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# **Recommendation for the design, construction, operation and survey of emergency shut down valves and safe cargo sampling connections on liquefied gas carriers**

Reference is made to IGC Code Reg. 5.6, 9.1 and 18.7

## **1. Scope**

This document is to provide guidelines on the design, construction, operation, survey and testing of emergency shut down valves (ESD) and for the provision of safe cargo sampling arrangements for Liquefied Gas Carriers.

## **2. Emergency Shut Down Valves**

The IGC Code Regulation 5.6, Cargo system valving arrangements, specifies the requirements for emergency shutdown valves. In addition, the following recommendations are made:

### **2.1 Control of ESD valves**

In addition to operating the ESD valve from a remote position, it must also be possible to operate the valve manually locally. It is recommended that manual operation is not the removal of the valve opening power but a physical mechanical over-ride forcing the valve onto its seat.

### **2.2 Indication of Position**

A clear indication of the valve position should be provided; the use of the valve handle position may not provide a robust indication of the actual valve position.

### **2.3 Testing and Inspection**

The IGC Code Reg 18.7 states:

*“Cargo emergency shutdown and alarm systems involved in cargo transfer should be tested and checked before cargo handling operations begin. Essential cargo handling controls should also be tested and checked prior to transfer operations.”*

Ship operators should periodically verify that the ESD valves onboard their vessels function correctly. The test results should be recorded.

Also, as part of the check on the integrity of the cargo containment system, the ESD valves should be pressure tested and internally inspected. Pressure testing at the same pressure as working pressure is recommended to be conducted every 5 years.

### **2.4 Documentation**

The instruction manual produced by the ESD valve manufacturer providing information on installing, servicing and reassembly of the valves should be retained on board the ship.

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(cont)**Safe Cargo Sampling Connections****3. Basic Requirements**

IGC Code Reg 9.1 states:

*“9.1.2. A sufficient number of gas sampling points should be provided for each cargo tank in order to adequately monitor the progress of purging and gas-freeing. Gas sampling connections should be valved and capped above the main deck.”*

In addition, the following recommendations are made:

**3.1 Valve isolation**

At least two valves should be used to isolate the gas sampling point.

**3.2 Sampling coupling connection**

Whilst it is permissible to use threaded connections for the sampling coupling for pipes with a diameter of 25mm or less, the use of threaded connections for the sampling coupling should be avoided. If a threaded coupling is used, a positive means to prevent the coupling from rotating should be provided and regular inspections of the tightness of the connection should be performed and recorded.

**3.3 Configuration**

Open loop sampling connections should only be used when only minor releases of gas/liquid residuals to the atmosphere are possible. In all other cases arrangements should be provided to allow the unused sample to be returned to the cargo tank in a safe manner.

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