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RECYCLING OF SHIPS

Comments on the draft Guidelines for Safe and Environmentally Sound Ship Recycling – Safe for entry procedures

Submitted by Oil Companies International Marine Forum (OCIMF)

SUMMARY

Executive summary:	This document comments on the safe for entry procedures contained in the draft guidelines for safe and environmentally sound ship recycling, as presented in the report of the correspondence group, document MEPC 61/3
Strategic direction:	7.1
High-level action:	7.1.2
Planned output:	7.1.2.1
Action to be taken:	Paragraph 5
Related document:	MEPC 61/3

Introduction

1 This submission provides additional specific comments on the report of the intersessional correspondence group on ship recycling guidelines, document MEPC 61/3.

Proposal

2 The work of the correspondence group on ship recycling guidelines as presented in document MEPC 61/3 represents continued progress on this issue and this document suggests some specific additions to the text contained within section 3.3.3.1, Safe for Entry procedures. The proposed additional text is complementary and adds necessary guidance which will ultimately be beneficial to the worker safety in ship recycling facilities.

3 The proposed additional text for annex 2 to document MEPC 61/3, section 3.3.3.1, is shown in the annex to this document. To make the proposed changes evident, they have been presented in a track change format.

4 It is also recommended that the key points discussed in section 3.3.3.1 of the draft guidelines for safe and environmentally sound ship recycling should be captured in a pocket size information booklet that workers can readily refer to. The structure and layout of such a booklet should be clear and with visual impact, making full use of pictures and diagrams as well as explanatory text.

Action requested of the Committee

5 The Committee is invited to consider the information contained within this proposal and to take action as appropriate.

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ANNEX

PROPOSED SPECIFIC ADDITIONS TO THE TEXT CONTAINED WITHIN SECTION 3.3.3.1, SAFE FOR ENTRY PROCEDURES

3.3.3.1 Safe for Entry procedures

The Ship Recycling Facility should ensure that shipboard spaces are not entered until a Safe for Entry Certification has been issued by a competent person. A competent person should visually inspect and test each space on the ship to determine the areas which are safe for entry prior to issuance of a Certificate and commencing recycling activities.

Safe for Entry criteria

Safe for Entry denotes a space where the atmospheric conditions ~~that~~ meet~~s~~ all of the following criteria:

.1 The oxygen content of the atmosphere is neither deficient (below 19.5% oxygen) nor enriched (22.0% oxygen or above) and the preferred reading should be 21% by volume;

.2 The concentration of hydrocarbon vapour concentration is less than 1% LFL Lower Flammable Limit~~flammable vapours is below [10]equal to or below 1% per cent of the Lower [Explosive][Flammable] Limit; and~~ and

.3 Any toxic materials in the atmosphere are within permissible concentration. Chemicals in the atmosphere, or which may be released in the atmosphere as a result of work in the space, are within Permissible Exposure Limits (PELs). [The PEL table is included in Appendix B].

For "Ceiling Value" PELs [(where the PEL in Appendix B is preceded by a "C")]: an employee's exposure to any Ceiling Value PEL substance shall at no time exceed the exposure limit given for that substance. If instantaneous monitoring is not feasible, then the ceilings be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time over a working day.

For "8-hour Time Weighted Average" PELs [(where the PEL in Appendix B is NOT preceded by a "C")]: An employee's exposure to any 8-hour Time Weighted Average substance shall not exceed the 8-hour Time Weighted Average given for that substance in any 8-hour work shift of a 40-hour work week.

Competent Person – for Safe for Entry and Safe for Hot Work determinations

Regulation 1 of the Convention defines *Competent Person*. For purposes of making determinations for Safe For Entry and Safe For Hot Work, a high level of knowledge, experience, and specialization is required [; competent person must possess the requisite knowledge and practical experience to make an informed assessment of the likelihood of a dangerous atmosphere being present or subsequently arising in a space or adjacent spaces]. The competent person needs to have [a sufficient knowledge on chemistry, petroleum and its derivatives,] the knowledge of the structure, location, and designation of spaces where work is done; the ability to calibrate, use, and interpret the appropriate testing equipment, such as oxygen indicators and combustible gas indicators, and knowledge of the

limitations of such equipment; the ability to perform all required tests and inspections; and the ability to inspect, test, and evaluate spaces to determine the need for further testing. The competent person should possess the knowledge, training and experience to properly attest to all conditions noted on the appropriate permit/checklist [and accurately record his or her findings].

The competent person should be licensed or certified in accordance with the laws of the recycling state. The Competent Authority should define appropriate criteria for the designations of such persons and the duties assigned to them; in developing criteria or in the absence of developed criteria, competent authorities should ensure the competent person's knowledge, experience, and training related to the following subjects:

> enclosed space entry and testing; control of ignition sources; the construction of all common types of vessels; fire and explosion theory (including concepts of flashpoint, explosive range, the role of oxygen, classification of fuels, and solvent vapour pressure); fire prevention and emergency rescue; industrial hygiene and industrial hygiene sampling and analysis; marine and shipyard safety; organic and inorganic chemistry; skills and knowledge to perform atmospheric testing in a shipyard environment; properties of flammable, combustible, and hazardous materials; properties of toxic gases, vapours, and fumes; petroleum chemistry and testing; tank cleaning; ~~and~~ ventilation theory and application, and formal safety and risk Assessment, management of change process, etc.

Safe for Entry inspection and testing procedures

Throughout the entire recycling process, the Ship Recycling Facility should ensure that prior to entry and during work, enclosed spaces and other areas where the atmosphere is dangerous ~~atmospheres~~ are monitored Safe for Entry and for continued activity. Designation as "Safe for Entry" is not sufficient for Hot Work, as additional criteria should be met to address safety issues related to hot work. Testing should be carried out by a competent person using the appropriate, properly certified and calibrated equipment, including, but not limited to, an oxygen content meter, combustible gas indicator, toxicity meter and gas or vapour detection equipment.
[Parties should set up domestic guidance for the above aspects.]

Atmospheric testing

The Ship Recycling Facility should ensure that atmospheric testing is performed to ensure that the oxygen content, flammability, toxicity of an atmosphere is safe for worker entry. These spaces should be monitored and recorded periodically for continued suitability for entry and the results recorded.

Oxygen

The Ship Recycling Facility should ensure that spaces are tested by a competent person to determine the atmosphere's oxygen content prior to initial entry into the space by workers and also periodically monitored and recorded for the duration of time that the space is occupied. [Spaces that warrant particular consideration are listed in Appendix C.]

A worker should not enter a space where the oxygen content, by volume, is outside of the range noted in 3.3.3.1.1, the space should be labelled "Not Safe for Entry". If an oxygen-deficient or oxygen-enriched atmosphere is found, ventilation should be provided at volumes and flow rates sufficient to ensure that the oxygen content is maintained within the range noted in 3.3.3.1.1. The warning label may be removed when the oxygen content

returns to the values within the range noted in 3.3.3.1.1, and it has been tested and inspected by the competent person.

Flammable atmospheres

The Ship Recycling Facility should ensure that spaces and adjacent spaces that contain or have contained combustible or flammable liquids or gases are visually inspected and tested by the competent person prior to entry by workers and periodically monitored and results recorded for the time that the space is occupied.

If the concentration of flammable vapours or gases in the space to be entered is equal to or greater than [10]1 per cent of the lower explosive flammable limit, then workers may not enter the space and it should be labelled "Not Safe for Entry". Ventilation should be provided at volumes and flow rates sufficient to ensure that the concentration of flammable vapours is maintained at or below [10]1 per cent of the lower explosive flammable limit. The warning label may be removed when the concentration of flammable vapours is below [10]1 per cent of the lower explosive flammable limit and it has been tested and inspected by the competent person.

Toxic, corrosive, irritant or fumigated atmospheres and residues

The Ship Recycling Facility should ensure that spaces or adjacent spaces that contain or have contained liquids, gases, or solids that are toxic, corrosive or irritant are visually inspected and tested by a competent person prior to initial entry by workers.

If a space contains an air concentration of a material which exceeds the PEL [noted in Appendix B], then workers may not enter the space and it should be labelled "Not Safe for Entry". Ventilation should be provided at volumes and flow rates which will ensure that air concentrations are maintained within the PEL. The warning label may be removed when the concentration of contaminants is maintained within the PEL and it has been tested and inspected by the competent person.

Safe for Entry determination by a competent person

A competent person should visually inspect and test each space certified as "Safe for Entry" as often as necessary to ensure that atmospheric conditions within that space are maintained within the conditions established by the certificate. However, at a minimum, the space should be inspected and tested at least once in a 248-hour shift period. The results of these tests should be recorded on the safe for entry certificate.

When a change that could alter conditions within a tested enclosed space or other dangerous atmosphere occurs, work in the affected space or area should be stopped. Work may not be resumed until the affected space or area is visually inspected and retested by the competent person and found to comply with the certification. It is recommended that the space is ventilationventilated and the atmospheric conditions returned to the acceptable limits be performed after a space has been found to exceed limits.

After the competent person has determined initially that a space is safe for an employee to enter and he or she if they finds subsequently that the conditions within the tested space failed to meet the requirements, work should be stopped until the conditions in the tested space are corrected to comply with the certification. If it is safe to do so, the competent person may be recommended to investigate the reason for the space's non-compliance and that the remedial action taken will prevent a reoccurrence.

Safe for Entry certificate, Warning signs and labels

Safe for Entry determinations should be accompanied by a certificate which, at a minimum, should clearly indicate the following information:

- name and title of the competent person performing the test(s) and inspection(s);
- signature of the above person;
- name of vessel and location;
- the areas of the ship that are Safe for Entry;
- date and time of the inspection;
- location of inspected spaces;
- tests performed;
- type of equipment used in testing;
- test results;
- period of retesting of the spaces;
- results of periodic retesting undertaken;
- conditions when the competent person should be recalled or conditions that void the certificate;
- safety designation(s) (Safe for Entry, Not Safe for Entry);
- validity period and expiration date for Certificate, recommended to be not more than a maximum of 24 hours;
- with periodic retesting intervals not exceeding 8 hours; ~~and~~
- type of ventilation; and
- any additional relevant information or instructions.

Safe for Entry Certificates should be posted at every ship access point. The Certificate should be appended by a record of inspection for recording atmospheric tests.

If information is available, it is recommended that the products loaded in the subject space(s) are documented on the certificate.

The Certificate and/or the areas themselves should be clearly marked and presented in a manner that can be perceived and understood by all workers in the working language of the yard, and if possible, by pictorial representation.

If an entire work area has been tested and labelled with the proper signage (e.g., Safe for Entry) at all means of access to the work area, then an individual tank or other space located within the work area need not be labelled separately.

The Certificate, updates, and any other records should be kept on file for a period of at least three months from the completion date of the specific job for which they were generated.

If a space, at any time, ceases to meet the criteria of Safe for Entry, it should be labelled "Not Safe for Entry".

Safe for Entry operational measures

In addition to ensuring certification as Safe for Entry, the following operational measures should also be observed:

- No person should open or enter an enclosed space unless authorized by the competent person of the Ship Recycling Facility and unless the appropriate safety procedures have been followed.

- A permit for entry has been issued by the same individual(s) who is/are responsible for maintaining the certificate, on behalf of the Ship Recycling Facility for those intended to enter the space. [A sample permit is enclosed in Appendix D]; the permit will verify that all certifications and operational measures for safe entry have been completed and are in effect.

- The space is properly illuminated.

- There is appropriate access and egress to the space and that the working area in the enclosed space is suitable for the work that is being considered and specifically heavy, large or complex lifting operations.

- A suitable system of communication between all parties for use during entry is agreed upon, tested and is used.

- The space is adequately isolated from gasses, liquids or other identified hazardous substance that could inadvertently be released into the space being worked in.

- A fully-trained supervisory person, who may be in charge of one or more work teams, has oversight of the area and frequently monitors the conditions that the workers are exposed to.

- The ventilation equipment should be of a style where no ignition sources are introduced into a hazardous area.

- The ventilation provided for the space should be adequate for the work to be undertaken and for any diurnal variation in daily environmental conditions that may be experienced in hot or humid regions.

- The ventilation should be such so as to avoid gas pockets remaining in complex structures or that are heavier than air vapours remaining on tank bottoms. This may be achieved by suction/evacuation style ventilation rather than blower ventilation.

- In the event of ventilation system failure, some means of alert need to be provided and any persons in the space should leave immediately.

- Appropriate rescue and fire control plans are in place.

- Appropriate Personal Protective Equipment (PPE), protective clothing and safety equipment (including harnesses and lifelines) should be provided to the workers; the PPE ~~clothing~~ should be used during entry and work in the designated spaces.

- Adequate, functioning rescue and resuscitation equipment has been provided and is positioned ready for use at the entrance of the space.

- In the event of activation of the fire alarm the space should be evacuated until the all clear is given to re enter the space by the competent person.
