



UNITED STATES COAST GUARD
U.S. Department of Homeland Security

MARINE SAFETY ALERT

Assistant Commandant for Marine Safety, Security and Stewardship

October 23, 2008
Washington, DC

Alert 8-08

INSPECTION OF FUEL OIL QUICK-CLOSING VALVES

The U.S. Coast Guard **strongly recommends** that owners and/or operators, vessel engineers, marine inspection personnel and others involved with the technical examination of machinery space equipment fully understand the critical nature and importance of fuel oil quick-closing valves (FOQCVs) and associated systems. FOQCV systems must be well maintained and tested in the same way they would be used in an emergency (e.g. close all valves on each system at the same time). Crewmember knowledge, testing, maintenance and repair, system operation and limitations, documentation, and spare parts are essential elements to review during an effective evaluation of an FOQCV system.

During a fire onboard the USNS SHUGHART on March 5, 2004, more than half of the FOQCVs failed to close properly, which prevented the ship's service generators from being secured. The investigators found that the valves had not been well maintained and the testing protocol used onboard the ship did not test the valves properly. During testing, valves were closed using a hydraulic hand pump system; the quantity of oil within the system should be sufficient to close all of them. However, there is no way to determine that the system contains enough oil to close all the valves, if prior to completing the testing some of the valves are reset!

International and domestic regulations require that positive shutoff valves located outside the fuel tank be arranged with a means to be closed remotely from outside the compartment. These positive shutoff valves may be valves that are remotely closed gradually (e.g. turning a mechanical reach rod) or power operated.

FOQCVs are positive shutoff valves and they may be the final means of securing the fuel to a flammable liquid fire. It is absolutely critical that the ability to close the valves be maintained at all times. The periodic maintenance necessary to ensure proper operation of the FOQCVs must be given the highest priority, and completed as required. Records of completed maintenance and testing should be kept on board the vessel.

Because FOQCVs and other positive shutoff valves on fuel tanks have the potential to prevent loss of life and/or critical equipment during a fire, the importance of verifying their proper operation can not be overstated. As a result of the USNS SHUGHART casualty, the U.S. Coast Guard Office of Systems Engineering developed recommended inspection procedures for the testing and operation of FOQCVs which follow. The U.S. Coast Guard **strongly recommends** that owners and/or operators, vessel engineers, marine inspection personnel and others ensure:

- a) The valve operating system is capable of remotely closing all valves in the event of a fire. It is imperative the system is tested as designed. It may be designed to close valves sequentially or simultaneously. Also, there may be manual input such as a hydraulic hand pump operation required at the remote control station. There is no defined time limit to close the valve; the time required will depend on the size of the valve and the system design.

- b) There should be technical manuals on board containing diagrams and information that describe the system components, recommended spare parts requirements, maintenance and operation. Schematics and drawings of the systems should also be available.
- c) All machinery space workers should be able to identify the valves and how to close them locally and remotely in an emergency. They should be able to demonstrate substantial knowledge of the system, its importance and operation. Ship engineers should be familiar with the technical manual and the associated maintenance requirements for all of the system components.

During Coast Guard inspections, engineers should be able to explain to the marine inspector the important aspects of the manual, as well as the general maintenance requirements of the system and provide information as to when it was last performed. Further, they should be able to explain how the valves are reset following closure. A good test of a crew member's general knowledge of fire fighting would be to ask them details of the technical items noted above with an emphasis on why these valves are important.

The domestic regulations enforced by the U.S. Coast Guard for positive shutoff valves are contained in 46 CFR Part 56.50-60(d), Subparagraph 3. These regulations are available through the U.S. Government Printing Office (GPO) and may be downloaded without cost from the GPO's internet website <http://www.gpoaccess.gov/index.html>.

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