



ISM Technical Notice

No. **16/2015**

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SUBJECT:

**CONCENTRATED INSPECTION CAMPAIGN ON CREW
FAMILIARIZATION FOR ENCLOSED SPACE ENTRY**

CIC
01.09.2015
—
30.11.2015

Relevant
Resolutions
A.1050(27)
MSC.1/Circ.1401

CONCENTRATED INSPECTION CAMPAIGN ON CREW FAMILIARIZATION FOR ENCLOSED SPACE ENTRY

This inspection campaign will be held for **three months**, commencing from **1 September 2015 and ending 30 November 2015**.

Port State Control Officers (PSCOs) will use a list of **10 selected questions** to establish that crew members with enclosed space duties are:

- **familiar with relevant equipment**
- and have **received training** to carry out their duties and
- **identify and understand the hazards** associated with entry into enclosed spaces.

Additionally there are questions aimed at gathering information about the **existence of measures in place to test the atmosphere** of an enclosed space to confirm it is safe to enter and remains safe whilst persons are within the space.

Special attention is to be paid that it is not suffice the existence of a relevant enclosed space entry procedure but also that (among others):

- crew members are **familiar** with the **arrangements** of the ship, as well as with the **location** and **operation** of any on-board **safety systems or appliances**
- **spaces** on the ship are **identified as enclosed spaces, and adjacent spaces**
- **muster list** should show the relevant duties assigned
- **assigned crew participated in an enclosed space entry and rescue drill** on board the ship at least **once every two months**
- crew members responsible for enclosed space entry are **aware of the associated risks**
- **assigned crew** members are **familiar with the atmospheric limitations**
- **Instruments** be suitable, in **good working condition** and correctly **calibrated**
- **crew** members responsible for testing the atmosphere in enclosed spaces are **trained** in the **use of the equipment**
- **PSCO is to observe an enclosed space entry and rescue drill**

The **checklist to be used by the PSCOs is attached** for your easy reference.

Guidance for the said selected questions is given here below:

Question

1

Are the crew members **familiar** with the **arrangements** of the ship, as well as the **location** and **operation** of any on-board **safety systems or appliances** that they may be called upon to use for enclosed space entry?

Guidance

Ensure that crew members:

- **All crew** are **aware of which spaces** on the ship are **identified as enclosed spaces** for the purposes of entry as described in the on-board safety management system required under the International Safety Management Code
- **All crew** are aware of the **procedures for enclosed space entry** that operates on the ship and are **familiar with the entry permit system** for access to such spaces. This should include **communication** procedures used when enclosed space entry is being undertaken
- **Specifically designated crew** are familiar with the **location and use of safety equipment** that may be used for enclosed space entry and rescue, such as **ventilation, lifting** and other personnel rescue equipment that may be required in an emergency, **first aid and resuscitation equipment, gas testing equipment, fire extinguishers, breathing apparatus** etc-
- **Specifically designated crew** can carry out **checks on breathing apparatus** and correctly **don** the equipment

Annex to this TN:

[PSC Checklist](#)

As there is the potential for fire or serious injury to occur during enclosed space operations, crew need to be **familiar with the ship-wide emergency systems and equipment**.

In order to **test safety systems** and appliances that may be used in enclosed space entry, crew should have **knowledge of both the location and operation of the equipment**. Any lack of familiarity may indicate that testing has not been carried out or that onboard familiarization training (STCW Regulation I/14) has been ineffective or that drills have not been carried out.

Question

2

Are **crew members** responsible for enclosed space emergency duties **familiar** with those duties?

Guidance

Crew members with assigned emergency duties are required to be **familiar** with those duties **before the voyage begins**. PSCO should consult the **muster list** required by SOLAS Ch III/Regulation 37 which should show the duties assigned to different members of the crew in emergency situations.

Individual **crew members may be questioned** on their assigned duties on the muster list and requested to demonstrate them to the PSCO. On a vessel with a large crew a sampling process may be undertaken.

PSCO shall identify those crew members with enclosed space emergency duties and **confirm they are familiar** with them.

Question

3

Is the **training manual** available on board and its contents **complete and customized** to the ship?

Guidance

Crew members should be able to **state where the training manual is** located. PSCOs should be aware the training manuals must be located in the following locations on-board:

- Crew **mess rooms**
- **Recreation rooms**, or
- In each **crew cabin**

The training manual, which may comprise several volumes, shall contain instructions and information, in easily understood terms and illustrated wherever possible, on **safety equipment** provided in the ship (ship specific) and should specifically **address enclosed space entry** (or at least makes reference to the SMS). Any part of such information may be provided in the form of audio-visual aids in lieu of the manual. The training manual must be in the **working language** of the ship.

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Question

4

Is there **evidence** on board that enclosed space entry and rescue **drills** are conducted in a safe manner in accordance with SOLAS Chapter III, Regulation 19?

Guidance

1. A **drill should be carried out** (refer to question 9) and the outcome of this question should be linked to the outcome of the drill. If the drill is not conducted in a safe manner (e.g. atmosphere not checked or personal protective equipment not used) and there are **clear grounds** for believing that drills are not planned and conducted in a safe manner, then a **deficiency** should be recorded.
2. Enclosed space entry and rescue drills must include, as a minimum, all of the requirements specified in the referenced regulation.
3. During the drill required by Question 9 the PSCO should verify that:
 - a) personal protective equipment required for entry was checked and used.
 - b) communication equipment and procedures were checked and used.
 - c) instruments for measuring the atmosphere in enclosed spaces were checked and used.
 - d) rescue equipment and procedures were checked and used.
 - e) instructions in first aid and resuscitation techniques were provided
4. A **sample enclosed space entry permit** is shown and completion of the permit prior to entry would provide evidence that pre entry checks were carried out.

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Question

5

Have the ship's crew participated in an enclosed space entry and rescue drill on board the ship at least once every two months in accordance with SOLAS Chapter III, Regulation 19.3.3?

Guidance

The frequency of drills for those with enclosed space entry responsibilities is specified as once **every two months** as a minimum. **Dates** when enclosed space entry and rescue drills are held are required to be **recorded in the log**, as is the case for musters, abandon ship and other emergency drills. When drills are not held at the appointed time, an entry shall be made in the log book stating why the drill was not conducted.

The PSCO shall:

1. Request **records** and review them to verify that enclosed space entry and rescue **drills** have been carried out as scheduled.
2. **Confirm** who has **assigned responsibilities** for enclosed space entry and rescue drills (see question 2). They shall confirm that these crew have taken part in the drills conducted at the required frequency **both by reference** to the records **and verifying directly** with the crew members concerned.

Question

6

Are crew members responsible for enclosed space entry **aware of the associated risks**?

Guidance

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The atmosphere in any enclosed space may be **oxygen-deficient or oxygen-enriched**, and/or contain **flammable and/or toxic gases or vapours**. Such unsafe atmospheres could also subsequently occur in a space previously found to be safe. Unsafe atmospheres may also be present in **spaces adjacent to those spaces** where a hazard is known to be present.

Crew members responsible for enclosed space entry should know what the **safe levels for oxygen, flammable and toxic vapours are**. They should also be **aware of the limitations** of any testing that is carried out to verify safe conditions exist in the enclosed space and the need to **continue to monitor the conditions for the duration of the entry**.

In addition every crew member should have **been given instruction** on the risks associated with entry into enclosed spaces.

Crew should be able to **identify areas** on board that might normally be considered as an enclosed spaces **such as tanks, cargo hatches, cargo access ways, void spaces, engine crankcases, scavenge spaces etc** and be aware of the need to implement safe entry procedures according to the on-board practices.

The PSCO shall:

1. **Verify** that **information** on enclosed space entry for crew members with responsibilities for enclosed space entry and rescue is provided.
2. **Verify** that **crew** members with responsibilities for enclosed space entry and rescue are **aware of what spaces** have been identified as enclosed spaces and the **risks associated** with entry into those spaces (hazards may be different for different spaces).
3. **Verify** that **crew** members with responsibilities for enclosed space entry and rescue are **aware** that there is a **procedure for safe entry** into enclosed spaces.
4. **Verify** that **crew** members with responsibilities for enclosed space entry and rescue are **familiar with the atmospheric limitations** required to be confirmed prior to entry.
5. **Verify** that **crew** members with responsibilities for enclosed space entry and rescue are **aware of factors that may result in oxygen deficiency** in the enclosed spaces on their particular ship **such as the internal structure of the space, the nature of cargo in the space, the effects of cargo residues and tank coatings**.
6. **Verify** that **crew** members with responsibilities for enclosed space entry and rescue are **aware** that there may be a **need to test for specific toxic contaminants** such as **benzene or hydrogen sulphide** in some circumstances.
7. **Verify** that **crew** members with responsibilities for enclosed space entry and rescue are **aware that unsafe atmospheres** may also occur in **spaces adjacent** to those spaces where a hazard is known to be present and that this needs to be reflected in the procedures.

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Question

7

Are there measures in place to **test the atmosphere** of an enclosed space to confirm it is safe to enter?

Guidance

Instruments should be available on board the ship to enable the atmosphere in enclosed spaces to be tested to confirm it is safe **prior** to entry, and to be tested to confirm that it remains safe for the **duration** of the entry. The instruments must:

- Be suitable for measuring the **specific gases and vapours** expected to be encountered in the appropriate concentration ranges.
- Be in **good working condition** and correctly **calibrated**
- Be **serviced** in accordance with the manufacturer's instructions

The PSCO shall:

1. **Verify** by inspection that testing **equipment is available**.
2. **Verify** by questioning and inspection that the testing **equipment is suitable** for determining the acceptable levels of oxygen, and flammable or toxic gases i.e., it is capable of measuring these particular gases in the required ranges.
3. **Verify** from inspection of records that the **instruments have been calibrated** for the correct ranges and that the **calibration is current**, and that the instruments have been serviced in accordance with the manufacturer's instructions.

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Question

8

Are **crew** members responsible for testing the atmosphere in enclosed spaces **trained** in the **use of the equipment** referred to in Question 7?

Guidance

Crew responsible for testing the atmosphere in enclosed spaces **should be trained** in the **correct use** of, and be aware of the **limitations** of the testing equipment and be able to **demonstrate** that they can use it competently. The fact that oxygen, flammable or toxic gas or vapour concentrations **may not be uniform throughout the space** and that it **may not be possible to measure concentrations throughout the entire space** prior to entry.

The PSCO shall:

1. **Verify who** are the persons responsible for determining that it is safe to enter enclosed spaces on the ship.
2. **Verify**, by questioning and inspection of **records**, whether those persons have been **trained** in the use of the testing equipment.
3. **Verify**, by **questioning and demonstration**, that those persons know how to **use** the equipment properly including any **calibration** prior to use.
4. **Verify**, by questioning, that those persons are aware of the **particular hazards associated with the type of ship or cargo** being carried e.g, oxygen depleting cargoes and materials, and so are using the appropriate testing equipment and sampling techniques to determine whether the enclosed space is safe.
5. **Verify** by inspection that **manufacturer's instructions** are available for the testing equipment and by questioning that the persons responsible for using the equipment are **familiar with those instructions**.
6. **Verify** by inspection that the ship's **procedures for enclosed space entry cover the use of testing equipment**.
7. **Verify** by questioning that those persons are **aware of the limitations of testing equipment** and testing procedures when determining whether the atmosphere in the enclosed space and any adjacent space is safe for entry, and continues to be safe while any person is in that space.

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Question

9

During the PSCO is to observe an enclosed space entry and rescue drill. Did the drill comply with the requirements of SOLAS Chapter III, Regulation 19.3.6?

Guidance

The PSCO is to request that a drill be conducted during the CIC. The **purpose of the drill** is to:

- Demonstrate that the crew are **familiar** with the procedures for enclosed space entry and rescue
- Verify that crew are **able to conduct** enclosed space entry and rescue drills competently and in a safe manner, in accordance with the recommendations of the IMO
- Verify that **crew can communicate effectively** during both a planned entry and in an emergency situation.

The drill will serve to further confirm that the requirements for familiarization, training and instruction have been met. The drill is to be conducted in a safe area on the ship and in a safe manner.

IT MUST NOT BE IN AN ENCLOSED SPACE or any space which has been designated as such.

It is anticipated that the drill will take **no longer than 20 minutes**.

Prior to the drill being undertaken, a **scenario** for a planned enclosed space entry and subsequent rescue should be **proposed by the crew** and agreed with the PSCO that is specific to the ship. The **scenario should reflect a designated enclosed space** on the ship and the hazards associated with entry into that particular space.

The PSCO shall:

1. Verify that the **proposed drill scenario is credible and realistic** in relation to the ship in question.
2. Verify that those responsible for the drill can **identify the specific hazards** of the enclosed space, including but not limited to:
 - a. The **atmosphere** in the enclosed space
 - b. **What testing** is needed to confirm that entry is safe and will remain safe
 - c. Any **limitations** on the ability to confirm that **conditions are safe**
 - d. Any **difficulties** with **access**, or matters that may impede quick and effective rescue.
3. Verify that **documented procedures** are being followed, the prescribed **safety briefings** are given, and the **required authorizations** (permits) are completed and sign-offs are obtained. Those taking part should be **identified on the appropriate checklists and authorizations**.
4. Verify that **personal protective equipment** is available and **correctly worn**.

5. Verify that **communications equipment** is available and **working correctly**, and that **communications procedures**, including emergency **signals**, are **agreed and tested prior** to entry. This should include **stationing a crew member at the entry point** for the duration of the entry, **confirmation of entry**, **monitoring of persons** in the space and **confirmation of exit**.
6. Verify that **equipment for testing** the atmosphere is available and **working**, is **suitable** for the purpose for which it is being used, is correctly **calibrated** and has been **serviced** in accordance with the manufacturer's instructions(see also Question 7).
7. Verify that those crew members responsible for testing **understand how to use the equipment and any limitations** of the equipment (see also Question 8).
8. Verify **what steps are taken** to make the space safe if testing indicates that the atmosphere is not safe to enter.
9. Verify the **rescue equipment is in place**, in good order and ready for use, and that those who have designated rescue responsibilities are trained in its use.
10. Verify that at the **end of the drill all the necessary records** are completed and the 'enclosed space' secured.

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Marine Management
Systems Certification Division



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[PSC Checklist](#)

CIC on Crew Familiarization for Enclosed Space Entry

*This CIC applies to **all** ships*

Inspection Authority:			
Ship Name:		IMO Number:	
Date of Inspection		Inspection Port:	

No.	Item	Yes	No	N/A
Q.1 Note 1	Are there measures in place to test the atmosphere of an enclosed space to confirm it is safe to enter?	<input type="checkbox"/>	<input type="checkbox"/>	
Q.2 Note 1	Are crew members responsible for testing the atmosphere in enclosed spaces trained in the use of the equipment referred to in Question 1?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No.	Item	Yes	No	N/A
Q.3 *	Are the crew members familiar with the arrangements of the ship, as well as the location and operation of any on-board safety systems or appliances that they may be called upon to use for enclosed space entry?	<input type="checkbox"/>	<input type="checkbox"/>	
Q.4 *	Are crew members responsible for enclosed space emergency duties, familiar with those duties?	<input type="checkbox"/>	<input type="checkbox"/>	
Q.5 *	Is the training manual available on board and its contents complete and customized to the ship?	<input type="checkbox"/>	<input type="checkbox"/>	
Q.6 *	Is there evidence on board that enclosed space entry and rescue drills are conducted in accordance with SOLAS Chapter III, Regulation 19?	<input type="checkbox"/>	<input type="checkbox"/>	
Q.7 *	Have the ship's crew participated in an enclosed space entry and rescue drill on board the ship at least once every two months in accordance with SOLAS Chapter III, Regulation 19.3.3?	<input type="checkbox"/>	<input type="checkbox"/>	
Q.8 *	Are crew members responsible for enclosed space entry aware of the associated risks?	<input type="checkbox"/>	<input type="checkbox"/>	
Q.9 *	During the CIC, the PSCO is to observe an enclosed space entry and rescue drill. Did the drill comply with the requirements of SOLAS Chapter III, Regulation 19.3.6?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q.10	Is the ship detained as a result of a "NO" answer to any of the questions?	<input type="checkbox"/>	<input type="checkbox"/>	

Note 1 For PMoU, questions 1 & 2 are for information purposes only.

Note 2 Each question should be answered and only one box ticked for that question.

Note 3 Questions with an asterisk indicate Code 30 may be issued.

The CIC on Crew Familiarization for Enclosed Space Entry was conducted during the period September – November 2015.