

SUB-COMMITTEE ON CARRIAGE OF
CARGOES AND CONTAINERS
9th session
Agenda item 3

CCC 9/3/3
13 July 2023
Language: ENGLISH
Pre-session public release:

**AMENDMENTS TO THE IGF CODE AND DEVELOPMENT OF GUIDELINES FOR
ALTERNATIVE FUELS AND RELATED TECHNOLOGIES**

Proposed amendments to regulation 7.3.1.3 and 9.4.1 of part A-1 of the IGF Code

**Submitted by Liberia, United States, CLIA, EUROMOT, IACS, ICS,
INTERTANKO and SGMF**

SUMMARY

Executive summary: This document proposes amendments to paragraphs 7.3.1.3 and 9.4.1 of part A-1 of the IGF Code.

Strategic direction, if applicable: 2

Output: 2.3

Action to be taken: Paragraph 13

Related documents: None

Introduction

1 The *International Code of Safety for Ships using Gases or other Low-flashpoint Fuels* (IGF Code), which was adopted by resolution MSC.391(95) and amended by resolution MSC.422(98), provides an international standard for ships using low-flashpoint fuel, other than ships covered by the *International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk* (IGC Code). Part A-1 of the IGF Code addresses specific requirements for ships using natural gas as fuel.

2 Based on the experience gained to date in the application of the IGF Code, this document proposes amendments to paragraphs 7.3.1.3 and 9.4.1 of the IGF Code.

Discussion

3 Paragraph 7.3.1.3 of the IGF Code states:

"7.3.1.3 All pipelines or components which may be isolated in a liquid full condition shall be provided with relief valves."

4 The co-sponsors note that, although the IGF and IGC Codes have similar arrangements and safety goals, additional provisions on the relief valves' discharging line given in 5.2.2.4 of the IGC Code have been omitted in section 7.3 of the IGF Code. The IGC Code paragraph 5.2.2.4 states:

"5.2.2.4 Relief valves discharging liquid cargo from the piping system shall discharge into the cargo tanks. Alternatively, they may discharge to the cargo vent mast, if means are provided to detect and dispose of any liquid cargo that may flow into the vent system. Where required to prevent overpressure in downstream piping, relief valves on cargo pumps shall discharge to the pump suction."

5 Furthermore, the co-sponsors note that paragraph 9.4.1 of the IGF Code requires all the inlet and outlet connections to the storage fuel tank to be equipped with ESD valves, which are to be automatically operated by the gas safety system required in 15.2.2. Paragraph 9.4.1 of the IGF Code states:

"9.4.1 Fuel storage tank inlets and outlets shall be provided with valves located as close to the tank as possible. Valves required to be operated during normal operation¹⁶ which are not accessible shall be remotely operated. Tank valves whether accessible or not shall be automatically operated when the safety system required in 15.2.2 is activated."

¹⁶ Normal operation in this context is when gas is supplied to consumers and during bunkering operations.

6 While normally left open inlet and outlet connection valves are automatically closed in an emergency situation, thus fully isolating the storage fuel tank and preventing any return flow towards it, including that from the safety relief valves' discharging lines protecting the piping system, as required in 7.3.1.3 of the IGF Code.

7 As, during an emergency shutdown, liquid in the piping system is likely to be present with such an arrangement, any relief flow due to the rising pressure in the piping safety system can only be discharged directly into the atmosphere through the venting system. Gas releases, although directed by design to safe locations, regardless of how small these might be, pose a potential safety concern and furthermore always constitute an undesirable release of greenhouse gas.

8 Noting paragraph 7.3.1.3 of the IGF Code and based on the experience gained by the industry in the application of the requirements of 9.4.1 of the IGF Code for tank inlet relief valve discharge lines, the co-sponsors propose as an alternative arrangement the use of non- return valves in lieu of the requirement for ESD valves, as these are deemed to provide an equivalent level of protection in such installations. Furthermore, it shall be noted that the requirements for means of emergency isolation of fuel tank PRVs as per paragraph 6.7.2.6 of the IGF Code apply to such installations.

9 Non-return valves are a simple and proven means of protecting small tank inlet connections from an accidental reverse flow. During normal operation, reverse flow direction relief of gas is prevented, as the valve is closed and there are no credible scenarios that could inadvertently open the valve in the reverse direction when pressurised. Furthermore, non- return valves cannot be unintentionally opened as there are no active means of operating them. Means for safe isolation shall also be provided.

10 In the event that the gas safety system as per requirement 15.2.2 of the IGF Code is activated, non-return valves will prevent any gas from escaping from the tank, thus providing an isolation of the tank contents equivalent to that from a remotely controlled ESD valve. In the event that liquid is routed to the tank from the discharge of the piping safety valves, such volume would be very small and mostly flash when in the tank space. Hence it can be shown that, for any combination of piping and tank size, the tank will not become liquid full due to a liquid relief flow from the piping safety valves.

11 Consequently, the co-sponsors propose the following amendment 7.3.1.3bis to be added to the IGF Code (new text is shown grey shaded):

7.3.1.3bis Pressure relief valves discharging liquid or gas from the piping system shall discharge into the tanks whenever the tank pressure is lower than the setting of the pressure relief valves, in accordance with the arrangements in 9.4.1bis. Alternatively, they may discharge to the vent mast, if means are provided to detect and dispose of any liquid that may flow into the vent system.

12 Furthermore, the co-sponsors note that, by adding to the IGF Code the proposed amended paragraph 7.3.1.3bis as per point 10 above, an additional paragraph 9.4.1bis is to be added to the IGF Code (new text is shown grey shaded)

9.4.1bis Tank inlets from safety relief valve discharge lines, protecting the piping system according to 7.3.1.3bis, shall be provided with non-return valves in lieu of valves that are automatically operated when the safety system required in 15.2.2 is activated. Safe means for tank isolation during maintenance shall be available according to 18.3.

Action requested of the Sub-Committee

13 The Sub-Committee is invited to consider the foregoing and in particular the proposals in paragraphs 11 and 12 above, and to take action, as appropriate.