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SAFETY CIRCULAR

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TO: Fleet

Subject: Guidelines for cargo tank pressure settings

Dear Masters,

In view of an observation recently received on one of our fleet's vessels, please note that we want to stress on the proper understanding and implementation of the cargo tank pressure alarm settings (high pressure and low pressure alarms).

Please go carefully through below general guidelines and if required look into your ship specific VOC manual, type procedures if required.

Do discuss below with your officers, in the next safety meeting.

Pressure/Vacuum valves are designed to provide protection of all cargo tanks against over/under pressure and provide for the flow of small volumes of tank atmosphere resulting from temperature variations in the cargo tank(s) and should operate in advance of the pressure/vacuum breaker, where IG system is in use.

To meet the requirements of SOLAS II-2, Part C, Reg. 11, 6.3.2, a secondary means of full flow venting for all tanks is to be provided – this is typically the combination of IG line P/V breaker / vent rise plus individual tank P/V valves. An alternative means of compliance is to fit a pressure monitoring and alarm system. As this is the secondary means, *the alarm is required to go off at a higher pressure than the P/V valve*. The following points are critical:

1. The alarm settings for the pressure sensors must be set to activate when the tank pressure or vacuum reaches a reasonable margin of safety above the normal actuation settings of the Pressure/Vacuum valves themselves.
2. These pressures are to be clearly indicated in the Cargo Control Room.
3. During cargo operations, loading or discharging, the audible alarm must always be operative.

A notice is to be posted in the CCR stating:

1. Alarm set-point values,
2. Procedures to be followed in the event of alarms sounding.
3. A notice stating that audible alarms are not to be disabled.

Vetting inspectors will frequently ask what the alarms are set at and for a demonstration of the system working. As a guidance as to what level to set the pressure alarms, Masters are referred to the most recent OCIMF Vessel Inspection Questionnaire (VIQ). *Petroleum tankers should set the high pressure alarms at 10% above the design opening settings of the pressure valve.*

With regards to the low pressure alarms, this will vary depending on the vessel's inerted state:-

- For inert tanks the pressure in the tank should never be permitted to fall below zero and so the pressure sensors within the IG system required by the Inert Gas Code and SOLAS should be set to alarm at positive 200 mmWg (LOW) and 100 mmWG (LOW -LOW). Should the low pressure alarms sound or there be a failure of the IG system, discharging operations must be suspended immediately.

With regards to the individual tank pressure sensors, these should be set to positive 50 mmWg in order to give warning in the event that the main IG alarms have failed to suspend cargo discharging operations. This equally applies where nitrogen has been taken from shore to provide padding.

- For non-inert tanks, the *sensor should be set at a vacuum 10% greater than the normal actuation settings of the vacuum valves.*

Smaller tankers not fitted with Inert Gas systems, may, by design, be capable of discharging to a higher vacuum which could be up to 20% of the P/V valve opening setting. In such cases Masters should refer to the *ship's specific operating manuals, VOC plan* or contact the office for advice

Note that this only refers to alarms fitted on tankers where the alarm system is provided to meet the requirement for a secondary means of venting. If a vapour recovery system (VRS) is fitted, a pressure alarm will be fitted in the vapour return line. This must be set to actuate before the P/V valve design pressures. The USCG requires this alarm to be set to 90% of the designed P/V valve actuation settings.

Full details of the VEC system will be in the ship *specific Vapour Emission Control Manual*. Hi-Jet type high velocity pressure/vacuum valves are designed to provide protection to individual tanks and are capable of allowing high volumes of tank atmosphere to pass, as would be the case during loading/discharging. They are also designed to throw the vented gases clear of the deck area. They are not designed to be operated in the “jacked-open” position. *The maximum PV valve flow capacity is to be readily available in the cargo control room. This flow capacity is 125% maximum loading rate.*

If any more questions arise or anything is not fully clear, please do not hesitate to contact your superintendent.

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