# UI SC252 "Controls for releasing carbon dioxide and activating the alarm in the protected space (FSS Code 5.2.2.2)"

## Part A. Revision History

| Version no. | Approval date | Implementation date when applicable |
|---|---|---|
| NEW (Oct 2011) | 25 October 2011 | 1 July 2012 |

- **NEW (Oct 2011)**

**.1 Origin for Change:**

☑ Suggestion by IACS member

**.2 Main Reason for Change:**

Para 2.1.3.2 of Chapter 5 of FFS Code reads:

*"Means shall be provided for automatically giving audible warning of the release of fire-extinguishing medium into any ro-ro spaces and other spaces in which personnel normally work or to which they have access. The pre-discharge alarm shall be automatically activated (e.g., by opening of the release cabinet door). The alarm shall operate for the length of time needed to evacuate the space, but in no case less than 20 s before the medium is released. Conventional cargo spaces and small spaces (such as compressor rooms, paint lockers, etc.) with only a local release need not be provided with such an alarm."*

Para 2.2.2 of Chapter 5 of the FFS Code reads:

*"Carbon dioxide systems shall comply with the following requirements:*

*.1 two separate controls shall be provided for releasing carbon dioxide into a protected space and to ensure the activation of the alarm. One control shall be used for opening the valve of the piping which conveys the gas into the protected space and a second control shall be used to discharge the gas from its storage containers. Positive means shall be provided so they can only be operated in that order; and*

*.2 the two controls shall be located inside a release box clearly identified for the particular space. If the box containing the controls is to be locked, a key to the box shall be in a break-glass-type enclosure conspicuously located adjacent to the box."*

The text of 2.1.3.2 and 2.2.2.1 is somewhat contradictory. 2.1.3.2 implies that a single control is sufficient for activation of the alarm (e.g. by opening of the release cabinet door), whereas 2.2.2.1 can be read to imply that two separate controls should be provided.

The purpose of the UI is to provide a uniform interpretation also taking into account the different technical solutions used by manufacturers of carbon-dioxide fixed fire extinguishing systems.

**.3 List of non-IACS Member classification societies contributing through the TC Forum and/or participating in IACS Working Group:**

None

**.4 History of Decisions Made:**

After several rounds of correspondence in the Panel, where members provided their comments on the matter, the comments were found consistent to one another. The item of discussion was raised by a member, therefore, upon request of the Chairman, the same member proposed to the Panel the first draft UI for comments from the members.

**.5 Other Resolutions Changes**

None

**.6 Dates:**

Original proposal: *April 2011 made by: a Member of Statutory panel*
Panel Approval: *October 2011 by: Statutory panel*
GPG Approval: *25 October 2011 (Ref. 11159_IGb)*

# Part B. Technical Background

List of Technical Background (TB) documents for UI SC252:

Annex 1. **TB for New (October 2011)**

See separate TB document in Annex 1.

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# Technical Background for UI SC252 New, Oct 2011

## 1. Scope and objectives

The UI has the objective to clarify and harmonize the application of paragraph 2.2.2 Chapter 5 of FSS Code in light of paragraph 2.1.3.2.

## 2. Engineering background for technical basis and rationale

Paragraph 2.1.3.2 of Chapter 5 of the FSS Code relevant to the pre-discharge alarm specifies that *"The pre-discharge alarm shall be automatically activated (e.g., by opening of the release cabinet door)",* where the *"opening of the cabinet door"* is a distinct and separate action from those actions related to the release of the system. It also implies that a single control is sufficient for activation of the alarm.

On the other hand, Paragraph 2.2.2.1 of Chapter 5 of the FSS Code reads, *"two separate controls shall be provided for releasing carbon dioxide into a protected space and to ensure the activation of the alarm. One control shall be used for opening the valve of the piping which conveys the gas into the protected space and a second control shall be used to discharge the gas from its storage containers."*

In analysing the wording of Paragraph 2.2.2.1 sentence by sentence:

a) *two separate controls shall be provided for releasing carbon dioxide into a protected space and to ensure the activation of the alarm.*

The sentence can be interpreted in three substantially different ways:

i) two separate controls shall be provided for releasing carbon dioxide into a protected space, and two separate controls shall be provided to ensure the activation of the alarm; or

ii) two separate controls shall be provided: one for releasing carbon dioxide into a protected space and the other to ensure the activation of the alarm; or

iii) two separate controls shall be provided, each control possessing the dual function of release of the carbon dioxide and activation of the alarm.

All of these interpretations contradict paragraph 2.1.3.2.

b) *One control shall be used for opening the valve of the piping which conveys the gas into the protected space and a second control shall be used to discharge the gas from its storage container.*

This sentence makes it clear that two separate controls shall be provided for releasing carbon dioxide into a protected space but does not clarify the means for activation of the alarm.

It is clear that two separate controls for the release of the carbon dioxide are necessary to prevent accidental release. A single control for the activation of the alarm is sufficient. This could be achieved, for example, by means of a control on the

release box door or micro-switch at the section valve which operates when this valve is opened.

By considering the various technical solutions adopted by the manufacturers of fixed carbon dioxide fire-extinguishing systems, the UI provides a common understanding on this matter for uniform application of the regulations.

In addition, it was felt necessary and useful to confirm that an operational procedure, with or without posted instructions, could not substitute a mechanical arrangement for ensuring that the two $CO_2$ release controls are operated in the correct order.

**3. Source / derivation of the proposed IACS Resolution**

Paragraphs 2.1.3.2 and 2.2.2 of Chapter 5 of the Fire Safety Systems Code.

**4. Summary of Changes intended for the revised Resolution**

Not applicable

**5. Points of discussions or possible discussions**

None

**6. Attachments if any**

None