductions by the DYNAFUELL herself, and that the true bearing of the FERNVIEW from the DYNAFUELL underwent no appreciable change. It is believed that a true radar presentation in this instance would have better apprised Captain Pedersen of the situation and would have allowed him to recover from his initial ineffective maneuvers rather than to persist in a course of action which tragically failed to achieve its purpose.
16. It is concluded that as the FERNVIEW continued to close and the situation became more critical, the DYNAFUELL hauled an additional 10° to starboard, then put her rudder hard right, stopped and backed her engines. She became, in effect, a practically stationary target under the onrushing FERNVIEW's bow and it is concluded that these maneuvers, in view of the information which was available to the DYNAFUELL, had she chosen to use it, contributed to the collision.
17. It is concluded that the course and speed changes of the DYNAFUELL were generally in consonance with the intent of the Rules of the Road but were the result of guess work rather than the more scientific radar plot, and that they resulted in what amounts to a "radar induced collision".
18. It is concluded that after the collision, the action of the crews of both vessels were prompt and decisive and that the DYNAFUELL, by flooding her non-gas free tanks with CO₂, prevented a more serious casualty with respect to injury and loss of life.

19. It is concluded that the damage to the *ELLENVILLE* amounted to approximately \$20,000 and that the *BYNAFUEL*, valued at \$2,000,000, turned over and sank when the vessels were disengaged and was adjudged a constructive total loss.

20. It is concluded that the actions of the Coast Guard Search and Rescue units were timely and carried out in an efficient manner and were the subject of special commendation as noted in the testimony of both Masters.

- Recommendations -

1. It is recommended that further investigation under the Suspension and Revocation Proceedings be conducted to determine what action should be taken with respect to the negligence of the *ELLENVILLE* pilot, Ellis W. Hildreth, for failing to cause or suggest that the vessel's speed be reduced to a moderate one under the conditions prevailing.

2. It is recommended that further investigation under the Suspension and Revocation Proceedings be conducted to determine what action should be taken with respect to the failure of the master of the *BYNAFUEL* to plot the *ELLENVILLE* as she approached, and for his failure to ascertain that the action taken was having the desired effect of preventing a possible impending collision.

3. It is further recommended that the owners of the *M/Y ELLENVILLE* be cited under 33 USC 192 for that vessel's failure to go at a moderate speed in fog.

4. It is also recommended that the owners of the *BYNAFUEL* be cited under 46 USC 526(1) for the vessel's negligent navigation.

5. No further action is recommended.

[REDACTED]
 Captain, USCG, Chairman

[REDACTED]
 Lieutenant, USCG, Member

[REDACTED]
 Lieutenant, USCG, Member & Recorder