Implementation of Safe Return to Port and Orderly Evacuation

January 2016

Rule Note
NR 598 DT R01 E

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BUREAU VERITAS

MARINE & OFFSHORE DIVISION

GENERAL CONDITIONS

ARTICLE 1

1.1. - BUREAU VERITAS is a Society the purpose of whose Marine & Offshore Division (the "Society") is the classification (" Classification ") of any ship or vessel or offshore unit or structure of any type or part of it or system therein collectively hereinafter referred to as a "Unit" whether linked to shore, river bed or sea bed or not, whether operated or located at sea or in inland waters or partly on land, including submarines, hovercrafts, drilling rigs, offshore installations of any type and of any purpose, their related and ancillary equipment, subsea or not, such as well head and pipelines, mooring legs and mooring points or otherwise as decided by the Society.

The Society:

- "prepares and publishes Rules for classification, Guidance Notes and other documents (" Rules ");
- "issues Certificates, Attestations and Reports following its interventions (" Certificates ");
- "publishes Registers.

1.2. - The Society also participates in the application of National and International Regulations or Standards, in particular by delegation from different Governments. Those activities are hereafter collectively referred to as " Certification ".

1.3. - The Society can also provide services related to Classification and Certification such as ship and company safety management certification; ship and port security certification, training activities; all activities and duties incidental thereto such as documentation on any supporting means, software, instrumentation, measurements, tests and trials on board.

1.4. - The interventions mentioned in 1.1., 1.2. and 1.3. are referred to as " Services ". The party and/or its representative requesting the services is hereinafter referred to as the " Client ". **The Services are prepared and carried out on the assumption that the Clients are aware of the International Maritime and/or Offshore Industry (the "Industry") practices.**

1.5. - The Society is neither and may not be considered as an Underwriter, Broker in ship's sale or chartering, Expert in Unit's valuation, Consulting Engineer, Controller, Naval Architect, Manufacturer, Shipbuilder, Repair yard, Charterer or Shipowner who are not relieved of any of their expressed or implied obligations by the interventions of the Society.

ARTICLE 2

2.1. - Classification is the appraisement given by the Society for its Client, at a certain date, following surveys by its Surveyors along the lines specified in Articles 3 and 4 hereafter on the level of compliance of a Unit to its Rules or part of them. This appraisement is represented by a class entered on the Certificates and periodically transcribed in the Society's Register.

2.2. - Certification is carried out by the Society along the same lines as set out in Articles 3 and 4 hereafter and with reference to the applicable National and International Regulations or Standards.

2.3. - **It is incumbent upon the Client to maintain the condition of the Unit after surveys, to present the Unit for surveys and to inform the Society without delay of circumstances which may affect the given appraisement or cause to modify its scope.**

2.4. - The Client is to give to the Society all access and information necessary for the safe and efficient performance of the requested Services. The Client is the sole responsible for the conditions of presentation of the Unit for tests, trials and surveys and the conditions under which tests and trials are carried out.

ARTICLE 3

3.1. - **The Rules, procedures and instructions of the Society take into account at the date of their preparation the state of currently available and proven technical knowledge of the Industry. They are a collection of minimum requirements but not a standard or a code of construction neither a guide for maintenance, a safety handbook or a guide of professional practices, all of which are assumed to be known in detail and carefully followed at all times by the Client.**

Committees consisting of personalities from the Industry contribute to the development of those documents.

3.2. - **The Society only is qualified to apply its Rules and to interpret them. Any reference to them has no effect unless it involves the Society's intervention.**

3.3. - The Services of the Society are carried out by professional Surveyors according to the applicable Rules and to the Code of Ethics of the Society. Surveyors have authority to decide locally on matters related to classification and certification of the Units, unless the Rules provide otherwise.

3.4. - **The operations of the Society in providing its Services are exclusively conducted by way of random inspections and do not in any circumstances involve monitoring or exhaustive verification.**

ARTICLE 4

4.1. - The Society, acting by reference to its Rules:

- "reviews the construction arrangements of the Units as shown on the documents presented by the Client;
- "conducts surveys at the place of their construction;
- "classes Units and enters their class in its Register;
- "surveys periodically the Units in service to note that the requirements for the maintenance of class are met.

The Client is to inform the Society without delay of circumstances which may cause the date or the extent of the surveys to be changed.

ARTICLE 5

5.1. - **The Society acts as a provider of services. This cannot be construed as an obligation bearing on the Society to obtain a result or as a warranty.**

5.2. - **The certificates issued by the Society pursuant to 5.1. here above are a statement on the level of compliance of the Unit to its Rules or to the documents of reference for the Services provided for.**

In particular, the Society does not engage in any work relating to the design, building, production or repair checks, neither in the operation of the Units or in their trade, neither in any advisory services, and cannot be held liable on those accounts. Its certificates cannot be construed as an implied or express warranty of safety, fitness for the purpose, seaworthiness of the Unit or of its value for sale, insurance or chartering.

5.3. - **The Society does not declare the acceptance or commissioning of a Unit, nor of its construction in conformity with its design, that being the exclusive responsibility of its owner or builder.**

5.4. - The Services of the Society cannot create any obligation bearing on the Society or constitute any warranty of proper operation, beyond any representation set forth in the Rules, of any Unit, equipment or machinery, computer software of any sort or other comparable concepts that has been subject to any survey by the Society.

ARTICLE 6

6.1. - The Society accepts no responsibility for the use of information related to its Services which was not provided for the purpose by the Society or with its assistance.

6.2. - **If the Services of the Society or their omission cause to the Client a damage which is proved to be the direct and reasonably foreseeable consequence of an error or omission of the Society, its liability towards the Client is limited to ten times the amount of fee paid for the Service having caused the damage, provided however that this limit shall be subject to a minimum of eight thousand (8,000) Euro, and to a maximum which is the greater of eight hundred thousand (800,000) Euro and one and a half times the above mentioned fee. These limits apply regardless of fault including breach of contract, breach of warranty, tort, strict liability, breach of statute, etc.**

The Society bears no liability for indirect or consequential loss whether arising naturally or not as a consequence of the Services or their omission such as loss of revenue, loss of profit, loss of production, loss relative to other contracts and indemnities for termination of other agreements.

6.3. - All claims are to be presented to the Society in writing within three months of the date when the Services were supplied or (if later) the date when the events which are relied on of were first known to the Client, and any claim which is not so presented shall be deemed waived and absolutely barred. Time is to be interrupted thereafter with the same periodicity.

ARTICLE 7

7.1. - Requests for Services are to be in writing.

7.2. - **Either the Client or the Society can terminate as of right the requested Services after giving the other party thirty days' written notice, for convenience, and without prejudice to the provisions in Article 8 hereunder.**

7.3. - The class granted to the concerned Units and the previously issued certificates remain valid until the date of effect of the notice issued according to 7.2. here above subject to compliance with 2.3. here above and Article 8 hereunder.

7.4. - The contract for classification and/or certification of a Unit cannot be transferred neither assigned.

ARTICLE 8

8.1. - The Services of the Society, whether completed or not, involve, for the part carried out, the payment of fee upon receipt of the invoice and the reimbursement of the expenses incurred.

8.2. - **Overdue amounts are increased as of right by interest in accordance with the applicable legislation.**

8.3. - **The class of a Unit may be suspended in the event of non-payment of fee after a first unfruitful notification to pay.**

ARTICLE 9

9.1. - The documents and data provided to or prepared by the Society for its Services, and the information available to the Society, are treated as confidential. However:

- "Clients have access to the data they have provided to the Society and, during the period of classification of the Unit for them, to the **classification file** consisting of survey reports and certificates which have been prepared at any time by the Society for the classification of the Unit ;
- "copy of the documents made available for the classification of the Unit and of available survey reports can be handed over to another Classification Society, where appropriate, in case of the Unit's transfer of class;
- "the data relative to the evolution of the Register, to the class suspension and to the survey status of the Units, as well as general technical information related to hull and equipment damages, may be passed on to IACS (International Association of Classification Societies) according to the association working rules;
- "the certificates, documents and information relative to the Units classed with the Society may be reviewed during certificating bodies audits and are disclosed upon order of the concerned governmental or inter-governmental authorities or of a Court having jurisdiction.

The documents and data are subject to a file management plan.

ARTICLE 10

10.1. - Any delay or shortcoming in the performance of its Services by the Society arising from an event not reasonably foreseeable by or beyond the control of the Society shall be deemed not to be a breach of contract.

ARTICLE 11

11.1. - In case of diverging opinions during surveys between the Client and the Society's surveyor, the Society may designate another of its surveyors at the request of the Client.

11.2. - Disagreements of a technical nature between the Client and the Society can be submitted by the Society to the advice of its Marine Advisory Committee.

ARTICLE 12

12.1. - Disputes over the Services carried out by delegation of Governments are assessed within the framework of the applicable agreements with the States, international Conventions and national rules.

12.2. - Disputes arising out of the payment of the Society's invoices by the Client are submitted to the Court of Nanterre, France, or to another Court as deemed fit by the Society.

12.3. - **Other disputes over the present General Conditions or over the Services of the Society are exclusively submitted to arbitration, by three arbitrators, in London according to the Arbitration Act 1996 or any statutory modification or re-enactment thereof. The contract between the Society and the Client shall be governed by English law.**

ARTICLE 13

13.1. - **These General Conditions constitute the sole contractual obligations binding together the Society and the Client, to the exclusion of all other representation, statements, terms, conditions whether express or implied. They may be varied in writing by mutual agreement. They are not varied by any purchase order or other document of the Client serving similar purpose.**

13.2. - The invalidity of one or more stipulations of the present General Conditions does not affect the validity of the remaining provisions.

13.3. - The definitions herein take precedence over any definitions serving the same purpose which may appear in other documents issued by the Society.

BV Mod. Ad. ME 545 L - 7 January 2013

RULE NOTE NR 598

NR 598
Implementation of Safe Return to Port and Orderly Evacuation

SECTION 1 IMPLEMENTATION OF SAFE RETURN TO PORT AND ORDERLY EVACUATION

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1 General

1.1 Application

1.1.1 The present Rule Note gives technical requirements, as a complement to those of SOLAS Ch.II-1/8-1, Ch.II-2/21 and Ch.II-2/22 as interpreted by IMO MSC.1/Circ.1368, 1369 & 1437, for the granting of the additional service feature **SRTP** to be added to the service notation "passenger ship" or "ro-ro passenger ship".

1.1.2 The present Rule Note is applicable to ships to which SOLAS Ch.II-2/21 applies. For this purpose, Main Vertical Zones comprising only voids without normal means of access, or ballast tanks - e.g. the forepeak - need not be included in the count of the Main Vertical Zones.

1.1.3 The present Rule Note shall be applied in addition to the relevant provisions of NR467 Rules for the Classification of Steel Ships.

1.2 Definitions

1.2.1 Fire casualties

a) Space of origin

The space of origin is any room or group of rooms bounded by A-class boundaries except those spaces that are not considered as origins of fire as per IMO MSC.1/Circ.1369 Interpretation 8.

For this purpose, the drencher room needs not be considered as a space of origin of fire - See [1.2.3]

b) Extension of the fire casualty within the casualty threshold

In case the space of origin is protected by a fixed fire-extinguishing system, the fire casualty stops at the A-class boundaries of the space of origin, see Fig 1.

In case the space of origin is not protected by any fixed fire-extinguishing system, the fire casualty extends to the spaces adjacent on the same deck and one deck above up to the next A-class boundary, see Fig 2. The fire casualty extends neither to the spaces below the space of origin nor to spaces on the other side of a main fire bulkhead.

c) Fire casualties in garage spaces

With respect to IMO Circ.1369 interpretation 6, the layout of special category and ro-ro spaces, normally extending for more than the length of one MVZ, does not properly fit with the casualty threshold. However, during the assessment of the ship systems' capabilities it has to be verified that a casualty in such spaces would not compromise the operation of the essential systems in the remaining fire zones of the ship. Therefore consequences of fire casualty have to be considered in these spaces.

Alternatively the two following assumptions can be used to carry out necessary assessment:

1) It is considered that fire casualty in the vehicle space affecting less than the area covered by two adjacent drencher sections are within the casualty threshold. Each possible combination of two adjacent drencher sections is to be investigated as a single fire scenario. In each scenario, the two concerned adjacent sections are treated as affected spaces. The casualty is considered not spreading outside the Main Horizontal Zone boundaries to the adjacent spaces belonging to Main Vertical Zones.

2) It is considered that fire casualty will affect a complete Main Horizontal Zone. Each Main Horizontal Zone is to be investigated as a single fire scenario. The casualty is considered not spreading outside the Main Horizontal Zone boundaries to the adjacent spaces belonging to Main Vertical Zones.

For both above assumptions, following precautions will have to be verified:

- During Safe Return to Port (SRTP) period, remaining fire hydrants not affected by the fire casualty will be sufficient to fight a fire anywhere in the ro-ro spaces with two jets not emanating from the same hydrant. (Additional fire hydrants in stairs leading to the garage could be considered).
- It has to be verified that pipes or cables for essential systems, other than those serving the ro-ro spaces, will not all together be affected by a single casualty threshold in the ro-ro space.

1.2.2 Flooding casualties

A flooding casualty is the flooding of any single watertight compartment.

1.2.3 Drencher room

The drencher system is the fixed fire-extinguishing system required in SOLAS Ch.II-2/20.6.1.2.

The drencher room referred to [1.2.1], item a), is the control station containing the distribution valves of the drencher system. This room needs not be considered as a space of origin of fire provided it is dedicated to the drencher distribution valves and their controls only and does not contain any other equipment.

Figure 1 : Casualty threshold when the space of fire origin is protected by a fixed fire-extinguishing system - Longitudinal section

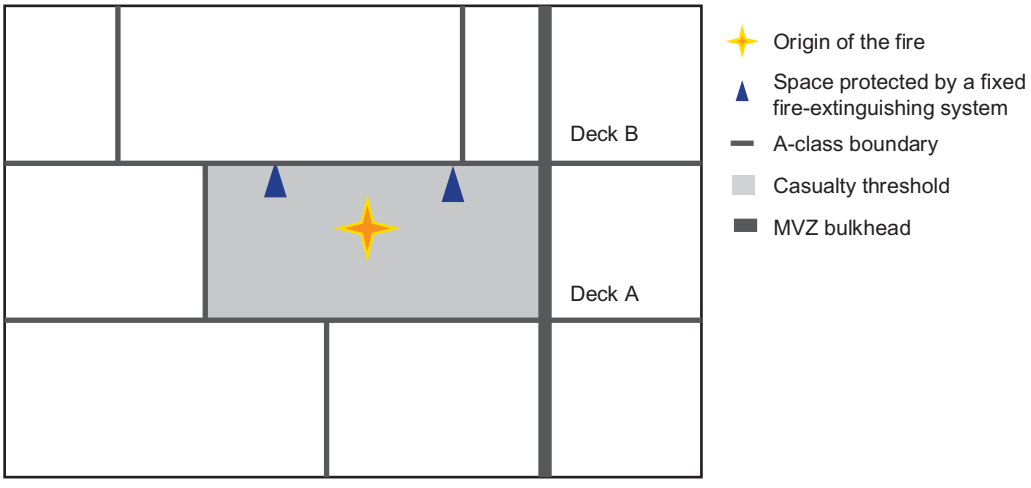
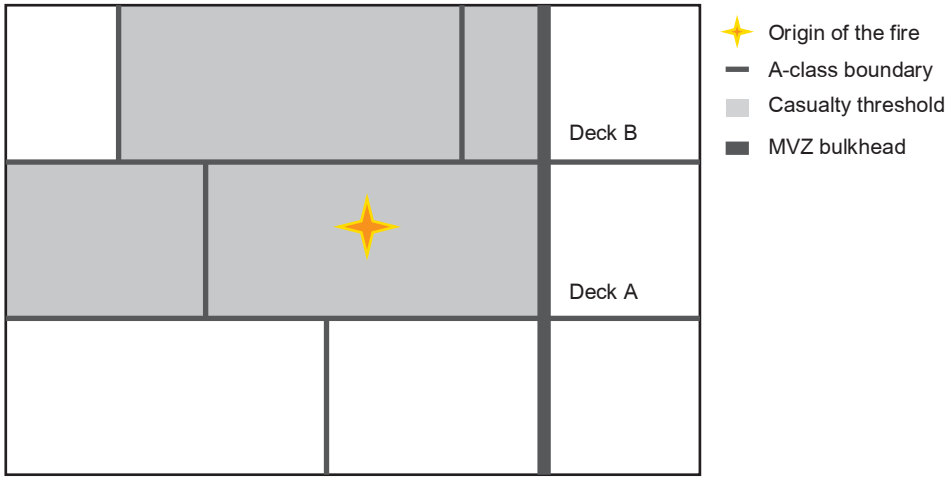


Figure 2 : Casualty threshold when the space of fire origin is not protected by a fixed fire-extinguishing system - Longitudinal section



1.2.4 Operation area

The operation area is to be defined with respect to the intended operation pattern(s) of the ship. In case of modification of the operation pattern of the ship, the SRTP capabilities of the ship shall be re-assessed to the satisfaction of the Society.

As a guide an operation range of 1500 nm for cruise ships intended also for operation in remote areas (e.g. Polar Waters) is recommended. Otherwise, an operation range of 1000 nm for standard cruise ship operation may be accepted for cruise ships on a case-by-case, based on declared operation pattern.

Note 1: This value is based on the distance between the "geographic point of inaccessibility" or "point Nemo" and the nearest lands.

1.2.5 Fixed fire-extinguishing system

A space protected by a fixed fire-extinguishing system is a space protected by one of the following systems:

- An automatic sprinkler system or equivalent complying with the provisions of IMO FSS Code Ch.8 or IMO Resolution A.800 (NR467 Rules for Steel Ships, Part C, Ch 4, Sec 14)
- A fixed gas fire-extinguishing system complying with the provisions of IMO FSS Code Ch.5 (NR467 Rules for Steel Ships, Part C, Ch 4, Sec 14)
- A fixed high expansion foam fire-extinguishing system complying with the provisions of IMO FSS Code Ch.6 (NR467 Rules for Steel Ships, Part C, Ch 4, Sec 14)
- A fixed pressure water-spraying system or equivalent complying with the provisions of IMO FSS Code Ch.7 or IMO MSC/Circ.1165 (NR467 Rules for Steel Ships, Part C, Ch 4, Sec 14)
- A fixed pressure water-spraying system or equivalent complying with the provisions of IMO resolution A.123(V) or IMO MSC.1/Circ.1430 (NR467 Rules for Steel Ships, Part C, Ch 4, Sec 14).

1.3 Documentation to be submitted

1.3.1 Documentation to be submitted as a minimum with respect to safe return to port capability

- Documentation to be provided for this assessment should cover the requirements given in MSC.1/Circ.1369 and MSC.1/Circ.1437
- Information about the intended area of operation, the operating pattern or patterns (which may be used to define any intended speed/maximum distance for safe return to port). This information will mostly have to be provided by the Owner
- List of the systems identified as essential to be submitted for assessment
- Basic layout of the vessel including: General arrangement plan showing all watertight and A-class boundaries, capacity plan, watertight subdivision plan, plan of fire categories, plan of spaces protected by fixed fire-extinguishing systems, and showing the spaces not considered as possible origins of fire
- Machinery arrangement plan showing watertight and A-class boundaries
- For each machinery system required to remain operational during the safe return to port (e.g. propulsion, el-production plant and steering system as well as all auxiliaries concerned such as cooling systems, L.O system, fuel transfer, fuel purifying system, bilge, ballast, etc...) a plan view showing:
  - Watertight, A-class and fire main bulkheads
  - Spaces protected by a fixed fire-extinguishing system
  - Spaces not considered as possible origins of fire
  - Principle location of all equipments of the concerned system including routing of piping, supply and control cables and position of valves and fittings.
- For each safety and communication system required to remain operational during the safe return to port (e.g. fire detection, fire extinction, fire doors indication, evacuation guidance system, sprinkler or equivalent system, P.A/G.A system, external communication system, etc...), a principle drawing showing:
  - Watertight, A-class and fire main bulkheads
  - Spaces protected by a fixed fire-extinguishing system
  - Lay-out/principle architecture of the system, including location of main components, routing of power supply and control cables, piping, control stations, etc.
- For each system required to remain operational during the safe return to port, overall assessment study to be submitted (supplemented by detailed assessment study if necessary)
- Data regarding the minimum speed vs. weather and sea conditions (e.g., results of model tank tests in sea keeping conditions including consideration of wind forces)
- Electrical load balance for the following SRTP scenarios:
  - Minimum electrical-generating capacity available
  - Any other scenario of reduced power that would cause any essential system to run at reduced capacity.
- Principle description of proposed solution to achieve required minimum safe navigation in case of fire casualty on the wheelhouse. (List of equipments and their location, internal and external communication facilities, etc...)
- Detailed description of any foreseen manual action needed to restore the function of any essential system if any
- Specific test programs for quay and sea trials to verify proper functionalities under certain conditions if required by a/m study.

1.3.2 Documentation to be submitted as a minimum with respect to safe area

- Description of the criteria adopted for the selection of safe areas and intended location.

  This should be achieved by submitting documentation showing safe area arrangement in every possible different scenario (casualty in any Main Vertical Zones).

  For each scenario, necessary information on each service required during SRTP (e.g. ventilation, distribution and accessibility to food and water, availability of sanitary/toilet facilities vs number of persons onboard and their distribution between the different main vertical zone's, alternative medical facility, etc...) should demonstrate the ability of these services to remain operational.
- For each scenario safe access from any safe areas to the embarkation deck to be demonstrated.

1.3.3 Documentation to be submitted as a minimum with respect to “orderly evacuation”

- drawings showing the assembly and embarkation stations as well as accessibility to embarkation deck for each evacuation scenario (each scenario with one different main vertical zone lost due to a fire casualty)
- for each system required to remain operational during the evacuation, an overall assessment study is to be submitted (supplemented by detailed assessment study if necessary)
- electrical load balance for the Orderly Evacuation scenario with respect to systems referred to in SOLAS Ch.II-2/22.3.1. The loss of main vertical zone leading to the most demanding situation should be considered.

2 Safe Return to Port (SRTP)

2.1 Fire doors position indication

2.1.1 Remote indication of all fire doors installed at every deck in the main vertical zone bulkheads which are at the boundary of safe areas shall remain operational for any fire casualty not exceeding the casualty threshold, except for those doors in the boundary of spaces directly affected by the casualty.

2.2 Fire detection system

2.2.1 Precaution should be taken in order to guaranty the continuity of the operation of the fire detection system considering the possible loss of any input/output cabinet due to a fire or flooding casualty. This may be achieved e.g. by installing one input/output cabinet per MVZ properly interconnected with the other cabinets.

2.2.2 After any fire or flooding casualty, at least one fire detection control/alarm panel should remain operable.

2.3 Drencher system

2.3.1 In special category spaces or garage, the drencher sections covering zones not affected by the casualty shall remain serviceable during the Safe Return to Port period.

2.3.2 The drencher sections covering spaces or areas, other than special category spaces or garage, in Main Vertical Zones not affected by the casualty shall remain serviceable during the Safe Return to Port. (e.g. drencher section on cruise ship protecting mooring deck under overhanging deck).

2.4 Ballast pumping system

2.4.1 In case a compartment right above the tank top has been damaged by a fire or flooding casualty, it is acceptable to loose the ballasting operation of the ballast tank located right underneath this compartment. However, the ballasting operation shall remain available for all other ballast tanks.

2.4.2 Ballast Water Treatment plant is not considered to remain operational during SRTP period.

2.5 Fire main

2.5.1 Length of extension hoses

The length of the fire hoses used to keep the functionality of the fire main in the affected main vertical zone after a fire or flooding casualty may exceed the limits set out in SOLAS Ch.II-2/10.2.3.1.1 provided it is justified that:

- the required pressure is available at the nozzle and
- the hose may be easily handled and controlled.

2.5.2 It should be demonstrated either by test or by means of detailed drawings that the intended extension hoses are sufficient to reach all parts of the spaces where the fire main will not be available due to a fire casualty.

2.5.3 The number and storage location of these extension hoses is to be reported on the fire control plan.

2.6 Main electrical system

2.6.1 The main electrical system (generators and associated switchboards) shall be divided and located in separated watertight compartments, so that, in case of loss of a part of the system due to a fire or flooding casualty, the available power remains sufficient for SRTP operation as required in SOLAS Ch.II-2 Reg 21, 4.

Electrical sub-distribution should also follow the same principle of separation.

If the food intended for the Safe Return to Port period needs to be cooked, electrical supply shall remain available in at least one galley after any fire or flooding casualty.

2.7 External communication

2.7.1 See [4.5]: External communication for orderly evacuation.

2.8 Internal communication

2.8.1 In addition to the public address and general alarm systems, internal communication between bridge, engineering spaces (including the steering gear room), safety centre, fire-fighting and damage-control teams, is to be provided so that at least one portable system remains available after any fire or flooding casualty.

2.9 Power-operated watertight and semi-watertight doors

2.9.1 After any fire or flooding casualty, at least one position indication and control shall remain operational for each watertight and semi-watertight door that is not part of the boundary of the affected space. Position indication should remain available at the wheelhouse or at the emergency control position located above the bulkhead deck.

2.10 Back-up bridge

2.10.1 In case of loss of the navigating bridge due to a fire casualty, a back-up position for safe navigation operations is to be provided. This back-up bridge shall have a sufficient visibility in the forward direction and be fitted with at least the following equipment:

- ECDIS (or appropriate folio of paper nautical charts covering the considered navigation areas)
- One 9 GHz Radar
- Properly adjusted standard magnetic compass (or a Gyro repeater under special consideration) and bearing repeater
- One GPS receiver
- AIS
- Internal communication (mainly with engine room, ECR and steering gear room)
- External communications (short and long distances + Aeronautical VHF)
- Whistle controls
- Navigation/Signal lights controls
- Daylight signal lamp.

2.11 Guidance system for evacuation (Low Location Lighting)

2.11.1 Low location lighting is to remain operable after a fire casualty. When this system is electrical, special consideration will be given to its control and power supply.

2.12 Bilge system

2.12.1 Redundancy of the bilge level alarm may be achieved using the flooding alarm

3 Safe areas

3.1 Size of the safe areas

3.1.1 The area taken into consideration for the sizing of the safe areas shall not include the areas occupied by fixed furniture such as desks, bars, etc.

3.1.2 In order to maintain reasonable circulation path during the SRTP period, as far as practicable, corridors and stairway landings should not be used for the calculation of safe areas' capacity.

3.2 Sanitary systems

3.2.1 The black and grey water systems are considered as part of the sanitation systems and shall remain available to serve the safe areas. Grey and black waters may however be disposed of into the sea after a fire or flooding casualty impairing the equipment for the treatment of these effluents.

3.2.2 As a minimum one toilet for every 50 persons or fraction shall remain operational in the safe area. This has to be verified for each scenario.

Urinals only shall not be taken into account for this purpose.

To fulfil this requirement, the use of toilets in passenger cabins may be foreseen for the SRTP period. Procedure, describing location and number of subject cabins for each safe area scenario, shall be available in the SRTP operational manual. Use of some crew cabins, except cabins of officers or crew members involved in the ship's operation during SRTP period, may also be foreseen.

3.3 Sanitary water

3.3.1 The cold water distribution system shall remain operable in all safe areas during SRTP.

The availability of the hot water distribution system is not required during SRTP.

3.4 Quantity of food

3.4.1 A sufficient quantity of food for SRTP with the full complement of the ship is to be permanently available on board. One food ration described in ISO 18831:2006 per person and per day (i.e. 10000kJ equivalent to 2500 kcal) may be acceptable for this purpose.

4 Orderly evacuation

4.1 Cables

4.1.1 Fire-resistant cables demonstrating a fire resistance capability of minimum 3 hours, are considered to remain intact and serviceable while passing through the unserviceable main vertical zone for the purposes of SOLAS Ch.II-2/22.3.1.

4.2 Pipes

4.2.1 Pipes in A-60 trunks and pipes built to reinforced thickness standard (as per Interpretation 12 of MSC.1/Circ.1369) and additionally fitted with A-60 insulation, are deemed to remain intact and serviceable while passing through the unserviceable main vertical zone for the purposes of SOLAS Ch.II-2/22.3.1, provided they have only welded joints and no equipment connected to them within the subject unserviceable main vertical zone.

4.3 Life-jackets

4.3.1 It is recommended to store a sufficient number of life jackets at an outside embarkation station to compensate for the possible loss of all life jackets stored inside any one main vertical zone that may be considered lost under the provision of SOLAS Ch.II-2/22.3.1.

4.4 Sources of electrical power

4.4.1 The main and emergency sources of electrical power should be distributed in at least two separate Main Vertical Zones.

4.5 External communication

4.5.1 After loss of the wheelhouse due to a fire casualty, the following means of external communication should be available during the orderly evacuation from a place in a different main vertical zone:

- Short distance communication: VHF transceiver or GMDSS, Aeronautical VHF, and
- Long distance communication: Satellite communication system or MF/HF radio installation. The VHF telephone might be considered sufficient for this purpose depending on the ship operation area. This is to be specifically assessed by the Society.

5 Specific tests related to SRTP

5.1 General

5.1.1 The availability of all systems required remaining functional in case of Safe Return to Port or Orderly Evacuation should be verified on board during harbour or sea trial tests as deemed necessary by the Society.

5.1.2 When deemed necessary as a result of the assessment study, the tests should be performed for concerned system by simulating the consequences of fire casualties in the relevant spaces, i.e. by disabling the parts of this system located in the spaces that may be affected by a given casualty. All the casualties that may affect the considered system should be simulated in such way.

5.2 Fire main

5.2.1 In case additional hoses are to be extended from the adjacent non affected main vertical zone within the affected main vertical zone during SRTP, it should be verified that two jets of water may reach any part of the affected main vertical zone after any possible fire or flooding casualty. This should be assessed by simulating all relevant fire casualties and placing the additional hoses where needed, i.e. connecting these additional hoses to hydrants in the adjacent main vertical zone at decks where extra hose length will be needed.

5.2.2 Attention should also be paid to the number of spare hoses provided for the purpose of [5.2.1]. Storage position of these extra hoses shall be indicated in the fire control plan.

5.2.3 Accessibility to MVZ section valves and performance of the fire main following closure of said section valves are to be verified.

5.3 Fire and smoke detection

5.3.1 Correct operation of the system following loss of one control panel is to be verified.

5.4 Emergency remote stops

5.4.1 Verify that loss of emergency remote stops control stands by a fire or flooding casualty will not prevent to restart essential systems required for SRTP; e.g. loss of fuel quick closing valves control stand or loss of machinery ventilation control stand.

5.4.2 Verify that a casualty is not to result in the loss of ability to re-open fire dampers and restart ventilation fans needed for ventilation of safe area or of propulsion machinery spaces required for SRTP after a loss of control or power supply.

5.5 Fuel and water level

5.5.1 The low level alarms in the fuel oil and fresh water tanks should be set at a level above the minimum required quantity for SRTP according to the conditions detailed in the overall assessment.

Alternative arrangements might be considered on a case-by-case basis.

5.5.2 Unless fresh water for fire-fighting systems is stored in a separate dedicated tank, the low level of the fresh water tanks should be fixed taking into account the needed amount of fresh water required for the safe area during SRTP and that required to fixed fire-extinguishing systems remaining operational during SRTP.

5.6 Isolation valves

5.6.1 The valves intended for the isolation of a section of a system damaged by a fire or flooding casualty should be easily accessible and properly identified. Their manual operation and remote control - if provided - should be checked.

5.7 Loss of navigating bridge

5.7.1 The availability of the back-up bridge equipment shall be verified at quay by simulating the loss of the navigating bridge and of the corresponding equipment.

5.7.2 The equipment and navigation procedures, including orders of machinery control (propulsion and steering) using internal communication, shall be tested in real conditions during sea trials through a course-keeping ability test.

5.7.3 Availability of charging facilities in other main fire zones for the portable radios and for possible portable rechargeable battery operated lights to be verified in case of loss of navigating bridge.

5.8 Sea going tests

5.8.1 For the purpose of this paragraph, the wording "propulsion system" refers to a shaft line or a pod as the case may be.

5.8.2 The tests detailed in [5.8.3] with only one propulsion system should be performed with, as far as reasonably practicable, the remaining propulsion system in the most demanding configuration during this test.

5.8.3 The following tests should be carried out by simulating the loss of one engine room or machinery space leading to the loss of one propulsion system and/or part of the electrical power system due to a fire or flooding casualty:

- Speed test, to verify the performance with only one propulsion system for SRTP. The results of this test with the relevant corrections for sea and wind conditions should be used to validate the design assumptions used for SRTP assessment. They should be properly recorded and kept on board, e.g. in the SRTP assessment report
- Turning circles with only one propulsion system at SRTP speed. The results of this test should be properly recorded and kept on board, e.g. in the SRTP assessment report
- Availability of the systems required to remain functional during SRTP.