

MARINE CASUALTY REPORT

EXPLOSIONS AND FIRE ON THE
CHAMBERS AND KENNEDY OFFSHORE PLATFORM, BLOCK 189-L
AND FIRE ON M/V CARRYBACK IN GULF OF MEXICO
MAY 28, 1970

U.S. COAST GUARD
MARINE BOARD of INVESTIGATION REPORT
and COMMANDANT'S ACTION

ACTION BY
NATIONAL TRANSPORTATION SAFETY BOARD

DEPARTMENT OF TRANSPORTATION
WASHINGTON D.C. 20591

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CHAMBERS AND KENNEDY PLATFORM AND M/V CARRYBACK
EXPLOSION AND FIRE ON 28 MAY 1970

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**NATIONAL TRANSPORTATION SAFETY BOARD
DEPARTMENT OF TRANSPORTATION
WASHINGTON, D.C. 20591**

**EXPLOSIONS AND FIRE ON THE
CHAMBERS AND KENNEDY OFFSHORE PLATFORM, BLOCK 189-L
AND FIRE ON M/V CARRYBACK IN GULF OF MEXICO
MAY 28, 1970**

ACTION BY NATIONAL TRANSPORTATION SAFETY BOARD

This casualty was investigated by a U.S. Coast Guard Marine Board of Investigation, convened at Galveston, Texas, on June 10, 1970. A representative of the National Transportation Safety Board attended the proceedings. The Safety Board has reviewed the record of the investigation and has considered those facts which are pertinent to the Board's statutory responsibility to determine the cause or probable cause, to evaluate the effectiveness of the investigation, and to make recommendations to prevent recurrence of such a casualty.

SYNOPSIS

At 1605, May 28, 1970, explosions and fire occurred on the Chambers and Kennedy Offshore Oil Platform, located in the Gulf of Mexico, about 12 miles southeast of Galveston. The fire resulted in the deaths of five workmen on the platform and four men on board the M/V CARRYBACK, which was moored below the platform. Six platform workmen were injured, the oil platform and vessel were severely damaged and Galveston beaches were moderately polluted by oil.

The National Transportation Safety Board determines that the probable cause of this casualty was the ignition of explosive vapors by arc-welding on an equalizing line between non-gas-free crude oil storage tanks. Contributory causal factors were: lack of adequate supervision; lack of mandatory safety precautions; and divided responsibilities for the work. Loss of life might have been reduced if lifesaving devices had been provided on the platform for the workmen.

SUMMARY OF FACTS

The Chambers and Kennedy Offshore Oil Platform was an unmanned collection platform for oil wells in Block 189-L, and had a maximum storage capacity of about 5,000 barrels of oil. Crude oil from one producing well was piped through a separator to a cylindrical tank

called a gun barrel. When this tank filled, the oil flowed into one of five storage tanks, thence through equalizing lines to the other four tanks. The tanks were sounded regularly and when enough oil had accumulated, it was transported by barge to Galveston.

The platform had been shut down for alterations and repairs for several weeks prior to the casualty. The alterations were being made to increase the capacity of the platform and to bring it into compliance with applicable U.S. Geological Survey anti-pollution regulations. Chambers and Kennedy contracted with Drilling Engineering, Inc. (D.E.I.) for operation, maintenance, and alterations of the platform, and barging the oil ashore. The work in progress at the time of the casualty was under the supervision of an employee of D.E.I. Chapman Contracting Service Company had furnished 22 workmen including four supervisors for the repair and alteration work. The overall responsibility for the work rested with the D.E.I. supervisor. At the time of the casualty, this supervisor was on board the M/V CARRYBACK, which was moored to the platform. This vessel was chartered by D.E.I. to transport personnel and supplies to the platform, to provide food for the work force, and to stand by while work was in progress. It was equipped with about 35 lifepreservers, and radiotelephone equipment. Only one life ring buoy and four work vests were available on the platform on May 28.

The repair work consisted mainly of sandblasting, painting, renewal of handrails, and renovation of some of the wasted structural members. This repair work involved some burning and welding, but none was planned adjacent to the oil tanks. The alterations included: installation of prefabricated drip pans under the oil tanks; fabrication of a separator; fitting a closed draining sump system; removal of a stop valve in the equalizing line between Nos. 1 and 5 storage tanks; and installation of an additional mooring and loading facility on the southeast corner of the platform. These alterations involved some burning and welding, but not on the oil tanks, since they contained about 2,000 barrels of crude oil. D.E.I. witnesses testified that the total amount of oil did not warrant arranging for a barge to offload it, and the tanks were not inerted due to their open-atmosphere ventilation and pressure relieving devices in the tank tops.

Work on the platform had been in progress for several weeks, and D.E.I. was striving to complete the project by the weekend of May 30. The supervisor reported progress daily to D.E.I. via the radiotelephone on board the M/V CARRYBACK. He probably went on board the vessel for that purpose shortly before the explosion. Just prior to boarding the boat, the supervisor was alleged to have instructed a welder to close a gap in a newly installed section of the equalizing line by arc-welding. The alteration plans called for this connection to be made by a threaded coupling, not requiring welding. The welder sent his helper to adjust the voltage on the welding machine, and asked him to hand him the welding leads. The welder was seated on one of the tanks, and struck an arc on the equalizing line at 1605. Instantly, an explosion of flammable vapors occurred, the force of which threw him off the tank.

Subsequent explosions took place, and fire spread in the area of the tanks. Burning oil fell from the tanks onto the M/V CARRYBACK, and on the workmen on the lower levels of the platform. Some workmen jumped overboard; others climbed down the ladders to the

embarkation level. The intense fire forced them to jump into the water. The burning vessel drifted away from the platform. A passing pleasure boat, the PRINCESS PATSY, rescued 15 persons, under extremely adverse conditions. An unidentified small boat rescued two other workmen.

Five workmen, the D.E.I. supervisor, and all three crewmembers on the M/V CARRYBACK perished. Six other platform workers were hospitalized. Coast Guard aircraft and vessels searched unsuccessfully for other survivors. The burning vessel was retrieved, but it was damaged beyond economic repair. The fire on the platform burned itself out by the following morning, and firefighting personnel were able to close the master valve on a gas line which had been ruptured. Fortunately, this gas leak had not ignited. All of the tanks collapsed or were distorted, and structural members on the upper platform were damaged. Damages to the platform were estimated to be \$250,000. Damages to the CARRYBACK were about \$140,000. Only about 100 barrels of oil reached the beaches in Galveston, and it was removed in a day or two.

Background Information

The Safety Board noted the lack of Federal safety regulations governing offshore exploitation operations in its final action on the Coast Guard Marine Board of Investigation of the explosion and fire on the CONTINENTAL OIL RIG Platform 43-A in the Gulf of Mexico on October 24, 1967. Subsequently, several other fires on offshore structures have occurred; namely, the jack-up rig LITTLE BOB on August 28, 1968; the jack-up rig STORMDRILL III on January 13, 1970; the CHEVRON Offshore structure MP-41-C on February 10, 1970; the Shell Oil Platform 259-C on May 7, 1970; and the STANDARD Oil Platform HAZEL off Santa Barbara on September 4, 1970. Totals of 15 deaths, 31 injuries, and property damages in excess of \$30,000,000 resulted from these accidents. The ecological damages are difficult to estimate. The Geological Survey has records of 10 fires and explosions, each of which resulted in damages exceeding \$25,000 in the decade 1958-68. Since 1968, the incidence of fires and explosions has increased, and seven major casualties have occurred.

A number of Federal agencies have responsibilities for the regulation of the installation, operation, and production of these offshore structures. The Geological Survey of the Department of Interior issues regulations which are primarily intended to prevent waste and to conserve the natural resources of the United States. These regulations are also concerned with safety and the prevention of pollution. For example, compliance with the requirement for blowout preventers prevents waste, pollution, and enhances safe operations. Enforcement of Geological Survey regulations is limited by the availability of only about 30 supervisors to check on several thousand structures located on the Outer Continental Shelf. Authority for these regulations is found in 43 U.S.C. 1334(a)(1).

The Coast Guard derives its jurisdiction from 43 U.S.C. 1333(e)(1) which authorizes regulations with respect to lights and other warning devices, safety equipment, and other matters relating to safety of life and property. This authority appears to include exploration,

production, storage, and delivery equipment, but the Coast Guard has issued regulations concerning only lights, fog signals, lifesaving, firefighting equipment, and emergency means of escape. Because of the large number of these structures, infrequent compliance inspections are made by Coast Guard personnel. The Department of Transportation has determined that it has jurisdiction over gas and oil pipelines connecting these structures with shore tanks. The U.S. Army Corps of Engineers regulates the location of fixed structures to avoid obstructions in navigable waters. The Federal Power Commission regulates the production and flow rates for natural-gas-producing offshore structures.

Federal jurisdiction is limited to the Outer Continental Shelf beyond the 3-mile limit. States exercise jurisdiction over these structures on State lands and to the 3-mile limit offshore, except Texas and Florida, which exercise jurisdiction to 9 nautical miles offshore. The Submerged Lands Act reserves to the Federal government the power to control navigation of these waters used in interstate and foreign trade. As a result, there is an overlap of Federal and State jurisdiction in the cases of Texas and Florida between the 3-mile and 9-nautical-mile limits. Regulations governing State offshore structures vary among the States. State jurisdictional claims over coastal waters also vary, and have been sources of differences of opinion between the Federal and State governments.

The numerous Federal agencies involved in regulating the offshore platforms have fragmented areas of concern, and many aspects of the operations are left to the discretion of the operators. The offshore oil and gas operators are well aware of the hazards involved, the potential for millions of dollars in losses, and public condemnation of pollution. The National Offshore Operators Advisory Panel (NOOAP), an industry advisory group to the Coast Guard Merchant Marine Council, makes recommendations concerning Coast Guard safety regulations for these offshore structures. This Panel prepared a guide entitled "Manual of Safe Practices in Offshore Operations," published November 23, 1967. These safe practices are recommended for voluntary compliance and have not been submitted to the Coast Guard for approval, nor are they required to be.

Case Analysis

As indicated in the previous section, this casualty is not an isolated case, and the probability of recurrence is relatively high. An analysis of the underlying casual factors in this accident suggests the need for remedial action.

The evidence clearly establishes that the D.E.I. supervisor was aware that the storage tanks contained flammable oil. The gauger for D.E.I. cautioned Chapman welders about hot work adjacent to the tanks. It was not positively developed by the evidence whether the welder working on the equalizing line was aware that the tanks contained oil. The welder was experienced, and it does not seem logical that he would weld on a line he knew contained oil. There is also the possibility that a calculated risk was taken to expedite the completion of work. The death of the welder precludes a definite answer to this question, although two

witnesses stated that they planned to connect the equalizer by welding, rather than to make the connection with a threaded coupling.

Section V of the "Manual of Safe Practices in Offshore Operations" notes that "burning and welding are among the most critical of offshore activities." Welding on tanks or connecting pipes should not be started until authorized by the "Person in Charge," and inspection has been made to ascertain that the tanks or piping are thoroughly cleaned and gas free. Compliance with this safety practice would have prevented this casualty. During this investigation, Chapman and D.E.I. witnesses were asked if they were familiar with this Manual, and they responded in the negative. It is not known if the D.E.I. supervisor was aware of the Manual, but he did not follow the recommended safe practices. He was the "Person in Charge" on the Chambers and Kennedy platform. The fact that he did not prohibit the hazardous welding operation leads to the conclusion that the supervision was inadequate.

Other unsafe practices took place during the work on this structure. The workmen had to board the lower platform from the supply vessel by swinging up on a rope. Section VI of the Manual states that "regardless of the method of transfer, every person should wear an approved life jacket or work vest at all times while transferring between units and vessels." This was not done in this case, despite the availability of 35 Coast Guard approved life preservers on the CARRYBACK. If the workmen had followed this practice, the life preservers would have been on the structure and available after the fire. The natural-gas-operated "tugger" used to hoist materials was vented to the atmosphere. This was another source of fire because of the hot work on the upper level. A number of handrails and rungs in the ladder were defective. Combustible materials were scattered around on the upper level.

Organization and assignment of responsibilities for the work were lacking. A number of the roustabouts were inexperienced and untrained, and their work assignments varied during the working day. The leading men, or "pushers" as they were called, used different men as the workload demanded. This made indoctrination, safety training, and teamwork impracticable. The relationship between the D.E.I. supervisor and Chapman work force was not spelled out, and the roustabouts did not know whom to go to for advice and orders. The D.E.I. gauger and supervisory engineer occasionally gave instructions to the workmen. The Chapman work force varied during the period the work was done under their contract. All these factors, coupled with hazardous work, resulted in an accident waiting to happen.

The loss of life on board the M/V CARRYBACK could have been avoided if the vessel had been anchored clear of the platform. It is also possible that other workmen would have been rescued by the vessel, if it had not caught fire. The Manual states that when workboats are serving as standby or attending vessels, there should be a clear understanding on the vessel that safety of personnel is of the first importance. It further recommends that crews of vessels attending offshore structures be instructed how to rescue personnel in the event of a fire or other emergency necessitating abandonment of the structure. In this case, it was more convenient for the workers to have the CARRYBACK close at hand for toilet facilities, communications, offloading supplies, etc. Mooring supply vessels to platforms is a common practice, depending on the weather, and the crew of the CARRYBACK had no premonition

of the impending disaster. The positioning of the standby vessel varies with the particular circumstances, and no one specific safe practice would apply in all cases. Based on available records of fires on offshore structures, this is the first case in which a standby vessel has been burned.

The lack of voluntary compliance with the recommended safe practices raises the question whether mandatory regulations promulgated by the Geological Survey or the Coast Guard would reduce the probability of recurrence of such casualties. The offshore exploitation operators have traditionally insisted that the industry was well aware of the hazardous nature of their operations, and that their safety record supported the concept of self-regulation, rather than Federal regulations. This casualty, as well as the other previously mentioned cases, poses some doubt as to the effectiveness of voluntary safe practices in preventing accidents. Regardless of whether voluntary practices or mandatory regulations govern such operations, unless they are enforced, little benefits are derived from them.

The Safety Board has noted¹ the need for Federal safety regulations in other modes of transportation, and the ineffectiveness of voluntary standards in protecting the general public. It is concluded that there is need for Federal minimum safety regulations governing the operations of offshore exploitation platforms. Such regulations should be based on the actual need demonstrated by careful analysis of such casualties as those mentioned in this report. The increase in the number of these casualties, coupled with the increase in offshore exploitation, necessitates a careful evaluation of current Federal regulations as to their effectiveness in protecting the public interests.

PROBABLE CAUSE

The National Transportation Safety Board determines that the probable cause of this casualty was the ignition of explosive vapors by arc-welding on an equalizing line between non-gas-free crude oil storage tanks. Contributory causal factors were: lack of adequate supervision; lack of mandatory safety precautions; and divided responsibilities for the work. Loss of life might have been reduced if lifesaving devices had been provided on the platform for the workmen.

¹ (a) Recommendation addressed to the Federal Railroad Administration, Department of Transportation, in the Safety Board's Study of the Causes of Train Accidents, April 3, 1968;
(b) A Study of Uniform Reporting System for All Modes of Transportation in Reporting Incidents and Accidents Involving the Shipment of Hazardous Materials, adopted by the Safety Board March 21, 1969;
(c) The Roles of General Services Administration and Department of Transportation in Motor Vehicle Safety Standards, adopted by the Safety Board June 3, 1970.

RECOMMENDATIONS

The Safety Board concurs in recommendations No. 1 and No. 2 of the Marine Board of Investigation.

The Safety Board recommends that the Department of the Interior, and the Department of Transportation:

1. Evaluate their present regulations governing fixed and mobile offshore drilling and production structures operating under Federal jurisdiction; and based on analysis of casualty data, determine whether revisions or additions are needed to prevent recurrence of similar casualties.
2. Consider the implementation of an effective enforcement program of present and revised regulations, including additional personnel and equipment required for such a program.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

Adopted this 11th day of August, 1971:

[REDACTED]
[REDACTED] Member

[REDACTED]
[REDACTED], Member

[REDACTED]
[REDACTED], Member

[REDACTED]
[REDACTED], Member

Chairman [REDACTED] did not participate in the adoption of this report.





DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDANT (MVI-3)
U.S. COAST GUARD
WASHINGTON, D.C. 20591

• 9 APR 1971
5943/C&K PLATFORM -
CARRYBACK
A-8 Bd

Commandant's Action

on

The Marine Board of Investigation convened to investigate circumstances surrounding the explosion and fire on the CHAMBERS AND KENNEDY PLATFORM - M/V CARRYBACK in the Gulf of Mexico on 28 May 1970 with personnel casualties

1. The record of the Marine Board of Investigation convened to investigate subject casualty has been reviewed; and the record, including the Findings of Fact, Conclusions and Recommendations, is approved subject to the following comments and the final determination of the cause by the National Transportation Safety Board.

SYNOPSIS OF FINDINGS OF MARINE BOARD OF INVESTIGATION

1. On 28 May 1970 an explosion and fire occurred on Chambers and Kennedy Offshore Oil Platform in the Gulf of Mexico off Galveston, Texas, resulting in the loss of nine lives. The casualty was caused by welding on an equalizing line between oil storage tanks which were not properly gas freed. The fire and explosion caused extensive damage not only to the platform, tanks, and equipment; but also to the M/V CARRYBACK, a vessel moored to the platform.
2. At the time of the casualty twenty-two men were on the platform engaged in work to increase production capabilities, to bring the platform into compliance with pollution control requirements, and to accomplish routine maintenance. Seventeen survivors from the platform were rescued from the water; fifteen by the pleasure vessel PRINCESS PATSY, and two survivors were picked up by another passing motorboat. All four persons on the M/V CARRYBACK perished.
3. A thorough search failed to locate the remainder of the men on the platform. By the morning of 29 May 1970 the fire was out, however two storage tanks were still smoking.

4. The oil well supplying the platform had been secured since April and the tanks contained approximately 2,000 barrels of crude oil. Some of the work on the platform consisted of welding and burning operations which had been in progress for several days. There were a few work vests on the platform; however, all of the life preservers were carried on the standby vessel M/V CARRYBACK.

REMARKS

1. In concurrence with the Board's Conclusion No. 1 and No. 2, it is considered that the explosion and fire was caused by ignition of the explosive crude oil vapors in the equalizing line due to welding. The unsafe operation of welding on tanks that have not been gas freed or inerted demonstrates improper supervision.

ACTION CONCERNING THE CONCLUSIONS AND RECOMMENDATIONS

1. Appropriate action is being taken to suitably recognize those persons who demonstrated meritorious and heroic conduct during the period following the explosion and fire.

2. The evidence that the M/V CARRYBACK was in violation of statutes prohibiting carriage of cargo and passengers for hire without a certificate of inspection and for improper manning is being referred to the Commander, Eighth Coast Guard District, for appropriate action under the administrative penalty provisions.

3. The recommendation to require lifesaving devices on offshore platforms for each person on board is being processed as a proposed regulation under the administrative rule-making procedure prescribed by statute.

4. The recommendation that operations such as welding and flame cutting on platforms be prohibited in hazardous locations relates to drilling and production and will be forwarded to the Geological Survey of the Department of Interior for evaluation and possible incorporation into their regulations.


O. R. BENDER
Admiral, U. S. Coast Guard
Commandant



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDANT
U.S. COAST GUARD
WASHINGTON, D.C. 20591

5943/C&K Platform
M/V CARRYBACK
Marine Board
12 February 1971

From: Marine Board of Investigation
To: Commandant, Coast Guard (MVI)

Subj: Chambers and Kennedy Offshore Oil Platform, Block 189-L,
Outer Continental Shelf, Gulf of Mexico - M/V CARRYBACK;
Explosion and fire, 28 May 1970, with loss of life

FINDINGS OF FACT

1. At or about 1605 (+6 zone) on 28 May 1970 an explosion and fire occurred on Chambers and Kennedy Offshore oil platform, in block 189-L, federal lease OCS 092, located in the Gulf of Mexico approximately 12 miles southeast of Galveston, Texas. The casualty occurred as workmen began welding on an equalizing line connecting two of the five crude oil storage tanks on the platform. The casualty resulted in the loss of nine lives, major damage to the platform structure and equipment, and extensive damage to the M/V CARRYBACK which was moored to the platform.

2. Vessel data:

Name	CARRYBACK
Official Number	504118
Service	Miscellaneous oil exploitation
Gross tons	136
Net tons	93
Dimensions	85.8' x 22.3' x 9.7'
Home Port	Wilmington, Delaware
Owner	C-W-D, Inc., 74-1660279 229 South State Street Dover, Delaware
Operator	Dearborn Marine Inc. Freeport, Texas
Master	Webster B. Armstrong (unlicensed) Z-1273200
Propulsion	Diesel - 670 HP
Built	Rockport, Texas; 1966; welded steel
Inspection data	Not inspected

3. Platform data:

The Platform is an unmanned artificial island located in the Gulf of Mexico in 56 feet of water approximately 12 miles southeast of Galveston, Texas. The top of the platform, approximately 58 feet above the surface of the water, measured 50' x 100' with its long axis oriented approximately north and south. On the north end there were five cylindrical 1000 barrel storage tanks 25 feet in diameter constructed of light gage bolted steel. On the southeast corner there was a taller 12 foot diameter cylindrical tank called a "gun barrel", constructed of welded steel which received the crude oil produced prior to storage in the tanks. A small storage building was located near the helicopter landing platform on the southeast corner. At the north end of the structure near the water there was a boat landing with a stairway leading to the top level. A vertical ladder welded to the southeast leg of the structure afforded another means of escape. The platform was unlighted except for a battery powered Aid to Navigation light on each corner. A fog horn, also battery operated, was located under the helicopter landing platform.

The platform was constructed of bolted steel. It was built by the Pure Oil Company in 1953 and later acquired by Chambers and Kennedy, Houston, Texas, in 1968. Originally the platform served as a drilling site. Three gas wells were drilled on the location but were never placed in production. Each gas well was closed by an arrangement of valves known as a "christmas tree" located on the platform top. The gas wells were designated A-1, A-2 and A-3. At a later date, three oil wells were drilled at a location approximately 4500 yards to the southeast. A satellite platform was erected and five lines were led to the production platform, but, only one of the oil wells was put into production. The flow was stopped in April 1970 for repairs, maintenance and alterations to the platform.

When in operation the production sequence was as follows: Oil flowed from the satellite well through a 2-7/8" line to the platform. From a separator on the platform it flowed into the gun barrel, which acted as a settling tank. As the gun barrel became full, the product overflowed through a 4" line into No. 1 storage tank which was connected by equalizing lines to the other four storage tanks. A gauger under contract to Drilling Engineering, Inc., visited the platform periodically to check on the level of product in the tanks. Approximately every two weeks when sufficient oil was accumulated in the tanks, he arranged for it to be discharged from the storage tanks to a tank barge to be carried away.

4. List of Deceased and Missing:

a. Employees of Chapman Contracting Company, Inc. on Platform 189-L.

Deceased:

Joseph B. GASPARD, Welder
[REDACTED]

Missing and presumed dead:

Dorris C. CAMPBELL, Jr., Roustabout
[REDACTED]

Franklin J. CREDEUR, Roustabout
[REDACTED]

Eugene MEAUX, Roustabout
[REDACTED]

Shelton J. NUNEZ, Jr., Roustabout
[REDACTED]

b. M/V CARRYBACK

Deceased:

Webster B. ARMSTRONG, Master
[REDACTED]

MMD [REDACTED] endorsed for, Ordinary Seaman - Wiper - Steward's Dept (FH) - No License.

M/V CARRYBACK (Deceased cont.)

Francis A. CASSEL, Engineer

MMD [REDACTED] endorsed for, Ordinary Seaman - Wiper - No license

William MONK, Supervisor
Employed by Drilling Engineering, Inc.

Missing and presumed dead:

[REDACTED] Cook & Deckhand

No license or merchant mariner's document
SS# [REDACTED]

Incapacitated in excess of 72 hours as a result of injuries:

[REDACTED] Cuts on leg and side

[REDACTED] Back injury, abrasions

[REDACTED] Leg injury, depression

[REDACTED] Salt water in lungs, pneumonia

[REDACTED] Chest pains

[REDACTED] Burns on face

5. Weather data:

The weather at the time of the casualty was clear with winds from the southeast at fourteen m.p.h. and southeast seas of 3 feet. The air temperature was 80 degrees.

6. Drilling Engineering, Inc., Lafayette, Louisiana had served as oil well servicing consultants for Chambers and Kennedy, owners of the platform, since June 1968. On 15 January 1969 these parties contracted for additional services concerning maintenance and repairs on platform 189-L. After some of the work was performed by a Texas based contractor in May 1970, Chapman Contracting Service Company, Inc. of Gueydan, Louisiana was engaged by Drilling Engineering Inc. to provide labor to continue the project. The work on the platform was for three purposes: (1) to increase production capabilities, (2) to bring the platform into compliance with U. S. Geological Survey requirements pertaining to pollution control, and (3) to accomplish routine maintenance. The work to increase production capabilities included the construction of a mooring platform for barges at the southeast corner of the platform and the installation of an additional six-inch barge loading line. Work to bring the facility into compliance with U. S. Geological Survey requirements consisted of the installation of drip pans for storage tanks and pressure vessels, installation of an automatic closed drain system to contain spills, and the removal of a stop valve in an equalizing line between two of the storage tanks. Routine maintenance involved such work as sandblasting, painting, replacement of handrails and replacement of zinc anodes.

7. At the time of the casualty there were twenty-two persons on the platform. These persons comprised the crew working for Chapman Contracting Service Company, Inc. The M/V CARRYBACK, which was moored to the platform, had four persons on board including a three man crew and Mr. William Monk, the supervisory engineer on the job, in the employ of Drilling Engineering Inc.

8. The equalizer line between number 1 and number 5 tanks was disassembled the day prior to the casualty, by Mr. [REDACTED] employed by Chapman Contracting Service, Inc. in the capacity of pusher. After the valve and attached fittings were removed a new piece of 4" pipe was screwed into the flange to replace the valve and nipple assembly. On 28 May, the day of the casualty Mr. [REDACTED], Welder and Mr. [REDACTED] were engaged in fitting drip pans on number 1 storage tank. They were told by Mr. [REDACTED], the supervisor employed by Drilling Engineering, Inc., to stop what they were doing and to weld the equalizer line between number 1 and number 5 tanks. Shortly before the explosion Mr.

██████████ examined the equalizer line to see if the 1/4" gap between the two ends could be pulled together and then he returned to the platform deck to get a tool for that purpose. Mr. ██████████ carried the welding lead up the flight of steps to the grating below the equalizer line near the top of the tanks, he handed some electrodes to Mr. Gaspard, then went back down to the platform deck to increase the current setting on the welding machine. As Mr. ██████████ started to walk back to the ladder to the catwalk to help Mr. Gaspard, he saw Mr. Gaspard put his helmet shield in the down position and strike an arc on the equalizer line. An explosion instantly occurred. Mr. Gaspard flew through the air, his clothing on fire. A raging fire and a series of several explosions ensued on the platform. Burning oil from the ruptured tanks enveloped the M/V CARRYBACK moored below.

9. Mr. ██████████ had descended the ladder from the grating and had just reached the tool box, on the south end of the platform, when the explosion occurred. Mr. ██████████, a roustabout, was on the south end of the platform, making up a pipe fitting at the time of the explosion. Mr. ██████████, a roustabout, had been sandblasting around the storage tanks, finishing with the last one, number 5, at approximately 1600. He took off his protective hood and walked to the south end of the platform to get a drink of water. After getting the drink of water, he turned to look at Mr. Gaspard, who was standing on the grating between number 1 and number 5 storage tanks bending over the equalizer line. He observed Mr. ██████████, the welder's helper, standing by a welding machine nearby. While Mr. ██████████ was watching Mr. Gaspard, the explosion occurred, originating at the equalizer line. He observed Mr. Gaspard as he was blown off the grating by the initial blast, which was followed by a series of similar sharp blasts. Mr. ██████████, Foreman, Chapman Contracting Service Co., Inc., was near a separator on the south end of the platform helping Mr. ██████████ a roustabout, measure a piece of pipe when the explosion occurred. He immediately went to the helicopter platform area where men were going through an opening in the platform grating to the vertical ladder on the southeast leg. Mr. ██████████ took an alternate route, outside the structure, to the ladder and descended to the barge landing. Upon arrival there he found approximately eight men on the platform and five others in the water. While standing on the barge landing, Mr. ██████████ counted five explosions and watched burning oil pour down from the north end of the platform top to the decks and topside structure of the M/V CARRYBACK which lay stern to the structure, secured by a single line, a short distance off. He saw no one on board at this time.

10. Mr. ██████████, another welder, had been welding on a drip pan under a separator. On the afternoon of the casualty he moved his welding lead and cutting torch to the opposite end of the platform where the storage tanks

were located and lowered them to the boat landing, which was approximately ten feet above the water. He took down a piece of 8" pipe to be used in fabricating a mooring bitt and other necessary supplies. While this work was in progress, Mr. [REDACTED] went to the top of the platform to get some electrodes. As he was returning to the boat landing, he met Mr. Shelton Nunez, Jr., and Mr. Dorris Campbell, at an intermediate level approximately fifteen feet below the area where the storage tanks were located. The explosion occurred as these men stopped to talk.

11. To escape from the platform following the explosion and fire some of the workmen on the structure descended the ladders to the lower platform on the southeast corner and others jumped into the water.

Mr. [REDACTED] jumped from the top of the platform and landed in the water outboard of the structure. He began to swim toward the M/V CARRYBACK when he saw that the vessel had started to move away from the structure. Mr. [REDACTED] then began to swim in the opposite direction when another explosion occurred, temporarily blinding him; however, he was able to remain afloat until rescued. While in the water he heard someone calling for help but he was unable to see or to identify the person.

Mr. [REDACTED] left the platform by way of the vertical ladder on the southeast leg, jumped into the water and swam to the PRINCESS PATSY, a pleasure craft which arrive on the scene. After he was on board, Mr. [REDACTED] jumped into the water again to assist Mr. [REDACTED] aboard the PRINCESS PATSY where he was given mouth-to-mouth resuscitation. After Mr. [REDACTED] was on board, Mr. [REDACTED] assisted in the rescue of the men remaining on the platform by throwing life rings with lines attached from the bow of the vessel. Mr. [REDACTED] had also jumped from the PRINCESS PATSY in an attempt to swim back with a line. When he was unable to make it back to the platform he returned to the PRINCESS PATSY. Mr. [REDACTED] left the platform ahead of Mr. [REDACTED] by way of the vertical ladder at the southeast corner. While he was in the water clinging to the structure awaiting rescue, Mr. [REDACTED] saw Mr. Dorris Campbell in the area of burning oil on the water and he saw Mr. Shelton Nunez, Jr. disappear beneath the surface of the water near the platform structure.

While in the water Mr. [REDACTED] a roustabout, could see the M/V CARRYBACK, on fire drifting away from the platform. He was uninjured except for minor cuts from barnacles as he clung to a piling. Mr. [REDACTED] swam about near the platform for an estimated twenty minutes before being picked up with Mr. [REDACTED] another Chapman Employee, by a small pleasure boat which had come to the scene. The boat cruised

around in the vicinity in an attempt to find Mr. [REDACTED] who had jumped into the water from the top of the platform. When Mr. [REDACTED] could not be found, the boat took Mr. [REDACTED] and Mr. [REDACTED] to the Mil-Chem dock in Galveston and then departed without being identified.

12. The other survivors were rescued by the PRINCESS PATSY, a passing pleasure craft. The PRINCESS PATSY IS A 40 foot wood hulled twin engine cris-craft sport fisherman owned by [REDACTED], of Houston Texas. Registration number TX-7869-BN, 1970. The PRINCESS PATSY with Mr. [REDACTED], the operator, passed the Chambers and Kennedy platform, at about 1600 leaving it approximately 1000 feet to starboard enroute Galveston from an offshore fishing trip with ten persons on board. Mr. [REDACTED] was looking astern toward the platform when he heard a rumbling noise and saw a cloud of smoke and fire erupt from the area of the tanks on the top of the platform. He immediately broadcast a distress message on his voice radio which was acknowledged by the U. S. Coast Guard Base Galveston. He then brought the boat about and ran at full speed toward the platform, arriving there in about 5 minutes. The PRINCESS PATSY's radio receiver failed after the distress call however, the vessel was still able to transmit.

Mr. [REDACTED] approached the platform from the windward side and began rescue efforts. Twenty-five life preservers of a total of thirty five on board the PRINCESS PATSY were thrown overboard for the men already in the water and those still grouped together on the crossbraces of the structure. Most of the survivors were hauled aboard the boat by means of a line made fast to a life ring which was thrown to them in the water. Mr. [REDACTED] made repeated close approaches to the platform and picked up a total of fifteen persons bringing the total number of survivors to seventeen. Maneuvering was made difficult by the wind and seas setting the boat into the structure and by failure of the boat's port engine. During this time Mr. [REDACTED] saw only one life preserver and one ring buoy other than those which were thrown into the water from the PRINCESS PATSY.

Of the number of men gathered on the barge landing platform, the last to leave were Mr. [REDACTED] and Mr. [REDACTED]. Mr. [REDACTED] who could not swim, was given a life ring by Mr. [REDACTED] who had retrieved two of those thrown from the PRINCESS PATSY. As he was hauled on board the rescue boat Mr. [REDACTED] noticed the M/V CARRYBACK adrift, some distance from the platform, engulfed in flames.

As the PRINCESS PATSY departed the platform area bound for Coast Guard Base Galveston Mr. [REDACTED] saw the M/V CARRYBACK adrift and in flames approximately 300 yards to the north of the structure. He did not stop to board it because he was

convinced that there were no survivors on board due to the intense fire still burning. Enroute to the Coast Guard Base, Galveston Mr. [REDACTED] called ahead by radio to advise of his time of arrival. Such first aid as was available was administered by guests on the boat. Upon arrival at the base the boat was met by Coast Guard personnel who arranged for transfer of the survivors to local hospitals by ambulance for treatment of cuts, burns and bruises. Most of the men were released immediately but four were held for further treatment and observation.

13. The Coast Guard Base, Galveston, Texas, received the first voice radio call concerning the casualty from the M/V PRINCESS PATSY at 1605, 28 May 1970. The first vessel was underway at 1608, arriving on scene at 1748. The Coast Guard Air Station, Houston, Texas, received a call concerning the casualty at 1610. The first helicopter, HH52A 1400, was on the scene at 1650. A total of eleven sorties were flown for a total of 21.4 hours in the air. The air search was discontinued at 1840, 30 May 1970. The Coast Guard Cutter RELIANCE (WMEC-615), arrived on the scene at 0715, 29 May 1970, and assumed on-scene command. At this time one tank on the platform was smoking moderately and another was smoking slightly. At 2228, the CGC RELIANCE secured from the case and left the scene of Platform 189-L after repeated searches for survivors had proven fruitless, and after it was determined that reflash was improbable and no vapor leaks were visible.

14. Mr. [REDACTED] had been under contract to Drilling Engineering, Inc., to perform various services on the Platform since December 1968. Mr. [REDACTED] was at the Mil-Chem dock in Galveston when the news of the casualty reached him shortly after 1600. He flew to the scene in a helicopter, arriving at some time between 1800 and 1900. From the air he observed the platform burning, the M/V CARRYBACK adrift about five miles to the north of the platform, and the M/V SUGAR CARRI standing by. A pipe which formerly connected the gun barrel and the No. 1 storage tank was burning intensely as were the storage tanks. Unignited gas, under high pressure, was visible escaping from the broken gas regulator piping which supplied gas to the air tugger from the A-1 gas well.

15. The following day the number 5 tank was still smoking when Mr. [REDACTED] returned to the platform area by boat with men from the Griffin Wild Oil Well Fire Fighting Co., West Monroe, Louisiana. Mr. [REDACTED] remained on the vessel while Mr. [REDACTED] and his men boarded the platform and shut the master valve on the gas well as the Coast Guard Cutter RELIANCE sprayed cooling water on the platform. Mr. [REDACTED] found the regulator broken and a jet of gas escaping from the line at approximately 3000 psi as determined by a gauge on the christmas tree. The body of Joseph Gaspard was found

lying approximately midway between storage tanks number 1 and number 4. The remains were wrapped in a blanket and then placed on board the CGC RELIANCE to be later placed in custody of local authority at Galveston.

16. On 2 June Mr. [REDACTED] a senior engineer and technician of the U. S. Geological Survey, Gulf Coast Region, boarded the platform by helicopter accompanied by one of the USGS inspectors. He found the following conditions: The northern half of the platform was almost totally destroyed. Two of the storage tanks had fallen into the water along with some of the steel beams which had served as structural support for the floor. The two southernmost tanks, number 1 and number 4, were burned and collapsed. The northwestern tank, number 2, was distorted and hanging over the side of the platform with its top blown off. The gun barrel was intact but leaning, due to the warped beams upon which it rested. The ladder on the north side was destroyed. The line leading from the flow line header to the separator was broken. A pipe leading from a wing valve on A-1 well to a pressure regulator was broken. The regulator was lying on the deck nearby, still connected to the air receiver by a rubber hose. The wing valve was open and some gas was escaping from it due to the leaking master valve which had been closed the day after the casualty. After the wing valve was closed pressure of 2750 psi built up in the line in approximately an hour. Two rubber hoses led from the air receiver to air tuggers, one on the southeast corner and one to a position approximately in the center of the platform.

17. Materials for the work being performed were hoisted from the M/V CARRYBACK by means of an air tugger powered by natural gas from the A-1 well head through the reducing regulator valve and the air volume tank. The exhaust gas from the tugger was released to the atmosphere through a short length of rubber hose which led under the platform deck. This practice is common to the offshore oil industry.

18. Mr. [REDACTED], Vice President and Marine Superintendent of Freeport Operators, Inc., the company which provides the crews and operates vessels owned by Dearborn Marine Service, Inc., learned of the explosion at approximately 1700 on the day of the casualty while at his office in Freeport, Texas. He and a mechanic employed by his company departed Freeport, Texas, approximately fifteen minutes later on the M/V WAR ADMIRAL, a vessel owned by Dearborn Marine Service, Inc. While enroute to the scene they learned by radio that the M/V SUGAR CARRI had taken the M/V CARRYBACK in tow for Galveston. The WAR ADMIRAL met the SUGAR CARRI at the Galveston Jetties and took the tow at about 1900.

19. The CARRYBACK was still smoldering where wood covered the main deck aft, and where the remains of a body lay on the bow.

Fire still burned below deck in the forward part of the vessel. The deckhouse and pilothouse were completely burned out. The WAR ADMIRAL continued to pump water on the CARRYBACK, assisted by a Coast Guard vessel, until approximately 2300, when the CARRYBACK was towed into Galveston.

The vessel was boarded when the deck was sufficiently cool. The engine room of the CARRYBACK was entered through an escape hatch on the starboard side and the starboard main engine and port auxiliary generator, which were still running, were secured. The CARRYBACK was then towed to the Mil-Chem Dock at Pelican Island and tied up. During this time, water spray on the vessel was continued to extinguish the fire forward below decks and to cool the vessel further. The CARRYBACK was burned out completely with the exception of the engine room which sustained smoke damage but otherwise remained in good condition. The fuel tanks, located between the engine room and the berthing spaces, did not ignite although the flame screens in the gooseneck vents on deck had burned out and the tanks were externally blistered and scorched. Seven to ten thousand gallons of fuel remained in the tanks.

20. Mr. [REDACTED], Manager, Dearborn Marine Service, went aboard the CARRYBACK at approximately 2400, 28 May, following the casualty. He inspected the engine room and noted that all electrical switches were in the "off" position except for the following: The main breaker for the port generator was in the "on" position, but tripped. The main feeder to the pilothouse, the switch to the starboard air compressor, and the air conditioner switch were "on". The pneumatically operated clutch on the main engine was found in the neutral position. One fire extinguisher was in its customary place and the other was lying on deck.

21. The body found on the bow of the CARRYBACK was removed from the vessel and later identified as that of Mr. William Monk. A body found below in the living quarters of the vessel was later identified as that of Mr. Francis Cassel, the engineer of the CARRYBACK. At approximately 0130 on 29 May, men of the Galveston County Sheriff's Department removed the body of Mr. Cassel to the county morgue. Later, at 1000, when the vessel had cooled sufficiently, a further detailed search of the vessel produced no other bodies. Mr. [REDACTED], the cook, was not found. The body of Mr. Webster Armstrong unlicensed Master of the M/V CARRYBACK was found approximately 1810 on the day of the casualty floating just under the surface of the water, approximately 1/4 mile north of the platform, by CG helicopter HH52A 1400. The body was clothed in shirt, pants and shoes. It was covered with oil

and the exposed skin was somewhat charred. The body of Armstrong was delivered to CG Base, Galveston for further disposition.

22. Approximately 100 barrels of crude oil remained in the water following the fire. An estimated 50-75 barrels reached the beach at Galveston and was cleaned up with the use of hay and straw. At 0715, 29 May, when the Coast Guard Cutter RELIANCE arrived on the scene, pollution in the area extended two miles, 340 degrees True. The major concentration of oil was within 500 yards of the platform structure. The remainder was a rainbow slick. By 1245, 29 May, a containment boom had been placed around the platform structure to prevent further spread of oil pollution. The boom was not effective due to rough seas and it soon broke loose and was not recovered.

23. In connection with his duties which included gauging the storage tanks, checking equipment and navigational lights, testing wells, loading barges and keeping unauthorized persons away, [REDACTED] had last checked the contents of the storage tanks at the time of the shut down of the flowing wells prior to the start of the work. At that time there were approximately 1600 barrels of crude oil in the tanks and an additional 400 barrels in the gun barrel. The specific gravity of the product was between .31 and .33 and it was described as a highly volatile product which appeared to be similar to a mixture of diesel fuel and light lubricating oil. The presence of these quantities of oil on the platform was known to supervisory personnel before the work began and it figured significantly in the design of the gutters and the methods to be used in placing them around the tanks. Reasons given for not having removed the oil before beginning the work were: That the amount of oil was too small to make the collection by barge economically feasible; that a barge was not readily available; and because the location of the drain lines was such that more than a foot of product would be left in the tanks after it had been drained.

24. There were no written instructions relating to safety practices to be observed by the workmen in the performance of the work to be done; however, the dangers relative to the oil in the storage tanks were discussed by supervisory personnel of Drilling Engineering Inc. and Chapman Contracting Service Co. Inc. It was expected that cutting and welding necessary to fabricate the sheet steel into gutters was not to be done in the immediate vicinity of the tanks and that piping connections were to be made with threaded fittings. However all personnel involved in the work were not aware of the prohibition against cutting and welding and the type of connections to be made. Mr. [REDACTED] on several occasions, admonished workmen attempting to weld directly on the tanks. Mr. [REDACTED] believed that the tanks had been gas freed or filled with Water. Mr.

██████████ overheard men discussing the oil in the tanks but he did not know the men by name. On the day prior to the casualty the wooden planking under the tanks was accidentally set on fire by workmen using a acetylene cutting torch nearby. The fire was small and was extinguished with one of the four portable extinguishers on the platform.

25. There were life preservers and other bouyant lifesaving gear on board the M/V CARRYBACK, sufficient for the platform workers and the crew of the vessel; however, only four work vests and one ring buoy were known to be on the platform at the time of the explosions. These were in random locations as left by the men when brought on the platform and comprised the only bouyant lifesaving equipment on the structure.

26. The M/V CARRYBACK which transported the equipment and the twenty-two workmen to platform 189-L on the day of the casualty had been engaged in that service from 7 May 1970 to 28 May 1970, usually leaving Galveston for the platform at 0500 and returning at 1800. On 7 May 1970 the CARRYBACK was substituted for another vessel, the M/V PECTEN, which had been engaged in support of repair work on the platform since 4 May 1970. The vessels were supplied on the basis on an oral agreement on 3 May 1970 between Mr. ██████████, Drilling Engineering Inc., and Mr. ██████████, President of Dearborn Marine Service Inc., which had the CARRYBACK under charter from Thorobred Marine Inc. When the CARRYBACK was substituted for the PECTEN it was understood that all conditions of the agreement would remain the same. The agreement was not reduced to writing.

The CARRYBACK was one of 15 vessels purchased from Caspary Wendell Inc., a Division of Santa Fe International Inc. on 1 May 1970 by C.W.D. Inc., a Delaware Corporation. Since the owner of record, C.W.D. Inc., was not allowed to do business in the State of Texas due to the fact that there was a Texas Corporation with a similar name, the name of the corporation owning the CARRYBACK was changed to Thorobred Marine Service Inc.

The lease of the CARRYBACK to Drilling Engineering Inc., was at a daily rate for the duration of the job which was scheduled for completion sometime on the weekend following the date of the casualty. Dearborn Marine Service Inc. was to man, navigate, and provide food for the CARRYBACK. Dearborn obtained the crew through Freeport Operators, Inc. Dearborn selected the master, Freeport Operators Inc. paid the crew. Insurance in favor of Chambers and Kennedy was provided by Dearborn. Drilling Engineering Inc. was billed for workmen's meals provided by the CARRYBACK. Dearborn Marine Service Inc. is a wholly owned subsidiary of Dearborn Computer and Marine Inc., a Delaware Corporation. Freeport Operators Inc., is a

Texas Corporation occupying the same office space in Freeport, Texas as Dearborn Marine Service Inc. Some of the officers of Dearborn Marine Service Inc. are also officers of Freeport Operators Inc. and Thorobred Marine.

CONCLUSIONS

1. The casualty was caused by the ignition of explosive vapors due to welding on an equalizing line between crude oil storage tanks on the platform. Contributory causes were failure to gas free or inert the tanks before the work began, and improper supervision in allowing welding operations on a line leading to gaseous tanks.

2. The casualty might have been prevented had the crude oil storage tanks been gas freed or inerted before welding was commenced or had the repairs had been accomplished by means other than welding. The tanks apparently were not drained or emptied because it was felt to be impracticable. A barge to transport the crude oil was not readily available or economically feasible, and the location of the drain lines some distance from the bottom would leave some oil in the tanks.

The effects of the casualty might have been reduced had adequate lifesaving devices been provided on the platform and readily accessible. The standby vessel was not effective for lifesaving in this case due to immediate fire damage.

3. There is evidence that the following statutes have been violated:

a. 46 USC 404 - The M/V CARRYBACK, carrying freight and passengers for hire was navigated without a certificate of inspection.

b. 46 USC 672 - The M/V CARRYBACK was permitted to depart from a port in the United States without 65 per centum of her deck crew being of a rating not less than able seaman.


c. 46 USC 643 - All seaman employed on the M/V CARRYBACK did not hold and exhibit merchant mariner's documents.

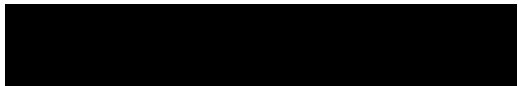
A report of these violations will be submitted to the Commander, Eighth Coast Guard District.

4. There is evidence of meritorious action on the part of [REDACTED] the operator of the PRINCESS PATSY, who took the vessel into the area of the fire underneath the platform to rescue fifteen survivors. There is also evidence of meritorious action by [REDACTED] and [REDACTED] employees of Chapman Contracting Service Company Inc., who left the relative safety of the M/V PRINCESS PATSY and entered the water to assist in the rescue of fellow workers. Meritorious action by these persons will be the subject of separate correspondence.

RECOMMENDATIONS

1. That the regulations be amended to require that Coast Guard approved life preservers be provided in easily accessible places for all persons on an offshore platform. Existing regulations require life preservers on unmanned platforms only while crews are working continuously on a 24 hour basis.
2. That operations such as welding and flame cutting on platforms be prohibited in hazardous locations adjacent to tanks or lines containing explosive vapors and in other locations where there is danger of ignition of explosive gases.
3. That further investigation under the Administrative Penalty Procedures be initiated regarding the evidence of violations of laws concerning manning and inspection of the M/V CARRYBACK.


Captain C. T. NEWMAN, USCG
Chairman


Commander F. E. STEWART, USCG
Member


ICDR K. L. LAMBERTSON, USCG
Member and Recorder

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