



# UNITED STATES COAST GUARD

U.S. Department of Homeland Security

## MARINE SAFETY ALERT

Assistant Commandant for Marine Safety, Security and Stewardship

April 28, 2010  
Washington, DC

Alert 04-10

### Watertight Doors – Close Them and Dog Them!

Recently a push boat operating “unfaced” (no barges attached) in the Houston Ship Channel flooded and sank while in the wake of tractor tug resulting in the death of the push boat crew and the narrow escape of two others. Although the investigation is not yet complete, it appears that the following occurred: The vessel’s watertight doors leading to its engine room had each been pinned open. The push boat had very little freeboard and was fully loaded with fuel and water. As it took the wake of the tractor tug, the vessel listed to one side and down flooded the engine room through a watertight door. As it rolled to the other side, it took on more water, eventually sink stern first



Not Actual Vessel

and coming to rest on the bottom of the channel in an upright position. A person working in the engine room was trapped by the incoming water and drowned. Two others narrowly escaped death after being trapped in a berthing area for over 10 minutes, breathing only a pocket of air before taking dramatic efforts to reach the surface via a broken window.

Watertight doors have been the subject of three other safety alerts involving fishing vessels and offshore supply vessels. Despite these awareness efforts, despite certain vessels having stability requirements requiring closure of such doors well documented in stability letters, despite owners and operators knowing what constitutes “Good Marine Practice,” and many other applicable regulations the Coast Guard continues to investigate casualties where the failure to keep closed or properly maintain watertight doors is determined to be a causal factor.

Watertight doors function to establish the watertight integrity of the vessel and must always be treated as such. Although an open or poorly maintained door may seem like an insignificant issue, when the right causal factors align, the door can become a death trap and result in terrible circumstances to a vessel and its crew. The Coast Guard **strongly recommends** to all operators of any vessel, underway, having watertight doors to:

### CLOSE THEM and DOG THEM!

The Coast Guard also recommends that the attached related safety alerts be reviewed for additional information. 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 Office of Investigations and Analysis, United States Coast Guard Headquarters, Washington, DC. Questions can be addressed to Mr. Ken Olsen at 202.372.1037 or via the email address below.

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# UNITED STATES COAST GUARD

U.S. Department of Homeland Security

## MARINE SAFETY ALERT

Assistant Commandant for Marine Safety, Security and Stewardship

November 19, 2008  
Washington, DC

Alert 12-08

### WATERTIGHT DOORS

This Safety Alert addresses the importance of properly maintaining and closing watertight doors. Unfortunately, marine casualties, often resulting in loss of life and property, continue to be linked to improperly maintained or closed watertight doors!

One of the contributory factors in a recent major marine casualty on an uninspected commercial fishing vessel was the failure to properly maintain and keep closed watertight doors on the vessel's weather deck. In this incident one watertight door was not properly dogged down, permitting it to open and let water flood a space below the main deck. Another watertight door on the vessel's main deck was not maintained and as a result, it leaked, permitting water to enter an adjacent space.

Over 42% of all marine casualties on fishing vessels involve flooding that in most cases could have been prevented or minimized by the proper use of watertight doors. Two safety alerts have been issued in the past two years emphasizing the importance of maintaining watertight doors and keeping them closed at all times while underway except when actually being used.

As a result of this incident and due to other related casualties, the U. S. Coast Guard **strongly recommends** vessel owners and operators to:

Regularly inspect the condition of all watertight doors on their vessels including the gasket and knife-edge to ensure that the doors close properly when dogged down securely. Watertight door gaskets should not be painted; any paint discovered on the gasket should be removed. Excessive gaps between the gasket ends should be avoided and repaired upon discovery;

Periodically perform either a chalk or light test on all watertight doors to ensure that the knife edge makes contact with the entire door gasket;

Ensure that all dogs or closing assemblies move freely and close securely. Routinely lubricate all watertight door fittings and hinges to ensure fluid operation; and

Ensure that vessel masters provide regular training on watertight door operation and maintenance to their crews. Watertight doors should be closed at all times while a vessel is underway except when transiting from space to space.

Please access <http://marineinvestigations.us> Safety Alerts > General Operations > "Securing Watertight Doors" and "Maintaining Vessel Watertight Integrity" for additional related information.

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# UNITED STATES COAST GUARD

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## **MARINE SAFETY ALERT**

Assistant Commandant for Marine Safety, Security and Stewardship

May 9, 2008  
Washington, DC

Alert 1-08

### **Maintaining Vessel Watertight Integrity**

This Safety Alert addresses two issues: watertight integrity and high level bilge alarms.

Recently a marine casualty involving a fishing vessel in the Bering Sea resulted in multiple fatalities and complete loss of the vessel. A Marine Board of Investigation is currently examining the various circumstances surrounding the casualty. Although the investigation is not complete, testimony indicates the flooding of the vessel may have been exacerbated due to open or leaking watertight doors and other compartmental deficiencies which impacted the vessel's overall watertight integrity.

As a result of this and other similar casualties, the U. S. Coast Guard **strongly recommends vessel owners and operators:**

#### **WATERTIGHT INTEGRITY**

Ensure all watertight decks and bulkheads are inspected periodically to verify that there are no unprotected openings or improper penetrations that will allow progressive flooding and that closure devices (e.g. watertight doors, duct closures, etc.) are in place and in working order.

Ensure all crewmembers are familiar with the locations of the watertight doors (WTDs) and weather tight closures throughout their vessels. Knowing the locations of such WTDs and weather tight closures should be part of the crewmember vessel familiarization process.

Ensure WTDs and hatches are closed while at sea and as otherwise specified in the stability guidance provided to the master or individual in charge. The importance of keeping WTDs and hatches closed should be emphasized on a regular basis (e.g. at safety meetings). WTDs and hatches should be opened only briefly to allow passage and labeled appropriately to remind crewmembers to close them. If they must remain open to permit work, WTDs and hatches should be attended at all times so that they can immediately be closed. Any WTDs permitted to be open while the vessel is underway should be secured during drills to ensure they work properly.

Implement a WTD inspection program to ensure each WTD is regularly inspected and properly maintained. As part of the inspection of each WTD, the following should be examined: straightness of the knife edge; the door assembly for twisting or warp-age; evidence of loose, missing seized or damaged components; permanent set in gasket material, cracks in the gasket; gaps at gasket joints; paint, rust, or other foreign material on gaskets, knife-edges and working parts; binding and difficult operations; and loose or excessively tight dogs. Rotating spindles of the dog, handles and hinges, and other points of friction should be lubricated to prevent seizing and allow proper closure. If fitted, the spindle packing should also be examined.

Ensure watertight hatches, dogged manholes, bolted manhole covers, and access plates are given similar examinations, focusing on the sealing surfaces and the method by which the hatch is secured. Gasket materials should be replaced whenever they are found insufficient. Regardless of the type of hatch or access, every component that secures the device, such as dogs, wing nuts, or bolts should be inspected, lubricated and free, and repaired or replaced as necessary to ensure they operate properly. As with watertight doors, hatches and accesses should be labeled to indicate they remain closed while underway. Most importantly, all securing devices must be used when the hatch or access is closed. Improper closure of a hatch will not prevent flooding.

Ensure compartments and external hull structures fitted with ventilation ducts that have hinged covers with gaskets, hinges, sealing surfaces and securing mechanisms are regularly inspected and properly maintained (see above for guidance).

Ensure electrical cables and conduits, piping runs, remote valve actuators, and other components that penetrate watertight bulkheads, decks, and compartments are inspected frequently and properly maintained. Each may have a unique sealing method involving glands with packing assemblies, penetration seals, or other methods. Frequent inspection and proper maintenance of these various fittings and assemblies will assist in minimizing the possibility of progressive flooding.

#### BILGE AND HIGH WATER ALARMS

Ensure water accumulation is minimized and all spaces are kept dry unless permitted by the stability instructions provided to the master or individual in charge.

Ensure bilge high level alarms are arranged to provide the earliest warnings of abnormal accumulation. The high level bilge alarms should be set as low as possible to the deck or bilge well and positioned along the centermost area of the compartment or in a location at which the fluids will gravitate to first. In areas where bilge water routinely accumulates, the bilge high level alarms should be placed just above the point where under normal working conditions the accumulation would be pumped to a holding tank, overboard, or through an oily water separation system if required. Alarms may be fitted with short time delays to prevent nuisance alarms caused by the rolling and pitching of the vessel.

Ensure all crewmembers understand the importance of minimizing water in the bilges.

Provide the funding, labor, spare parts, and vessel availability necessary to ensure leakages stemming from machinery, equipment and other components are kept to a minimum at all times in accordance with good marine practice.

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# United States Coast Guard

## Marine Safety Alert

### Assistant Commandant for Prevention

*Department of Homeland Security*

September 19, 2007  
Washington, DC

Alert 3-07

#### **SECURING OF WATERTIGHT DOORS WHILE UNDERWAY**

This safety alert reiterates the need for vessel operators to ensure that watertight doors are always closed while underway, except when being used for access. This alert is the direct result of a collision between a 534' cargo ship and a 166' offshore supply vessel. The incident occurred on the Mississippi River, in a restricted visibility situation. As a result of the collision, the offshore supply vessel capsized and sank – the crew of five was lost.

During the ensuing investigation of this incident, evidence was uncovered that indicated the offshore supply vessel was operating with its watertight doors in the open position. This is a violation of 46 CFR 174.210(e), which states that the master must ensure that a watertight door is always closed, except when being used for access. Watertight doors are a critical part of a vessel's subdivision, and consequently a critical part of damage stability considerations, so the importance of keeping these closed is very obvious. This becomes even more critical on smaller ships, which may only have one or two watertight doors to prevent flooding the entire length of the ship.

Please, keep these doors closed!

The Office of Design and Engineering Standards, Naval Architecture Division (CG-3PSE-2) developed this alert. Questions pertaining to this safety alert may be addressed to LCDR Tracy Phillips at (202) 372-1373 or [Tracy.Phillips@uscg.mil](mailto:Tracy.Phillips@uscg.mil).

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