

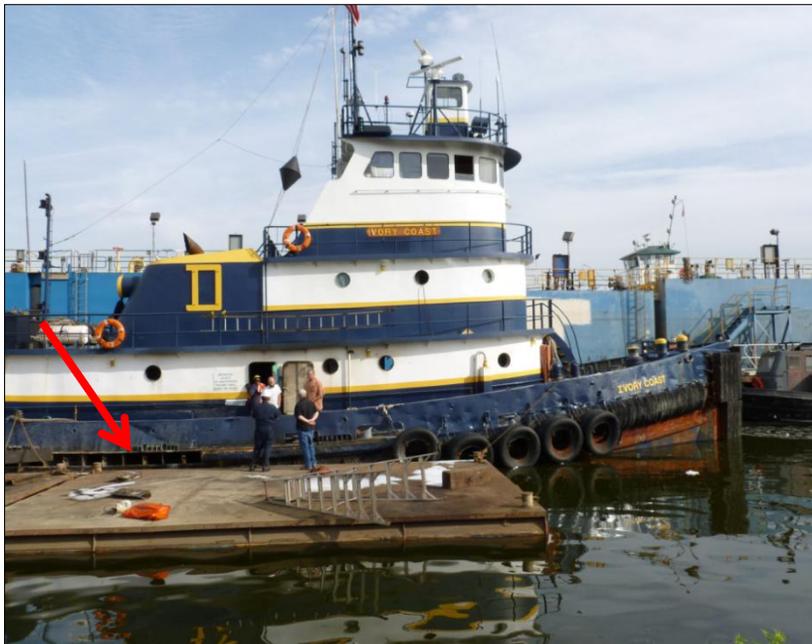


National Transportation Safety Board

Marine Accident Brief

Fire on Board Uninspected Towing Vessel Ivory Coast

Accident no.	DCA-12-LM-001
Vessel	<i>Ivory Coast</i>
Accident type	Fire
Location	General Ship Repair, near Domino Sugar Pier, Baltimore Northwest Harbor, Maryland 39° 16.46 N, 076° 36.02 W
Date	October 10, 2011
Time	1645 eastern daylight time (universal coordinated time – 4)
Damage	Estimated more than \$1 million
Injuries	None
Weather	North-northeast winds at 4 knots, visibility 10 mi., air temperature 82° F, dew point temperature 55° F

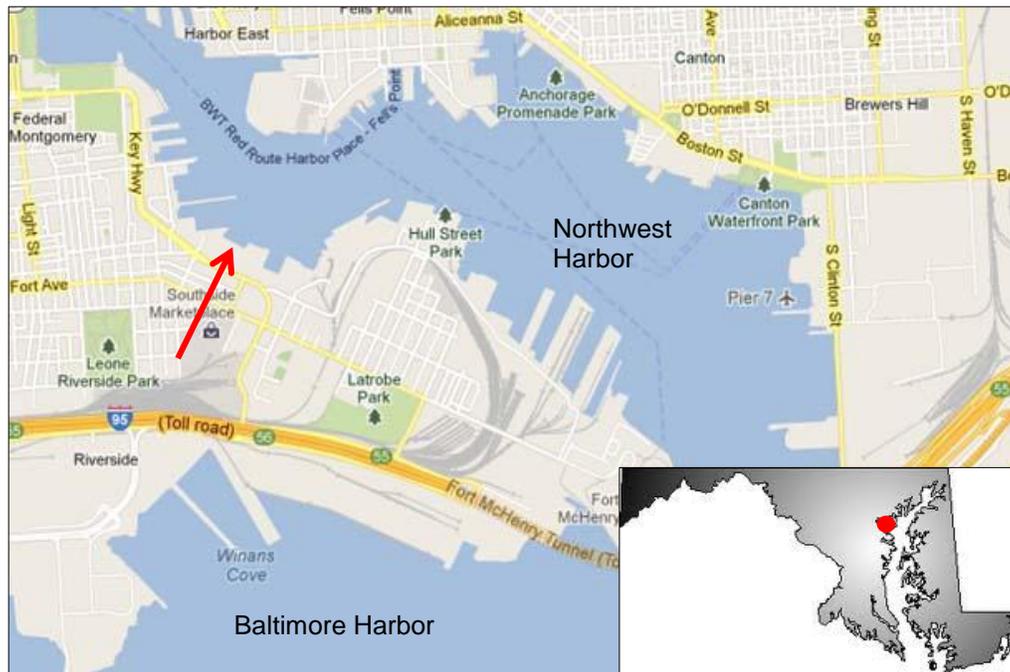


Ivory Coast starboard side showing area of hot work for replacement of rub rails (red arrow). (Photo: US Coast Guard)

The US uninspected towing vessel *Ivory Coast* was moored at General Ship Repair (GSR) in Baltimore's Northwest Harbor while undergoing cutting and welding—or “hot work”—on the starboard side hull plating in the engine room when a fire ignited and spread to the main deck galley on October 10, 2011. Damage to the engine room, associated machinery, and galley on the main deck was extensive, with repairs estimated to cost over \$1 million.

The *Ivory Coast* arrived at the GSR facility 4 days earlier, on October 6, 2011, to undergo repairs including the replacement of rub rails, which protect the vessel's hull when made up to a barge or another vessel. Most of the crew left the ship, while the engineer and ordinary seaman remained on board in a caretaker status.

Fire On Board Uninspected Towing Vessel Ivory Coast during Hot Work



Accident site (red arrow) in Baltimore's Northwest Harbor. Inset shows location of Baltimore (red dot) in the state of Maryland on the US east coast. (Background by Google maps)

At about 1630 that afternoon, Upper Chesapeake Chemist Co. Inc. issued a marine chemist certificate indicating the atmosphere near the port and starboard diesel fuel tanks and the engine room space was safe for workers and for limited hot work. When ship repair and construction may result in fire, explosion, or exposure to toxic vapors or chemicals, a marine chemist is required to ensure the work can be conducted safely. After initial certification by a marine chemist, a competent person conducts follow-up routine monitoring of the space and adjacent areas. A competent person is trained and experienced in atmospheric sampling and monitoring and qualified to apply workplace standards and identify potential hazards with authority to correct them.

The marine chemist certificate stated that hot work to be performed on the *Ivory Coast* was limited to replacement of the rub rail on the starboard side while maintaining a fire watch and ventilation. A competent person was required to check the atmosphere daily before hot work could begin to confirm the atmosphere was safe.

Repair work began on Friday, October 7, and continued Monday, October 10. The repairs planned for Monday morning included conducting hot work in the engine space, which involved cutting with an acetylene torch along the starboard hull to remove the vessel's rub rails.

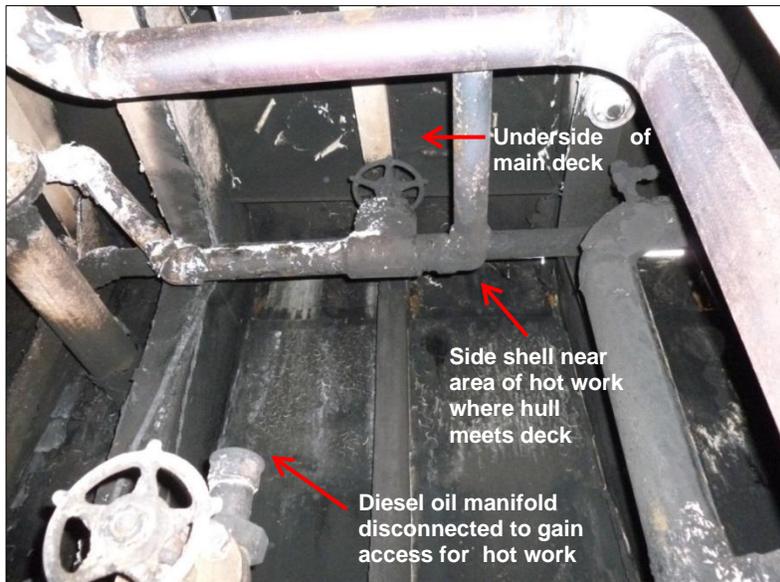
The shipfitter started work at 0740 and secured the cutting torches before taking a break at 1130. A supervisor/ competent person acting as fire watch was stationed nearby in the engine room throughout the hot work and was spraying water from a fire hose to cool the hull plating.

When the shipfitter and fire watch resumed work, the vessel's engineer was working in the engine room on the exhaust manifold of the starboard generator. Less than 2 hours later, the shipfitter felt intense heat on his safety jacket and pants, removed his face shield, and realized a

Fire On Board Uninspected Towing Vessel Ivory Coast during Hot Work

fire had broken out and the fire watch was spraying water toward the flames with the fire hose, but the water intensified the flames. The shipfitter told Coast Guard investigators he secured the torch, relieved the fire watch of the fire hose, and a short time later located a CO₂ portable fire extinguisher and discharged it at the deck plates but with no effect.

The shipfitter, fire watch, and vessel chief engineer realized the fire was out of control, and all personal evacuated the tug; the shipfitter then asked the supervisor/fire watch to call 911. The fire was extinguished by the Baltimore City Fire Department early that afternoon.



View of the starboard side engine room looking up to the point at which the side shell insert hull meets the underside of the main deck. As hot work was performed at this location, sparks fell down into the engine room onto a wooden cabinet located below this area. (Photo by US Coast Guard)

The chief engineer stated that before starting hot work he drained and disconnected the diesel oil manifold so the shipfitter could gain access for the repairs. He also said that below the manifold was a wooden tool box, which over time had become saturated with diesel oil. This was confirmed by testing of a sample of residue from the wooden box by the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF). Therefore, a possible ignition source of the fire could have been a shipfitter's spark igniting the unprotected diesel oil-soaked wooden tool box below the area of the hot work.

No injuries were sustained by those onboard or the responding fire department personnel. No alcohol or drug testing was performed on the vessel crew or the GSR workers.

Although the marine chemist certificate was completed on October 6, 2011, the day the vessel arrived at GSR, the *Ivory Coast* was subsequently moved within the repair facility after the certificate was issued. National Fire Protection Association standards specify that "the prescribed work [be] carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within the facility" by the responsible marine chemist...." The marine chemist certificate did not authorize vessel movement; therefore, the certificate was voided. However, a competent person performed required daily monitoring to ensure the atmosphere was safe for hot work.

Fire On Board Uninspected Towing Vessel *Ivory Coast* during Hot Work

Probable Cause

The National Transportation Safety Board determines the probable cause of the fire on board the uninspected towing vessel *Ivory Coast* was sparks from welding and cutting repair work conducted with an oxygen-acetylene torch igniting unprotected combustible material in the engine room.

Vessel Particulars

Vessel	<i>Ivory Coast</i>
Vessel type	Uninspected towing vessel
Registered owner	Ivory Coast LLC
Ship manager/ operator	Dann Marine Towing LLC
Flag state	United States
IMO number	7042825
US official number	520332
Builder, date	Breaux Bay Craft, Inc. October 1967
Gross tonnage	140 US (446 ITC ^a)
Length overall	110.67 ft. (33.74 m)
Width	26.1 ft. (7.96 m)
Main engines	2 main engines, EMD (Electro-Motive) model 16-567-BC Max. power 1,350 hp (2,354 kw) each
Service speed	13 knots
Persons on board	Docked: 2 crewmembers, 1 shipfitter, and 1 supervisor/competent person acting as a fire watch

^a Measured according to International Tonnage Convention

For more details about this accident, visit <http://www.nts.gov/investigations/dms.html> and search for NTSB accident ID DCA12LM001.

Adopted: May 16, 2013

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 49 *United States Code* 1131. This report is based on information provided by the US Coast Guard from its informal investigation of the accident. The NTSB did not conduct its own on-scene investigation.