UNITED STATES COAST GUARD

U.S. Department of Homeland Security

MARINE SAFETY ALERT

Inspections and Compliance Directorate

May 30, 2018
Washington, DC

Safety Alert 06-18

Don't Let Your Vessel Get Underway Unexpectedly!
Bollard Failures at Marine Facilities

Recently, there have been a number of shore side marine bollard failures whereby moored vessels were cast adrift. In some cases this resulted in damage to the involved vessel as well as other nearby vessels and shore side structures. Thankfully, there were no related injuries or deaths. Neither the Coast Guard nor the Occupational Safety and Health Administration (OSHA) has regulatory oversight over these items.

Rotted Piling

In several cases the underlying deficient material condition of the bollards was unknown until the failures occurred. Causes include the rotting of organic bollards made of marine pilings, the undetected fracture of bollard castings due to manufacturer defects, damage from previous overloads, or the degradation of bollard foundations and fasteners. Typically, the failures are associated with abnormal dynamic loads transferred to the bollard from a vessel.

Indications of Possible Pre-existing Fracture

The abnormal loads are oftentimes caused by excessive winds acting against the sail area of vessels which can be substantial for certain types of vessels such as container and cruise ships. Forces developed by winds acting against a vessel's hull rise exponentially as the wind speed increases and, as a result, are often extreme. Also, vessel operators often encounter facilities that have an insufficient number of bollards or not enough bollards in the correct locations to ensure good marine mooring practices are followed. Finally, circumstances associated with bollard failures may relate to the hydrodynamics of narrow waterways, specifically when a large vessel approaches and passes a moored vessel.

Failure of Base Casting

The U.S. Army Corps of Engineers, NAVAL Facilities Engineering Command and Air Force Civil Engineering Support Agency have developed a helpful document on this topic titled Unified Facilities Criteria "Inspection of Mooring Hardware" UFC 4-150-08[i].

This handbook provides naval facilities guidance for the planning, inspection, assessment, and reporting of mooring hardware conditions.

The Coast Guard **strongly recommends** that facility owners and operators take steps to develop a routine inspection program for bollards and other mooring equipment. Furthermore, vessel personnel should report discoveries of apparently deficient shore side mooring equipment to facility managers.

Deteriorated Base of Bollard

This Safety Alert is provided for informational purposes only and does not relieve any domestic or international safety, operational or material requirement. Developed by the, Sector Boston Investigations Division. Distributed by the Office of Investigations and Analysis. Questions may be sent to HQS-PF-fldr-CG-INV@uscg.mil.

[i] https://www. wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-4-150-08