

UNITED STATES COAST GUARD

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



MVI
(NATIONAL PRIDE a-8 Bd)

2 MAR 1962

Commandant's Action

on

Marine Board of Investigation; capsizing of the
MV NATIONAL PRIDE, 25 November 1959, Gulf of
Mexico, with loss of life

1. The record of the Marine Board of Investigation convened to investigate subject casualty together with its Findings of Fact, Conclusions and Recommendations has been reviewed.
2. At 1607 on 27 November 1959 the freight vessel MV NATIONAL PRIDE was located in a capsized condition in the Gulf of Mexico in a position approximately 54 miles 162 degrees True from the Galveston Sea Buoy after having been reported overdue by her owner. Of the eleven persons reported to have been on board, the bodies of two were recovered from the overturned hull after it had been righted and the remaining nine are missing and presumed dead. The vessel itself had apparently sustained only superficial damage aside from that which had resulted from the salvage operation and the water damage to the engines, electrical gear and equipment.
3. The NATIONAL PRIDE is an inspected, twin screw, diesel-propelled freight vessel of 196.8 gross tons, 135 feet in length. She is designed with the deckhouse forward and a clear deck space aft measuring 101' x 26' for the carriage of cargo. No cargo except liquids in hull tanks is carried below decks. The vessel was engaged in making regular trips from San Jacinto Ordnance Depot, Channelview, Texas, to an explosives dumping area offshore in the Gulf of Mexico to dispose of obsolete ammunition.
4. At 1432 on 25 November 1959 the NATIONAL PRIDE departed the San Jacinto Ordnance Depot, Channelview, Texas, en route to the explosives dumping area, located approximately 122 miles south of the Galveston Sea Buoy. The vessel was loaded with 438 short tons of obsolete ammunition for disposal. A regular communication watch was not maintained; however, the master had instructions from the owners to maintain a watch on the ship-to-shore channel with the Galveston Marine Operator from 0945 to 1015 and from 2145 to 2215 daily while underway.

5. At 0945 on 27 November 1959 the superintendent of the stevedoring company in charge of loading the NATIONAL PRIDE at the San Jacinto Depot contacted the vessel's owners to determine when she would be returning for the next load. The owners attempted to call the vessel through the Galveston Marine Operator without success. At first the owners were not alarmed since delays were not unusual. By noon on 27 November 1959 when attempts to contact the NATIONAL PRIDE had failed and it was learned that she had not been heard from since departure, the Coast Guard was requested to conduct a search. At 1607 that afternoon the vessel was located in a capsized condition approximately 54 miles, 162 degrees True from Galveston Sea Buoy. Air and surface search for possible survivors was conducted through 29 November 1959 without success.

6. After the vessel was towed to anchorage two bodies were recovered by divers from within the hull.

7. Reports from vessels in the general area of the casualty on 25 and 26 November 1959 indicated that rough seas and swells were probably encountered by the NATIONAL PRIDE prior to capsizing.

8. Based on an inclining test of the ARNOLD V. WALKER Hull 1062, believed by the Board to be a sister hull of the NATIONAL PRIDE, and a stability study of the NATIONAL PRIDE for her most probable condition of operation and loading, as determined by the evidence, the Board calculated that the metacentric height at the time of the casualty to be between .25 feet and 1.7 feet and pointed to this as the underlying cause of the casualty.

REMARKS

1. Upon review the curves of form prepared for the A. V. WALKER Hull 1062 which were used as a basis for the calculations set forth in paragraph 27 of the Board's findings, were found to be inapplicable to the NATIONAL PRIDE since the two hulls, while similar, were not actually the same. From recalculations, based on plan data applicable to the NATIONAL PRIDE together with a post-casualty stability test of the vessel, it is estimated that the vessel's probable condition at the time of capsizing was:

Displacement	753 long tons
V. C. G.	10.16' above base
Mean draft	8' - 4" above base
Freeboard	1' - 8" (molded)
Depth of hull, molded, amidships	10' - 0" not 9' - 8" as reported
GM (uncorrected for free surface)	6.24' in lieu of 2.31' on exhibit
GM (corrected for free surface but no open wing tank cross-connection)	5.66' in lieu of 1.69' on exhibit

GM (corrected for free
surface including open
cross-connection of 2
forward wing tanks)

4.57'

While this indicates the vessel had at least 4.57' GM initial stability, basic calculations for this hull showed she possessed the following approximate statical and dynamical stability features in still water for this condition:

Range of stability = 26 degrees
Maximum righting arm = 0.44 ft. at 13 degrees
Dynamic stability to maximum righting arm = 4.0 foot degrees

The foregoing figures applied to the intact hull. From the Board's determinations it appears that the vessel may have taken water into the hull by flooding through the after deck companionway openings to the machinery space; freeing ports were apparently blocked which could have resulted in undetermined amounts of accumulated water on deck; there were indications that the vessel was making a tight turn at the time of the casualty; the weather and sea conditions were probably adverse with a further attendant possibility of a shift of cargo. All of these conditions would, of course, put accumulative stability demands on the vessel.

2. In the Board's reconstruction of the events leading up to the casualty as set forth in conclusion 1, the opinion that the casualty occurred while the vessel was still in the loaded condition is concurred in.

3. The Board's statement in conclusion 2 to the effect that the casualty was the result of two or more unusual events occurring at the same time is considered probable; however, in way of clarification, it should be noted that all of these events were associated directly or indirectly with stability and would produce an accumulative adverse stability effect.

4. Conclusion 2 a. is not concurred in for the reasons set forth in detail in paragraph 1 above.

5. Conclusions 2 b., c. and d. are approved.

6. Conclusion 2 e. to the effect that the main propulsion engine could have failed at a crucial time, while possible, is not supported by the record.

7. Conclusions 3, 4 and 5 are approved.

8. Conclusion 6 is approved with the exception of the statement to the effect that the capsizing is attributable to the master. There is no evidence in the record that either the master or the owner knew or had reason to suspect that this vessel's stability characteristics were unsafe when the vessel was in a loaded condition. While the manner in which the vessel was loaded, the cross-connecting of the two forward ballast tanks and the blocked freeing ports were the master's responsibility - the statical and dynamical stability features, enumerated in paragraph 1 above, suggest that timely correction of these conditions alone may not have been sufficient to prevent capsizing.

9. Conclusion 7 is approved.

10. With respect to conclusion 8, the record and safety study do not support the remark that the vessel was overloaded but rather that the vertical distribution of cargo (including tankage) was the significant item of loading which contributed to inadequate operational stability. Other contributing items are as mentioned in paragraph 1 above.

11. Conclusions 9 and 10 are approved.

12. Conclusion 11 a. is disapproved. Stability calculations indicate that special consideration must be given to operating and loading conditions on vessels of this design. On the basis of "survival" stability data available, there is no reason why such vessels cannot be operated with safety, provided these requirements are met.

13. Conclusion 11 b. is not entirely concurred in. More properly stated it is considered that in addition to carriage of deck cargo, the vessels are designed to carry liquid cargo (or ballast) in tanks below the main deck. When no liquid cargo (or ballast) is carried, the amount of deck cargo must be limited by the need for maintaining adequate stability.

14. With respect to conclusion 11 c., it is agreed that it would be more desirable to have machinery spaces manned at all times; however, it would appear that a reasonable degree of safety can be achieved on vessels of this type without a full-time watch below if the space is properly secured and routinely checked.

15. Conclusion 11 d. is approved in part. Vessels of this type can readily be loaded so as to "possess inadequate operating stability." However, stating that the vessel becomes "unstable" due to loading, implies the vessel will capsize due to usual maximum deckload alone which is not true.

16. Conclusion 11 e. is concurred in to the extent it appears that the load line assigned to the NATIONAL PRIDE, while in accordance with existing laws and regulations, permitted the vessel to be loaded too deeply for safety but only because the vertical distribution of the cargo had not been considered. Load line assignment is for purposes other than stability and the regulations so state. Therefore it goes without saying that compliance with load line limitations alone cannot protect the vessel against otherwise improper loading or operation of the vessel.

17. Conclusion 11 f. is concurred in to the extent that the accesses to the engineroom and after steering compartment present a dangerous situation aboard vessels of this type if these accesses are not closed.


18. Conclusions 11 g. and 11 h. are approved.

19. Conclusion 11 i. is approved in part. While it is true these vessels normally trim by the stern which in turn increases the possibility of accidental flooding of the engineroom and after steering compartment, it appears that total flooding of the after steering compartment would not alone submerge the stern and flooding of the engineroom alone would have to exceed approximately one-half in order to submerge the stern.

20. Conclusions 11 j., 12, 13 and 14 are approved.

21. The Board's recommendations have been fully considered and approved to the extent that all vessels of this type which are certificated by the Coast Guard, in addition to load line assignment and construction plan approval, will henceforth be required to have approved stability information called for in 46 CFR 93.10 and will be issued stability letters as provided for in 46 CFR 93.15. Such letters will specify measures to control hull integrity, measures to insure proper distribution and security of cargo and measures to control free surface and vessel trim.

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



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

UNITED STATES COAST GUARD
EIGHTH COAST GUARD DISTRICT
GALVESTON, TEXAS

A25/1500

26 January 1960

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

Subj: M/V NATIONAL PRIDE, Official Number 273771; capsizing in Gulf of Mexico en route to or from ammunition dumping area after departing from San Jacinto Ordnance Depot, Channelview, Texas at 1432 on 25 November 1959 resulting in the deaths of Ramon Samuel Nowell, John Albert Falch, Paul Herbert Brown, John J. Ocraman, Tony Floyd Burnett, Walter Zane, Hamilton Cornelia Moon, William Edward Massenburg, Jose Maria Gonzales, Ray Coward and Ronald M. Geithmann

Findings of Fact:

1. The M/V NATIONAL PRIDE, Official Number 273771, a freight vessel of 196 gross tons and 135 feet in length with a crew of eleven persons, having departed from San Jacinto Ordnance Depot, Channelview, Texas on 25 November 1959 at 1432 was located in a capsized condition at 1607 on 27 November 1959 at Latitude 28-28 North, Longitude 94-20 West by UFLG 1263, a Coast Guard Aircraft from the Coast Guard Air Detachment, Corpus Christi, Texas after the NATIONAL PRIDE had been reported overdue by its owner. The NATIONAL PRIDE at the time of its departure carried a deck cargo consisting of 438 short tons of obsolete ammunition loaded at the San Jacinto Ordnance Depot, Channelview, Texas. It was bound for an explosives dumping area approximately 122 miles south of the Galveston Sea Buoy in the Gulf of Mexico. This casualty resulted in the deaths of the eleven persons on board. The bodies of two of these crewmembers were found remaining on board the vessel upon its being towed to Galveston and righted.
2. The vessel involved: NATIONAL PRIDE - Official Number 273771, oil screw freight vessel; U. S. nationality; home port Wilmington, Delaware; 196.80 gross tons; 62 net tons; 135 feet in length; beam molded 32'; depth amidships 10'2"; twin screw; last inspected by U. S. Coast Guard 16 September 1959 at Houston, Texas; built 1957; steel hull; master at time of casualty R. S. Nowell, 629 West Rittenhouse Street, Houston, Texas; owner and operator, National Boat Corporation, P. O. Box 543, Houston 1, Texas. The NATIONAL PRIDE was constructed in 1957 by Arnold V. Walker Shipyard, Inc. (a division of Ingalls Shipbuilding Corp.), Pascagoula, Mississippi; ABS loadline 1'8 $\frac{1}{4}$ " from main deck for coastwise and West Indies service. Classed by American Bureau of Shipping, Hull: Maltese Cross A-1E, Machinery: Maltese Cross AMS. The shell plating and main deck were constructed of 3/8" steel throughout with $\frac{1}{2}$ " plates above the propellers. The bulkheads were 5/16" and 1/4" in thickness. The twin rudders were protected by heavy skegs. The propulsion and auxiliary machinery was as follows: two 6-110 GM diesel engines; 12 cylinder, diameter 12"; 2 cycle tandems, Model 122206, rated maximum 540 HP each. ABS tested and inspected, air starting. Two General Motors-Delco Diesel generators,

3 cylinder, 2 cycle, Model 3064B, each with 30 KW Generator Model I-564 with power takeoffs. 110 to 208 volt 3 phase 4 wire AC. Two 4" bilge, ballast and fire pumps (each 600 GPM at 25' Twin Disc.), 1-3" fuel oil transfer pump (100 GPM at 35#-5 HP), 2-27 CFM Quincy compressors (5 HP each), one 10 CFM Quincy compressor (1 $\frac{1}{2}$ HP), 2-4 CFM Westinghouse compressors, 1 fresh water pump, 1 sanitary pump, 4 air receivers, "Ideal" 10 HP reversible electric windlass-wildcat, closed marine type electric panels and switchboards, complete pilothouse (Westinghouse Air Brake) controls, machinery independently keel cooled for shallow water operation.

Tanks:

Fuel:	
2 @ 925	1850
1 @ 7650	7650
2 @ 14,100	28200
Total	37700 gals.

Ballast Water:	
2 @ 17,600	35,200
2 @ 22,880	45,760
2 @ 18,800	37,600
Total	118,560 gals

Fresh water: Total 2000 gals

Lube Oil: Total 200 gals

Quarters: Air conditioned quarters for ten, two showers, two toilets and three sinks. Electric galley with water cooler, refrigerator-freezer and ten cubic foot storage deep freeze

Miscellaneous: Clear deck space 101' x 26', capacity 600 tons cargo

Tunnel passage below decks from quarters to engine room

Propellers 56" x 50". Anchors: 2 power anchors, 1 stockless 1045# and one 735#, one spare 1035# anchor, 15/16" H.T. stud link chain. 540' on each side.

Hydraulic Power Steering with rudder angle indicator

One 14' aluminum workboat, radio telephone-Raytheon Model 600 DXL, Radar-RCA Model CR-105-B

Cruising speed 10-15 miles per hour, cruising range 8500 miles plus.

3. The weather conditions at the time of the casualty were undetermined due to the inability to ascertain the accurate position and time that the vessel capsized, however, weather conditions were obtained from the U. S. Weather Bureau at Galveston and from various vessels and aircraft at nearby positions after the NATIONAL PRIDE had departed from Houston on 25 November 1959.

WEATHER BUREAU, Galveston Texas: 25 November 1959. From 1500 until midnight southerly wind varying in velocity from 12 to 18 miles per hour. The fastest mile of wind recorded was 19 miles per hour from the south at 8:08 P.M. 26 November 1959 - At 0100 the wind was from the south at 17 miles per hour. At 0200, 0300, 0400 the wind was southwest at 17, 16 and 15 miles per hour respectively. From 0500 until noon the wind was from the south from 15 to 19 miles per hour. From 1300 until 1700 the wind was southwest from 10 to 17 miles per hour. After 1800 the wind was south at 8 miles per hour. At 1900 the wind was southwest at 8 miles per hour. From 2000 until midnight the wind was northwest from 13 to 22 miles per hour. The fastest mile of wind for the day was 37 miles per hour from the northwest at 11:25 P.M. 27 November 1959 - From 0100 until 1100 the wind was from the north from 21 miles per hour to 25 miles per hour. At noon until 1700 the wind was northwest from 18 to 20 miles per hour. From 1800 until midnight the wind was

north from 19 to 26 miles per hour. The fastest mile of wind recorded was 28 miles per hour from the north at 6:35 A. M. The peak gust of wind for the day was 39 miles per hour from the north at 10:10 A. M.

28 November 1959 - The wind was varying from north to west at velocities from 6 to 18 miles per hour. The fastest mile of wind recorded was 22 miles per hour from the west at 10:15 A. M.

SS ESSO BANGOR - The SS ESSO BANGOR, a tank vessel of 17,291 gross tons, 602.2 feet in length, arrived at the Galveston Sea Buoy at 0642 on 27 November 1959. That vessel gave the following weather conditions at various times and positions: Noon 11/26/59 Latitude 27N-48N, Longitude 89-38West. Wind S-4, sky clear, sea moderate, barometer 30.04. 1730 11/26/59 Latitude 27-48 North, Longitude 91-07 West, wind southeast 2, sky clear, scattered clouds, sea moderate, barometer 30.04. 0642 Galveston Sea Buoy wind NNW-5, sky clear to cloudy, sea rough, barometer 30.04

SS ESSO GLOUCESTER - The SS ESSO GLOUCESTER, a steam tank vessel of 17,294 gross tons and 602.2 feet in length, arrived off Galveston Sea Buoy at 2312, November 24, 1959 and proceeded inbound to her berth at Baytown, arriving there at 0337 November 25th. The weather at this time was clear with northwest winds, force 3 to 4 until about 2400 November 24th, at which time the winds subsided and calm prevailed until about 0600 November 25th. Fitful breezes were evident until about 1200 November 25th when the wind came out of the south force 3. The vessel continued loading until 0030 November 26th, at which time preparations to sail were undertaken. The vessel departed from Galveston Sea Buoy 0712 November 26th. The wind was generally southerly, force four, and remained so the balance of the day. At the same time an unusually heavy swell came rolling in from the south-southwest. The vessel rolled so heavily the cooks had a hard time preparing Thanksgiving dinner, so course was altered and speed reduced while dinner was in progress to keep the extensive preparations of the steward's department from landing on the deck. At 1300 November 26th, 1959 the vessel resumed full speed and returned to normal course. An extract of the log of that vessel for the first twelve hours of this voyage shows as follows:

0712 departed Galveston Sea Buoy, c/c 126° Gyro, 15 knots

0842 c/c 115° Gyro

0900 Heald Bank Buoy abeam 2.2 miles

0936 reduced speed to 85 RPM

1024 reduced speed to 70 RPM, c/c 180° Gyro

1130 clear of coastal waters

1220 increased speed to 85 RPM

1235 c/c 150° Gyro

1300 resumed full speed 16.0 knots, c/c 115° Gyro

1915 c/c 110° Gyro

No vessels were sighted nor any other unusual circumstances encountered.

SS ESSO NEW ORLEANS - The SS ESSO NEW ORLEANS, a tank vessel of 10,513

gross tons, 503.9 feet in length, passed Heald Bank Buoy #2 at 1237 on November 26, 1959. The wind was from the south-southwest, force 5, sea rough and the barometer at 1200 read 29.89 and falling. The ship docked at Baytown late that day and sailed from there at 1900 on the 27th of November.

SS NECHES - The SS NECHES, a steam tank vessel of 11,223 gross tons and 545.0 feet in length encountered the following conditions as shown by its log on November 26, 1959:

Departure Galveston Bar 1000 - Course 128-gyro 1155 c/c to 116'
 1200 course 116' wind SLY 6 barometer 29.89, temperature 72, partly overcast, rough southerly seas
 1222 Heald Bank #2 buoy abeam 0.8 off
 1600 Course 116°, wind SLY 6, barometer 29.90, temperature 72, partly overcast, rough seas and swell
 2000 Course 116, wind SLY 6, baro 30.00, temperature 73°, mostly clear, rough SSE seas and swell, shipping water
 2400 Course 116, wind SE 4, barometer 30.02, temperature 73, partly cloudy, moderate rough southerly seas
 No vessels were sighted. The seas were rough with southerly swells.

SS FAIRLAND - A deck log abstract of the SS FAIRLAND, a St/c freight vessel of 9,014 gross tons, and 450.1 feet in length shows the following for Thursday, November 26, 1959:

0000 CST Proceeding seaward from Houston as per pilot
 0154 Pilot off
 0200 Departure
 0204 Galveston Sea Buoy abeam
 0356 Heald Bank Buoy abeam 6.3 miles off
 0400 Wind south 3, barom, 29.87, Temp. 67/65 sea temp. 65, clear overhead, hazy horizon, moderate to rough southerly sea
 0800 Wind SSW 3, Barom. 29.93 Temp. 72/69, Sea Temperature 69, partly cloudy, good visibility, moderate southerly sea, heavy average swell, vessel rolling heavily at times
 1200 Wind SSW 3 to 4, Barom. 29.97, Temp. 75/70, Sea Temp 74, partly cloudy, visibility good, moderate to rough SSW'ly sea, heavy average swell, rolling heavily at times
 1200 Lat. 28-19 N Long. 92-19W. Course 116 true. Average speed 13.60 knots
 1600 Wind SSW 3 to 4, Barom. 29.98, Temp. 76/71, Sea Temp. 73, partly cloudy, moderate to rough southerly sea
 1800 Advanced ship clocks 20 minutes
 2000 Wind SxE 3, Barom. 30.02, Temp. 76/70, Sea Temp. 75, partly cloudy, visibility good, moderate average southerly swell
 2200 Advanced ships clocks 20 minutes
 2400 Wind SSE 3, Barom. 20.05, Temperature 75/69, sea temperature 79, partly cloudy, visibility good, moderate SSE'ly sea, rolling easily to moderately

Note: No unusual incidents recorded this date, names of vessels sighted not recorded in log book.

SS AMOCO CAROLINAS - The SS AMOCO CAROLINAS, a steam tank vessel of 10,374 gross tons, 504.0 feet in length, arrived at Galveston Sea Buoy at 8:45 A.M. on November 24, 1959. She proceeded directly in towards Bolivar Roads and anchored there in the general anchorage near Buoy #14 at 9:39 A.M. same date. The vessel remained at anchor in the same position until 12:30 P.M. on November 26th. She then proceeded to Houston and docked at the Hess Terminal at 5:00 P.M. same date. She left the dock at 2:09 A.M. on November 28th to return to sea. Departure from Galveston Sea Buoy was at 7:18 A.M. on November 28, 1959. Weather conditions were the same as those in Galveston or Houston during the days of November 25 through the 27th. On the day before the arrival of this vessel at Galveston Bar and on the day of arrival, the 23rd and 24th, the weather was mostly fair with a small sea. On the day of departure, the 28th, the vessel recorded somewhat rough weather with northwesterly winds, force 5 to 6 and rough northwesterly sea.

SS GAINES MILL - The following is an extract of the deck log book from the U. S. tankship, GAINES MILL, 12,179 gross tons and 552.5 feet in length:

Friday, November 27, 1959

0100 Retarded clock 20 minutes to plus 6 zone time

Vessel rolling, sea moderate, wind SW 2, Barometer 29.98

0530 Wind shifted to north 5, sea moderate rough, barometer 30.07

1000 Wind NNW 6-7, sea rough

1200 Wind NNW 6-7, sea rough, barometer 30.15, Position: Lat 28-57 North, 93-52½ West

From 0001 to 1325 True Course 285°

1325 Compass course 315 True

1337 Radar Reef Buoy Abeam 5.5 miles off

1530 Arrival off Galveston Sea Buoy, Wind NW5, Barometer 30.20

Saturday, November 28, 1959

1536 Departure Galveston Bar, wind NW 3, sea moderate, true course 124°

1734 Heald Bank Buoy Abeam, 0.5 miles off, compass course 114 True
wind NW 4, barometer 30.40

2400 Wind NNW 5, sea moderate rough, barometer 30.45

No record of passing vessels were recorded

M/V PETROCHEM - A tank vessel of 4,120 gross tons, 323.9 feet in length. The M/V PETROCHEM departed Galveston Bar on November 26th, 1959 bound for Deepwater, N. J. at 0106. At that time the wind was southerly, force 4 to 5, and the sea was rough and choppy. The log book entries for November 26th, 1959 are as follows:

Time	Course	Wind	Sea and Swell	Barometer	Weather
0800	125	SSE - 6	Rough S'ly	29.93	Cloudy
1200	125	SSE'ly - 6	Rough S'ly	29.93	Partly cloudy
1600	125	S - 6	Rough S'ly	29.97	Partly cloudy
2000	115	S'ly - 6	Rough S'ly	30.07	Partly cloudy
2400	115	S'ly - 4	Rough S'ly	30.10	Cloudy

From about 2100 the weather moderated somewhat. Wind and seas moderating.

The WPB-83389 - The WPB-83389, a U. S. Coast Guard patrol vessel, 83 feet in length, attached to the Coast Guard Base, Galveston, Texas was on a training mission in the Gulf of Mexico on 25 November 1959 and on the afternoon and evening of that date was returning to Galveston. A 1756 fix of that vessel was at Latitude 28-06 North, 94-28 West and proceeded to Galveston on a course of 351° True; arriving at the Galveston Sea Buoy at 1233 on 26 November 1959 after which it moored at Coast Guard Base Galveston at 0455 on that date. The NATIONAL PRIDE was not sighted or identified by the patrol vessel. The bridge log book of this vessel at 2000 shows the course to be 348°, wind SW force 3, barometer 29.92, air temperature 71, visibility 8 miles, sea condition five, swells from the southeast (very rough sea, swells 8-12 feet).

SS WILLIAM F HUMPHREY - Extracts of the log of the WILLIAM F HUMPHREY, an El/s tank vessel of 10,622 gross tons and 504.0 feet in length show the following weather conditions: On 11/25/59 at 0600 GMT wind NNW 5, visibility good, barometer 30.08, moderate NNW sea at 1000 GMT, wind NW 4, visibility good, barometer 30.07, moderate NW sea and swell. Vessel arrived at Galveston Bar 11/25/59 at 1048 GMT. On 11/26/59 the SS WILLIAM F HUMPHREY took departure from the Galveston Sea Buoy at 1312 GMT. At 1400 GMT the wind was south 2, visibility hazy, barometer 29.90 with a heavy southerly ground swell. At 1800 GMT wind south 5-6, visibility hazy, barometer 29.92, rough southerly sea and heavy swells.

SS E W SINCLAIR - The following weather conditions were encountered in arriving and departing from the Galveston Sea Buoy on November 26 and 27, 1959 by the E W SINCLAIR, a tank vessel of 10,907 gross tons and 508.2 feet in length; At 1200 CST Latitude 27-32 North, Longitude 94-19 West the wind was northerly, force 4 to 5, sea confused-moderately rough, heavy northwesterly swell. This state of weather continued until arrival at the Galveston Sea Buoy at 0530 CST on 11/26/59. There was a conversation between the master and the boarding pilot relative to a southerly swell encountered which they considered to be unusual, and unexplained. The E W SINCLAIR departed Galveston Sea Buoy at 1842 CST on 11/27/59 at which time the wind was northerly force 4, sea northerly, small and moderate northerly swell.

3. The crew members of the NATIONAL PRIDE at the time of the casualty were:

Master, Ramon Samuel Nowell, [REDACTED]

Chief Mate, John Albert Falch, [REDACTED]

Second Mate, [REDACTED]

Chief Engineer, John J. Ocranan, [REDACTED]

Cook - [REDACTED]

Oiler - Walter Zane, [REDACTED]

Oiler - Hamilton Cornelia Moon, [REDACTED]

AB - William Edward Massenburg, [REDACTED]

AB - Jose Maria Gonzales, [REDACTED]

OS - Ray Coward, [REDACTED]

Ronald M. Geithmann, PFC, E/3, U. S. Army Government Inspector

4. The M/V NATIONAL PRIDE was under contract to transport ammunition from the San Jacinto Ordnance Depot, Channelview, Texas to an explosives dumping area encompassed by the following square:

27-07 North to 27-17 North
94-25 West to 94-32 West

a location approximately 122 miles south of the Galveston Sea Buoy. The vessel had prior to the trip on which the casualty occurred made 21 voyages carrying bombs of various sizes to the dumping area and returned to the Ordnance Depot. On the 22nd trip the NATIONAL PRIDE carried 438 short tons of palletized cargo consisting of obsolete 155 MM and 75 MM ammunition. The master of the NATIONAL PRIDE, R. S. Nowell, ceased loading operations and departed from the San Jacinto Ordnance Depot at 1432 on 25 November 1959 in order to clear Galveston Sea Buoy before nightfall since that was one of the conditions of the permit granting permission to transport explosives imposed by the Captain of the Port, Houston, Texas.

5. The owners and operators of the NATIONAL PRIDE did not maintain a radio watch or a system of communication with the vessel although the master of the NATIONAL PRIDE was instructed to maintain a watch on the ship-to-shore channel with the Galveston Marine Operator from 0945 to 1015 and from 2145 to 2215.

6. At 0945 on the morning of 27 November 1959 Mr. [REDACTED] the superintendent of New Orleans Stevedoring Company, in charge of the loading of the NATIONAL PRIDE, had not heard from the vessel with regard to ordering stevedores for loading; whereupon he contacted Mr. [REDACTED], the President of National Boat Company, the owner and operator of the vessel, who attempted to place a call to the NATIONAL PRIDE through the Marine Operator, Galveston. As the vessel usually stopped for fuel and like any small vessel could be subject to minor weather delays of one kind or another Mr. [REDACTED] did not think there was anything to be alarmed about yet because many of the prior trips had taken much more time. Mr. [REDACTED] advised that if they did not hear anything by noon the Coast Guard would be requested to make a search. At noontime Mr. [REDACTED] and Mr. [REDACTED] spoke again on the telephone and since the NATIONAL PRIDE had not yet reported or been heard from the Coast Guard was requested to make

a search by air. At 1215 on 27 November 1959 Mr. [REDACTED] reported to the Captain of the Port, Houston, Texas that the NATIONAL PRIDE had been overdue since 2200 on 26 November 1959. He advised that the vessel had departed Houston with a load of explosives at 1432 on 25 November 1959. He advised that the vessel was bound for a dumping area 27-07 North, 94-32 West and that the vessel was grey in color except for a white pilot house with a yellow top. He advised that it was normal for the vessel to follow the coast line to Galveston in rough seas.

7. At 1406 a Coast Guard aircraft, the UFLG 1263, departed from the Coast Guard Air Detachment, Corpus Christi, Texas to attempt to locate the M/V NATIONAL PRIDE. At 1415 the UFLG 1263 was on the scene and commenced a search at 28-37 North, 95-30 West. The weather conditions at this time were high scattered clouds, visibility 20 miles, wind NNW 25 miles per hour, sea rough, swell NNE 6 to 8 feet. At 1607 the UFLG 1263 located the NATIONAL PRIDE in a capsized condition at a position fixed by air defense radar at 28-28 North, 94-20 West. There was no sign of life aboard or in the vicinity of the overturned vessel. At 1635 the UFLG departed the position of the capsized vessel and conducted a creeping-line search downwind, direction 150° magnetic.

8. At 1706 the CGC TRITON was ordered by the Commander, 8th Coast Guard District to proceed and investigate the M/V NATIONAL PRIDE. At 1834 the CGC TRITON departed from Corpus Christi en route to the capsized vessel.

9. At 1927 the CG 1263 departed the search area en route to Corpus Christi having covered the following area: 28-33 North, 94-10 West, 28-07 North, 93-53 West by 27-47 North, 94-13 West by 28-23 North, 94-30 West.

10. At 0050 on 28 November 1959 the Tug JUNO owned by G & H Towing Company, Galveston, Texas departed from Galveston en route to the search area.

11. At 0725 on 28 November 1959 the CG Aircraft UFLG 1272 departed from the Coast Guard Air Detachment, Corpus Christi, Texas to relocate the capsized vessel and resume search. At 0920 the UFLG located the overturned NATIONAL PRIDE in position 28-21 North, 94-25 West and directed the CGC TRITON and the Tug JUNO to the scene. The wind was north 10 to 15 knots, sea north four feet. At 1020 the UFLG 1272 sighted debris in position 28-25 North, 94-25 West extending to the north approximately two miles in width. The CGC TRITON was directed to the area. At this time the sky was clear, visibility 15 miles, wind north 18 knots, sea north four feet. At 1005 the CGC TRITON arrived at the scene of the capsized vessel in position 28-08 North, 94-30 West. There was no sign of life. The TRITON picked up debris with the aid of Tug JUNO south of the scene consisting of a gasoline can, dunnage, wood with ammunition markings, mechanical fog horn with the name "MV NATIONAL PRIDE". The TRITON continued the search in the area. The UFLG 1272 conducted an expanding square search for life rafts or survivors while the CGC TRITON and the Tug JUNO were recovering the debris. There was an unidentified civilian JRF aircraft

operating in the area but did not answer VHF or UHF calls by the UFLG 1272. The UFLG 1272 departed from the scene for Ellington Air Force Base, Houston, Texas at 1300 to refuel in order to return and continue the search.

12. At 1425 the Tug JUNO was at the scene of the capsized vessel along with the CGC TRITON. The hull was sounded without an answer. No life was indicated in the event that the crew might be trapped inside. The Tug JUNO rigged to tow the vessel while the TRITON continued to search the area for survivors and debris. At 1441 the UFLG 1272 was airborne from Ellington Air Force Base en route to the search area. At 1550 the CGC TRITON and the UFLG 1272 secured searching in the immediate area and commenced a CSC search to the south-eastward until darkness. A paddle with the name NATIONAL PRIDE thereon and additional wood dunnage was recovered. At 1752 the CGC TRITON reported that an area of 480 square miles south-eastward from the sighted debris at 28-04 North, 94-20 West had been searched with the CG 1272 and CSC search with negative results. The CG 1272 was secured due to darkness and the TRITON returned to the scene of the capsized vessel. At 2150 the UFLG 1272 arrived at Corpus Christi and reported the coordinates searched: 28-12 North, 94-12 West by 27-53 North, 93-45 West by 27-36 North, 94-02 West by 27-65 North, 94-27 West. The area covered by the combination CSC search with the TRITON and the UFLG 1272 was a tract 123° magnetic, 24 miles in width and 30 miles in length. The wind was north-northwest 25 knots with white caps, seas north 6 feet. The CGC TRITON remained on the scene and continued the search through the night assisting the Tug JUNO as practicable and planned with first light to resume the search with aircraft from the Coast Guard Air Detachment, Corpus Christi, Texas for additional debris and possible survivors. At 2740 the CGC TRITON had returned to the vicinity of the capsized vessel and found the Tug JUNO to be having difficulty securing the tow line with further difficulty expected unless the weather subsided.

13. At 0706 on 29 November 1959 the UFLG 1272 departed the Coast Guard Air Detachment, Corpus Christi to resume the search. At 0715 the towline was made fast after a delay due to the unfavorable weather conditions and at 0759 the CGC TRITON advised that the Tug JUNO had the capsized NATIONAL PRIDE in tow at position 28-02 North, 94-17 West and was proceeding towards Galveston slowly. The CGC TRITON remained at the scene of the searching area around vessels searching for possible survivors and debris pending arrival of the Coast Guard aircraft from Corpus Christi. At 0830 the UFLG 1272 was on the scene conducting CSC search with the CGC TRITON with ship's course 180° True speed 10 knots. Air craft tract space was two miles wide by 24 miles in length located various amounts of debris which were recovered by CGC TRITON. The weather at the scene was as follows: sky clear, visibility 15 to 20 miles, wind 340°, 12 knots, sea north two feet. There were no survivors or raft sighted. An additional air search to south for forty miles with effective spacing of ten miles also met with negative results. At 1405 the UFLG 1272

was released by the CGC TRITON and proceeded to Naval Air Station, Corpus Christi.

14. At 1710 the CGC CAHOONE based at Galveston, Texas was ordered to the area to relieve the CGC TRITON. The Coast Guard Air Detachment, Corpus Christi, Texas advised that the following area had been searched at 500 feet altitude in company with the CGC TRITON: 28-02 North, 94-03 West to 27-37 North, 94-03 West to 27-37 North, 94-30 West to 28-02 North, 94-30 West. The area searched by the UFLG 1272 at 1500 feet with excellent surface conditions, visibility 30 miles, sea slight was: 27-37 North, 94-12 West to 27-07 North, 94-12 West to 27-06 North, 94-23 West. At 1755 the CGC TRITON advised that it had searched independently on CS Pattern area 27-48 North, 94-11 West to 27-48 North, 94-20 West to 27-35 North, 94-20 West to 27-35 North, 94-11 West with negative results.

15. The CGC CAHOONE got underway from Galveston to intercept the Tug JUNO which was towing the capsized vessel at a slow speed towards Galveston at 1200. The CGC CAHOONE rendezvoused with the capsized vessel at 28-50 North, 94-22 West and found the Tug JUNO with that vessel in tow experiencing no difficulty. The CGC TRITON was relieved. At 0700 on 30 November 1959 the CGC CAHOONE reported its position at seven miles south of the Galveston Sea Buoy with the tow experiencing no difficulty at 3.5 knots. The Tug JUNO with the NATIONAL PRIDE arrived at the Galveston Sea Buoy at 0855 and proceeded to anchorage No. 2, Bolivar Roads. A diver was transported to the scene of the capsized NATIONAL PRIDE at Anchorage No. 2 but was unable to enter the capsized hull because of the debris that had been trapped underneath the bulwarks on the main deck. He ascertained that one balsa raft was still aboard and that the hull of the NATIONAL PRIDE remained intact.

16. The NATIONAL PRIDE on 3 December 1959 was boarded in that position by the Marine Board of Investigation designated by the Commandant which found the hull of the vessel intact and no cargo on board or cargo securing gear in place. The cross-over valve between No. 1 port and starboard ballast tanks was found to be open. The cross-over valves between No. 2 ballast tank and No. 3 port and starboard ballast tanks were found to be closed. The engine room access doors were found open. The scuttle through the hatch leading to the after steering gear room was found to be open and in a damaged condition. The securing lid to the two engine room ventilators were found to be missing. The starboard gate and the tail gate were found to be missing. Only two bodies were found to be on board. The body of Tony Floyd Burnett, Cook, was found in the starboard crew's quarters on the main deck and the body of Paul Herbert Brown, 2nd Mate, was found in a void space adjacent to the chain locker forward of the galley below the main deck with a man hole cover removed. Death certificates of these two deceased crew members showed that their deaths were due to asphyxiation. The bodies of the other nine persons on board the M/V NATIONAL PRIDE have not been recovered.

17. The NATIONAL PRIDE had last been inspected by the Coast Guard on 16 September 1959 at Houston, Texas just prior to the beginning of the ammunition job for which the vessel had been contracted before the wood sheathing was installed; the Certificate of Inspection to expire on 16 September 1961. The NATIONAL PRIDE had initially been inspected during and immediately following construction at Arnold V. Walker Shipyard Corporation, a division of Ingalls Shipyard Corporation at Pascagoula, Mississippi by the Marine Inspection Office, Mobile, Alabama; however, that Certificate of Inspection had been surrendered immediately after completion of the vessel in 1957. The National Boat Corporation had been the owner of the vessel since its completion and Mr. Robert T. Lober had been the president of the National Boat Corporation since its inception in the early part of the year 1957. The NATIONAL PRIDE had last been drydocked on 11 September 1959 at Houston, Texas when the entire underwater body was found to be in satisfactory condition. Both shafts were pulled. The propellers and rudders were removed. The starboard shaft was reinstalled that date. The port shaft was renewed as required by the American Bureau of Shipping and the vessel refloated on 19 September 1959 with both shafts, the propellers, and the rudder in place.

18. The lifesaving equipment on the M/V NATIONAL PRIDE was as follows: a one aluminum workboat, 14 feet in length built by the Lone Star Company, estimated capacity 8.4 cubic feet, air tank capacity estimated 6.4 cubic feet, five person capacity built 1957 with styrofoam plastic unicellular plastic under seats, one 15 person balsa life float, builder's number R16915, builder-Atlantic-Pacific Manufacturing Company, date built 1/15/57; one ten person balsa life float, builder's number R4559, builder Atlantic-Pacific Manufacturing Company, built 1/2/57; ten approved life preservers, six ring buoys with lights, two ring buoys with lines attached, one rocket line throwing apparatus, Kilgore Towline Appliance, Approval No. 160.040/1/0. The NATIONAL PRIDE was fitted with three fire hose stations with 3 1/2 inch hoses fifty feet in length, one of which was located in the engine room. The vessel had on board two fire axes. The vessel had on board two 2 1/2 gallon foam portable fire extinguishers in the communicating corridors. In the galley the vessel had one 15 pound CO2 fire extinguisher. In the engine room the vessel had two 15 pound CO2 portable fire extinguishers. The emergency equipment of the vessel was as follows: One RCA Radar, one Bendix Radio Direction Finder, no fathometer, no mechanical sounding machine, no loran, one deep sea lead, one magnetic compass, no gyro compass, no course recorder. The vessel is equipped with four air starting tanks, two with the working pressure of 150 pounds and two with a working pressure of 125 pounds. The steering gear consists of one steering station in the pilot house with an electric hydraulic steering gear. The vessel is fitted with an emergency steering gear consisting of a tiller on deck with blocks and tackle. The air conditioning system on the vessel is of window type units. The electrical system consists of two diesel driven generators 92.2/48.1 volts, 60 cycles, 11.3 amps, 30/37.5 KW, RPM 1200. Batteries on board the NATIONAL PRIDE are as follows: a 12 volt system in the engine room with

charging appliances for use as diesel starting, emergency, power, and navigation lights and a 32 volt system aft of the wheelhouse for the general alarm system with a provision for charging. Hull, decks, fittings and watertight integrity are as follows: No. of decks one; no hatches; sub division bulkheads - four, material steel, original thickness estimated 5/16"; water-tight doors in sub-division bulkheads - 3 class 1 doors. Closed marine type electric panels and switchboard, complete pilot house (Westinghouse air brake) controls. Machinery all independently keel cooled for shallow water operation.

19. At the time of the casualty the NATIONAL PRIDE was inspected and certificated for carrying freight for hire. When originally constructed it was designed for oil field service work. The life preservers were stowed in racks over the bunks in the quarters with the proper number of life preservers for the occupants of the bunks located in that compartment. Additional loose life preservers were carried on the vessel so it was not necessary to remove the ones from the racks. The life preservers in the racks remained in place with the racks intact when the vessel was towed into Galveston after capsizing. The 15 man lifefloat was secured on the forward pilot house bulkhead by means of steel straps with a toggle pin. The ten-man lifefloat was stowed above the pilot house. The workboat was secured one deck above the main deck aft of the pilot house on a set of brackets. There were davits with a lifting mechanism provided in the event that it might be necessary to use that to launch the boat; however, it was a light boat and two or three men could pick it up by hand to launch it. The 15 man lifefloat at the forward part of the deckhouse was still in place after the vessel was righted. The life raft that had been stowed on top of the pilot house was apparently not in place but floated free when the vessel was righted. The workboat was missing and has not been recovered. When the NATIONAL PRIDE was righted the starboard engine control was found to be full or well ahead and the port engines control to be in neutral or slow astern. Both rudders and the rudder angle indicator were found to be full left.

20. The NATIONAL PRIDE was chartered to James J. Flanagan Stevedoring Company with the operation of the vessel being left to the master as far as it pertained to ballasting, whether the weather was good enough to make the run, and how much ammunition should be loaded. The National Boat Corporation, the owner of the NATIONAL PRIDE, furnished supplies to the vessel as requested by the master. The crew list of the NATIONAL PRIDE was filed on Form 735T by the master.

21. Mr. [REDACTED] was on board the NATIONAL PRIDE prior to the beginning of the 22nd trip for about three or four minutes while the vessel was loading at which time there was a slight amount of cargo on board. The loading operations apparently having been in progress for approximately two hours. On a prior trip the engineer had requested from Mr. [REDACTED] a small valve that he needed which was brought to the San Jacinto Ordnance Depot and given to the master. Before Mr. [REDACTED] was able to leave the vessel the engineer returned and said he needed a small piece of flexible air hose which he had broken in installing the valve. Mr. [REDACTED] immediately left and purchased that piece

of air hose that he needed from a supply house in Houston after which he drove back to the San Jacinto Ordnance Depot and at 1200 Noon left it at the gate with instructions to deliver it to the vessel. Mr. [REDACTED] did not re-enter the San Jacinto Ordnance Depot. The valve was used as an unloading valve on a small air compressor geared to one of the engines. This small engine driven air compressor according to the owner of the vessel had no vital function as far as the operation of the vessel was concerned. To the owner's knowledge the communication equipment on the NATIONAL PRIDE was in good condition. Along with the other frequencies on the radio-telephone it was capable of contacting the Coast Guard on 2182 KCS and capable of communicating with the Galveston Marine Operator and the New Orleans Marine Operator.

22. The vessel upon being righted appeared to have sustained only superficial damage in addition to that inflicted by the salvage operation and water damage to the engines, electrical gear and equipment. Damage to the hull consisted only of breaks in several places on deck where the bulwarks had been welded as that part of the bulwarks was bent and caused that segment to peel back. The ladder from the main deck to the wheelhouse was bent. The bulwarks were bent outward in places as well as inward where the slings had been attached. The rails constructed to hold the dunnage in place were bent by the slings. The door of the hatch leading to the steering gear compartment was open and damaged. The doors to the main engine intake and ventilation system were missing. The davits originally installed to handle the aluminum workboats were bent. There was no cargo securing gear or fork lifts used for dumping the cargo remaining onboard. The only cable remaining was a cable stretched across the forward deck of the vessel which was attached to the rails on either side of the bulwarks rather than through the padeyes. Documents found on the NATIONAL PRIDE after it was righted were consolidated enrollment and licensed for the coasting trade, No. 251 and the load line certificate. The log book of the NATIONAL PRIDE was never found. Ordinarily the log was maintained in the pilot house of the vessel. The chart table and pilot house furniture was missing from the vessel when it was righted. The pilot house was in an extremely muddy condition after it had been towed in. Photographs showing the prior condition of the vessel taken in the latter part of the year 1957 were furnished by the vessel's owner and attached as exhibits.

23. Captain Nowell, the master of the NATIONAL PRIDE, had been employed by the owners of the NATIONAL PRIDE since the latter part of September 1959 shortly after the ammunition job started. He became master of the vessel approximately one week after the ammunition job commenced. Captain Nowell had held a 3,000 ton license for any ocean. The Chief Mate had an unlimited master's license and a pilot's license. The 2nd Mate held a master's license for any tonnage, any oceans. Captain Nowell had previous experience on a deep sea tug. He was master of the NATIONAL PRIDE in lieu of the other mates with unlimited pilot's license because of his seniority due to being employed before the other mate and by reason of his experience on tugs whose operation would be very similar to that of the NATIONAL PRIDE.

24. The diver was not able to gain entrance to the deck house and check inside. The owner immediately thereafter took steps to have the vessel righted. The salvage company, Port Houston Iron Works, was contacted that afternoon with equipment and arrangements made to start the raising operation the following morning. The M/V SKIPPER was posted to keep a watch on the anchored capsized hull and ascertain that the hull did not drag anchor from Anchorage Three. The overturned hull was observed to start dragging anchor and a G & H tug sent to take the vessel in tow but it had drifted part way out of the channel before the lines could be properly secured. The salvage operation started that very afternoon after the vessel had been towed into Galveston Channel and anchored abreast of Pier 10, however, the sling that was being used to right the vessel by means of a crane, snapped and work was delayed until the following morning. The following morning, 3 December 1959, at 0700 additional slings were made available and the size of the wire being increased from 2 $\frac{1}{4}$ to in excess of three inches. These efforts to right the vessel were successful. The engine room was pumped dry and the vessel towed to Grasso's Dock, Pier 9, Galveston, Texas and moored. The bodies of the two crew members who were located on the vessel were removed while the vessel was in Galveston Harbor. Mr. Burnett was identified by his family. The identification of Mr. Brown was made with the assistance of some of the descriptions of the crew members on lists and application blanks retained by the owners of the NATIONAL PRIDE and through teeth and dental work as confirmed over the telephone by Mrs. Brown.

25. Six clocks and watches were found on board the M/V NATIONAL PRIDE after it was raised. Only two of those timepieces showed the same or approximately the same time. A watch set in a wooden case, the personal property of Captain Nowell that he used in taking sights, was stopped at 18 minutes before six. Another clock that was an ordinary alarm clock was stopped at 22 minutes to six. Another clock that was an ordinary alarm clock was stopped at 22 minutes before six. A large brass ship's clock made by the Chelsea Company was found in the pilot house in a damaged and muddy condition with the glass broken from the face. The time shown on that clock was ten minutes before seven. A small traveling clock found in the captain's quarters showed the time five minutes after one. Two other wrist watches were located on board the righted vessel on which the hands were missing and the faces rusty causing the time to be undetermined. It was not known which of these clocks were actually running and in operating condition at the time of the casualty.

26. The National Boat Company did not furnish the various masters of the vessel with any information or instructions as to how to load the vessel or ballast the vessel. The master was allowed to acquaint himself with the vessel by serving on it as mate and through practical experience determine the correct procedure. Captain Nowell was hired with the intention of his becoming master although he was originally hired as mate and actually ran on one or two trips with Captain Engstrom to determine the characteristics of the boat before he took command. The National Boat Company, owners of the NATIONAL PRIDE, was compensated for the use of the vessel at a daily rate and the charter was to be for an indefinite period of time until the ammunition dumping operation was completed.

27. No parties present at the Marine Board of Investigation or witnesses called by the Marine Board were aware of any vessels similar to the NATIONAL PRIDE having any difficulty such as capsizing nor was there any question of stability raised prior to the casualty involving the NATIONAL PRIDE. Captain Engstrom, the former master of the NATIONAL PRIDE who had been employed on that vessel for approximately seven months, while it was in the oil field service trade as well as during the ammunition dumping operation, was of the opinion that the only loading condition at which the NATIONAL PRIDE might be likely to capsize was in a light condition with no load whatsoever during extremely bad weather conditions. His only explanation or hypothesis for the casualty was that the vessel might have been in a freak squall as he had often experienced in the Gulf of Mexico, many of which lasted not more than 20 to 45 minutes, when the wind velocity increased to 75 or 80 miles per hour. Under those conditions he felt that the vessel might run upon a sea causing it to pitch violently allowing the wind to catch underneath the bow and that this combined with the momentum of the hull on a rising angle would possibly cause the vessel to keep rising and lay over on its side causing it to capsize. Captain Engstrom was of the opinion that with some ballast in the vessel he did not see how it was possible for it to capsize. He related that on the NATIONAL PRIDE he had seen drilling mud cans approximately five feet in height loaded on the deck of the NATIONAL PRIDE loading the vessel to its deep load line. He had seen 120 of these mud cans loaded on the vessel; each mud can weighing approximately $2\frac{1}{2}$ tons. During these loaded conditions he had on occasions observed the sea to sweep across the vessel after which he stated that "it would just shake and come right back up." He was therefore of the opinion that the overall stability of the NATIONAL PRIDE was greater loaded than in a light condition. On the other hand Curves of Form of the NATIONAL PRIDE prepared from the plans and characteristic data of the NATIONAL PRIDE and appended as Exhibit 110 show the vessel to be extremely stable in a light condition with a sharp reduction in initial stability with a heavy deck load.

An inclining test on a sister hull, Arnold V. Walker Hull 1062, in Condition I (light ship) with a displacement and weight of 275.96 tons determined the C. G. (center of gravity above base) to be 7.14 feet. The registered depth of the vessel is 9'8". Since the saltwater load line is $1'8\frac{1}{4}"$ below the main deck the loaded draft should be approximately 7' 11 $\frac{3}{4}"$.

A stability study of the M/V NATIONAL PRIDE was made by the Merchant Marine Technical Section, Eighth Coast Guard District, wherein it was estimated that with the probable weight and loading condition on the 22nd voyage the saltwater draft of the vessel was 8.21 feet.

At that assumed draft the K. M. of the vessel was 12.24 feet which, when corrected for trim, became 12.36 feet. The C. G. of the vessel at that load condition was calculated to be 10.05 feet above the base, a shift upward of 2.9' from the C.G. of a sister hull in light condition. This resulted in a metacentric height after correction for free surface of 1.69 feet with

metacentric height of .25 feet with the two forward ballast tanks cross connected. These metacentric heights which vary from a very great initial stability at light loads to greatly reduced initial stability at the assumed condition may be compared with the approximate G.M. of various naval vessels as listed in Chapter 88 of the Bureau of Ships Technical Manual as follows:

	<u>FEET</u>		<u>FEET</u>
BB	8-10	CVE	3-6
CV	9-11	DD (New)	3-4
CVL	4-6	DD(Old)	2-3
CL	3-5	DE	3-5
CA	4-6	AK	1-6

28. Captain [REDACTED] acknowledged that the roll of the vessel was quicker when it was light than when it was loaded. He stated that when heavily loaded he had observed the vessel to roll between 12 and 15 degrees, however, when light he had observed the vessel to roll from between 15 to 18 degrees. Captain [REDACTED], the only available witness with extensive knowledge of the operations at sea of the NATIONAL PRIDE, testified that in a sea of any degree of roughness it would be necessary to close the covers to the engine room ventilators which were in a U shape immediately forward of the port and starboard stacks to prevent the blowers from picking up water and spraying it down in the engine room. These covers were held in place by six or eight dogs or lugs. The ventilator blowers were ordinarily stopped when these covers were closed; however, there was a heat control switch on them that would cause the switch to trip in the event the blowers were not secured before closing the covers. Captain [REDACTED] was of the opinion that the covers would have held and would have remained dogged down had they been properly secured for sea after the vessel capsized. Captain [REDACTED] had never observed the operation of the boat while loaded with nothing at all in the ballast tanks. He did not consider ballasting the two forward ballast tanks to be adequate under all conditions. In the light condition Captain [REDACTED] habitually used the number three ballast tanks. When the vessel was loading he took ballast in No. 1 tank to place the vessel on an even keel. It took about 45 minutes to fill No. 1 port and starboard ballast tanks using one ballast pump.

While Captain [REDACTED] was master of the NATIONAL PRIDE it was the usual practice to run with the engine room doors secured. He noted that it was customary for the deck edge to roll under occasionally for as much as 20 inches. With the engine room ventilators closed and dogged down and the engine room doors secured the source of air for the engines was through a companionway leading from the engine room up through the galley at the forward part of the vessel. No prior difficulty had been experienced with the engine room hatches being knocked off or damaged by seas that washed over the vessel. Captain [REDACTED] had never received any instructions for loading or ballasting the vessel from its owner.

After Captain Nowell was qualified as master of the NATIONAL PRIDE he and Captain [REDACTED] alternated trips. Captain [REDACTED] made nine trips on the NATIONAL PRIDE while engaged in the ammunition dumping operation. After the ninth trip Captain Engstrom left the service of the company.

29. Mr. [REDACTED] was employed by New Orleans Stevedoring Company as superintendent and rode the NATIONAL PRIDE on most of the ammunition dumping trips. On the 22nd trip, however, he was relieved by Mr. Ray Coward. Mr. [REDACTED] duties were to help supervise the loading of the NATIONAL PRIDE. On prior trips the NATIONAL PRIDE had carried 2,000 pound bombs, 500 pound bombs, 250 pound bombs, 100 pound bombs and fragmentation bombs. On the 22nd trip the vessel carried 155 and 75 MM shells. Mr. [REDACTED] was present while the ammunition on the 22nd trip was being loaded on the NATIONAL PRIDE. The main deck of the NATIONAL PRIDE was loaded two tiers high of pallets of 155 shells with the entire area being covered athwartships with 24 pallets of 75 MM loaded on top of the 155 MM shells at the forward end of the stack. The first tier of 155 MM shells extended to the stern of the vessel. The second tier of 155 MM pallets extended to a distance of approximately twenty feet from the stern leaving the last twenty feet with only one tier of 155 pallets instead of two. The loading area on the deck of the NATIONAL PRIDE was approximately 96 feet in length by 26 feet wide. Approximately ten feet of this forward area was not used for cargo. Here there were stowed two fork lifts used to discharge the cargo. The pallets of 155 MM shells were made up eight to a pallet. The weight of each of these pallets was 805 pounds. There were 1040 pallets of 155 MM shells on the 22nd voyage. There were 600 on the bottom tier and 440 on the second layer. The 75 MM shells were made up in a pyramid package weighing 1629 pounds to a package with dimensions of 47" long by 34" wide by 35" in height. The pyramid packages were pyramided with steel channel iron on the bottom and held in place in the shape of a pyramid by steel bands. There were 24 of these packages of 75 MM shells on board located on top of the two tiers of 155 MM pallets. The 75 MM pallets were stacked in three tiers separated by two by four dunnage with the runners fore and aft. The two tiers of 155 MM pallets extended to a distance approximately six to eight inches below the bulwarks.

Mr. [REDACTED] was able to verify that the tonnage loaded on the NATIONAL PRIDE for the 22nd voyage was 438 short tons. Mr. [REDACTED] was unable to read the draft marks with the vessel so tight against the dock at the time of the completion of loading, however, he noticed that the fresh water load line was approximately six inches above the water. He did not recall the salt water load line.

Mr. [REDACTED] stated that he was unfamiliar with the plimsoll marks and that he did not see the letters "FW" on that line of the NATIONAL PRIDE; however, he had previously been told by Captain Nowell that the line that he observed six inches above the water was the fresh water line. When Mr. [REDACTED] inspected the plimsoll mark prior to departure on the 22nd trip the vessel had a trim

approximately 18" by the stern. Mr. [REDACTED] was aware of occasions when the NATIONAL PRIDE had carried a cargo in excess of 438 tons as it did on the 22nd trip. The maximum tonnage carried to his knowledge was 466 tons. With 466 tons on board Mr. [REDACTED] checked the plimsoll mark and found the fresh water line to be approximately two inches above the water. According to Mr. [REDACTED] the vessel had on board after refueling at the termination of the 21st voyage just before the 22nd voyage 2100 gallons of fuel. The vessel carried sufficient fuel for approximately three trips to the dumping grounds, a total distance, according to Mr. Borison, of 187 miles, approximately fifty miles of this distance being from the San Jacinto Ordnance Depot to the Galveston Bar. The depth of water in which the ammunition was dumped was approximately 610 fathoms.

30. The 21st trip was the shortest trip made by the NATIONAL PRIDE due to the type of cargo carried; it being palletized twenty pound fragmentation bombs that were unloaded by means of fork lifts. On that trip the NATIONAL PRIDE on 22 November 1959 sailed for the dumping area at 1447. At 0430 on 23 November the NATIONAL PRIDE arrived at the dumping area and at 0435 commenced dumping which was completed at 0805. The vessel departed from the dumping area at 0815 and arrived at the fuel dock at Baytown, Texas at 2140.

Before the NATIONAL PRIDE departed from San Jacinto Ordnance Depot Mr. [REDACTED] directed Mr. [REDACTED], the person taking his place on that trip, to lash the cargo with 5/8" diameter wire of which there was 1200 feet on board. The cargo was ordinarily secured going down the channel from the San Jacinto Ordnance Depot to the Sea Buoy by leading the securing wire across the top from side to side and across the forward and after end of the load. This wire went from bulwark to bulwark and was made fast on padeyes welded to the deck of that vessel. Mr. [REDACTED] directed that each row of ammunition be lashed with the wire and that turnbuckles be used to tighten the wires. The wires were made fast to the padeyes with shackles. Under ordinary conditions of good weather it was often the practice to remove the shackles and wire before reaching the dumping area. Prior to the 22nd trip the NATIONAL PRIDE had always used steel cargo nets over the load to secure it, however, the height of cargo on the 22nd trip did not require nets. No shackles were found in place on the padeyes when the NATIONAL PRIDE was returned to port under tow. The bulwarks extended 57 inches above the main decks. There was an opening in the starboard side of the vessel that was closed by 4 x 4 timbers slipped down in the notch made by a piece of angle iron welded to the deck in the bulwarks. The stern of the vessel was closed by another pair of 2 x 8s which also fitted into slots made by angle iron fastened to the bulwarks with a stantion in the middle of the vessel. The forklifts were stowed close to the forward house. To dump the ammunition by means of fork lifts it was picked up and placed on top of the ramps which were a slide constructed at the forward end of the deck at the top of the bulwarks on the port and starboard side of the vessel.

31. Mr. [REDACTED] made fifteen trips on the NATIONAL PRIDE. The itinerary for the 20th trip is as follows: 21 November 1959, 1340 sailed for dumping area; 22 November 1959 0345 arrived dumping area. Commenced dumping on the 22nd 0400. Completion 1050 on the 22nd. Departed from the area 1100. Arrived San Jacinto Ordnance Depot 0030. Mr. [REDACTED] stated that he had nothing to do with the trim of the vessel or with ballasting. He left that strictly up to the master and the engineer. On some occasions Mr. [REDACTED] stated that the NATIONAL PRIDE was trimmed as it was going down the channel. The NATIONAL PRIDE was inclined to go down by the stern as it was loaded since the loading area was located more to the after part of the vessel; the deckhouse being in the forward part of the vessel.

Mr. [REDACTED] had noticed on prior trips that the vessel had pounded on occasions when the water was slightly rough with the seas approximately six feet in height. After observing the vessel to pound the vessel was trimmed or slowed down as necessary. Mr. [REDACTED] had noticed that it was mostly on return trips that the NATIONAL PRIDE had encountered rough seas of approximately eight to ten feet in height. He had never been hampered in his unloading operations by rough seas. To Mr. [REDACTED] knowledge the only function of the Army inspector on board was to insure that the ammunition was dumped. In his opinion the responsibility that the ammunition was dumped in the proper dumping ground was that of the master of the vessel. Mr. [REDACTED] had no fear whatsoever as to the seaworthiness of the vessel when it was in loaded condition. He stated, however, that the vessel was rather rough when it was in light condition. He had never observed the vessel to list over and remain for some time indicative of negative metacentric height. The NATIONAL PRIDE often had water on deck. To Mr. Borison's knowledge there was never anything to indicate a dangerous condition existing aboard the vessel. He had never had the cargo shift on any of his trips.

To unload the cargo the forklifts started unloading the forward-most row of cargo allowing only one forklift to work at first until there was sufficient room for both forklifts. The palletized cargo was picked up by the forklifts and placed on the ramp or chute constructed on each side of the vessel. Mr. [REDACTED] was of the opinion that the cargo lashings had been removed at the time of the capsizing from the appearance of the vessel when it returned to port. On those occasions when the cargo lashings had been removed in good weather before reaching the dumping grounds they were not removed more than an hour at most before reaching the area. Turnbuckles were not used on each lashing across but made an occasional turnbuckle in the run of wire running across the vessel from padeye to padeye. The cable therefore would be tightened through two or three padeyes. The cable was new when the ammunition dumping project commenced. The wire cable appeared to be in good condition before departure of the vessel on the 22nd trip. Occasionally after the cargo lashings were removed the turnbuckles and lashings would be greased and stacked against the deckhouse on the port side.

Ordinarily the persons used in dumping the cargo were Mr. [REDACTED] or Mr. Coward,

whoever happened to be on board for that trip, the Army inspector, and two members of the crew. Mr. [REDACTED] occupied the starboard crew's quarters. There were four bunks and a cot in those quarters with the Army inspector occupying the cot.

Mr. [REDACTED] was of the opinion that had the vessel capsized with the cargo on board it would have taken the lashings away; however, he seemed to think that there would be a turnbuckle or shackle remaining. On the 22nd trip the loading of the NATIONAL PRIDE started with two gangs from 0700 to 1200 and one gang from 1300 to 1430. Captain Nowell was on board during this loading operation. At the time the vessel departed from the dock the cargo was tightly in place but had not been lashed. Mr. [REDACTED] was aware of comments that the 22nd load looked like it was the best load that the vessel had ever taken as far as securing was concerned in making it a tight cargo. The fork-lifts were sometimes secured to padeyes on the forward part of the vessel and sometimes were left ^{unsecured} secured. They had never been observed to shift. The palletized 155 MM shells were stacked with the shells standing. The pallets were made of boards which were nailed and secured with bands forming a stable package. Before the NATIONAL PRIDE departed on the 22nd trip Mr. [REDACTED] conferred with the master who stated that he would lash the cargo going out and that he would not go outside without it being properly secured. In the absence of Mr. [REDACTED] Mr. Ray Coward would be in charge of the actual securing with part of the crew helping him do the actual work.

Ordinarily the NATIONAL PRIDE took from twelve hours to eighteen hours to get to the dumping grounds. On trip No. three she sailed for the dump area at 1200 and arrived at 0500 the following morning requiring 17 hours. The weather was rough this trip and the vessel was slowed. It was the normal practice to slow down occasionally in rough weather. The ammunition was ordinarily kept in a warehouse and was moved to the shipside by lift trucks by Texas Star Stevedoring Company. It was hoisted from alongside the ship to the deck of the vessel by slings or bridle by using shore cranes operated by Texas Star Stevedoring Company personnel. No personnel from that company sailed on board the vessel.

32. James J. Flanagan Stevedoring Company made the original request to the Captain of the Port, U. S. Coast Guard, Houston, Texas for a permit to carry explosives after having been awarded the contract by a letter dated 12 September 1959 setting forth pertinent details of the contract and the type of ammunition to be carried. This letter was followed by further requests for permits made several days prior to each trip after which permits for each individual trip were issued by the Captain of the Port setting forth the description of the explosives, the tonnage allowed, the place of stowage and specifying the conditions of the permit in detail including provisions that all applicable statutes and regulations would be strictly observed.

James J. Flanagan Stevedores on 23 November 1959 made application for a permit covering the 22nd trip of the NATIONAL PRIDE advising that it was contemplating loading the next barge commencing 0800 on 11/25/59 and that the cargo would be 450 tons of 20 pound fragmentation bombs. This request was later changed to request a permit for 155 MM gun shells. Permit No. 22-59 was accordingly

issued on 25 November 1959 allowing the transportation of 450 tons of 155 MM shells. The stevedoring company subsequently verbally requested by telephone that the permit be amended to allow the vessel to carry some 75 MM cartridges not to exceed the original total of 450 tons after which an amendment to Permit No. 22-59 was issued allowing the 75 MM ammunition to be carried in lieu of some of the 155 MM ammunition.

33. Mr. [REDACTED], a former crew member of the M/V NATIONAL PRIDE, appeared of his own volition and requested the opportunity to testify. After being sworn he related that he had made three trips on the NATIONAL PRIDE after which he resigned his position as stevedore assisting in unloading the cargo at sea due to conditions during the unloading operations believed by him to be hazardous. During those trips Mr. [REDACTED] used the forklift truck to lift the bombs from the tiers to the deck after which they were rolled over the stern or over the side by hand. He complained that the helmsman would fail to keep the vessel headed into the sea while the bombs were being unloaded allowing the vessel to get into a trough and roll violently. He related that he observed the captain and the helmsman to be asleep on the bridge at one time while they were drifting during this unloading operation, and that he often observed the helmsman to be out of the pilot house while drifting. On one of the trips on which Mr. [REDACTED] was a crew member the NATIONAL PRIDE experienced engine difficulty because of water in the fuel and was delayed for approximately 1½ hours in the Galveston Channel and again for approximately thirty minutes at sea after leaving the Galveston Bar on that same trip. Mr. [REDACTED] stated that he appeared and testified for the reason that one of his best friends was lost on the 22nd trip of the NATIONAL PRIDE. Drain valves were installed in the fuel tanks of the NATIONAL PRIDE to prevent water in the fuel after this difficulty was experienced. On one occasion after dumping bombs overboard a geyser of water was observed alongside the vessel, however the vessel was not unduly affected by the explosion in any way.

Conclusions:

1. That the M/V NATIONAL PRIDE capsized in a loaded condition while en route from the Galveston Sea Buoy to the ammunition dumping area. When the first three clocks were found on board the vessel, two of them showed the time to be 22 minutes until six and 18 minutes until six and since there was no cargo gear remaining on board, there was a presumption that the vessel had capsized in a light condition while returning from the dumping ground at 1542 or 1548 on the 26th of November 1959. This would correlate the running times, dumping time and the position at which the vessel was first located by the UFIG 1272 as follows:

1432	Departed San Jacinto Ordnance Depot, Channelview, Texas
13	Average running time to dumping ground
0932	Arrived at dumping ground
6	Hours required in dumping
0932	Departed from dumping ground

This would leave approximately six hours and six minutes or six hours and ten minutes for the vessel to go from the dumping ground back to the position at which it was first sighted by the UFIG 1272 which is about 72 miles from the dumping ground and about 54 miles from the Galveston Sea Buoy. This presumption however, was overcome when the curves of form had been prepared on the NATIONAL PRIDE and the stability data from a sister hull obtained showed the vessel to be extremely stable in a light loaded condition coupled with the fact that although the weather was extremely rough and unusual in some respects there were no mountainous seas or hurricane force winds reported which would be likely to capsize the vessel by sheer force as hypothesized by the former master of the NATIONAL PRIDE, Captain [REDACTED]. Coupled with this was the fact that it was never determined that the cargo securing wires and gear were in fact ever made fast to the padeyes and nothing to show even if they had been so secured that they had not been removed prior to arriving at the dumping grounds as was the custom when the weather conditions so permitted. The fact that the engine doors and engine room ventilator covers were not secured for bad weather is further indicative that the captain of the NATIONAL PRIDE might not have thought the weather to be extremely bad.

2. Cause of capsizing of the vessel cannot be attributed to any one specific item such as stability, partial flooding of the cargo deck or flooding of a space below deck, but is believed to be the result of two or more unusual events occurring at the same time. The following conditions or events could have contributed to the capsizing:

a. The stability study (Exhibit 110) which was made by the Technical Section in New Orleans based on actual condition and loading of the vessel, as reconstructed from evidence found after righting the vessel, indicates that the vessel had a metacentric height of about 1.7'. This figure includes free surface in fuel and ballast tanks and assumes that the forward two ballast tanks were not cross connected. When the vessel was righted, it was found that the forward two ballast tanks were cross connected through the short four inch

line between the tanks. The valve to each tank was wide open. Assuming that these tanks were fully cross connected, and correcting for this additional free surface, the metacentric height was approximately .25'. In practice, the actual metacentric height was probably somewhere between .25' and 1.7' but if due to shifting of cargo or of sea conditions the vessel were to start to list to either port or starboard, the stability of the vessel could approach the unsatisfactory condition associated with a metacentric height of .25'.

b. The cargo deck of the vessel was sheathed in such a manner as to prevent adequate drainage of water from the deck. The original drainage ports in the steel bulwarks had all been blocked off with sheathing. In addition, the aft tailgate of chain had been replaced with a solid tailgate with a small opening at the bottom.

c. When the vessel is loaded to its load line with deck cargo, the inherent trim by the stern which is impossible to eliminate in this particular design of vessel results in a very low freeboard (less than one foot) at the stern. This makes it relatively easy for any heavy sea to break aboard the vessel and in extreme cases flood the aft steering room (if hatch is open) of the machinery space through the access hatches on deck.

d. It is possible that a sudden local squall came up in the Gulf where the vessel was located and caught the vessel in confused seas and wind. Under these conditions the vessel might have gotten into the trough of the sea and had difficulty getting out. With the stability and freeboard of the vessel in the marginal condition that they were, it is possible that adverse weather conditions could have resulted in the vessel taking a list and capsizing shortly thereafter.

e. There might have been a machinery failure either of a main propulsion engine or of the steering gear right at the crucial time when the vessel was encountering bad weather conditions. Since no bodies were found in the engine room, such a failure probably occurred less than a minute or two before the vessel capsized. Failure of a main engine due to water in the fuel would be the most likely cause of difficulty.

3. The vessel capsized suddenly with little or no advance warning. This is evidenced by the fact that all life preservers were still in place in their racks in the quarters and both lifefloats were still in place on the vessel when it was righted. It appears, however, that there was enough warning of difficulty for a helmsman to put the wheel hard left and to put the starboard throttle full ahead.

4. That the vessel was engaged in a violent maneuver at the time of the casualty is evident by the full left position of both rudders, the full left position indicated by the rudder angle indicator and the positions of the throttles with the port throttle control in neutral or slightly astern with the starboard throttles full ahead indicating that the vessel was being turned or that the helmsman was attempting to turn the vessel rapidly to the port. The violent maneuver to port is possibly attributable either to maneuvering the engines and rudder in an attempt to keep the vessel from rolling in the trough of a heavy sea, a frequent maneuver described by Captain [REDACTED]

who had previously served on that vessel, or to actually make a rapid turn to port for some other undetermined reason.

5. The first impression that the weather was relatively good after the vessel departed, due to good weather existing on shore as indicated by the Galveston Weather Bureau at Galveston, Texas, was overcome by later reports set forth in detail in this report received from various vessels in the vicinity indicating that severe weather conditions had been encountered in positions offshore. These conditions were such as to cause super tankers to heave to while Thanksgiving dinner was being prepared and causing other large seagoing cargo vessels to slow down or change course.

6. The loading of the vessel, the cross connecting of the two forward ballast tanks, the blockage of the freeing ports from the cargo deck, the operating condition of the machinery and the type of watches stood by the crew were all the final responsibility of the master. Other responsibilities of the master were ballasting and trimming of the vessel as well as loading and lashing of the cargo. Since the condition of the vessel and its cargo resulted in its capsizing, it must be concluded that the capsizing is attributable to the master. It is true that some of the items were indirectly the responsibility of the owner or operator who possibly should have furnished the master with information as to any restrictions on loading or operating conditions.

7. Evidence indicates that the vessel capsized by rolling over to starboard rather than to port. This is based on the fact that the ladder leading from the cargo deck to the pilot house on the starboard side was found to be severely damaged or crushed as if the fork lifts had come up against it. In addition, splinters of wood in the center T bar holding down the deck sheathing were on the port side of the T bar thus indicating that the pallets had slipped from port to starboard. Also, the fact that the rudder was at hard left and the starboard engine was full ahead would indicate that the vessel was trying to head up into the seas. Under these conditions, the vessel would almost certainly capsize to starboard.

8. That the vessel did not capsize solely as a result of being overloaded by cargo appears probable since the vessel had previously made many trips with loads in excess of that carried on the 22nd voyage. In addition to the problem of weight those prior cargos were stacked higher above the deck than the palletized cargo thereby raising the center of gravity more than the cargo on the 22nd trip.

9. That the missing pin from the steering gear linkage had no bearing on the casualty since both the rudder angle indicator and the rudders were found in a hard left position corresponding to the wheel and pilot house indicator and the engine controls indicated that the vessel was being turned to the left. This tends to show that there was not a failure of the steering gear prior to

the casualty and that the pin probably fell from its position after the vessel capsized.

10. That the conditions existing on the NATIONAL PRIDE causing Mr. [REDACTED] to resign his job on that vessel related more to the safe handling of the cargo on deck while in the dumping operation than to conditions that would result in the instability of the NATIONAL PRIDE and cause it to capsize. His principal complaint was the inherent danger in unloading the cargo at sea, especially cargo such as round bombs that were likely to roll about the deck, as distinguished from palletized cargo such as that carried on the 22nd voyage. The loss of power on the NATIONAL PRIDE that occurred on two occasions as related in the testimony of Mr. [REDACTED] is always a possibility on diesel propelled vessels and the most likely cause of water in the fuel has been corrected on the NATIONAL PRIDE by the subsequent installation of drain valves to eliminate that condition.

11. That offshore supply vessels of the type similar to the NATIONAL PRIDE suffer from the following weaknesses all of which affect their seaworthiness:

a. The design is basically a poor one for sea going vessels. It represents a compromise with primary emphasis on convenience and adaptability to conditions peculiar to the offshore oil industry. Seaworthiness was not a primary consideration in the design of these vessels.

b. The vessels are not designed to carry deck cargo exclusively. They must either ballast or carry some kind of liquid cargo in their tanks. When the amount of cargo carried on deck exceeds approximately 2/3 of the total carrying capacity of the vessel, the vessel starts to approach an unseaworthy condition due to stability considerations, the low freeboard involved and the possibility of flooding a space below deck.

c. The general practice of leaving machinery spaces unmanned is undesirable. This is particularly true since flooding of engine rooms is possible due to the low freeboards of these vessels and if such flooding is not corrected immediately and steps taken to prevent it, the vessels can lose more freeboard and stability to the point where they can capsize. Also loss of propulsion or auxiliary power can create a dangerous condition if it occurs at a critical moment.

d. Vessels of this type with nothing but tanks under the main deck and which can carry all or almost all of their cargo capacity above deck can readily be loaded so that they are unstable. The large amount of free surface possible in the tanks as well as the possibility of a high center of gravity on the deck cargo can all contribute to dangerous conditions.

e. Although the load line assigned to the NATIONAL PRIDE was in accordance with existing laws and regulations, it is believed that for vessels of this unusual shape, wide beam and shallow draft the load line assigned permits loading the vessel too deeply. Certainly, the load line assigned is too deep for indiscriminate loading and operation of the vessel.

f. Access to the engine room and to the aft steering compartment provides one of the most dangerous situations on these vessels. Even though these accesses may be raised two feet above the cargo deck by means of these coamings or trunks, due to the low freeboard of the vessels when loaded, it is possible for seas to flood these spaces.

g. Inadequate provisions have been made for air supply to the machinery space on all these vessels since in heavy seas the aft cargo deck is very wet and often subject to being swept with solid water, making it necessary to close the engine room hatches and the intake vent covers to prevent water from getting into the engine room. In the case of the NATIONAL PRIDE which had a tunnel from the engine room to the forward quarters, the air supply for the machinery in rough weather is taken through the quarters and thence through the tunnel into the engine room. One of the resulting hazards from the practice is that the water tight doors at either end of the tunnel must be left open at the very time when they should be closed.

h. Where these vessels have a common ballast main running down between the three sets of ballast tanks, it is possible to cross connect each pair of ballast tanks through a three or four foot length of four inch pipe. Where these cross connecting lines are left open and the tanks are not pressed full a considerable loss in GM results from the increased free surface.

i. The design of these vessels is such that they normally trim by the stern. This is a hazard in view of the low freeboards at which the vessels operate. One disadvantage of low freeboard in the stern is that a small amount of flooding of the machinery space or of the steering compartment aft can submerge to stern.

j. There is no safe means of sounding the aft steering space. In rough weather it is almost impossible to get into the space or to sound it. Therefore, even a small amount of leakage into the space can result in flooding of the space before anyone is aware of what is happening.

12. That no personnel of the Coast Guard or any other Government agency contributed to the casualty.

13. That no laws or regulations relating to vessels have been violated.

14. That no aids to navigation nor any uncharted or incorrectly charted area or objects were involved.

Recommendations:

1. In view of the foregoing findings of fact and conclusions drawn therefrom, it is recommended that this case be closed within the purview of R. S. 4450, as amended, with the submission of this report with exhibits appended and executed Form CG-2692 forwarded herewith and that coastwise and oceangoing vessels such as offshore supply vessels where the beam is about three times the depth, which have a large amount of tankage below deck, and which operate with a low freeboard meet the following requirements:

a. Comply with the provisions of 46 CFR, Part 93 as regards a stability test and information supplied to the master before being permitted to carry large amounts of deck cargo. Otherwise, the load line should be reduced so as to require more freeboard and the amount of deck cargo should be restricted to less than 1/2 the normal cargo capacity of the vessel. Each different type of vessel would have to be considered on its merits.

b. The engine room should be manned at all times when underway. Checking of the machinery and bilges every twenty to thirty minutes by a man who is engaged in other activities on the vessel is considered inadequate.

c. If offshore supply vessels are to operate safely at low freeboards (1 to 2') where seas can sweep over the main deck, better means of providing access and air to the engine rooms must be found. Present hatches to deck on port and starboard side could be retained if improved and modified so as to increase the coamings from two feet to four feet. Adequate air intakes to the engineroom should be located so as to be usable in rough weather.

d. A means of sounding the aft steering space from the engineroom should be provided on offshore supply vessels.

e. Piping systems to tanks should be such that port and starboard tanks cannot be readily connected except through manifolds in the engineroom.

f. Adequate drainage must be provided overboard from the cargo deck. Loading of cargo must be such as to permit free drainage of water off the deck.

2. No change in existing regulations is considered necessary. It is felt that since the cause of this casualty primarily concerned operations of the vessel during adverse weather conditions rather than deficiencies in proper equipment or insufficient inspection nothing could be gained by recommending further implementation of the existing navigation and inspection laws and regulations. This is deemed to be true since it is possible to load and ballast almost any cargo ship so as to place it in a condition where it would be unstable or unsuitable for service during certain adverse weather conditions or at worst even alongside a dock. To legislate or regulate otherwise so as to insure that a vessel was stable under the worst conditions of ballasting, loading and operation, would require the restriction of the amount of cargo to be carried to a degree making the operation of freight vessels impracticable. It is felt that the publicity attendant with this casualty will tend to serve a purpose in making the operators, masters and seamen of vessels further cognizant that the vessels under their operation must be navigated in a safe and prudent manner at all times with due regard to improper and excessive loading in order to prevent resultant disaster.

/s/ JAMES B. RUCKER
Captain, U. S. Coast Guard
Chairman

/s/ STANLEY H. RICE
Commander, U. S. Coast Guard
Member

/s/ FORREST E. STEWART
Lieutenant, U. S. Coast Guard
Recorder