COMPREHENSIVE REVIEW OF THE FIRE TEST PROCEDURES CODE

FIXED HYDROCARBON GAS DETECTION SYSTEMS ON DOUBLE-HULL OIL TANKERS

Report of the drafting group

GENERAL

1 The Drafting Group on Comprehensive Review of the Fire Test Procedures Code met from 12 to 15 April 2010 under the chairmanship of Mr. K. Yoshida (Japan).

2 The group was attended by delegations from the following Member Governments:

CANADA  POLAND
CHINA   REPUBLIC OF KOREA
DENMARK RUSSIAN FEDERATION
FINLAND TURKEY
FRANCE UNITED KINGDOM
JAPAN UNITED STATES
NORWAY

and observers from the following non-governmental organizations in consultative status:

INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS (INTERTANKO)

TERMS OF REFERENCE

3 The group was instructed, taking into account comments and decisions made in plenary, to:

.1 finalize the draft Guidelines for the design, construction and testing of fixed hydrocarbon gas detection systems, and the associated draft MSC circular, based on the report of the correspondence group (FP 54/11), taking into account document FP 54/11/1;
.2 finalize the editorial modifications to the draft 2010 FTP Code, based on the text prepared by the working group established at FP 53 (FP 53/23/Add.1, annex 14), taking into account documents FP 54/4 and FP 54/4/2; and

.3 submit a report to plenary by Thursday, 15 April 2010.

DRAFT GUIDELINES FOR THE DESIGN, CONSTRUCTION AND TESTING OF FIXED HYDROCARBON GAS DETECTION SYSTEMS ON DOUBLE-HULL OIL TANKERS

4 In considering the draft Guidelines, the group noted that the term "detector" in standard IEC 60079-29-1 for hydrocarbon gas detector means the whole system of the detecting device (e.g., portable hydrocarbon detector means the whole equipment), while the term "detector" is defined in the draft Guidelines in document FP 54/11 as a sensing element. The group, having noted that the terminology used in the draft guidelines and the IEC standard are different, also understood that the IEC standard should apply to the gas analysis unit for testing and calibration. Therefore, the group agreed to retain the text of paragraph 2.2.1 of the draft Guidelines as drafted by the correspondence group.

5 Taking into account the comments made in plenary with regard to the proposal from Japan (FP 54/11/1, paragraph 15.2) on paragraph 2.2.2.2 and the views contained in the report of the correspondence group (FP 54/11, paragraph 5), the group agreed that an editorial modification was necessary for inclusion of the above proposal so that an indication of failure of the sampling pump would be required in addition to the carriage of a spare pump or parts, and developed a revised text of paragraph 2.2.2.2 accordingly.

6 The group prepared a list of modifications to the draft Guidelines for the design, construction and testing of fixed hydrocarbon gas detection systems (annex to document FP 54/11), as set out in annex 1, for consideration by the Sub-Committee.

7 The group invited the Sub-Committee to request the Secretariat to prepare a consolidated text of the draft Guidelines for the design, construction and testing of fixed hydrocarbon gas detection systems incorporating the aforementioned modifications and associated draft MSC circular.

DRAFT 2010 FTP CODE

Consideration of proposed corrections to the draft 2010 FTP Code (FP 54/4)

8 The group agreed with the editorial corrections proposed in annex 1 to document FP 54/4.

9 The group, noting that there is no requirement in SOLAS chapter II-2 for plastic pipes to have low flame-spread characteristics, while the non-mandatory Guidelines for plastic pipes on ships (resolution A.753(18)) have a recommendation for plastics pipes to have low flame-spread characteristics, agreed that the test procedure for plastics pipes should be retained in the Guidelines (resolution A.753(18)) but should not be included in the draft 2010 FTP Code. Therefore, the group did not agree to the proposed text contained in annex 2 to document FP 54/4.

10 In this context, the group noted that improved test methods have been developed in NATO (STANAG 4602: AFAP 4) and ISO (ISO 5658-2), which may be of use for future improvement of the fire test method contained in the Guidelines.
Consideration of comments on the draft 2010 FTP Code (FP 54/4/2)

11 The group considered the proposals and comments contained in document FP 54/4/2 and took actions as follows:

.1 agreed to retain the concept of validity of the test report as agreed at the previous sessions, in particular, that:

.1.1 for new type approval, the age of the test report shall be within 5 years without exception; and

.1.2 for renewal of type approval, the Administration may renew an existing type approval without re-testing if the age of the test report is less than 15 years and no alteration of the components or construction has been made to the product,

and in order to clarify these agreements, the group developed modifications to paragraphs 5.2.1 and 8.2 of the draft 2010 FTP Code;

.2 while deciding to retain the previously agreed concept of acceptance of exceptional materials in paragraph 3.5.1 of part 3 of the draft 2010 FTP Code, agreed to some proposals for the purpose of clarification of the provisions;

.3 agreed to retain the concept of cotton-wool pad test, however, decided to replace the word "shall" by the word "need" in paragraph 3.5.2.2 in part 3 and paragraph 8.4.3.3 in appendix 1 to part 3 for clarification purpose;

.4 agreed to the editorial corrections regarding figure 4 in appendix 1 to part 3;

.5 decided that the thickness of the damper housing should be left to the matter of design of the damper, as agreed by FP 53 and it should not be specified in the draft 2010 FTP Code;

.6 agreed to the proposal on editorial corrections to figure A2 for cable penetration specimens in appendix 2 to part 3 of the draft 2010 FTP Code; and

.7 agreed, in general, to the proposal for clarification of the test procedures for door control system in part 4, and prepared necessary editorial corrections in part 4.

Suggestion provided by the delegation of Sweden

12 The group considered the suggestions made by the delegation of Sweden and took the following actions:

.1 observed that the definition of $DmST$ (Time to maximum smoke density) is defined in appendix 2 to part 2 and did not see any necessity of further clarification;

.2 agreed to keep the testing scheme that gas measurements should be done at second and third tests at the time of $DmST$ which is obtained at the first smoke test; and
.3 agreed that a background gas measurement using nitrogen gas is not necessary.

Comment from the delegation of the United Kingdom

13 The group agreed to the proposal made by the delegation of the United Kingdom that a draft ISO standard (which is in a developing stage) should not be referred to in normative manner, and made necessary modifications to part 2 accordingly.

Other editorial corrections

14 The group reviewed the draft 2010 FTP Code contained in annex 14 to the document FP 53/23/Add.1, and made a substantive number of necessary minor editorial modifications to the text.

Modifications to the draft 2010 FTP Code

15 Following the aforementioned discussion, the group prepared a list of modifications to the draft 2010 FTP Code, as set out in annex 2, for consideration by the Sub-Committee.

ACTION REQUESTED OF THE SUB-COMMITTEE

16 The Sub-Committee is invited to approve this report in general and, in particular, to:

.1 agree to the draft Guidelines for the design, construction and testing of fixed hydrocarbon gas detection systems incorporating modifications prepared by the group, and associated draft MSC circular, for submission to MSC 87 for approval (paragraph 5 and annex 1);

.2 request the Secretariat to prepare a consolidated text of the draft Guidelines for the design, construction and testing of fixed hydrocarbon gas detection systems, taking into account the modifications prepared by the group, as appropriate (paragraph 6 and annex 1); and

.3 agree to the modifications to the draft 2010 FTP Code for submission to MSC 87 for consideration and action as appropriate (paragraph 14 and annex 2).
ANNEX 1

EDITORIAL MODIFICATIONS TO THE DRAFT GUIDELINES FOR THE DESIGN, CONSTRUCTION AND TESTING OF FIXED HYDROCARBON GAS DETECTION SYSTEMS ON DOUBLE-HULL OIL TANKERS (FP 54/11, ANNEX)

1  Add new paragraph 2.1.9 as follows:

"2.1.9 The switchover sequence should be designed to keep changing the sampling point accordingly to a planned sequence, even if flammable gas above the alarm level is detected at a sampling point."

2  Replace paragraph 2.2.2.2 by the following:

"2.2.2.2 Main and back-up extraction pumps of equal power and capacity should be provided and arranged to automatically switch over to the back-up pump in case of failure of the main pump. Alternatively, any failure of the extraction pumps should be automatically indicated and at least one spare extraction pump or equivalent parts should be provided on board."

3  Replace paragraph 3.1.3 by the following:

"3.1.3 The control panel should have a button or switch to manually reset to normal operating condition after alarm and fault conditions are cleared."

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ANNEX 2

EDITORIAL MODIFICATIONS TO THE DRAFT 2010 FTP CODE
AS SET OUT IN ANNEX 14 OF DOCUMENT FP 53/23/ADD.1

GENERAL

1 Contents

"Part 5 Test for surface flammability for surface materials and primary deck coverings" shall be "Part 5 Test for surface flammability (Test for surface materials and primary deck coverings)" to make the title be harmonized with that in Part 5.

2 Paragraph 5.2.1

Text of paragraph 5.2.1 is replaced by the following:

"5.2.1 Type approval certificates shall not be issued on the basis of test reports which are more than 5 years old when submitted to the Administration. If the approval depends on several test reports with different dates, the date of the oldest report governs. However, the Administration may renew a type approval of a product without re-testing provided that the test report is not more 15 years old and that no alteration of components or construction has been made to the product."

3 Paragraph 8.2

Text of paragraph 8.2 is replaced by the following:

"8.2 The Administration may issue type approval certificates of products tested in accordance with the previous version of this Code provided that the tests were conducted no later than 1 year after the entry into force of this Code. The purpose is to allow test laboratories a practical period of grace to obtain test equipment necessary to comply with this Code. Tests conducted later than 1 year after entry into force of this Code shall be conducted in accordance with the present version."

4 Paragraph 8.3

The following new paragraph 8.3 is added:

"8.3 The Administration may renew a type approval of a product tested in accordance with the previous version of this Code without re-testing provided that the test report is not more 15 years old and that no alteration of components or construction has been made to the product."

5 Paragraph 9

Paragraph 9.13 is deleted.

PART 2

6 Paragraph 2.3.2, "within 3 min of" is replaced with "at".
Paragraph 4.19 is deleted, because the statement is already covered by 4.1 and 4.2.

In paragraph 5, reference of ISO 21489 is deleted.

In Appendix 1, paragraph 3.11, "11.1.1" is replaced with "9.1.1".

In Appendix 1, paragraph 4.4.2.1, "850" is replaced with "950".

In Appendix 1, paragraph 4.4.4, "two or three cuts (20 to 40 mm long)" is replaced with "two cuts of 20 mm long in parallel by 20 mm spacing in the centre" to make the requirement clearer.

In Appendix 1, paragraph 4.5, "(see standard ISO 291)" is deleted.

In Appendix 1, paragraph 8.7.1, "10.8" is replaced with "8.8.1".

In Appendix 2 under the title, the reference to ISO/DIS 21489 is deleted.

In Appendix 2, paragraph 1, "international standard" is replaced with "appendix", and "standard ISO 5659-2" is replaced with "Appendix 1".

In Appendix 2, paragraph 4, "preliminary smoke density test" is replaced with "the first smoke density test", and "and standard ISO 5659-2:2006" is deleted.

In Appendix 2, text of paragraph 5 is replaced with the following:

"Gas sampling system should consist of probe, heated gas sampling line, filter, valves and sampling pump*, and add a footnote 'Method of measurement of gases using Fourier transform infrared spectroscopy (FTIR) in cumulative smoke test is being developed by ISO/TC92/SC1.'".

In Appendix 2, paragraph 6, delete the second sentence and put "**" at the end of the first sentence.

In Appendix 2, paragraph 8.1.3, "temperature of 170 ± 10°C" shall be "temperature of 150°C to 180°C".

In Appendix 2, the following new paragraph 8.3 is added:

"**8.3 Repeat tests**

In case an additional set of three smoke measurement tests are repeated in accordance with Appendix 1 paragraph 8.8.2 in any of the test conditions in 8.8.1 of Appendix 1, gas measurements shall be conducted at the second and third test of the second set of the tests in accordance with this Appendix and the test results shall be reported in accordance with paragraph 10.".

In Appendix 2, paragraph 9.2.1, delete "in accordance with annex A of standard ISO/DIS 21489", and put "***" at the end of the sentence, and add the following footnote "A relevant standard is being developed by ISO/TC92/SC1".

In Appendix 2, the reference at the end of the appendix is deleted.
PART 3

23  In paragraph 3.5.1, the paragraph "Materials mentioned in paragraphs 3.5.1.1 to 3.5.1.5 may be installed in construction of the specimen. Such inclusion shall be stated in the test report" is replaced with following:

"Adhesives and sealing materials used in testing of penetration systems shall be used in the actual structure.

Materials mentioned in 3.5.1.3 to 3.5.1.5 may be installed in construction of the specimen. Such inclusion shall be stated in the test report. The materials used in the test shall not be replaced by any other materials that have not been tested in accordance with this Code and/or accepted by the Administration."

24  In paragraph 3.5.1.1, add "and vapour barriers" after "adhesives".

25  In paragraph 3.5.2.2, "shall" is replaced with "need".

26  In Appendix 1, paragraph 3.1, ", if applicable," is added between "information" and "shall be submitted".

27  In Appendix 1, paragraph 7.3.2, the following sentence is added at the end:

"This principle shall be used also for the other assemblies (e.g., windows, ducts and penetrations) installed in bulkheads or decks."

28  In Appendix 1, the second figure 4 which indicates old version of thermocouples (under the paragraph 7.4) is deleted.

29  In Appendix 1, paragraph 7.6.3,

.1  delete .6;

.2  in .9, the text "of the joining profiles" is replaced by "on the joints and/or joining profiles" and add at the end "Height of the top panel in the test specimen should be equal or greater than 225 mm."; and

.3  renumber .7 to .5, .8 to .6 .9 to .7 and .5 to .8 (move existing .5 to the end).

30  In Appendix 1, paragraph 8.3.1.3, "per cent" is replaced with "percentage".

31  In Appendix 1, paragraph 8.4.3.2, the two "naming" are replaced with "flaming".

32  In Appendix 1, paragraph 8.4.3.3, "shall" is replaced with "need".

33  In Appendix 1, paragraph 8.4.4.2, delete subparagraph .2, renumber subparagraph .3 to .2 and replace "surface" with "furnace".

34  In Appendix 1, paragraph 8.4.4.4, after the first sentence, add "12 mm gap gauge can be used for the purpose of examining the increase of such gap".

35  In Appendix 1, paragraph 8.4.6, "mating" is replaced with "melting".
36 In Appendix 1, paragraph 9.9, "product" is replaced with "test".

37 In Appendix 1, paragraph 9.15.1, between brackets "subparagraphs .1 and .3 above" is replaced with "paragraph 3 of Part 3".

38 In title of Appendix 2, "and duct" is added between "pipe" and "penetrations".

39 In Appendix 2 at the end of INTRODUCTION, "the resolution" is replaced with "Appendix 1".

40 In Appendix 2, Figure A2, "Deletion of measuring" is deleted in the upper most figure.

41 In Appendix 2, A.I – Window paragraph 2.2.2, the text "of Appendix 1" is added after "figure 1".

42 In Appendix 2, A.II – Fire dampers paragraph 1.1, the text "9.2 of Appendix 1" is replaced with "3 of Part 3".

43 In Appendix 2, A.III – Pipe and duct penetrations, "on the exposed side" is deleted in the second paragraph of 2.2.1, and "Penetration and transits" is replaced with "Duct penetrations" in paragraph 4.1.2.

44 In Appendix 2, A.IV – Cable transits, the last paragraph in 2.2.1 is deleted.

45 In Appendix 2, A.IV – Cable transits, paragraph 2.2.7, "shall" is replaced by "should" in the second sentence.

PART 4

46 In Appendix, add following new paragraphs 8.1.3 and 8.14:

"8.1.3 Prior to the test, the door shall be at open position. At the start of the test, the door control system shall show its capability to close the door.

8.1.4 The door control system shall be installed in a representative way with all its units and be powered for the entire test period."

PART 5

47 In the title, "Test for" is added between "("and "surface" to read "Part 5 – Test for surface flammability (Test for surface materials and primary deck coverings)".

48 In paragraph 1.3, "for bulkhead or ceiling" is deleted.

49 Paragraph 3.1 Surface flammability criteria is replaced with following:

"Materials, which average values for all of the surface flammability comply with the values in the Table 1, are considered to meet the requirements for low flame-spread in compliance with the relevant regulations in chapter II-2 of the Convention."

50 In Note under Table 1, "three values of average of" is deleted.
In Appendix 1, paragraph 3.1, "and having the density of 950 ± 100 kg/m³" is added after "thick".

In paragraph 3.2, delete ")".

In Appendix 1, paragraph 3.2, "Figure 14" is replaced with "Figure 11".

In Appendix 1, paragraph 11.16, "classification of the material" is replaced with "Determination whether the tested material meets the performance criteria in paragraph 3 and 4 of this Part".

In Appendix 1, paragraph 6.3.1.1, "marine board" is replaced with "dummy".

In Appendix 1, paragraph 8.2.1.2 "which is longer; or" is replaced with "whichever is longer".

In Appendix 1, paragraph 8.2.1, subparagraph .3 is deleted.

In Appendix 1, paragraph 8.3.3, subparagraph .3 is deleted.

In Appendix 2, paragraph 1.1.5.2, in the first sentence "natural or methane" is replaced by "natural, methane or propane-butane".

In Appendix 2, paragraph 4.3.4, "3.3" is replaced with "3.5 of Appendix 1".

In Appendix 2 after Figure 2, "Figure 3 . View from radiant panel end (Existing figure 3 shows out of date configuration and is to be deleted.)" and "Figure 4 . Radiant panel with reverberatory wires viewed through specimen frames (The reverberatory wires shown in the existing figure 4 is wrong. So, this figure should be deleted.)" are deleted.

In Appendix 2, paragraph 5, the first sentence is deleted. In the second sentence "0 or 75 mm" is deleted, and the third sentence is deleted.

Under the title, "(Part 6 of the previous version of FTP Code has been incorporated into Part 5 of this FTP Code.)" is added.

In paragraph 3.1.2, "as determined by Appendix 2" is added after "burn through".

In paragraph 3.1.4, "as determined by Appendix 2" is added after "an average char length".

In Appendix 1, paragraph 5.2, "Appendix 2" is replaced with "Appendix 3".

In Appendix 1, paragraph 6.4, the second paragraph is deleted.

In Appendix 1, paragraph 7.17, "classification of the material" is replaced with "Determination whether the tested material meets the performance criteria in paragraph 3 of this Part."
PART 8

69 The text "butane" is replaced with "propane" in paragraph 3.2 (two times) and in Appendix, the title of 7.3, in paragraphs 7.3.1, 7.3.5 and 7.3.6.

70 In Appendix 1, paragraph 3, "join" is replaced with "joint".

71 In Appendix 1, paragraph 4.1, 4th paragraph, "0 mm" is replaced with "50 mm".

72 In Appendix 1, paragraph 8.1, "Part 7" is replaced with "Part 8".

73 In Appendix 1, paragraph 8.7, "materials, i.e. curtain, drape, etc." is replaced with "furniture, e.g., seat, sofa, office chair, etc.".

74 In Appendix 1, paragraph 8.17, "classification of the material" is replaced with "Determination whether the tested material meets the performance criteria in paragraph 3 of this Part".

PART 9

75 In Appendix, paragraph 5.1, "butane or" is deleted.

76 In Appendix, paragraph 11.1, "Part 7" is replaced with "Part 9".

77 In Appendix, paragraph 11.15, 5th subparagraph is added as follows:

".5 occurrence of flaming ignition".

78 In Appendix paragraph 11.17, "classification of the material" is replaced with "Determination whether the tested material meets the performance criteria in paragraph 3 of this Part".

PART 10

79 In paragraph 2.2, "paragraph 7.2.2 of" is deleted.

80 In Appendix 1, paragraph 9.16, "in accordance with subparagraph 2.3 of part 9" is deleted.

81 In Appendix 2, paragraph 12.17, "in accordance with subparagraph 2.4 of part 9" is deleted.

PART 11

82 In Appendix, paragraph 1.5.3, add "as described in 8.4.4 of Appendix 1 of part 3" after "gap gauges".