



FINDINGS OF CONCERN

Sector Corpus Christi

March 31, 2023
Corpus Christi, TX

Findings of Concern 010-23

BUNKER STATION ARRANGEMENT AWARENESS

Purpose. The U.S. Coast Guard issues findings of concern to disseminate information related to unsafe conditions that were identified as causal factors in a casualty and could contribute to future incidents. Findings of concern are intended to educate the public, state, or local agencies about the conditions discovered so they may address the findings with an appropriate voluntary action or highlight existing applicable company policies or state/local regulations.

The Incident. A recent marine casualty investigation identified where sea state conditions allowed water that had collected in a bunker station containment area to enter a towing vessel's fuel tanks by way of vent pipes. The water mixing with the fuel resulted in the towing vessel experiencing a main engine shutdown and ultimately loss of propulsion while transiting a main shipping channel with a fully loaded diesel barge.

Contributing Factors and Analysis. The vessel, built in 1968, had a low freeboard, handrails vice bulwarks near the port and starboard bunkering stations and was operating during a Small Craft Advisory. The drain plugs to the containment surrounding the bunker stations were left in place at all times (Figure 1). This

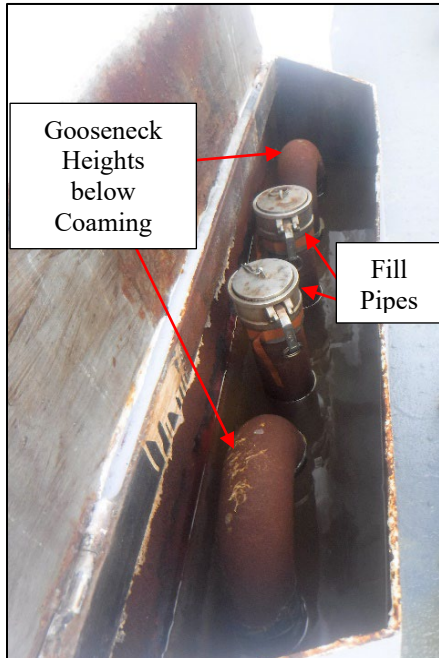


Figure 2: Inside bunkering station containment.

resulted in the containment for both bunkering stations to completely fill with water. Additionally, the fuel tank vent openings were not fitted with a means of closing and the arrangement for this vessel

positioned the containment height greater than the fuel tank vent height. This allowed water to submerge the vent, despite the 180-degree vent bend (Figure 2). Because the vents were submerged with water, water entered the fuel tanks contaminating the fuel and ultimately leading to engine shut down and loss of propulsion.

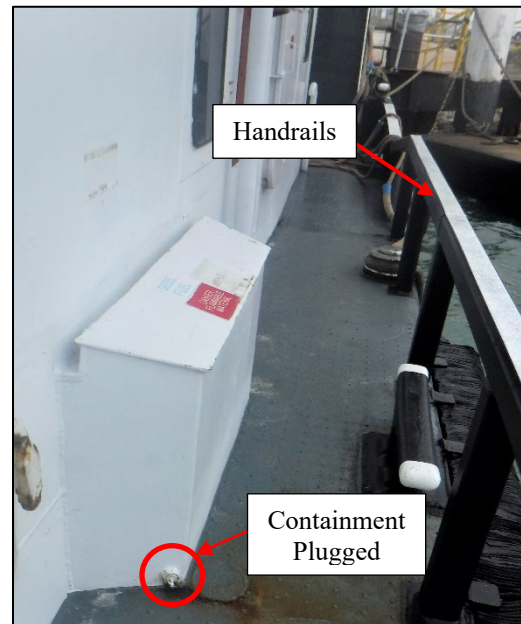


Figure 1: Bunkering station with containment.



UNITED STATES COAST GUARD
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Findings of Concern. Coast Guard investigators have identified the following measures to mitigate the risks associated with the contributing factors identified above:

- Ensure containment drain plugs remain open when not conducting bunkering operations to allow sea or rainwater to drain freely.
- Consider alternative fittings for tank-vent openings with increased risk of water intrusion. This could include a hinged closure or a ball check valve arrangement to provide automatic closure in the event of a submerging wave. Ensure any alternate installations would not cause damage to installed flame screens or otherwise inhibit the proper operation of the fuel vent.
- Ensure vessel crewmembers are provided with fuel oil transfer procedures that address the above concerns.

Closing. Findings of concern are provided for informational purposes only and do not relieve any domestic or international safety, operational, or material requirements. For any questions or comments please contact the USCG Sector Corpus Christi Investigations Division by phone at (361) 939- 5140 or by email at CorpusChristiIO@uscg.mil