CHAPTER 1

DAMAGE CONTROL - BASIC PRINCIPLES

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Orders to be observed by the Commanders of the Fleet and Land Companies under the charge and conduct of Sir Walter Raleigh, Knight, bound for the South parts of America or elsewhere. An officer or two shall be appointed to take care that no loose powder be carried between the decks, or near flint stock or match in hand. You shall saw divers hogsheads in two parts and filling them with water set them aloft the decks. You shall divide your carpenters, some in hold if any shot come between wind and water, and the rest between decks, with plates of lead, plugs and all things necessary by them. You shall also lay by your tubs of water certain wet blankets to cast upon and choke any fire.
Plymouth, May 1617.

DAMAGE CONTROL DIRECTLY AFFECTS THE FIGHTING EFFICIENCY OF THE FLEET AND IS THE RESPONSIBILITY OF EVERY MEMBER OF THE SHIPS COMPANY

0101. Definition

Within all three Services and across NATO, CBRN is the abbreviation for Chemical, Biological, Radiological and Nuclear (CBRN). Damage Control means the procedures and arrangements for all other non-CBRN activities including firefighting and flooding.

a. CBRN Defence will be used when only measures to counter the CBRN threat are being discussed.

b. Fleet CBRN and Damage Control policy matters are coordinated by a series of committees and working groups/parties, which are briefly described in Annex 1B. Feedback and proposals are to be forwarded through normal administrative authorities for discussion at the appropriate meeting.

0102. Aims

a. The aim of CBRN Defence is to protect personnel from the effects of chemical and biological agents and from the radiological hazards resulting from the operational use of nuclear weapons such that they can continue to operate in a CBRN environment.

b. The aim of Damage Control is to limit, control and repair (within the ships resources) material damage, however caused, in peace and war and to protect personnel from the effects of fire and damage generally.

0103. Personal Knowledge

All members of the ships company are potential links in the CBRN and Damage Control organisations, and the action taken by them, whether as routine or as an emergency response, may prove decisive to the safety of the ship. Thus every person on board must have a thorough understanding of:

a. What to do in the case of a fire or flood, the first aid equipment available and how to use it.

b. The need for watertight and gastight integrity; the meanings of risk and control markings; the use of location markings.

c. The care and use of personal protection equipment.

d. Elementary first aid.

e. The layout of the ship and the whereabouts of equipment for firefighting and emergency repair.

f. The CBRN and Damage Control organisations and the function of control positions.

g. The effects of damage.

h. Radiation and contamination, and how they can be minimised.

i. The need for careful stowage of stores in storerooms and offices, and of personal belongings, to reduce the risk of fire, to avoid hampering repair operations or the pumping of compartments and to minimise the potential for personal injury. Personnel must also understand the even more stringent requirements of securing for action, which will be ordered when damage through enemy action is possible.

j. How to pass quick and accurate reports.

The specific CBRN and Damage Control responsibilities of key personnel are outlined and described in detail in Chapter 2.

0104. Principles of Organisation

The overall organisation is founded on Damage Control with CBRN defensive measures superimposed on the organisation when needed. Such flexibility is both necessary and practical since fire and damage are ever-present risks, chemical, biological, radiological and nuclear (CBRN) are primarily a war risk. Success in CBRN and Damage Control depends mainly on:

a. Being materially prepared.

b. Having well trained and knowledgeable personnel.

c. Intelligent prior planning of responses to the most demanding of potential CBRN and Damage Control scenarios.

These principles can only offer the chance of success if each is regularly and frequently checked. They will need further review if it is anticipated that the ship will face a specific threat or particularly challenging circumstances, eg operations in a CBRN environment in very hot climatic conditions.

0105. CBRN and Damage Control Priorities

a. The relative priority given to safeguarding personnel and minimising damage to materiel depends on the operational circumstances at the time and requires consideration of the following factors:

(1) The operational threat to the vessel and the Force.

(2) The availability of external assistance.

(3) That the fabric of the vessel provides the means of life support for her company.

(4) That the safety of an individual may be subordinate to the safety of all or part of the ships company.

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 ships' company is to be the primary aim of the DC&FF effort.

(3) **On Operations.** The overriding aim on operations is maintaining effective military capability.

0106. Battle Damage Repair

Battle Damage Repair (BDR) is a standard NATO term for essential repair, which may be improvised, carried out rapidly in a battle environment in order to return damaged or disabled equipment to temporary service. The term is used regularly during Operational Sea Training (OST), where a war environment is simulated, but it is not widely used in this book, as the Damage Control procedures also apply to peacetime incidents. BDR is, therefore, a sub-set of Damage Control and is not an alternative term.

0107. CBRN and Damage Control Organisation

The CBRN and Damage Control organisation varies with the size and type of ship and, to an extent, with the size of the ships complement, although the basic principles are the same. The organisation must be able to exercise the required degree of control under all the differing circumstances in peace and war, and transition smoothly from one set of conditions to another. The CBRN and Damage Control Command and Control organisation is detailed in Chapter 8.

0108. CBRN and Damage Control Positions

a. The requirement for the allocation of CBRN and Damage Control management positions depends on the size of the ship:

(1) **Single Damage Control Section Ships.** In ships of DD/FF size or smaller, Damage Control Headquarters (HQ1) controls a number of Fire and Repair Parties (FRP), based at Fire and Repair Party Posts (FRPP). An Alternative Damage Control Headquarters (AHQ) is nominated for emergency use in the event of HQ1 becoming untenable.

(2) **Multi Damage Control Section Ships.** Larger ships have a HQ1, but are divided into a number of Damage Control Sections numbered from forward to aft, each controlled by a Damage Control Section Base. Each Damage Control Section has a number of FRPPs. In lieu of an AHQ, these ships have a permanently rigged Secondary Damage Control Headquarters (HQ2). In some ships HQ2 may be combined with one of the Section Bases. In some cases the hangar and flight deck are classed as separate sections that are controlled from the Hangar Control Room (HCR) and Aircraft Control Room (ACR) respectively.

b. Responsibility for immediate countermeasures following action damage lies with the FRPP or the quarters or self-contained position, with coordination by HQ1/SCC (small ship) or Section Base (large ship). As a general rule, damage in machinery spaces, hangars, flight decks, tank decks and in quarters positions, is dealt with by the personnel stationed there, leaving the Damage Control Team to deal with damage between decks. The extent to which quarters, machinery or Air Department crews can contribute to the total ship, post-damage, organisation will depend on whether they are actively engaged in their primary duties. It may be necessary to augment Damage Control teams from these sources in case of serious damage. Conversely, Damage Control teams may be needed to assist them, especially in the event of a large fire, heavy CBRN contamination, or if extensive repairs are required. Rigid rules cannot be applied; the Damage Control organisation must be flexible enough to deal with any form of emergency, all officers and ratings being trained accordingly. CBRN protection and countermeasures are controlled directly from HQ1/SCC, in consultation with the Command in the Operations Room. Monitoring and decontamination parties are drawn from Damage Control teams, self-contained positions or any other source, as circumstances allow.

0109. CBRN and Damage Control Manning

Only in large ships eg (QEC/LPD) are personnel included in the complement primarily for CBRN and Damage Control duties. In the majority of ships, DD/FF, RFAs and MM/PPs, all departments provide ratings required for CBRN and Damage Control duties. The Executive Officer is responsible for nominating their duties on the CBRN and Damage Control Watch and Station Bill (see Chapter 2). The manning requirements for each Damage Control state are detailed in Chapter 4.

0110. The Damage Control Team

The Damage Control team is made up of the following:

a. **Control**. Manning the control positions of HQ1/SCC, and HQ2 in large ships, electrical control positions and the Weapons Section Bases (and Section Bases in large ships).

b. **Fire and Repair**. Manning the Fire and Repair Party Posts.

c. **Special Parties**. These comprise those personnel who man counterflood positions/ manual spray/flood positions (larger ships) and Mobile Repair Parties.

d. **CBRN Parties**. For cleansing station duties, monitoring and decontamination parties.

e. **Self Contained Sections**. Machinery spaces, hangars in QEC or other larger ships with embarked squadrons and tank decks in LPDs etc.

f. **Weapon Repair Teams**. For repair of weapon equipment.

0111. Control Team

a. In Damage Control State 1, HQ1, SCC will normally be manned as follows:

(1) **Destroyers and Frigates**

(a) The Marine Engineer Officer (MEO): Internal Battle Controller (IBC).

(b) The Damage Control Officer (normally the Logistics Officer): CBRNDCO.

(c) A Weapons Engineering Department senior rating as the CBRN Protection Officers Assistant.

(d) A ET(ME)(L) senior rating as Damage Control Officer (Electrical).

(e) A WO2ET(ME) as the Propulsion Manager.

(f) An Incident Board Operator.

(g) One or more Communication Numbers.

(2) **Large Ships**

(a) The MEO.

(b) The CBRNDC Officer (CBRNDCO).

(c) The CBRN Protection Officer (CBRNPO) (normally the DWEO).

(d) A ME Officer and/or ET(ME)(L) senior rating as Damage Control Officer (Electrical).

(e) A ME Officer or WO2 as Propulsion Manager.

(f) The Hull Section Officer.

(g) One Incident Board Operator for each Damage Control section.

(h) Communication Numbers.

(i) Damage Control Information Boards Operators.

(j) CBRNPO's Assistant.

(k) An Information Number whose duty is to pass to HQ2 and the Operations Room all the information recorded on the various boards in HQ1.

(l) A senior logistics rating to assist the CBRNDCO in all matters pertaining to the arrangement and contents of storerooms, provision of emergency stores and the organisation for keys to locked compartments.

b. In large ships the control team also includes those officers and ratings that man the following:

(1) **HQ2.** HQ2 will be manned by sufficient officers and ratings to mark up the information boards duplicating those in HQ1 and ME personnel for machinery and electrical power supply and distribution purposes. In those ships in which HQ2 is combined with a Section Base, it will be manned by the minimum numbers additional to the Section Base personnel to allow a smooth takeover from HQ1/ SCC if needed.

(2) **Section Bases.** Manned in Damage Control State 1 by:

(a) Section Base Officer.

(b) Communication Number.

(c) Incident Board Operator.

(d) An operator to maintain other Damage Control information boards.

(e) A logistics rating.

(f) A ET(ME)(L) senior rating.

(g) A Communication Number to operate the telephone link to HQ1.

0112. CBRN Parties

Cleansing stations are manned by the Supply Department and as such those ratings selected should be noted on the Watch and Station Bill. Likewise, monitoring and decontamination teams, (which is a whole ship commitment) should also be noted on the Watch and Station Bill.

0113. Quarters

a. The action crew at a quarter must be ready to take immediate CBRN and Damage Control countermeasures at or in the vicinity of their quarters. Their organisation must allow for:

(1) Emergency firefighting and general damage countermeasures when closed up at Action Stations.

(2) Monitoring and decontamination during a lull in or after a CBRN attack.

b. Personnel detailed for these duties should be selected from the quarter's crews and specially trained in their CBRN and Damage Control duties, so that when called upon they form a trained team, adapted and equipped to perform any of the above duties. The following general principles apply:

(1) The primary function of the quarter takes first priority.

(2) CBRN and Damage Control parties at quarters should, where possible, consist of personnel who can most easily be spared from their primary function, so that the quarter can continue to operate, though possibly at reduced efficiency.

c. Quarters CBRN and Damage Control parties must be mobile in the sense that they can be detailed to assist elsewhere in the ship if the situation requires it. The number of personnel available for CBRN and Damage Control duties in a small ship is severely limited. It is therefore of the greatest importance that quarters personnel should be fully trained in all CBRN and Damage Control measures so that they can make an effective contribution to the ships CBRN and Damage Control organisation in an emergency.

0114. Main Machinery Spaces

Where the number of personnel within the ME Department permits, machinery spaces should be manned by 2 ratings to enhance incident reporting, speed of response to damage and dispersal of ME personnel. Where possible one should be a Senior Rate. In some modern very lean manned ships it may not be possible to comply with this guidance. Such ships will normally be equipped with comprehensive machinery and fire/flood surveillance equipment as well as fixed firefighting systems. In these ships, to make the most effective use of available manpower, the machinery spaces may be left unoccupied and the personnel allocated to either the Mobile Repair Party or an adjacent FRPP.

0115. Hangars and Flight Deck

All CBRN and Damage Control measures in hangars and on the flight deck of a QEC or other large ship with an embarked squadron(s) are the responsibility of the Air Department, assistance being given by the CBRN and Damage Control sections and parties whenever needed. These CBRN and Damage Control measures are controlled from the Hangar Control Position (HCP) and Aircraft Control Room (ACR) respectively. These positions are Section Bases, in communication with the ships Damage Control HQ, and have broadcast systems for their respective areas. Both positions have the facility for emergency stopping of aircraft re-fuelling systems and the HCP has control of the fire curtains, spray systems and the hangar ventilation.

Personnel manning these positions consist of the aircraft handlers and maintenance teams, the engineering department personnel who operate and maintain flight deck machinery and lifts, and the personnel attached to the embarked squadron(s). The aircraft handlers are divided between the flight deck and hangar handling parties and include hangar CBRN and Damage Control parties, consisting usually of one Petty Officer plus 7 junior rates for each hangar. All hands of the flightdeck party should be detailed for fire duties in the vicinity of their flying stations. Monitoring and decontamination requirements must also be met and the parties detailed should be trained not only to deal with contaminated structure or personnel, but also with the contaminated aircraft (see BRd 2170(2)). In a small ship operating aircraft, the few Air Branch ratings borne must be backed up by ratings detailed from the Ship's Company and trained in aircraft firefighting.