National Transportation Safety Board

Marine Accident Brief

Dockside Capsizing and Sinking of Towing Vessel *Invader* and *Dry Dock #3*

Accident no.	DCA-12-LM-013
Accident type	Capsizing and sinking
Vessels	Uninspected towing vessel *Invader* and *Dry Dock #3*
Location	Vigor Industrial Shipyard, Port of Everett, Washington (47°58.904′ N, 122°13.101′ W)
Date	March 18, 2012
Time	0630 Pacific standard time (UTC –8)
Injuries	None
Property damage	*Invader*: More than $5 million *Dry Dock #3*: $818,000
Environmental damage	Minor
Weather	Mostly cloudy with a trace of rain; east winds at about 5 mph; air temperature about 40° F
Waterway characteristics	Port Gardner Bay, eastern Puget Sound, Washington (see NOAA chart 18444 for additional information)

On March 18, 2012, about 0630 Pacific standard time, the uninspected towing vessel *Invader* capsized in Port of Everett, Washington, after the floating *Dry Dock #3* on which the vessel was positioned flooded and began listing. Both the *Invader* and *Dry Dock #3* initially sank, but were later refloated.

Invader Class Towing Vessel (Photo provided by Crowley Maritime Corporation)

The accident happened while the *Invader* was undergoing its annual inspection, maintenance, and repair at Vigor Industrial Shipyard at Port of Everett.

Aerial View of *Dry Dock #3 at Port of Everett.* (Photo by Vigor Industrial, LLC)

Dry Dock #3 had eight symmetrical ballast tanks, four on each side of the centerline, with similar design and capacity. Each of these eight tanks had an access manhole from the floor of the dry dock pontoon. The tanks were equipped with independent electric pumps, valves for flooding and discharge, and piping for pumping single or multiple tanks. Each tank had an overboard discharge for the pumps. The discharge line included a cast iron check valve bolted directly to, and inboard of, a manually-operated discharge valve located about 8 feet above the keel in the dry dock's side shell.

Check (left) and discharge valves from *Dry Dock #3*. (Photo by Bowditch Marine, Inc.)

During the day on March 17, 2012, pumping activities had taken place on board *Dry Dock #3*. That evening, water leaked past the check valve of Tank #5 on the dry dock's starboard side; debris in the check valve prevented it from closing. In addition, the 4-inch discharge valve had been left open (even though the dock master told investigators it was customary to close the discharge valves after use), and this allowed ingress of water. The weight of the water gradually caused the dry dock to list to starboard. Further, the cover plates to the access manholes on Tanks #1 and #7 had been left open and unattended. As the dry dock continued listing to starboard, water began flooding through the open manholes into Tanks #1 and #7, causing additional listing. As the flooding progressed, the *Invader* fell off its support blocks placed on the dry dock's floor, set heavily against the dry dock's starboard wall, and then partially sank. *Dry Dock #3* also sank as a result of the flooding; however, both the *Invader* and the dry dock were later refloated. Fuel and liquids were pumped from both the *Invader* and *Dry Dock #3* during salvage operations and pollution was minimal.

The capsized *Invader* and *Dry Dock #3.* (Photo by KCPQ, Seattle, Washington)

The damage to *Dry Dock #3* was estimated to be $818,000. The *Invader* was a total constructive loss at over $5 million.

Damaged *Dry Dock #3* and the damaged *Invader*. (Photos by Bowditch Marine, Inc.)

Probable Cause

The National Transportation Safety Board determines that the probable cause of the capsizing and sinking of the towing vessel *Invader* and *Dry Dock #3* was Vigor Industrial Shipyard's lack of operational oversight in ensuring that the discharge valves and manholes were closed after use, and its failure to continuously monitor the condition of the dry dock.

Vessel Particulars

Vessel	*Invader*	*Dry Dock #3*
Owner/operator	Crowley Marine Services	Vigor Industrial Shipyard, Inc.
Crew complement	Six (not on board at the time)	N/A
Port of registry	San Francisco, CA	Everett, WA
Flag	US	US
Type	Towing vessel	Dry dock
Built	1974	1944
Official number	559404	668906
Construction	Steel	Steel
Depth	19.2 ft. (5.8 m)	7.4 ft. (2.2 m)
Length	128.6 ft. (39.1 m)	200 ft. (60.8 m)
Width	36.5 ft. (11.1 m)	64 ft. (19.5 m)
Gross tonnage	199	1,219
Engine power and type	2 EMD 20-645-E5 diesel 7,200 max. cont. BHP (kW)	N/A
Service speed	14 knots	N/A
Cargo	Towing	N/A
Persons on board	None	None

For more details about this accident, visit http://www.ntsb.gov/investigations/dms.html and search for NTSB accident ID DCA-12-LM-013.

Adopted: July 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 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.