



National Transportation Safety Board

Marine Accident Brief

Fire on Board Passenger Vessel *Safari Spirit*

Accident no.	DCA-12-LM-016
Vessel name	<i>Safari Spirit</i>
Accident type	Fire
Location	Pier 9, Fisherman's Terminal, Seattle, Washington 47°39.385' N, 122°22.896' W
Date	April 27, 2012
Time	0100 Pacific daylight time (coordinated universal time – 7 hours)
Damage	Est. \$1.5 million
Injuries	None
Environmental damage	None
Weather	Winds southerly at 10 knots, air temperature 45° F, sky overcast, visibility good
Waterway characteristics	Fisherman's Terminal, a marina near the Lake Washington Ship Canal about 1.5 miles east of Puget Sound

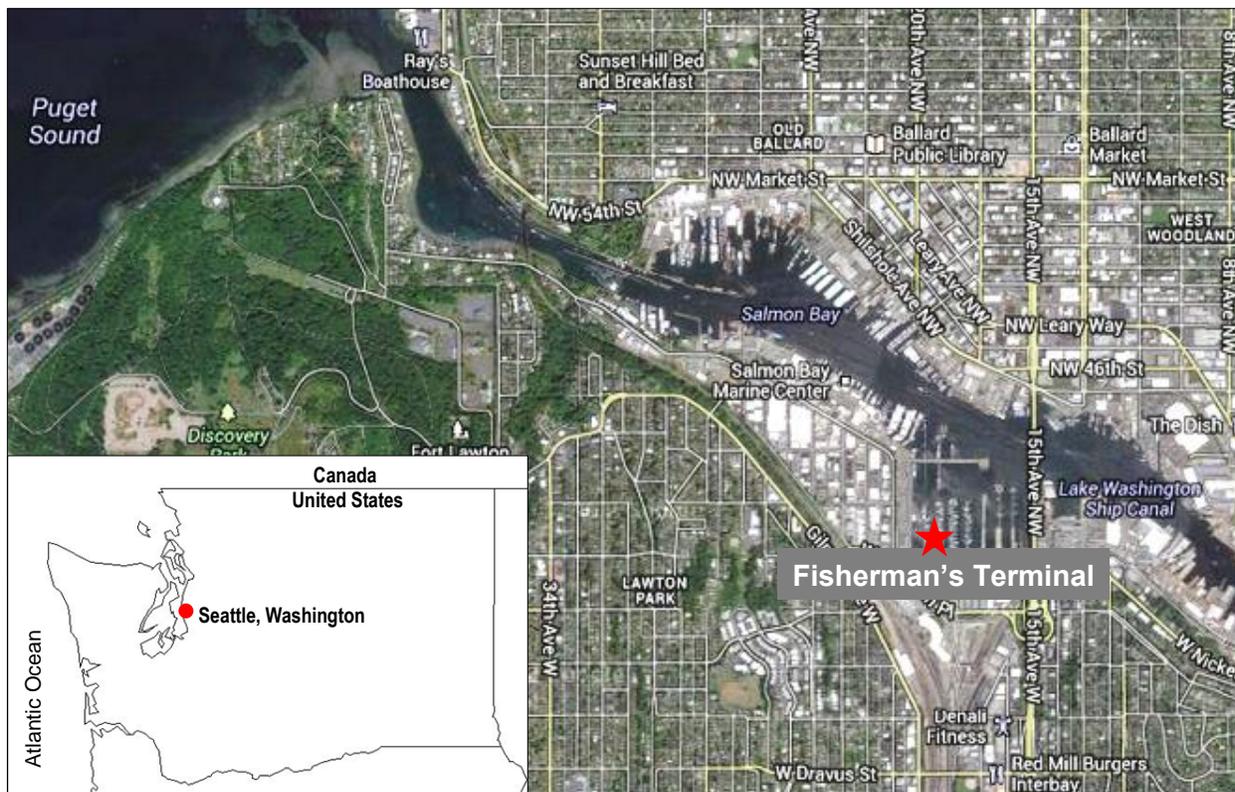
A fire broke out on the aft deck on board the passenger vessel *Safari Spirit* while the vessel was docked at Pier 9 of Fisherman's Terminal in the Ballard area of Seattle, Washington, on April 27, 2012, about 0100 local time. The vessel was off charter but soon to start its seasonal cruising schedule in Alaska.



Safari Spirit ablaze at Fisherman's Terminal in Seattle, Washington. (Photo by Joshua Lewis, KOMO News)

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Two company personnel, the chief executive officer (CEO) and the vessel's chief engineer, were aboard and asleep at the time of the fire. The CEO stated that he awoke to a popping or crackling sound, got up to investigate, and discovered the fire. After escaping the vessel hand-over-hand across the bow lines to the dock, the CEO and chief engineer tried to fight the fire with small water hoses located on the pier. They also released the mooring lines of nearby vessels to allow them to float away from the fire engulfing the *Safari Spirit*. Local fire units arrived on scene within about 10 minutes and extinguished the blaze. The Seattle Fire Department maintained a fire watch with the vessel until daybreak to monitor hotspots and observe the vessel's structural integrity.



The *Safari Spirit* caught fire while docked at Fisherman's Terminal, shown by the red star, on the Lake Washington Ship Canal in the Ballard area of Seattle, Washington. Inset map shows the location of Seattle in the northwestern United States. (Background maps by Google Earth and www.maps-gps-info.com)

The day before the fire, two contract workers were aboard to oil the teak deck located aft on the vessel's main deck. The workers also painted newly fabricated kayak storage racks further aft and on the deck below. Rags used to apply and clean up the oil from the teak wood treatment were laid across rails to dry. The workers stated they removed all the oiled rags and painting equipment from the vessel at the end of the work day. To their recollection, all paint and oil cans were sealed and stowed on the back deck near the completed work.

The CEO and the chief engineer returned to the vessel later that night about an hour apart to spend the night aboard. The CEO recalled turning on overhead lighting on the aft deck to illuminate a "Do Not Enter" sign that identified the freshly oiled decks. A security camera located in the port captured an unidentified person walking on Pier 9 near the *Safari Spirit* shortly before the estimated time of the fire's ignition; however, no evidence was found to indicate this person had any connection with the fire.

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The fire was estimated to have started at about 0100, with the Seattle Fire Department arriving shortly thereafter and extinguishing the blaze. The bow of the vessel was pointed north and the ignition location was on the aft deck, so the southerly 10-knot wind helped to push the flames forward on the vessel. The forensic fire investigation concentrated on the self-heating of the flammable oil and paint cans left on the aft decks in the area of the freshly oiled decks. (See box at right on self-heating and fire ignition for more information.) However, no final determination was made regarding the source of ignition of the fire.

Self-heating and fire ignition

Self-heating is a process in which heat is created within a material through a biological or chemical process and without the application of an external heat source. If self-heating increases the temperature of the material above its ignition point with sufficient oxygen present, self-ignition can occur. Sufficient air must be present to sustain the combustion reaction, but not so much air that the heat is dissipated. Common examples of materials that can self-heat/self-ignite are linseed oil rags, coal dust, hay, wood chips, manure, and latex.

In an open letter to company personnel, the CEO alerted staff to the circumstances of this accident, precautions in dealing with the materials that were in use aboard the *Safari Spirit* that day, and the location of the ignition point of the fire. At the time of the fire, the *Safari Spirit* was operated by InnerSea Discoveries, which managed a fleet of eight passenger vessels, each carrying from 22 to 88 passengers, with a total seasonal staff ashore and afloat ranging up to 250 personnel.



The *Safari Spirit* was one of a fleet of InnerSea Discoveries passenger vessels conducting recreational tours along the west coast of North American and Hawaii. (Photo by InnerSea Discoveries)

A marine survey estimated the cost of rebuilding the vessel to be \$4 million. A pre-fire fair market value survey in January 2011 estimated the value of the vessel at \$1.5 million.

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Charred wreckage of the *Safari Spirit*. (Photo from Bowditch Marine, Inc.)

Probable Cause

The National Transportation Safety Board determines that the fire aboard the passenger vessel *Safari Spirit* ignited due to unknown causes and was accelerated by the flammable materials stored on the aft portion of the main deck.

Vessel Particulars

Vessel	<i>Safari Spirit</i>
Owner/operator	Mukilteo Maritime Contractors LLC/ InnerSea Discoveries
Type	Inspected passenger vessel
Port of registry	Skagway, Alaska
Flag	United States
Official number (US)	631818
Built	1981
Construction	Aluminum
Length overall	105 ft. (32 m)
Breadth	25 ft. (7.6 m)
Draft	9.7 ft. (2.96 m)
Gross tonnage	231
Engines	Twin GM 12V71 (approx. 10,000 operating hours each)
Persons on board	2

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For more details about this accident, visit <http://www.nts.gov/investigations/dms.html> and search for NTSB accident ID DCA12LM016.

Adopted: July 3, 2013, revised July 17, 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 factual information provided by the US Coast Guard from its informal investigation of the accident. The NTSB did not conduct its own on-scene investigation.
