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WORK PROGRAMME

Proposal for a new output to conduct a focused review of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code)

Submitted by the Marshall Islands, IACS and SIGTTO

SUMMARY

Executive summary: This document proposes a new output to conduct a focused review of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), as amended by resolution MSC.370(93)

Strategic direction, if applicable: SD 1 and SD 6

Output: To be decided

Action to be taken: Paragraph 19

Related documents: Ill 1/10/3; CCC 2/9/1, CCC 2/9/2; SDC 3/14/3; CCC 3/10, CCC 3/10/3, CCC 3/10/5, CCC 3/10/7, CCC 3/10/8, CCC 3/10/9; CCC 4/7/4; SSE 5/12/4, SSE 5/12/8; CCC 5/8/2, CCC 5/8/6, CCC 5/8/7, CCC 5/8/9; SSE 6/12/4, SSE 6/12/7; CCC 6/8, CCC 6/8/1 and CCC 6/8/5

Introduction

1 This document, submitted in accordance with paragraph 4.6 of MSC-MEPC.1/Circ.5/Rev.1, proposes a new output to conduct a focused review of the *International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk*, as amended by resolution MSC.370(93) (hereafter referred to as the IGC Code).

Background

2 In 2014, the Committee adopted the revised IGC Code by resolution MSC.370(93), which subsequently entered into force on 1 July 2016.

3 Since that time, under the standing work programme item "Unified interpretation of provisions of IMO safety, security, and environment-related Conventions", numerous Unified Interpretations (UIs) in relation to the IGC Code have been submitted to the CCC Sub-Committee for consideration. This has resulted in many UIs being published by the Organization and IACS.

4 In addition, following discussions prompted by these submissions, it is known that further work is ongoing within industry to resolve and clarify aspects of the IGC Code, with a view to bringing further UIs to the attention of the CCC Sub-Committee.

5 UIs are generally considered a temporary measure to clarify ambiguous requirements and aid consistent application. As experience is gained, it is anticipated that regulations are reviewed and amended to improve clarity and remove the need for UIs. The co-sponsors propose that the IGC Code undergo such a review.

IMO's objectives

6 The main goal of the proposal is to remove any ambiguity and ensure consistent application of the IGC Code requirements. This clearly lies within the IMO "safety of shipping and prevention of pollution" objectives and the strategic directions SD 1: Improve implementation and SD 6: Ensure regulatory effectiveness.

Need

7 The large number of UIs submitted to the CCC Sub-Committee since the entry into force of the IGC Code in 2016 indicates there is a clear need to update the IGC Code, taking account of the experience gained in its implementation. To demonstrate the need for this review to be undertaken, a list of extant UIs and areas identified warranting further consideration is provided in annex 1.

Analysis of the issue

8 Most of the UIs submitted to the CCC Sub-Committee have been agreed. Some have been subject to discussion and have subsequently been modified, re-submitted and agreed. The level of consensus reached is indicative of a general agreement of the intent of the IGC Code and the need to clarify text. The fundamental requirements within the IGC Code are not under question.

9 There are a few areas where UIs have been submitted to the Organization but agreement has not been reached. Some of these issues have been further considered by industry to fully understand the underlying concerns and some limited areas have been identified that warrant further consideration.

10 It is anticipated that in the period leading up to this output being considered by the CCC Sub-Committee, further proposed UIs may be submitted to the CCC Sub-Committee for consideration. The co-sponsors would consider it appropriate that any such proposals agreed by CCC or deemed worthy of further consideration by the Sub-Committee, should also be considered under the proposed new output.

11 The co-sponsors propose that the scope of the new intent and output is to simply clarify areas of ambiguity in line with agreed interpretations – ultimately making the extant UIs obsolete, and to consider a limited number of further amendments (see annex 1); while maintaining the level of safety and integrity of the IGC Code.

Analysis of implications

12 Minimal costs to the maritime industry are anticipated. It is not the intention of the new output to change the IGC Code requirements, only to make them clearer. The administrative burden on the Organization and on Member States is anticipated to be minimal (see annex 2).

Benefits

13 It is anticipated that clearer IGC Code requirements will lead to greater efficiency and consistency in the application of the Code; thereby maintaining and improving the safety level achieved.

Industry standards

14 While there are standards and recommendations that complement the IGC Code, the IGC Code is the fundamental regulatory instrument underpinning the safety of gas carriers.

Output

15 The following new output is proposed:

"Review of the International Code for the Construction and Equipment of Ships Carrying Liquified Gases in Bulk, as amended by resolution MSC.370(93)"

16 Parts I and II of the check/monitoring sheet, as given in annex 2 to MSC.1/Circ.1500/Rev.1, has been completed and is provided in annex 4.

Human element

17 As the proposal is to clarify existing requirements only, no impact on the human element is anticipated (see annex 3).

Urgency

18 It is proposed the output should be included in the Committee's post biennial agenda, with two sessions needed to complete the item, assigning the CCC Sub-Committee as the coordinating organ.

Action requested of the Committee

19 The Committee is invited to consider the foregoing, in particular paragraph 11 and the proposals in paragraphs 15 and 18 above, and decide as appropriate.

ANNEX 1

IGC CODE PROVISIONS TO BE CONSIDERED FOR REVISION

IGC Code paragraph	IMO References	IACS Reference	Description
IMO agreed* Unified Interpretations			
2.7.2.1	SDC 3/14/3 and MSC.1/Circ.1543	GC17	Unprotected openings
3.2.6	MSC.1/Circ.1559	GC15	Closing devices for air intakes
3.3.1 & 11.1.1.1	CCC 3/10/9 and MSC.1/Circ.1559	-	Application of fire safety requirements in SOLAS Chapter II-2 to cargo machinery spaces and turret compartments
3.5.3.1.2 & 3.5.3.1.3	CCC 3/10/3 and MSC.1/Circ.1559	GC16	Cargo tank clearances (on ships constructed on or after 1 July 2016)
3.7.5	CCC 2/9/1, CCC 3/10 and MSC.1/Circ.1559	GC14	Pump vents in machinery spaces
4.19.1.6	CCC 5/8/8 and MSC.1/Circ.1606	GC23	Cargo tank structure heating arrangement power supply
4.20.1.1	CCC 6/8 and CCC 6/WP.6	GC20	Tee welds in type A or type B independent tanks
4.20.1.2	CCC 6/8 and CCC 6/WP.6	GC21	Welds of type C independent bi-lobe tank with centreline bulkhead
5.4.4 & 5.13.2.4	CCC 6/8/1 and CCC 6/WP.6	-	Outer duct in gas fuel piping systems
5.6.5 & 18.9	CCC 6/8/1 and CCC 6/WP.6	-	Cargo sampling
5.6.6	CCC 6/8/1 and CCC 6/WP.6	-	Cargo filters

* Uls "agreed" at CCC 6 are subject to approval at MSC 102.

IGC Code paragraph	IMO References	IACS Reference	Description
5.12.3.1	CCC 5/8/7 and CCC 6/8/1 and CCC 6/WP.6	GC25	Cargo piping insulation
5.13.1.1.2	CCC 6/8/1 and CCC 6/WP.6	GC26	Type testing requirements for valves
5.13.1.1.4	CCC 5/8/9 and MSC.1/Circ.1606	GC24	Fire test for emergency shutdown valves
8.1	CCC 6/8/1 and CCC 6/WP.6	GC28	Guidance for sizing pressure relief systems for interbarrier spaces
8.2.9	CCC 3/10/7 and MSC.1/Circ.1559	-	Safe means of emergency isolation of pressure relief valves
8.4.1.2 & fig 8.1	CCC 2/9/2, CCC 3/10/5 and MSC.1/Circ.1559	GC19	External surface area of the tank for determining sizing of pressure relief valve
11.2 and 11.3.4	CCC 5/8/2 and CCC 6/8/2 (Annex 1) and CCC 6/WP.6	-	Emergency fire pump
11.3.1 & 11.3.3	CCC 5/8/6 and MSC.1/Circ.1606	GC22	Water spray system
11.3.4	CCC 5/8/6 and CCC 6/8/2 and CCC 6/WP.6	-	Fire pumps used as spray pumps
11.3.6	CCC 3/10/8 and MSC.1/Circ.1559	-	Back-flushing of the water-spray system
11.3.6	SSE 5/12/8, SSE 6/12/4 and MSC.1/Circ.1617	-	Definition of "cargo area"
11.4.8	SSE 5/12/4, SSE 6/12/7 and MSC.1/Circ.1617	-	Dry chemical powder fire-extinguishing systems
13.2.2	CCC 6/8/1 and CCC 6/WP.6	GC27	Provision of only one liquid level gauge

IGC Code paragraph	IMO References	IACS Reference	Description
13.3.5	CCC 4/7/4 and MSC.1/Circ.1590	GC18	Term "each dry-docking"
13.3.7 & table 18.1	CCC 6/8/1 and CCC 6/WP.6	-	Inhibition of cargo pump operation and opening of manifold ESD valves with level alarms overridden
13.6.4	CCC 6/8/1 and CCC 6/WP.6	-	Oxygen deficiency monitoring equipment in a nitrogen generator room area
13.9.3	CCC 6/8/1 and CCC 6/WP.6	GC29	Integrated systems
16.7.1.4	CCC 6/8/1 and CCC 6/WP.6	-	Suitable pressure relief system for air inlet, scavenge spaces, exhaust system and crank case

Other issues			
4.6.2.4 & 4.6.2.5.1	III 1/10/3 and HSSC Survey Guidelines (GI) 2.1.2.10	GC12	Secondary barrier testing requirements
4.23.3.1	-	GC8	Permissible stresses in way of supports of type C cargo tanks
5.5.7	CCC 6/8/1	-	Pipelines or components which may be isolated automatically due to a fire
5.11.4	CCC 6/8/1	-	Critical pressure in fuel gas piping systems
11.3.4 and 11.3.7	CCC 7/11	-	Location of manually operated isolation valves in the water spray and fire main arrangements
12.1.8	CCC 6/8/1	-	Spare parts of ventilation fans
12.2	CCC 6/8/6	-	Ventilation of cofferdam spaces between cargo tanks in membrane gas carriers
13.3.5	CCC 4/7/4	-	Terms "high-level alarms" and "first occasion of full loading"
13.6.2.7	CCC 6/8/1	-	Gas detection
15.4.1	CCC 6/8/1 and CCC 6/INF.20	-	Filling limits and vapour pockets
15.13.2	-	UR G3	Testing of open ended piping with reference to UR G3

ANNEX 2

CHECKLIST FOR IDENTIFYING ADMINISTRATIVE REQUIREMENTS

This checklist should be used when preparing the analysis of implications required in submissions of proposals for inclusion of outputs. For the purpose of this analysis, the term "administrative requirement" is defined in accordance with resolution A.1043(27), as an obligation arising from a mandatory IMO instrument to provide or retain information or data.

Instructions:

- (A) If the answer to any of the questions below is **YES**, the Member State proposing an output should provide supporting details on whether the requirements are likely to involve start-up and/or ongoing costs. The Member State should also give a brief description of the requirement and, if possible, provide recommendations for further work, e.g. would it be possible to combine the activity with an existing requirement?.
- (B) If the proposal for the output does not contain such an activity, answer **NR** (Not required).
- (C) For any administrative requirement, full consideration should be given to electronic means of fulfilling the requirement in order to alleviate administrative burdens.

1. Notification and reporting? Reporting certain events before or after the event has taken place, e.g. notification of voyage, statistical reporting for IMO Members	NR	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		
2. Record-keeping? Keeping statutory documents up to date, e.g. records of accidents, records of cargo, records of inspections, records of education	NR	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		
3. Publication and documentation? Producing documents for third parties, e.g. warning signs, registration displays, publication of results of testing	NR	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		
4. Permits or applications? Applying for and maintaining permission to operate, e.g. certificates, classification society costs	NR	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		
5. Other identified requirements?	NR	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		

ANNEX 3

CHECKLIST FOR CONSIDERING HUMAN ELEMENT ISSUES BY IMO BODIES

<p>Instructions: If the answer to any of the questions below is:</p> <p>(A) YES, the preparing body should provide supporting details and/or recommendation for further work.</p> <p>(B) NO, the preparing body should make proper justification as to why human element issues were not considered.</p> <p>(C) NA (Not Applicable) – the preparing body should make proper justification as to why human element issues were not considered applicable.</p>	
<p>Subject Being Assessed: (e.g. Resolution, Instrument, Circular being considered)</p> <p>IGC Code, as amended by resolution MSC.370(93)</p>	
<p>Responsible Body: (e.g. Committee, Sub-committee, Working Group, Correspondence Group, Member State)</p> <p>MSC/CCC</p>	
1. Was the human element considered during development or amendment process related to this subject?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
2. Has input from seafarers or their proxies been solicited?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
3. Are the solutions proposed for the subject in agreement with existing instruments? (Identify instruments considered in comments section)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
4. Have human element solutions been made as an alternative and/or in conjunction with technical solutions?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
5. Has human element guidance on the application and/or implementation of the proposed solution been provided for the following:	
• Administrations?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Ship owners/managers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Seafarers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Surveyors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
6. At some point, before final adoption, has the solution been reviewed or considered by a relevant IMO body with relevant human element expertise?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
7. Does the solution address safeguards to avoid single person errors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
8. Does the solution address safeguards to avoid organizational errors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
9. If the proposal is to be directed at seafarers, is the information in a form that can be presented to and is easily understood by the seafarer?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
10. Have human element experts been consulted in development of the solution?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<p>11. HUMAN ELEMENT: Has the proposal been assessed against each of the factors below?</p>	
<input type="checkbox"/> CREWING. The number of qualified personnel required and available to safely operate, maintain, support, and provide training for system.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> PERSONNEL. The necessary knowledge, skills, abilities, and experience levels that are needed to properly perform job tasks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> TRAINING. The process and tools by which personnel acquire or improve the necessary knowledge, skills, and abilities to achieve desired job/task performance.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> OCCUPATIONAL HEALTH AND SAFETY. The management systems, programmes, procedures, policies, training, documentation, equipment, etc. to properly manage risks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA

<input type="checkbox"/> WORKING ENVIRONMENT. Conditions that are necessary to sustain the safety, health, and comfort of those on working on board, such as noise, vibration, lighting, climate, and other factors that affect crew endurance, fatigue, alertness and morale.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> HUMAN SURVIVABILITY. System features that reduce the risk of illness, injury, or death in a catastrophic event such as fire, explosion, spill, collision, flooding, or intentional attack. The assessment should consider desired human performance in emergency situations for detection, response, evacuation, survival and rescue and the interface with emergency procedures, systems, facilities and equipment.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> HUMAN FACTORS ENGINEERING. Human-system interface to be consistent with the physical, cognitive, and sensory abilities of the user population.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<p>Comments: (1) Justification if answers are NO or Not Applicable. (2) Recommendations for additional human element assessment needed. (3) Key risk management strategies employed. (4) Other comments. (5) Supporting documentation.</p> <p>Human element is not considered further as the proposal is it to clarify existing requirements, not introduce new ones.</p>	

ANNEX 4

**PARTS I AND II OF THE CHECK/MONITORING SHEET FOR THE PROCESS OF
AMENDING THE CONVENTION AND RELATED MANDATORY INSTRUMENTS
(PROPOSAL/DEVELOPMENT) (MSC.1/CIRC.1500/REV.1)**

Part I – Submitter of proposal (refer to section 3.2.1.1)*

1	<i>Submitted by (Document Number and submitter)</i> MSC 102/21/1 – Marshall Islands, IACS and SIGTTO
2	<i>Meeting session</i> MSC 102
3	<i>Date (date of submission)</i> 7 February 2020

Part II – Details of proposed amendment(s) or new mandatory instrument (refer to sections 3.2.1.1 and 3.2.1.2)*

1	<i>Strategic Direction</i> 1 and 6
2	<i>Title of the output</i> Review of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, as amended by resolution MSC.370(93)
3	<i>Recommended type of amendments (MSC.1/Circ.1481) (delete as appropriate)</i> <ul style="list-style-type: none"> • Four-year cycle of entry into force • exceptional circumstance
4	<i>Instruments intended for amendment (SOLAS, LSA Code, etc.) or developed (new code, new version of a code, etc.)</i> IGC Code, as amended by resolution MSC.370(93)
5	<i>Intended application (scope, size, type, tonnage/length restriction, service (International/non-international), activity, etc.)</i> All ships to which the IGC Code, as amended by resolution MSC.370(93) applies
6	<i>Application to new/existing ships</i> New ships
7	<i>Proposed coordinating sub-committee</i> CCC Sub-Committee
8	<i>Anticipated supporting sub-committees</i> None
9	<i>Time scale for completion</i> 2023
10	<i>Expected date(s) for entry into force and implementation/application</i> 1 January 2028
11	<i>Any relevant decision taken or instruction given by the Committee</i> None