

ANNEX 1A**RN & RFA DAMAGE CONTROL AND FIREFIGHTING POLICY STATEMENT****1. Introduction**

a. The potential for an RN or RFA vessel to sustain fire or flood damage is a risk which is present both in peace and war. An effective Damage Control and Firefighting (DC&FF) capability is fundamental to fulfil the MOD's duty of care to provide Suitably Qualified and Experienced Personnel (SQEP) with the right equipment to prevent or minimise the effects of such damage.

b. This DC&FF policy provides the basis for ship design and supporting doctrine, as well as the allocation of resources; but is also determined by future equipment fits and capabilities. It supports, and should be read in conjunction with, JSP 426 - MOD Fire Safety Policy, BR 8647 - Navy Department Regulations for Fire Safety Management, the Survivability Handbooks (see [Note 1](#)) and the Surface ship survivability strategy (see [Note 2](#)).

c. The RN policy for Chemical, Biological, Radiological and Nuclear defence is the subject of a separate paper but in many instances the design of ships, and the provision of equipment or facilities in them, will serve to satisfy both policies.

2. Aim

The aim of this policy statement is to state the current RN and RFA policy for DC&FF.

3. Scope

a. The policy contained within this statement is applicable to all seagoing RN units. This includes all RN ships and submarines, Royal Fleet Auxiliary (RFA) ships, the personnel serving in them, and embarked units of the Fleet Air Arm and Royal Marines.

b. The provisions of this policy are to be applied to vessels already in-service on the effective date to the extent that is practical and cost effective so to do. Any new material requirements which cannot be met from currently allocated resources are to be addressed as potential capability enhancements and the guidance contained in JSP 430 Part 2 Issue 3 concerning the application of safety management systems to in-service equipment is to be followed.

c. This policy does not cover new vessels prior to PAD or those vessels in upkeep where responsibility for the safety of the vessel has been passed to a contractor. Responsibilities of RN or RFA personnel in these circumstances are to be covered by a negotiated and agreed Safety Plan and the continuing responsibilities of the MOD to its employees falls within the scope of MOD Fire Safety Policy.

d. MOD chartered vessels are necessarily excluded from the scope of this policy since the provision of DC&FF capability will be subject to contract negotiations with the supplier. However, those responsible for chartering vessels are to be mindful of the principles of this policy. They are to consider the DC&FF capability required and how it will be provided. Operational circumstances may make it appropriate for Service equipment and manpower to contribute to this capability.

e. This policy does not address ships laid-up or non sea-going ships used for training. Firefighting ashore is also outside the scope of this policy. For RN establishments firefighting ashore is the responsibility of the Chief Fire Officer, Defence Fire and Rescue Service who is Head of the Defence Fire Risk Management Organisation (DFRMO). DFRMO is also responsible for setting airfield firefighting policy in accordance with the requirements of the MOD Regulations for Aircraft Rescue and Fire Fighting (ARFF), contained within JSP 426 - Fire Safety Manual, to meet the requirements of Joint Regulations; NAVY-CSAV-ACOS will implement this policy on RN Air Stations. However, the paper recognises the common approach required for ARFF at sea.

4. Definitions

The following definitions apply to the application of this DC&FF policy:

a. **Standard Emergency Party**

(1) **In Peacetime.** In peacetime a Harbour Fire and Emergency Party (HFEP) or Standing Sea Emergency Party (SSEP) appropriate to the size of vessel and including all groups as described in [Chapter 20](#).

(2) **On Operations.** On operations a Fire and Repair Party as described in [Chapter 8](#) or the zone equivalent. In RFAs the Emergency Stations organisation as described in BRd 875.

b. **Minor Event.** A Minor Event is localised fire, flood or damage which can be contained and countered without the application of the full resources of a Standard Emergency Party.

c. **Major Event.** A Major Event is an incident or series of incidents which require the full resources of a Standard Emergency Party to contain and counter.

d. **Whole Ship Event.** A Whole Ship Event is an incident or series of incidents not capable of being contained by a Standard Emergency Party.

e. **Command Aim.** The Command Aim is a succinct and unambiguous statement of the current Command intent.

f. **Survivability.** Survivability is a Key User Requirement for maritime design, which enables platforms to complete specific missions in a hostile environment. The 3 components of survivability are:

(1) **Susceptibility.** Avoidance of being hit, which includes platform signatures, and hard and soft kill.

(2) **Vulnerability.** Intrinsic robustness to minimise the damage should a hit occur.

(3) **Recoverability.** Ability to repair damage and recover capability.

5. Fire, Flood and Damage Risk

Vessels may contain many hazardous and high fire risk materials and systems. At sea, vessels are isolated from external support and the platform provides the means of survival in a hostile environment. A relatively large number of personnel are concentrated in a restricted space often with difficult access. Furthermore, vessels within the scope of this policy are liable to be subjected to enemy action, the disruptive consequences of which are impossible to accurately predict. Therefore, a significant risk of fire, flood or damage exists. This risk occurs in the following circumstances:

- a. **Alongside.** There is a significant and ever present risk of fire and flood from a number of sources such as, equipment malfunction, hot work, human error (including negligence), criminal activity and the asymmetric threat. System failure or maloperation can cause flooding and, although low, there is also a risk of damage from unforeseen events such as collision. A proportion of personnel are likely to be ashore and, particularly out of working hours, some areas will not be manned. However, much equipment will be shut down. With their very limited reserve of buoyancy, submarines are at particular risk from any form of flooding.
- b. **At Sea.** In addition to [sub para a](#), there is an increased risk from events such as collisions and groundings and, with more equipment operating, of equipment malfunctions. For submerged submarines, these risks are exacerbated by difficulties in evacuating the vessel and the greatly increased flooding rates resulting from the elevated external pressure. However, the increased risk is mitigated for by higher manning levels.
- c. **During Operations.** In addition to [sub para a](#) and [sub para b](#), there is a significant risk of fire, flood or damage as a result of enemy action. Warships and Auxiliaries are to be designed with an acceptance that this risk is an intrinsic part of their primary function.

6. DC&FF Priorities

- a. The relative priority accorded to safeguarding personnel and minimising damage to equipment will depend on the operational circumstances at the time and will require consideration of the following factors:
 - (1) The operational threat to the vessel and the Force.
 - (2) Whether the fabric of the vessel provides the means of life-support for the Ship's Company.
 - (3) Whether the safety of an individual may be subordinated to the safety of all or part of the Ship's Company.
 - (4) The availability of external assistance.
- b. The continuous spectrum of operational intensity between peace and full scale war precludes a simple consideration of one or the other. Commanding Officers are responsible for determining the balance between saving life, protecting their vessel and projecting military capability but the following principles are to be observed:

- (1) **Alongside.** With the vessel alongside and given that evacuation of the vessel is possible and there are no complicating circumstances, the primary aim is to protect life. The optimum means of protecting life may be to direct the DC&FF effort towards protecting the fabric of the vessel in the first instance. Factors to consider will include but not be limited to the presence (or otherwise) of (and danger to) ammunition or that non-intervention will contravene elements of the nuclear safety case or needlessly endanger other lives and property.
- (2) **At Sea.** Maintaining a safe, life-sustaining vessel for the Ship's Company is to be the primary aim of DC&FF effort.
- (3) **On Operations.** The overriding aim on operations is maintaining effective military capability.

7. Platforms, Systems and Equipment

- a. **Design Characteristics.** The design of a seagoing unit, its fitted systems and equipment embarked for operational purposes, are to take into account the risk environment in which they are expected to operate and should seek to minimise the risks from fire, flood and damage to As Low As Reasonably Practicable (ALARP) (see JSP 430 and The Management and Regulation of MOD Ship Safety). Prevention of incidents is to be the first consideration. In the event of an incident, construction characteristics, the choice of materials, system design and automatic and manual operating procedures are to seek to minimise the impact and spread of fire, flood and smoke. Early detection and response will be key elements in achieving this.
- b. **User and System Requirements.** The User and System Requirements Documents for platforms should refer to this policy and are to articulate fully the DC&FF capability required including a statement on the residual capability expected following damage. Maximising ship survivability is to be considered as part of the overall platform trade-off. Platform Duty Holders are to complete a safety case to demonstrate the overall DC&FF capability provided by the platform design, including its systems and equipments, and are to comply with the requirements for Key Hazard Certification.
- c. **Equipment and System Specifications.** The specifications for all systems and equipment are to require the damage and fire risks to be addressed and appropriate material and operating measures put in place to reduce the risks to ALARP. The Equipment Duty Holder is to complete a safety case to demonstrate the effectiveness of these measures, maintaining the safety case through the life of the system or equipment in accordance with the procedures laid down in JSP 430.
- d. **Commonality.** Where practical, common standards are to be set for all equipment and systems (see [Note 3](#)). Commonality of equipment between platforms is to be pursued in order to optimise currency of practice and training. This should not preclude the selection of novel designs, enhancements, revised procedures, measures to reduce risks to personnel or improvements in whole life costs in order to achieve the required DC&FF capability. In all cases full reference is to be made to the Acquisition Operating Framework for the delivery of new and enhanced Military Capability across all Defence Lines of Development (DLoD).

Where appropriate, practicable and cost effective, DC&FF equipment is to be common and interoperable with the equipment of the other Services. As far as it is possible and cost effective to do so, and where required by NATO STANAG, equipment is to be interoperable with NATO partners and other potential allies.

e. **Appropriate Equipment and Systems.** The provision of fixed and portable DC&FF equipments, detection and surveillance systems, stability management systems, and remote, automatic or manual operating systems is to be commensurate with the overall design and purpose of the ship and associated risk, manpower levels and the DC&FF organisation within the unit. Their design is to recognise that smaller complements will require greater use of technological solutions to ensure that residual risk is maintained As Low As Reasonably Practicable (ALARP).

f. **Smoke Management.** Analysis of ships fire reports indicate that smoke inhalation is by far the largest cause of injury in the event of a fire. Effective smoke management and breathing protection for all those likely to be exposed to smoke during any firefighting effort is therefore considered a high priority in reducing casualty numbers and severity (see [Annex 21N](#)).

g. **Environmental Pollution.** Design solutions for DC&FF systems should take into account all applicable and foreseeable regulations which will apply when dealing with DC&FF incidents.

h. **Equipment Holdings.** Vessels are to be equipped with portable and consumable DC&FF equipment for operational and training use as determined through a fire safety assessment. This process must be completed to obtain Key Hazard Certification and to make an assessment of foreseeable flood and damage incidents. The scales of equipment are to be found in BRd 2170(3) and holdings maintained at that level.

8. Manpower

a. Sufficient, trained manpower is to be provided in support of the ship design and DC&FF equipment provision, to satisfy the Capability Requirements at [Para 10](#).

b. Platform design studies are to address the manpower required to achieve the DC&FF capability stated in the System Requirement Document. Where there is a desire to reduce the size of a ship's complement this will have to be balanced by increased provision of technical measures to facilitate an effective response in the event of fire, flooding and damage. Achieving the optimum balance is to be addressed by the Platform Duty Holder, taking account of current manning policies.

c. The Capability Requirements at [Para 10](#) must be satisfied by personnel permanently complemented to the ship. Fleet Air Arm and any other units, regularly embarking, or embarking for prolonged periods in RN and RFA vessels, or such units that are expected to integrate into the command structure, are to be trained and exercised so that they can contribute to the vessel's DC&FF capability. Where ships have a flexible or role-dependant SOC, the minimum number of personnel onboard is to be constrained to meet the DC&FF requirement. Embarked Forces and other personnel who embark temporarily for specific duties are to complete the required Sea Safety training but are not to form part of the standing DC&FF organisation.

9. Training

Fleet Commander/DCNS and 2SL are responsible for the DC&FF training of all personnel embarking in RN and RFA ships and submarines. Individual and collective training is to be completed to criteria established by Fleet Commander/DCNS and 2SL and endorsed by the relevant TPA. The agreed criteria are to be promulgated via annual DIN and [Chapter 36](#). In order to meet the Capability Requirements of this policy, all personnel are to receive training prior to joining seagoing units, supplemented by individual and collective on-job training. Regular continuation training is to be conducted to maintain collective standards. Reservists are to complete DC&FF training commensurate with their seagoing and active service liability.

10. Capability Requirement for DC&FF

The risks from fire, flood and damage are such that all naval vessels within the scope of this policy are to possess the following capabilities:

a. **Command and Control (C2).** An effective C2 organisation, including robust communications and information systems, is to be provided to control and direct the manpower and systems employed in DC&FF tasks. The C2 Organisation is to include reversionary or secondary command positions. Where practical, DC&FF systems are to be compatible and interoperable with warfare systems. The C2 organisations for DC&FF by size of ship will meet as a minimum the following requirements:

- (1) **Warships of Frigate size or above.** Ships of this size are to be provided with an HQ, and a geographically separated alternative, which can control and direct the work of an appropriate number of outstations. If necessary these outstations are to be organised in a cascaded structure.
- (2) **RFAs.** RFAs are to be provided with a HQ, and a geographically separated alternative, which can control and direct up to 4 outstations, as dictated by the size and class of the vessel, acknowledging that only 2 posts are likely to be manned at any one time.
- (3) **Submarines.** Submarines are to be provided with a DCHQ, and a geographically separated alternative, which can control Attack and Support parties forward and aft for firefighting, and mechanical and electrical repair parties for damage control.
- (4) **Other Platforms.** Remaining vessels are to be provided with an HQ, and where practical an alternative, which can control and direct up to 2 outstations.

b. **DC&FF Organisation.** During operations an organisation is to exist dedicated to dealing both with the ever present risks that exist in peacetime and the additional risk of damage and injury as a result of enemy action. On this basis, the following should be provided when establishing platform DC&FF capability:

- (1) The ability to establish quickly and accurately the location, extent and effect of an incident or incidents forming part of a whole ship event.
- (2) The ability quickly to contain an incident, or incidents forming part of a whole ship event, and to make a vigorous initial attack.

(3) The ability to quickly assess the impact of an incident or incidents on overall ship stability and to take appropriate action.

(4) The ability quickly to assess command priorities and to be able to direct efforts accordingly.

(5) Should it be necessary to change the Command Aim to containing or attacking the event, the ability to quickly and effectively call upon and direct the use of any and all manpower onboard.

(6) Should it be necessary to change the Command Aim the ability to quickly and effectively articulate such a change to all out-stations and the entire ship's company.

c. **Systems and Equipment.** The C2 organisations are to be suitably manned and equipped with:

(1) **Communications.** Comprehensive, damage resilient communications through all DC&FF control nodes and linked to the Command. Redundancy is to be provided for key links.

(2) **DC&FF Management Systems.** The DC&FF management system should provide a comprehensive picture in as near to real-time as practical. The system must enable Command to monitor the internal battle.

d. **Weapons and Mechanical Systems Repair.** The organisations to control and repair mechanical, electrical and weapons systems are to be integrated into the DC&FF C2 structure.

e. **Medical Organisation.** The medical organisation is to be integrated into the DC&FF C2 structure.

f. **CBRN.** The CBRN organisation and associated C2 structure is to be integrated with the DC&FF C2 structure.

11. Peacetime Requirements

The primary requirement during peacetime is to maintain a safe, life-sustaining vessel for the Ship's Company:

a. **At Sea.** At sea during peacetime, all ships are to be capable of dealing with a whole ship event and as such, contingency plans are to be included in standing orders detailing whole ship reactions and standard procedures. It is anticipated that recovery from the event will become the Command Aim.

b. **Harbour.** All ships are to be capable of dealing with one Minor Event from within their own resources. All ships are to have in place an organisation capable of dealing with one Major Event which may draw on externally available assets. In determining the size of the emergency party retained onboard, consideration is to be given to the level of risk from fire, damage or flood, the ships state of training and the availability and expertise of external support.

The Commanding Officer may reduce the size of the emergency party below that of the Standard Emergency Party with the approval of the Operating Authority Duty Holder (OADH) where an assessment has concluded that the risk of so doing is acceptable. Contingency plans are to be included in standing orders for an incident developing into a whole ship event.

c. **Dormant Leave.** During dormant leave, strictly controlled measures are to be implemented within a ship to reduce the risk from fire and flood significantly below that normally encountered, even in Harbour. Recognising this lower risk, the DC&FF capability is provided by a host ship or establishment. The organisation and resources of the host are to be sufficient to cover the dormant ship. The risk reduction measures are to be approved by the OADH before dormant leave is authorised.

d. **Reduced Manned Upkeep Periods.** During reduced manned upkeep periods and some specific docking periods, responsibility for Care and Protection may pass to the Upkeep Contractor between the Upkeep Period Start Date and the Ship Staff Move on Board Date.

12. Operational Requirements

The primary requirement in conflict or on operations is to contain the effects of damage whilst continuing to meet the Command Aim:

a. **State of Readiness.** The capability of the DC&FF organisation is to be commensurate with the State of Readiness of the ship but is to recognise that the ship will operate under the threat of enemy action in both State 1 and State 2 (for RFAs Conditions 1 and 2). At the highest State of Readiness (State 1) it is to be capable of dealing with a whole ship event. However, it is accepted that a reallocation of personnel from warfare tasks is acceptable to meet the Command Aim.

b. **CBRN Environment.** The DC&FF capability is to be maintained when operating in a CBRN threat environment.

13. Scientific Support

Long term improvements to the DC&FF capability of the RN should be sought through the investigation and application of emergent concepts and technology. This is to be achieved by the application of scientific support through the MOD Research Programme (MOD RP), the Marine Engineering Development Programme (MEDP) or from commercial sources. Available and affordable scientific resources are to be targeted at the broad DC&FF spectrum, including survivability, recoverability and personnel safety issues.

14. Organisational Responsibilities for DC&FF Within the RN

a. Fleet Commander/DCNS is responsible for all aspects of DC&FF applicable to seagoing RN units, and will provide strategic and policy advice to ACNS, the Royal Navy Delivery Group (RNDG) and MOD Central Staff.

b. Fleet Commander/DCNS has established the doctrine for DC&FF as the sponsor of the BR 2170 series which is to detail all aspects of RN DC&FF below the strategic level.

- c. NAVY-CSAV-ACOS is responsible for setting the policy and monitoring the standards of aircraft fire fighting and rescue in ships, and for providing training, which is to be consistent with the best practices ashore where appropriate.
- d. Directors of Equipment Capability(DsEC) are to manage MOD RP activity appropriate to their capability area, liaising with Platform and Equipment Duty Holders and the Sea Systems Group as necessary.
- e. Chief of Materiel (Fleet)(CoM(F)) is responsible for establishing the original design and the acquisition of DC&FF material capability of new RN ships, and obtaining safety certification as required by JSP 430. He is also to ensure that the requirements of this policy are reflected in those Defence Standards that he sponsors. CoM(F) is responsible for the acquisition of equipments either for update or to modify those in-service whose performance fails to meet the User Requirement Document. In addition CoM(F) is also responsible for maintaining the DC&FF material capability and safety certification of in-service platforms and equipments.

15. Costs

Planned provision is to be used to fulfil the requirements of the RN DC&FF Policy. Where it becomes necessary to seek Programme Variation Options, submissions are to be made through the PR process. The RN and DE&S Risk Registers provide fundamental guidance in identifying where investment is required.

16. Conclusions

- a. The ever present risk of fire, flood and damage requires the provision of a DC&FF capability.
- b. The objective of DC&FF is to safeguard personnel, to prevent or limit damage to structure and equipment, to contain the effects of damage and to facilitate recovery. Together, these will contribute to sustaining military capability. The balance between safeguarding personnel and protecting the vessel depends on the operational situation and is the responsibility of the Commanding Officer.
- c. To ensure an effective DC&FF capability, due consideration must be given to the design of ships and systems; provision of DC&FF equipment; trained manpower; and an effective command and control organisation.
- d. The design of ships and systems is to seek to reduce the risks from fire, flood and damage to ALARP.
- e. Sufficient manpower is required to satisfy a specified Capability Requirement. The requirement for manpower can be traded off with the provision of DC&FF systems; reductions in manpower will require greater use of technical solutions.
- f. Regularly embarking units which integrate into vessels' command structures are to be trained and exercised so that they can contribute to the DC&FF organisation, but the DC&FF Capability Requirement must be satisfied even when the minimum numbers of personnel are present.

- g. An effective DC&FF capability needs to be maintained by all seagoing units at all times. The extent of this capability depends on the operational situation. In Harbour during peacetime, external support may contribute to provision of the capability.
- h. A DC&FF capability is to remain effective in a CBRN environment.
- i. The MOD RP and MEDP are to be utilised to investigate long-term improvements in DC&FF capability.
- j. This policy is to be funded from planned provision through the PR process. Programme Variation Options are to be raised where necessary.

**Notes:**

1. *Survivability is a Key User Requirement for Maritime Design, which enables platforms to complete specific missions successfully in a hostile environment. The 3 components of Survivability are Susceptibility, Vulnerability and Recoverability.*
2. *EC-05-14-05-01-03 Surface Ship Survivability Strategy issue 1 dated 20 Apr 09.*
3. *In RFAs, DC&FF equipment has to be Type Approved by Lloyds Register of Shipping and the MCA.*