



# National Transportation Safety Board

## Marine Accident Brief

### Fire aboard Dive Support Vessel *Iron Maiden*

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<b>Accident type</b>	Fire/Explosion	<b>No.</b> DCA20FM016
<b>Vessel name</b>	<i>Iron Maiden</i>	
<b>Location</b>	Gulf Intracoastal Waterway, mile 36, Larose, Louisiana 29°33.93' N, 90°23.29' W	
<b>Date</b>	April 16, 2020	
<b>Time</b>	0110 central daylight time (coordinated universal time – 5 hours)	
<b>Injuries</b>	None	
<b>Property damage</b>	\$900,000 est.	
<b>Environmental damage</b>	None	
<b>Weather</b>	Visibility 10 miles, clear skies, winds east-northeast at 12 mph, air temperature 63°F, water temperature 69°F <sup>1</sup>	
<b>Waterway information</b>	The Louisiana segment of the Gulf Intracoastal Waterway is 306 miles long, 12 feet deep, and 125 feet wide.	

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On April 16, 2020, about 0110 local time, a fire on board the dive support vessel *Iron Maiden* occurred while the vessel was docked at the Allied Shipyard in Larose, Louisiana. Local firefighters extinguished the fire at 0225. No one was aboard the vessel at the time of the fire. No pollution or injuries were reported. Damage to the vessel was estimated at greater than \$900,000.

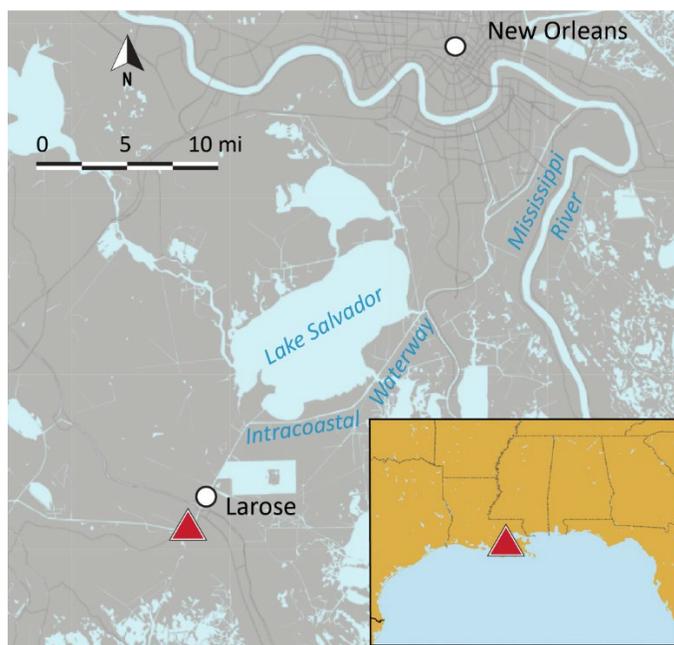


The *Iron Maiden* prior to the accident, with previous name and different owner. (Source: US Coast Guard)

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<sup>1</sup> All miles in this report are statute miles.

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Area of accident where the *Iron Maiden* caught fire, as indicated by the red triangle. (Background source: Google Maps)

### Background

The *Iron Maiden* was built in 1978 at Halter Marine in Lockport, Louisiana, as an offshore supply vessel and was originally named *Kathy Candies*. It was purchased by Tiburon Marine, LLC in 2006, renamed *Thrasher*, and converted to a dive support vessel in 2007. In May 2009, Bisso Marine Co, Inc. purchased the vessel, changed its name to *Joseph Bisso*, and continued dive support operations. In December 2019, the vessel was purchased by Blue Marlin LLC, who renamed it *Marlin Responder* and later *Iron Maiden*, and intended to upgrade the vessel and return it to dive support operations.

### Accident Events

The *Iron Maiden* was moved to Allied Shipyard in Larose, Louisiana, on March 31. The vessel was to be drydocked for inspection by US Coast Guard and American Bureau of Shipping personnel so it could receive certification and return to operations. While waiting for the drydock to become available, shipyard personnel worked on the vessel, and a marine chemist visited the vessel on three occasions to certify the interior tanks and voids as safe for workers and hot work.

On April 15, 2020, the *Iron Maiden* was shifted 150 feet to a new berth, and the shipyard electrician reconnected the shore power electric cables and restored power. The electrician stated that he went aboard the vessel after the power was restored, found everything was operating, and departed.

Following the movement of the *Iron Maiden*, Allied Shipyard workers entered the vessel at 0800 to conduct hot work with acetylene torches on the starboard exhaust trunk under the bridge deck and on the forecastle deck by the starboard-side mooring/securing bitt. Both work areas were located directly above the generator room on the main deck. The room had three diesel-engine-driven generators, which were secured. The number one generator was directly under the starboard exhaust fan (which was secured) and had a fire cloth over it for protection from

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falling sparks that could come down the exhaust trunk. Shipyard employees working on the stack trunk and the bulwark encountered thin metal while cutting with a torch, which caused blow-through, resulting in a hole in each area. The shipyard foreman examined the generator room at approximately 0930 and determined that the space was safe, since there was no indication of fire or smoke.

Port Marine Vacuum Service contractors were also on board the *Iron Maiden* cleaning the sewage tank, located on the deck directly below the generator room, so it could be certified for hot work by a marine chemist the next day.

After the hot work was completed on the exterior of the starboard exhaust trunk and the generator room was inspected by the shipyard foreman, two other shipyard employees entered the generator room at 1000 to start removing the woodwork at the base of the generator room's forward bulkhead, near the access hatch. As the two shipyard employees were removing the woodwork, they discovered wastage (a hole) in the deck, which exposed them to the vessel's sewage tank directly below. The two shipyard workers were told to leave the space by the supervisor because contractors were cleaning the sewage tank, so they departed the generator room at 1400.

By 1630, all work on the *Iron Maiden* was concluded, and all shipyard workers departed the vessel. The vessel company representative left the *Iron Maiden* about 1735, leaving on board two vessel crewmembers, who finished eating dinner and left the vessel around 1800 to return to their hotel for the evening. The shore power to the *Iron Maiden* remained energized following the departure of the shipyard personnel, contractors, and the vessel crew.

On April 16, at 0110, the Lafourche Parish Fire District dispatcher received a phone call from the Larose Bridge tender (located roughly 2,000 feet from the shipyard) reporting smoke and flames coming from a vessel at the shipyard. The first fire trucks arrived at the shipyard at 0118, and firefighters discovered smoke coming from the starboard side of the *Iron Maiden*'s pilothouse. The fire extended from the main deck up to the pilothouse, encompassing the generator room and the living spaces on the forecastle deck. The responding firefighters boarded the vessel and fought the fire with water hoses. At 0225, the fire was extinguished with no injuries. About 0900, shipyard personnel found an area still emitting smoke behind the fuel tank on the starboard side of the generator room, but it was "dug up" by shipyard personnel and quickly extinguished with water from a garden hose.



**Starboard exhaust trunk fan (post-fire) located above the number one generator. (Source: Coast Guard)**

### Additional Information

There was no crewmember or shipyard worker staying on board the *Iron Maiden* during the night of the fire. The vessel's fire detection system was secured while work was being conducted within the vessel to prevent false alarms from smoke and dust. In addition, there was no shipyard policy or vessel owner policy in place to have shipyard personnel or vessel crewmembers conduct safety rounds after hours when there was no work being done on the vessels at the shipyard.

On April 16, fire investigators from the LaFourche Parish Fire District attended the *Iron Maiden* to investigate the cause of the fire. They noted extensive damage to the generator room, as well as significant damage to the passageway outside the generator room and living quarters (located above the generator room). In addition, they noted smoke damage to the mess area and the galley (located forward of the generator room) and the interior stern section of the pilothouse (located two decks above the generator room). They also noted sections of burned exterior paint around the starboard smoke trunk and pilothouse.

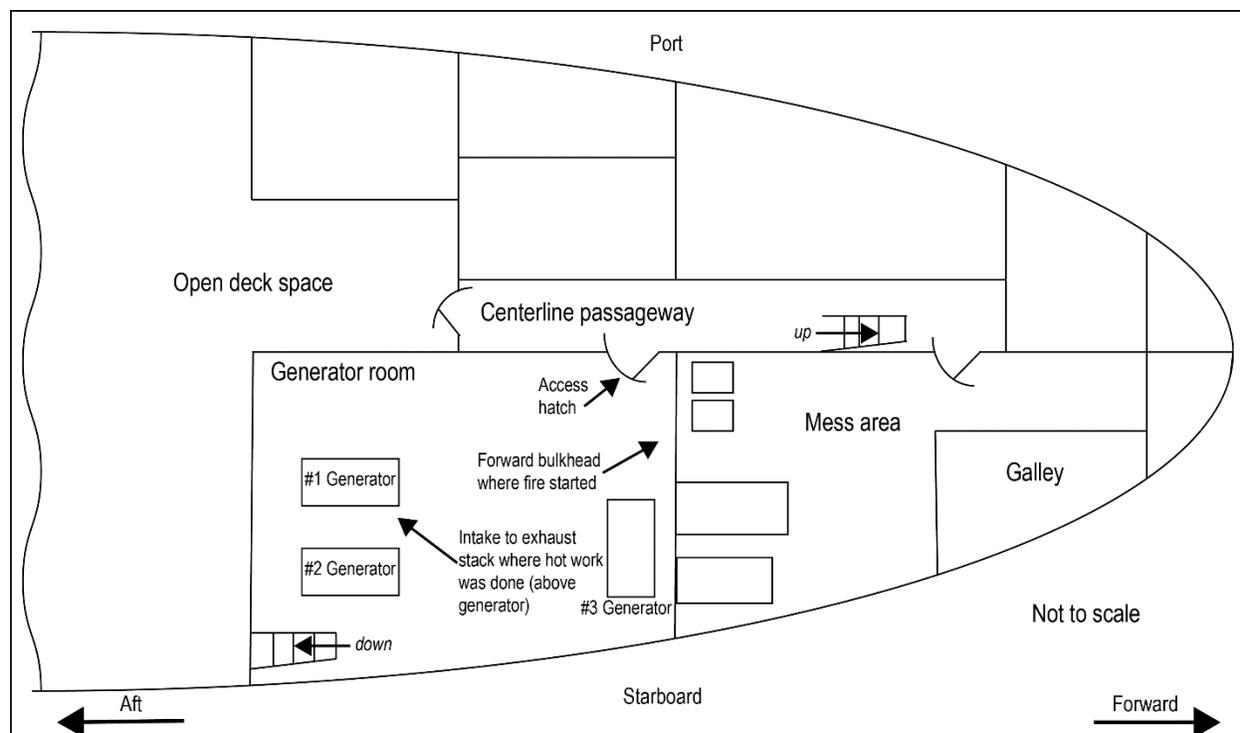


Fire damage to living quarters (left) and generator room (right). (Source: Coast Guard)

Within the generator room, the most severe damage was observed on the forward bulkhead near the access hatch from the passageway. The bulkhead area with the most extensive damage was where the battery charger, alarm panel, and generator push button start-stop panel were mounted.

According to the fire investigator's report, "The fire started in the generator room on the wall area common to the mess area." They could not rule out the possibility of an electrical short as the potential source of the fire but were unable to determine the cause of the fire.

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**General layout of the *Iron Maiden* generator room and surrounding main deck spaces with area fire started as identified by the LaFourche Parish Fire District.**

### Analysis

The hot work on the starboard exhaust trunk and starboard area of the forecastle deck was completed at 0900 on April 15. After the completion of the hot work, a shipyard supervisor inspected the area, identifying no flame or smoke. During the remainder of the day, shipyard and contract personnel worked in and around the generator room until 1630, and there were no observations of flame or smoke within the area. Vessel crewmembers remained on board the vessel until 1800 and made no reports of flame or smoke prior to departing the vessel. Based on the location of the hot work and the initial location of the fire within the generator room (as determined by the LaFourche Parish Fire District investigator's report), the hot work conducted on board the vessel was not the source of the fire.

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**Forward bulkhead of the generator room where the source of the fire was identified by the LaFourche Parish Fire District (Source: Coast Guard)**

While there was extensive damage throughout the generator room, the fire pattern and damage indicated that the area of ignition where the fire started was the forward bulkhead. Because the battery charger, alarm panel, and generator push button start-stop panel were in the area of fire ignition identified by fire investigators, one of these components may have been the source of the fire as the result of an electrical short. However, the exact location of the source of the fire could not be identified by fire investigators.

At some point, as the fire grew, the wood paneling and furniture in the space above the generator room ignited. After the wood and other combustible items caught fire, they provided a path for the fire to expand from the generator room up into the living quarters. With the vessel's fire detection system secured for the shipyard period and no continuous or periodic scheduled monitoring of the vessel by shipyard or owner personnel, the fire was able to spread undetected.

### Probable Cause

The National Transportation Safety Board determines that the probable cause of the fire aboard the dive support vessel *Iron Maiden* was an electrical short from an unidentified source located on the forward bulkhead within the generator room. Contributing to the undetected propagation of the fire was the lack of continuous monitoring of the vessel while it was docked at the shipyard.

### Continuous Monitoring of Inactive Vessels

Fire and flooding are risks for both crewed and unattended vessels. To protect personnel, property, and the environment, it is good marine practice for owners, operators, and shipyard managers to coordinate and implement some form of continuous monitoring for vessels undergoing maintenance in a shipyard, in lay-up, or in some other inactive period without regular crews aboard. Continuous monitoring can consist of scheduled security rounds and/or active monitoring with sensing and alarm systems.

## Vessel Particulars

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Vessel	<i>Iron Maiden</i>
Owner/operator	Blue Marlin LLC
Port of registry	New Orleans, Louisiana
Flag	United States
Type	Dive support vessel
Year built	1978
Official number	600827
Classification Society	American Bureau of Shipping
Construction	Steel
Length	163.6 ft (49.6 m)
Draft	15 ft (4.5 m)
Beam/width	44 ft (13.4 m)
Tonnage	290 GRT
Engine power; manufacturer	2 x 1500 hp (1118 kW); EMD 645e diesel engines
Persons on board	0

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**NTSB investigators worked closely with our counterparts from Coast Guard Marine Safety Unit Houma throughout this investigation.**

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For more details about this accident, visit [www.nts.gov](http://www.nts.gov) and search for NTSB accident ID DCA20FM016.

**Issued: April 21, 2021**

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The NTSB has authority to investigate and establish the probable cause of any major marine casualty or any marine casualty involving both public and nonpublic vessels under Title 49 of the *United States Code*, Section 1131(b)(1). This report is based on factual information either gathered by NTSB investigators or provided by the Coast Guard from its informal investigation of the accident.

The NTSB does not assign fault or blame for a marine casualty; rather, as specified by NTSB regulation, “[NTSB] investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person.” Title 49 of the *Code of Federal Regulations*, Section 831.4.

Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by conducting investigations and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. Title 49 of the *United States Code*, Section 1154(b).

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