

NUCLEAR TEST VETERANS MEDICAL TESTING ROYAL NAVY DISCOVERY EXERCISE REPORT

Executive Summary

- A. The Minister for Veterans & People asked in November 2025 for a discovery exercise to be conducted by December 2025 that would establish:
 - Whether medical tests relating to their participation in the UK nuclear test programme (1952 to 1963) were conducted on veterans, and if so when, and by whom;
 - What information from those tests was captured and where was it recorded; and
 - What happened to that information subsequently?
- B. The Royal Navy (RN) discovery exercise was conducted by a team from the Naval Historical Branch, Navy Command Policy Secretariat and Navy Healthcare, drawing on naval material from DBS Knowledge & Information, Restore Records Management and National Archives.
- C. The RN exercise covered three aspects: a review of policy records and orders; an effort to understand actual practice; and a dip sample of RN nuclear test veterans' (NTVs) Service and Medical Records to attempt to validate findings from the review of policy and practice.
- D. Over 80,000 items were reviewed during the discovery process, including Admiralty Fleet Orders, Defence Council Instructions, Royal Marine (RM) Routine Orders and 'ADM' files from The National Archives (TNA).
- E. Service and Medical Records for 385 individuals were requested from Restore Records Management. 6% of Service Records and 30% of Medical Records were not returned, either having been lost / not found or, in the case of at least 47 individuals, destroyed under the auspices of records retention and destruction policies.
- F. The review of policy records and orders identified only 5 items that addressed medical testing of NTVs. These specified pre-detonation blood counts for all RN personnel at Op HURRICANE and Op GRAPPLE, and specified post-detonation blood counts for any individuals who were identified as having significant exposure to radiation.
- G. Seven Medical Officers Journals were located, which provided clear evidence of pre-detonation blood counts being carried out on site, ahead of the Op HURRICANE detonation.
- H. Of the 270 Medical Records reviewed, 19 contained evidence of pre-deployment blood counts, and one contained evidence of both pre- and post-detonation blood counts.
- I. Some individuals recorded at the time as having registered exposure to radiation did not have any evidence of a blood count in the records that we located, but equally some individuals without any record of radiation exposure did have evidence of a blood count.
- J. The quality and quantity of material in Medical Records varied widely, with some long-serving individuals' files containing only minimal information. The surviving evidence gathered does not allow a definitive explanation of the variation – some material may have been lost, or separated for administrative purposes, for example.
- K. In answer to the original questions posed, the findings of the RN discovery exercise are:
 - There is evidence that pre-deployment blood counts were mandated for all RN personnel deployed to two of the major nuclear tests (HURRICANE and GRAPPLE), but limited evidence that counts were taken or retained. Counts were taken either in the UK or once deployed, by RN doctors. We found no evidence of a regime of urine testing or x-rays. Blood counts after the test detonations were mandated for personnel whose film badges or dosimeters registered exposure to radiation above safe levels.
 - Data from those blood counts was supposed to be recorded in RN Medical Records and Paybooks, but this was seen very rarely in our sample of Medical Records.

- If blood counts were taken but not found in the records included in this exercise, it is impossible to know with any certainty what happened to that information, either at the time or subsequently.

Background

1. The Royal Navy's (RN) Naval Historical Branch, along with its counterparts in the British Army, RAF and Atomic Weapons Establishment (AWE), was tasked by the Minister for Veterans & People in November 2024 to conduct a discovery exercise to locate any records concerning medical tests conducted on veterans of the UK's nuclear test detonation programme between 1952 and 1963. The Minister asked:
 - a. **Whether medical tests relating to their participation in the nuclear test programme were conducted on veterans, and if so when, and by whom;**
 - b. **What information from those tests was captured and where was it recorded; and**
 - c. **What happened to that information subsequently?**
2. The three Services and AWE were asked to provide Ministers with a concise report of their findings to date by December 2025. The Office of Veterans Affairs (OVA) co-ordinated the process on behalf of Ministers, communicating Ministerial decisions and questions to the review teams; setting key tasks and deliverables; and taking some operational decisions, such as defining the limits of the research, after consultation with the review teams.
3. This report does not provide a historical overview of the nuclear testing programme, which has been extensively discussed in published sources, but Annex B provides a summary timeline of the test detonations for reference.
4. Additional information and references are provided in attached Annexes:
 - Annex A: Navy Healthcare Report: Medical Aspects of Nuclear Test Veterans' Sample Review
 - Annex B: UK Atmospheric Nuclear Tests Timeline 1952-1963
 - Annex C: Fallout Sampling Undertaken by HMS DIANA During Operation MOSAIC (1956)
 - Annex D: Bibliography & Sources
 - Annex E: Keyword Search Terms

Process & Methodology

5. The three Services and AWE were each administered by separate Ministries and Departments during the period of the nuclear test programme, with separate record-keeping policies and practices. The three Services therefore have each conducted their own discovery exercise, reflecting the differences in the records now available. The RN exercise can be broken down into three parts – a review of relevant policy documents and orders, a search for evidence of actual practice, and a review of the Service and RN Medical Records of a sample of RN and Royal Marine veterans of the nuclear tests.
6. The RN discovery process has been conducted by a team drawn from the Naval Historical Branch (NHB), Navy Command Policy Secretariat, and doctors from Navy Healthcare, drawing on the services of the Defence Business Services Knowledge & Information (DBS-KI) team, the Navy Search team at Restore Records Management, which is contracted to hold historic RN Service and Medical Records such as those reviewed during this exercise, and The National Archives. The core team has consisted of between 2.5 and 3.5 Full Time Equivalent (FTE) staff throughout this discovery exercise, with additional help being drafted in at various points of the process as required. Three Historians and one Freedom of Information (FOI) manager have delivered the bulk of the work alongside their other RN and MoD Department of State responsibilities. These teams provide responses to FOI requests, Parliamentary

Questions and Public Inquiries on a wide range of RN issues, as well as providing research support for the Naval Staff on current strategic and policy issues.

Review of files and literature

7. To put the review of RN veterans' Service and Medical Records in context, the NHB team began with a review of Admiralty policy documents and RN orders concerning the tests. Potentially relevant files from the 'ADM' series at The National Archives (TNA) were identified by searching the digital catalogue using a list of keywords (see Annexes for the Bibliography of ADM files reviewed, and keywords used to search TNA catalogue). Identified files were recalled from TNA to the NHB and reviewed in detail for any reference to medical testing of participants in the nuclear tests. Findings from this search are described below, but only a small number of relevant documents were found despite an extensive search.
8. In parallel with the search of TNA files, NHB's own holdings of RN documents were searched for any reference to the nuclear test operations. This included a review of Admiralty Fleet Orders (AFOs), Confidential AFOs and Limited Confidential AFOs, and Defence Council Instructions. Additionally, Royal Marine Routine Orders, Royal Navy Monthly and Quarterly Intelligence reports, and ships' logs from ships present in the various naval Task Forces present at the tests were searched. Almost all of these records are held in hard copy rather than digitally, so the NHB reviewers looked for any mention of nuclear tests and associated policy or operations, in the period from 1949 onwards. As this was a manual search of hard copy documents from the period, it was not possible to apply exactly the same search methodology and search terms as used for the online search of the TNA catalogue, but the search was thorough and comprehensive, conducted by an expert familiar with the search terms. Alongside the NHB's review, the Institute of Naval Medicine (INM), which provides specialist research and advice on maritime and military health and safety issues, was asked to review its collections to confirm that it did not hold any records relating to nuclear test veterans. The INM confirmed that it does not hold any relevant records in its collections, although some unrecorded material relating to the nuclear test programme was found stored on site – see paragraph 12 below.
9. Finally, published secondary literature including histories of the UK nuclear test programme and veterans' accounts of their experiences were reviewed to provide wider context and to identify possible lines of enquiry in the official records. A detailed breakdown of the numbers of records reviewed is given below:
 - **79,931 individual Admiralty Fleet Orders and Defence Council Instructions**, covering potentially relevant documents since 1949, held by the NHB;
 - **6,759 individual orders in 17 volumes of Royal Marine Routine Orders (RMROs)** have been reviewed for the period 1951 – 1967, the period covering RM involvement in the nuclear tests.
 - **328 files from the National Archives, including files from various ADM File Series and Ships' logs**, identified by keyword search, covering 1951 to 1967.
 - **80 Royal Navy Monthly & Quarterly Intelligence Reports** from 1950 to 1966.
 - **29 pieces of secondary literature** – published books, articles etc.

Files in other locations

10. It was recognised early in the discovery process that there might be relevant information in the files of other government departments (OGDs). However, following discussion with the then-Minister for Veterans & People and with the Service Historical Branches, the OVA took the decision that files outside the MoD were not in scope for this discovery exercise, although any indications of files held outside MoD were to be recorded for potential review later. In the RN's case, a small number of records that appeared

relevant, relating to the pension claims made between the 1980s and 1990s for possible exposure to radiation during the nuclear tests, were found in the files of the Ministry of Pensions and National Insurance (PIN File Series) and these have been noted for retrieval later if directed.¹

11. The possibility that relevant material might be found in the MoD's DEFE series of records at TNA was also considered. Unlike the ADM, AIR, and WO file series, which are single Service series for the RN, RAF and Army respectively, DEFE captures documents from across Defence, and managing these extensive holdings is not the responsibility of any of the individual Services. Following discussion, OVA took a decision that the three Service review teams would not review the DEFE files at this time and would focus on their single Service files.
12. Some records were not available to the RN team during this review:
 - a. In November 2025 it was discovered that a series of 'Restricted Collations' exist, known to DBS-KI and Restore Records Management but invisible to the RN review team because they are not included in the Restore catalogue. These records are only available if specific requests are made, and the review team did not become aware of them until so late in the process that there was not time to understand what the contents of these Collations are and make the appropriate requests. OVA subsequently asked for information on the contents of these Collations and confirmed that none of the RN Restricted Collations contained relevant information.
 - b. The RN review team was also unable to access the MERLIN database held by the AWE, due to security restrictions in place at the time. Following discussion with the AWE, the RN team has requested access to the MERLIN files, and in the meantime the AWE are steadily releasing MERLIN files to TNA, which will provide the RN team with the opportunity to identify any records relevant to the RN role in the nuclear test programme. The NHB was able to use some of the previous releases from MERLIN to supplement its own records search, and some of these findings are included below.
 - c. Also, as noted above, the NHB asked the INM to review its collections to confirm that it does not hold any records relating to nuclear test veterans. The INM search did uncover some material on site that had not been recorded. This was shared with the NHB in November 2025, too late for inclusion in the first draft of this report. The material has since been reviewed and contained no information relevant to this discovery exercise.
 - d. It must be emphasised that the review team have not had access to any NHS or other confidential medical information, other than what may be contained in the RN Medical Records of the sample of veterans discussed here. For example, some data in the RN Medical Records may have been drawn in from NHS and other sources – for example if the Record contains evidence collated in support of a pensions claim, as discussed at paragraph 56, later.

Review of Service and Medical Records

13. The review of records and orders was intended to confirm the intended scope and detail of any regime of medical testing put in place for those present at the nuclear test detonations. However, it was clear that individual veterans' RN Service and Medical Records would need to be reviewed for evidence of what specific tests were actually conducted, and in what circumstances. Each Service was directed to conduct a 'dip sample' of veterans records at this stage, to provide indicative findings that would inform decisions on further work. Initially a sample of 100 records was specified, but this was then increased to 300 following a decision by the then-Minister for Veterans & People. In

¹ An example of the files in question would be PIN 15/5029 - Claims arising from possible exposure to radiation during nuclear tests: appeals papers

the RN's case, a sample of 300 would represent just under 5% of the over 6,600 RN and RM personnel identified as having been involved in the nuclear test programme. Ultimately, 385 individuals were selected for the sample, representing just over 5% of 6,600.

14. The RN sample of 300 veterans' records was selected at random from the list of over 6,600 veterans. The first sample of 100 was identified from the AWRE 'Blue Books' that represent an early AWRE effort to create a comprehensive list of everyone involved in the nuclear test programme. However, many of the individual entries in the Blue Books were incomplete, sometimes lacking the essential data needed to connect a name to a Service Record and Medical Record. We therefore subsequently relied on a similar but more robust list produced by the UK Health Security Agency, which holds data compiled by the cohort studies looking into the long-term health of nuclear test veterans, to identify the relevant Service numbers and dates of birth needed to identify individuals. The later sample of a further 200 was therefore identified first from the Blue Books but the information was confirmed and individuals selected from the HSA lists. After seeking informal advice from a colleague at the Defence Science and Technology Laboratory (DSTL) on the best way to ensure randomness, each individual was assigned a number, in alphabetical order, and then dice were rolled to generate random numbers corresponding to an individual name on the list.² The RN Service number of each of the 300 was then used to request the separate Service Record and Medical Record for each individual, via the Navy Command Policy Secretariat's FOI Manager, from the Navy Search team at Restore Records Management. It was necessary to conduct a 'top up' selection, using the same method, to ensure a sample of at least 300 valid identities was requested, after a small number of the first 300 either could not be linked to a valid Service number or the information available was not enough to allow a single individual to be identified (for example where two records had the same Surname and Initial, and no other identifying information could be confirmed). Ultimately, 326 valid identities were generated for inclusion in the sample.
15. In addition, on the basis of the earlier research into official files and published literature, a further 59 named individuals were identified who were recorded or described as having been involved in activities that might have put them at increased risk of exposure to radiation during the nuclear tests. It was decided to call their Service and Medical Records, where possible, alongside the random sample to reflect the increased likelihood that they received monitoring or medical testing as a result of their activities. We also requested Medical Officers Journals (MOJs) from all ships of the various RN Task Forces at the tests, from Restore. Only 7 MOJs were returned – NHB has not been able to confirm the status of any other relevant MOJs, as they appear to be held in a Restricted Collation not currently accessible to us – but these were also reviewed, and provided a valuable overview picture of the activities of ships' medical staff during the deployments to the tests. Findings from the journals are included below.
16. The names and Service numbers of the selected sample were provided to the Navy Search team at Restore Records Management, by the Policy Secretariat's FOI Manager. The Restore team carried out the physical search for the selected Service and Medical records at their archive and sent the original records to the Policy Secretariat. These records have been stored in a suitable climate controlled archive facility at the NHB and will be retained until this discovery exercise is completed. One issue that arises in searching for RN Service and Medical Records is that these were recorded and stored separately – the two records were not kept together. On the one hand this made it possible to ask for and review Service Records before a decision was taken on the ethics of reviewing Medical Records. On the other hand, this created some significant

² A more detailed description of how these numbers were generated can be provided on request.

difficulties in building a complete picture of the records of any individual – while most Service Records could be located, a significant minority could not, and the situation was worse for Medical Records (see below) – this resulted in a great deal of variation in the information available for selected individuals. As will be seen in paragraph 22 below, orders in place for the HURRICANE test specified that any radiation exposure should be recorded in RN personnels' paybooks as well as in their medical records. These paybooks were retained by RN personnel throughout their service and were not returned to the RN when the individual left the Service, so were not available for the review.

Note on Ethics

17. In February 2025, informal discussions with an RN doctor about the discovery process raised questions for the NHB team about the ethics of reviewing named individuals' confidential medical records. The MoD can access official records such as Service Records for legitimate business purposes but additional controls are in place for access to medical records and it was not clear that the review teams could necessarily access confidential personal information for this purpose. These questions were immediately discussed with the RN Caldicott Guardian, who confirmed that there might well be concerns – particularly in the case of living veterans – about using confidential personal medical data for these purposes without seeking the informed consent of the individuals involved or their representatives.³ They suggested that it would be appropriate to seek advice from the MoD's Research Ethics Committee (MODREC). NHB then raised these concerns with colleagues in the other Services' review teams, and with the steering group convened by the Office of Veterans' Affairs (OVA) to oversee the discovery exercise, again in February 2025. The OVA agreed at that time to take responsibility for pursuing these questions with MODREC, for the exercise as a whole. In the meantime, while periodically raising the issue again with the OVA, the RN took a precautionary position that individuals' medical records should not be reviewed without consent until the questions raised had been resolved by MODREC or another appropriate authority. This delayed the RN's examination of Medical Records until September 2025, when the then-Minister for Veterans & People issued a Ministerial Direction that the review of medical records should proceed without explicit ethical approval from MODREC. The OVA later confirmed this Ministerial Direction with the current Minister for Veterans & People. In the meantime, to provide assurance that Medical Records were handled and protected appropriately when reviewed by the review team, all of the NHB and Policy Secretariat staff engaged in reviewing medical records, completed specific NHS training on Caldicott principles for the handling of confidential personal data. During the hiatus before individual records could be examined, it was agreed with the RN Caldicott Guardian that ships' Medical Officers Journals could be reviewed. Although these Journals do contain confidential medical information about individuals, the Journals were organised in such a way that it was possible to examine the 'General Observations' routinely recorded by ships' Medical Officers without seeing the detailed notes of individual patient interactions recorded in a later section of the Journal. Only Caldicott trained staff reviewed these Journals.

³ A Caldicott Guardian is described by the UK Caldicott Guardian Council as “a senior role for an organisation which processes health and social care personal data. They make sure that the personal information about those who use the organisation's services is used legally, ethically and appropriately, and that confidentiality is maintained”, via: <https://www.ukcgc.uk/caldicott-guardian-role>

Findings

RN Testing Policy

18. As noted above, the NHB conducted an extensive search of files held in its own collection and at The National Archives to locate records of the policies and orders in place at the time of the nuclear tests, that set out any requirements for medical testing of personnel deployed to the tests. Thousands of Admiralty Fleet Orders (AFOs) and hundreds of files from the ADM series at TNA were reviewed, but only a very limited number of records and orders were found that dealt directly with medical testing of personnel at the nuclear tests.
19. It should be noted here that, during the review, we did not locate in MoD records available to us any evidence relating to the role of the Royal Fleet Auxiliary and merchant ships in supporting the nuclear tests. This in no way diminishes the vital contribution that RFA and Merchant Navy crews made to the preparations for the tests, particularly those carried out at Monte Bello, Malden and Christmas Islands. RFA log books from the ships operating during this period are held by a University in Canada and were not searchable by the NHB for this discovery exercise. No other relevant RFA records were identified.

ADM Files

20. The Admiralty ADM files at The National Archives were most useful in describing the policy and practices put in place for Operation HURRICANE, the first of the UK's nuclear test detonations, carried out at the Monte Bello Islands off Western Australia in October 1952. This is unsurprising as the exercise was conducted from the ships of a small RN Task Force formed for the purpose, due the remote location and absence of any infrastructure ashore on the islands, and the operation was conducted under RN command. Much less material was found for the MOSAIC (1956) and GRAPPLE (1957-58) tests, and the NHB review did not locate any ADM records containing relevant information relating to the TOTEM (1953), BUFFALO (1956) or ANTLER (1957) detonations, or the parallel series of smaller tests (1953-63), conducted at the Emu Field and Maralinga sites in inland Australia. Having used the same search terms in all of our archival searches of ADM records, we cannot provide any conclusive explanation of why less material relating to medical testing of veterans was found for some nuclear tests than for others. It would seem reasonable to suggest that less material should be expected to be found in the ADM files and RN records for those Operations where the RN had a limited role – notably the tests carried out in inland Australia where few, if any, RN personnel were involved. The earliest relevant record identified, from a file with contents ranging from 1949 to 1954, states that (in the undated final paper in the file) "All radiation dosage, however small, is damaging. Every care should be taken to avoid it."⁴
21. The HURRICANE records found in the ADM files, though contained in only a few files, capture a wide range of activity preparing for, conducting and then recording the outcome of the test. These records routinely acknowledge the risks of exposure to radiation or contaminated material, and orders for the Task Force were clear about the need to limit exposure and protect personnel. For example, Order No.161 required all ships to be at least 5 miles away from 'ground zero' while the device was being assembled for detonation, and then at least 10 miles away prior to detonation, with return

⁴ ADM 1/25258: Atomic warfare: hazard to exposed personnel in ships and safe levels of gamma ray contamination.

to the vicinity of the islands to be determined by radiological measurements. The Order was clear that “As a general principle no ship will be permitted to enter contaminated water,” without permission from the Naval Commander.⁵ Order 255 mandated the appointment of a Health Surveyor, responsible for ensuring safe practices – minimising exposure; use of protective equipment and clothing; decontamination after work in ‘dirty’ areas; and radiation monitoring using film badges, electrosopes and monitors.⁶ Order 160 re-emphasised the requirements for protective equipment and monitoring and specifically ordered that “All persons likely to be exposed to radiation are to undergo a special pre-exposure medical examination,” and that “Complete records of radiation exposures are to be kept for all personnel”.⁷ Order 266 set out training to be given, as a series of lectures to the crew of each ship in the Task Force, covering a wide range of topics related to nuclear weapons, including radiological hazards and the detection and monitoring of nuclear radiation. It also noted that “Personnel who have special duties [during the tests] will be given more detailed training in these subjects”.⁸ We found evidence in Ships Logs and in RN Intelligence Reports from the period of this training being conducted as RN ships sailed to the test.⁹

22. Orders 270-276 set out detailed instructions for survey and recovery of data after the nuclear detonation, and for the protection, monitoring and decontamination of the personnel involved. Of particular note for our purposes is the requirement in Order 276 that records of individual radiation exposures, as measured by film badges for example, were to be kept. Order 276 also required “Continued medical surveillance of personnel who have been exposed to radiation”; and specified “For Naval personnel, the entry of radiation exposure into paybooks and Medical History Sheets and, for other personnel, the transmission of exposure records to the appropriate medical authority”.¹⁰ Orders 281 and 282 gave detailed instructions for a helicopter survey of the contaminated lagoon after the detonation. This included requirements for film badges and personal dosimeters to be worn, and set out flight profiles that specified limits on the measured radiation exposure that the crews should be allowed to experience. However, Orders 273 and 281 state that the helicopter pilots conducting sampling were among the small group of personnel whose tasks were considered sufficiently important (Category A) that a higher ‘Integrated’ dose of radiation was considered acceptable as long as they did not have repeated exposures.¹¹ ADM 204/2070, which recorded the results of a trial of a type of quartz fibre dosimeter at the HURRICANE detonation recorded that the helicopter crews were issued with their own dosimeters during their survey flights, and the results recorded.¹² Film badges measured cumulative radiation exposure while they were worn, any radiation causing a reaction on a small piece of photographic film contained inside a small badge affixed to an individual. Quartz Fibre Dosimeters were also used, resembling a fountain pen in shape and size, containing a simple sensor inside that would respond to local radiation levels, which personnel would check periodically to see if radiation levels were exceeding safe limits.

⁵ Order 161, ADM 116/6090 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Vol. 4

⁶ Order 255, ADM 116/6090 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Vol. 4

⁷ Order 160, ADM 116/6090 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Vol. 4

⁸ Order 266, ADM 116/6090 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Vol. 4

⁹ For example, in ADM 35/147304 to 35/147313, HMS NARVIK’s Ships Log, January to October 1957.

¹⁰ Order 276, ADM 116/6090 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Vol. 4

¹¹ Order 276 & 281, ADM 116/6090 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Vol. 4

¹² ADM 204/2070 - Quartz fibre dosimeters for trials on Operation Hurricane

23. Order 1101 of 14 September 1952 is perhaps the most directly relevant to the question of what medical tests were intended to be conducted on personnel present at the HURRICANE nuclear detonation. The key section is as follows:
- “1. Everyone who may be exposed to radiation in excess of the normal working rate is to have a total and differential white count done between the beginning of September 1952 and the time of possible exposure.
 - 2. Anyone whose records show that he has been exposed to radiation to the extent of more than 10 roentgens in all, or more than 5 roentgens in any one week, is to have the counts repeated.¹³
- Exposure Records – 3. These are to be worked out by Health Control and copies of the figures obtained are to be sent daily to the Naval Commander, Technical Director, Safety Advisor and Staff Medical Officer.
- 4. At the end of the Operation the total exposure is to be recorded in each person’s medical history document, and for Naval and Army personnel, in his pay book as well.
 - 5. In the case of Naval and Army personnel the Naval Commander will forward exposure records to Commanding Officers as appropriate. Commanding Officers are responsible for the action in paragraph 4 above and for ensuring that individuals have access to their exposure record should they wish to see it.”¹⁴
24. ADM files 116/6084, 116/6087 and 204/2080 all contained records of measures put in place for the decontamination of personnel and ships after the nuclear detonation, and it is clear that there was an understanding of the risks posed by exposure to contaminated material after the nuclear detonation itself, and an attempt to mitigate these risks.¹⁵ ADM 116/6084 and ADM 116/6087 noted the presence of small areas of radioactive contamination on ships from the task force, and the need for personnel carrying out decontamination to wear film badges and proceed with care, although the amounts of contamination were small. ADM 204/2080 reviewed the processes for decontamination of personnel and equipment aboard HMS TRACKER, which acted as the ‘Health Control Vessel’ for the Task Force. It was noted that the protective clothing left areas of the face, head and neck exposed, and extra care was needed to decontaminate these areas.
25. Only one record, from ADM 116/6089, made specific mention of urine tests, in a discussion of fallout in a report dated 1954, over a year after the HURRICANE test.¹⁶ The notes observe that: “At various times, men entered the radioactive areas without respirators and it was possible to find traces of radioactivity in their urine within a few days.” The report describes an experiment being done as a result of an unexpected situation, which offered “convincing evidence” that the radioactivity found in the urine was the result of “inhalation of fission products”, rather than other forms of radiation. The experiments indicated that respirators were an effective barrier against inhalation; that the amounts of radioactivity in the urine showed a “rough correlation” to the radiation recorded from the fission products on the ground; and that “only traces of radioactivity were found in men exposed to fall-out several days after the explosion”. There is nothing in the evidence we have found to suggest that there was any planned regime of urine

¹³ The Roentgen was an early international standard measure of ionizing radiation, measuring the presence of ionizing radiation in the air rather than levels absorbed by the body.

¹⁴ Order 1101, ADM 116/6090 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Vol. 4

¹⁵ ADM 116/6084 - Operation HURRICANE: radioactive contamination of Special Squadron ships. ADM 116/6087 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Volume 1. ADM 204/2080 - Operation Hurricane decontamination of personnel and equipment

¹⁶ ADM 116/6089 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Vol. 3

testing in place at the HURRICANE test, but this description suggests that some urine tests were done opportunistically on a small number of men who were thought to have been exposed to radioactivity.

26. As noted earlier, only sporadic references were found relating to medical testing and blood counts after the HURRICANE test. Nevertheless, they provide a framework for understanding the RN's approach to measuring and managing exposure to radiation over the period of the nuclear test detonation programme. As can be seen from the extracts below, this was quite consistent over the period.
27. A 1956 handbook on atomic warfare recorded in ADM 234/574 set out measures for the routine checking of personnel working with or near radioactive sources, based on the carrying of personal dosimeters and film badges, and specified that records should be retained and checked regularly. The handbook specified a limit to exposure of an integrated dose of 0.5r in any period of one week, or 1.0r in any two consecutive weeks and ordered that:

“If at any time it is suspected that an individual has received a dose exceeding 1.0r, or if three successive weekly or fortnightly doses that exceed the above limit are recorded, the individual should be removed from the task and an immediate blood count taken. (e) All personnel continuously engaged in work of this kind should be given a blood count before commencing work and thereafter at three monthly intervals.”¹⁷
28. ADM 296/43 recorded orders for HMS DIANA during Operation MOSAIC (see separate Annex C on HMS DIANA's role). These orders set down different limits for radiation exposure for different personnel conducting different roles – a Lower, Higher or Special Higher Integrated Dose depending on the role. Higher and Special Higher Integrated Doses had to be approved by the Medical Officer or Commodore of the Squadron, respectively. This was intended to prevent further, future possible exposures to radiation for the men concerned. The orders noted: “If it should be necessary to apply higher integrated dose to any personnel, older rather than younger men should, if practicable, be chosen.”¹⁸
29. ADM 1/29346 included a 1957 report from the RN's participation in Operation GRAPPLE. It noted that: ‘The value of carrying out [pre-deployment] Blood Counts on personnel who might conceivably be exposed to irradiation in the event of accident was confirmed. In HMS WARRIOR three persons amongst over two hundred submitted to examination had NBC's of under 3000. These might well have been the subject of concern had they first come under observation following exposure. One week later all three had blood counts over 5000.’¹⁹ Navy Healthcare advisers suggest that ‘NBC’ may be a typographical error, for what would now be called a ‘Full’ or ‘Complete’ Blood Count. These counts can be used to indicate possible exposure to radiation, a lower-than-normal blood count sometimes indicating exposure, although there are other causes. In this case, the counts returned to normal a week later, suggesting that the counts had been temporarily affected by something other than radiation. This showed the value of conducting a pre-deployment count, to establish a baseline for comparison later if radiation exposure was suspected.

¹⁷ ADM 234/574 - ABC handbook: part 1; atomic warfare

¹⁸ ADM 296/43 - Orders for rehearsal for firing of weapons G2 (Operation GLIMMER) and its actual firing (Operation FLASHLIGHT)

¹⁹ ADM 1/29346 - Report of Naval participation in Operation GRAPPLE

30. ADM 1/28957 set out a 1961 Regulatory requirement that all personnel who were to be employed as radiation workers were to receive a pre-employment blood count, “directed towards determining the ‘normal’ condition of the worker at the time of employment, and toward noting any abnormalities that might later be misinterpreted as radiation damage”.²⁰ Similarly, ADM 1/28604 from 1962-63 set out the blood count required to be taken before personnel were to be designated for work with nuclear or radiological materials, and at regular intervals thereafter at the direction of a doctor, and required that the results be recorded in the relevant health record.²¹

Admiralty Fleet Orders

31. The number of relevant Fleet Orders found was particularly small. Only four Confidential Admiralty Fleet Orders (CAFOs) were found that dealt with medical testing, from nearly 80,000 orders reviewed. The earliest of these - CAFO 121/1957 *Nuclear weapons trials parties: Blood examinations* – was issued in December 1957 and established a regime for blood examinations for personnel deployed to the Maralinga Range in South Australia.²² This was put in place after the Operation ANTLER test detonations in September-October 1957 so was presumably intended to cover any RN presence at the smaller trials that were underway at Emu Field and the Maralinga Range, in South Australia. The Order stated:
- “All Naval personnel appointed or drafted to parties carrying out tests of nuclear weapons and likely to be exposed to radiation, are to have a blood examination made *before* [original emphasis] leaving the United Kingdom.
2. The reason for this is to provide a base line against which to assess the results of possible future blood examinations in the event of accidental exposure of personnel to radiation levels in excess of the maximal permissible dosages.”
32. Requiring that commanding officers should ensure tests were carried out at an appropriate medical facility, the Order re-emphasised that personnel should be tested “*before* [original emphasis] they take up their new appointments. The reason for requesting the examination should be given as ‘routine blood examination prior to joining nuclear-weapons trial party’.” The Order went on to describe which blood counts should be included in the test: “erythrocyte count, packed cell volume, leucocyte count and differential leucocyte count”. The Order finally specified that: “5. This regulation will apply in the near future to all personnel detailed for duties at Maralinga Range, South Australia.”
33. Two further CAFOs – 81/1958 and 99/1958 – with the same title were issued in 1958. The wording of the orders was exactly the same as for 121/1957, except to alter the areas and ships affected. 81/1958 extended the coverage: “5. This regulation applies to all personnel detailed for duties at Maralinga Range, South Australia, at Christmas Island and with ships attached to Grapple Squadron.” 99/1958 cancelled and replaced the earlier orders and made a slight amendment to clarify that: “5. This regulation applies to all personnel detailed for duties at Maralinga Range, South Australia, at Christmas Island and with ships attached permanently [original emphasis] to Grapple Squadron.”²³ The text of the CAFOs does not provide context for the orders. However, records of ship

²⁰ ADM 1/28957 - Ionising Radiations (Sealed Sources) Regulations 1961 (SI 1470): application to Admiralty Establishments

²¹ ADM 1/28604 - Health Physics in the Royal Navy

²² CAFO 121/1957 - *Nuclear weapons trials parties: Blood examinations*

²³ CAFO 81/1958: *Nuclear Weapons Trials Parties: Blood Examinations*, and CAFO 99/195 - *Nuclear Weapons Trials Parties: Blood Examinations*

movements from other sources show that ships sometimes temporarily joined the task forces created for the nuclear test operations and then left again after a short time, during the long period when the Task Force was deployed to the test area. With that in mind, it is our interpretation that the order was administrative, intended to ensure that the regulations were not applied to ships and personnel that were only briefly under the command of the Task Force.

34. The latest relevant CAFO identified in this review – 104/1959 – was issued the following year, after the conclusion of the GRAPPLE tests at Christmas Island, with the single line: “C.A.F.O. 99/58 1957 *Nuclear weapons trials parties: Blood examinations* is now cancelled.” No subsequent orders have been identified that established a specific RN blood examinations regime for the later tests at the Maralinga Range and Emu Field that continued until 1963.
35. Although there are only four Fleet Orders dealing specifically with UK nuclear test detonations, it should be noted that these were in line with routine orders setting out measures for personnel dealing with radioactive materials that were issued from as early as 1945 and throughout the period. So, for example, AFOs from 1945, 1950 and 1962 acknowledged potential health risks to personnel arising from the use of radioactive materials, X-rays and ionising radiation. AFO 2079/1945 ordered that blood tests to be carried out on all personnel working with radioactive compounds, at intervals of not more than six months.²⁴ AFO 3154/1950 required that:
- “All workers continuously engaged in any of the occupations listed in paragraph 4 should receive a total and differential blood count before commencement of the work and thereafter at three-monthly internals and at such additional times as the Medical Officer, Admiralty Surgeon or Agent, or the [Medical Director General] may decide...”²⁵
36. AFO 308/1962 required that the readings from routine radiation monitoring should be recorded:
- “When personnel are issued with film badges or other personal dosimeters, the readings and sufficient detailed information to enable Form 2066 to be completed at a later date are to be recorded on Form F.Med 7. The flimsy is to be inserted in medical envelope F.Med 4 and the card record forwarded to Medical Director General (Medical Records Branch). Consideration is to be given to the introduction of more suitable forms for this purpose...”²⁶
37. As noted earlier, we found an order for the Operation HURRICANE task force mandating retention of records of any radiation exposure, although without specifying how this should be done, but our review exercise did not find evidence of any similar orders for any of the other tests. This may provide some context for the findings from the sample of Service and Medical Records, as described in the next section.

RN Testing Practice

²⁴ AFO 2079/1945 Luminising, and use of other radioactive compounds: Additional measures to safeguard the health of personnel

²⁵ AFO 3154/1950 Radiation Hazards: Precautions for Protection of Personnel Concerned with Use of X-Ray Apparatus or Radioactive Materials

²⁶ AFO 308/1962 Medical: The Ionising Radiations (Sealed Sources) Regulations, 1961: Application to RN and RM Personnel, WRNS, QARNNS and RN Nursing Auxiliaries

Medical Officers' Journals

38. The review team used primary and secondary source material to identify the RN and RFA ships involved in the various nuclear test operations and submitted a request to Restore for the Medical Officers Journals (MOJs) for those ships. Seven MOJs were received – at time of writing the review team has received no confirmation as to why other MOJs have not been sent, and it is possible that they never existed, or were not retained, or never deposited with TNA. As noted above, the MOJs contained 'General Observations' as well as records of individual treatments, and these observations, while not providing extensive discussion of the test Operations, did provide some useful insights into practice at the nuclear tests.
39. An entry from the records of HNS NARVIK and HMS ZEEBRUGGE covering January to March 1952, in the run up to Operation HURRICANE, mentioned the RN Medical Officer's surprise that the Army personnel embarked for the journey to Australia did not receive annual x-rays as their RN peers did. Consequently, x-rays were arranged for all of the Army personnel at Malta, during the journey, although the record does not specify whether this was done because the personnel would be involved in the tests, or for general health monitoring purposes as was the usual practice for the RN.²⁷
40. A later entry from the same log, covering October to December 1952, once the ships were deployed at Monte Bello, noted that: "Every man in the expedition carried a film badge which he wore for a few days preceding the explosion and for three weeks after, regardless of the nature of his duties." Going on to describe activity to gather records and equipment after the test detonation, the Medical Officer noted:
"A large number of people therefore entered the contaminated area at one time or another and had to be passed through the mill of decontamination on return. Quite a number of people said to me afterwards that the whole process had given them a great deal of confidence. They had come back heavily contaminated, but by carrying out the routine it had been proved that they could be made clean.

Before going ashore they were equipped with a film badge and dosimeter, and a daily record was kept of the dose received by each person who went ashore. These doses have now been entered in the paybooks & medical documents."²⁸
41. A note from the MOJ from HMS CAMPANIA, from the log covering July to September 1952, recorded that:
"In order to conform to the practice of the Ministry of Supply it was decided that everyone who was likely to be exposed to radiation or to come in contact with radioactive material should have a total and differential white count beforehand, as close to the time of radiation as practicable. That meant a big programme of blood counting in the last month before the firing of the weapon and 237 counts were done during September."²⁹
42. The note also recorded observations of the HURRICANE test detonation itself, and in HMS CAMPANIA's MOJ covering October to December 1952 it was noted that:
"A few days beforehand a photographic film badge was issued to everyone with instructions that it was to be worn at all times. In cases where no exposure to radiation was expected the badges were collected at the end of the operation. Those who had been in contaminated places had their badges collected after each

²⁷ Medical Officers Journal, 1952, Vol. 13 N & O: HMS Narvik and HMS Zeebrugge, 8th January to 31st March 1952.

²⁸ Medical Officers Journal, 1952, Vol. 13 N & O: HMS Narvik and HMS Zeebrugge, 1st October to 31st December 1952.

²⁹ Medical Officers Journal, 1952, Vol. 3 Ca-Co: HMS Campania, 1st July to 30th September 1952.

exposure and many of them had portable exposure meters as well. The total (crossed out) radiation dose was estimated each day and at the end of the operation everyone who had taken part had his total score recorded in his pay book and medical documents, even if the figure was insignificant.”

43. After describing the test the note concluded that: “The safety precautions worked well and it was found in the end that no one had received more than 5 roentgens of gamma rays during the operation.”³⁰
44. MOJs from the GRAPPLE tests in 1957 were also available, with HMS NARVIK again providing useful information. Observations from the notes taken between April and June 1957 recorded that:
- “An innovation this commission was the installation of a ‘cleansing station’ at mess-deck level on the port side, forward. It was entered via a water-tight door on the fo’c’sle and comprised a shower room, changing room, and a store for monitors, decontamination suits, etc.... With the guidance of the A.B.C.D. Officer of HMS WARRIOR, an effective ‘citadel’ and ‘clean’ and ‘dirty’ routes were instituted. White blood counts were done on all those Officers and Ratings who might become contaminated should fall-out occur, this being done a week before each ‘drop’. Fortunately, none of these precautions were put into use as no radioactivity was found on the target island.”³¹
45. The MOJ from HMS MESSINA at the same test also observed that: “No one on board Messina received radiation from ‘fall-out’ and this fact has been recorded on the individuals’ Pay Books and F. Med. 4s.”³²

RN Personnel Records

Service & Medical Records

46. The first finding of the RN discovery exercise was that it proved impossible to locate records or information for all of the requested sample of veterans’ Service and Medical Records. The breakdown of the results of the record search is:
- Records for a total of 385 unique individuals were requested. Of these, 59 were selected based upon either radiation dosage, or references found in secondary literature. The remaining 326 were generated randomly. In addition, four additional individuals’ records were sent in error, bringing the total number of records requested & returned to 389.
 - This resulted in 387 confirmed search results: location of either a Service or Medical Record, or both; or notification that a particular file had been recorded as destroyed – see paragraph 48 below for discussion of files destroyed.
 - Service Records, covering 364 individuals were located and reviewed. The 25 individuals for which no Record was received either have no information attached or were marked as not found or not held by Restore Records Management.
 - Medical Records, covering 270 individuals were located and reviewed. The 119 individuals for which no Record was received were either destroyed, not found or not held by Restore Records Management or had no information attached.
 - 254 individuals Medical and Service Records were able to be paired together from the records received.

³⁰ Medical Officers Journal, 1952, Vol.3 Ca-Co: HMS Campania, 1st October to 31st December 1952.

³¹ Medical Officers Journal, 1957: HMS Narvik, 1st January to 31st December 1957, Notes, 1st April to 30th June 1957, p.3.

³² Medical Officers Journal, 1957: HMS Messina, 1st January to 31st December 1957, Notes, 1st April to 30th June 1957, p.1.

- f. From returns provided by Restore Records Management, at least 47 individuals' Medical Records are identified as having been destroyed. Of these, 10 were destroyed in 2025.
 - g. Medical Officers Journals from 7 ships were located and reviewed.
 - h. No material or information at all was identified for 2 individuals.
47. The Service Records were useful in confirming the timing and nature of individuals' service, the duration of their presence at the nuclear tests and their role at the time, but provided little detail. Officers' service records were considerably more detailed than for Ratings – officers' records usually contained regularly updated appraisals of their competence, for example, whereas those for Ratings simply recorded the dates that they joined and left each post, their rank and their specialisation / trade. In our sample, with one exception, the Service Records did not contain any information relating to individuals' medical histories, or any notes to indicate medical testing or radiation exposure. These records were not intended to include medical information – the exceptional case included correspondence from the Sailor concerned regarding the impact of illness on their Service, but no mention of medical testing related to their participation in the nuclear test programme.
48. As noted above, at least 47 individuals' Medical Records were listed by Restore Records Management as having been destroyed, and unfortunately 10 of these were destroyed in 2025 while this review was underway. This prompted urgent discussions between the review teams and DBS KI, which manages and implements records retention policy for the MoD. Despite MoD guidance in JSP 441 *Managing Information in Defence* stating that medical records should be retained until 100 years after the date of the last entry, in the case of records relating to exposure to radiation, it appears that some records were destroyed on the authority of DBS KI 100 years after the date of birth of the individual instead, due to inconsistent interpretations of guidance in JSP 441 and JSP 950 *Medical Policy*, and this applied to some of our sample. This is regrettable, considering that Army Historical Branch suggested a moratorium on the destruction of relevant medical records, in an email to OVA and all the teams involved in the review, in December 2024. Having first requested Medical Records in September 2025, it became clear to the RN team in October 2025 that relevant records were indeed being destroyed, and on behalf of the Service Historical Branches the Head of the NHB immediately put a request to OVA that a moratorium on destruction of relevant files be put in place. This was directed by the Permanent Under Secretary of the MoD in November 2025, including an absolute stop on the destruction of all Service and Medical Records until processes are reviewed to assure retention of anything relevant to nuclear test veterans. Since this report was first drafted, DBS has taken action to identify all relevant veterans' records – see the OVA report of the discovery exercise.
49. The utility of the Medical Records reviewed varied widely, depending on what had been retained in the Record. Some files were very comprehensive, providing detailed notes of medical examinations and interventions across an individuals' entire career. Others contained little to no information: for example, Sailor N's file contained only a small envelope containing a set of chest x-rays, despite his serving for 27 years.³³ The NHB team reviewing the Medical Records noted that some records seemed to contain very little information relative to the length of service of the individuals concerned, with nothing in the Record to indicate whether material had been lost or destroyed, or removed and sent elsewhere, for example in support of a pensions claim. It was noted that some individuals, (for example Sailor L and Sailor S), who served particularly long careers, sometimes 40 years or more, had their original 'FMed' wallets – which form the

³³ In this context, Sailor refers to any member of the Naval Service and, therefore, encompasses Royal Marines, the Royal Naval Reserve and the regular Royal Navy etc.

core of the record - replaced with newer versions, as the wallets deteriorated with age or records were updated. This saw the original wallet (which may have held stamps or slips recording radiation dosages from film badges for example) either removed / destroyed entirely, or only the front cover that recorded vaccinations cut out and retained. Fragmentary notations in some records suggest that that not all test results may have been recorded in the individual's Medical Record.

50. Those records with more complete information showed that blood and urine tests, and x-rays, were used regularly across the board, for a very wide variety of reasons. Urine tests especially were a regular part of both most medical treatments and service more broadly – for example being used in the 'PULHEEMS' assessment, an occupational medical assessment to categorize an individual's medical fitness for duty, that all serving personnel underwent regularly.³⁴ RN pilots and divers in our sample appear to have had yearly medical examinations that included urine tests. Individuals thus often show records of numerous urine tests throughout their service, sometimes over many years, with no link to their presence at the nuclear tests at all.

51. The sample records frequently show blood *tests*, but these are separate and distinct from blood *counts* which were used much less frequently, and on very few individuals in the sample. Blood counts were occasionally used to look for evidence of radiation effects on blood cells, but also sometimes to look for signs of infection which would result in changes to blood cell counts. Blood tests were often done in monthly sequences as a diagnostic tool, most often associated with screening for or treating sexually transmitted diseases but also sometimes for pneumonia. Certain individuals were also given blood tests for drug immunities or reactions, as doctors made decisions on treatments. X-ray examinations were also frequently recorded within the sample records, most often looking for evidence of pneumonia or tuberculosis. No evidence was found of x-rays being used to look for physical effects of radiation.

52. Only one record was found that noted urine tests being taken specifically because of their presence at the nuclear tests. In that case, Sailor F's urine was tested for radioactive iodine in 1958, as doctors sought to treat a blood disorder, with the notes highlighting Sailor F's presence at a nuclear test in 1957. However the results were negative. Sailor F's case stands out, because he died at a young age in 1958 and both urine samples and blood counts were taken as he was treated, looking for evidence of exposure to radiation, and a sample of bone was tested for evidence of radiation exposure after his death. A coroner's report concluded that the evidence ruled out radiation exposure, either from his presence at a nuclear test or from his regular duties, as the cause of the illness that resulted in his death.

53. As noted in paragraphs 20-22, Admiralty Fleet Orders and Task Force orders set out a requirement for pre-deployment blood counts before individuals were deployed to the nuclear test sites, and in some cases directed that post-detonation blood counts should be taken in the event of confirmed or possible exposure to dangerous levels of radiation. Though we have identified a number of pre- and post-deployment checks in the sample

³⁴ The PULHEEMS (Physical Capacity, Upper Limbs, Locomotion, Hearing Acuity, (EE)Visual Acuity, Mental Capacity & Stability) test, introduced in the RN in 1947, was an assessment of physical and mental fitness conducted upon entering the armed forces and renewed every 12 months throughout an individuals' service to determine continued fitness to serve. A chest X-Ray was required to confirm Physical Capacity and if appointed to a ship or establishment abroad, both Officers and O/R were to have undertaken a complete assessment (including X-Ray) within the last six months. From individual records reviewed by NHB, PULHEEMS were consistently accompanied by urine tests. Divers, Aircrew and Submariners required Special Medical Examinations, in addition to PULHEEMS.

Records, (and one individual Sailor J who had both a pre- and post-deployment count) the sample overall showed no evidence of either pre- or post-deployment blood counts being conducted or recorded regularly. References are made to specific CAFOs in a few Medical Records with blood counts, showing that the orders were circulated and understood to some degree, but there was no evidence in our sample of these orders being consistently followed.

54. Furthermore, there is no evidence in our sample that the individuals we identified from the documentary evidence as having been at more risk of exposure to radiation, received post-deployment blood counts at a higher rate than other test veterans. A number of these individuals, particularly those who served in Op. MOSAIC, had a note in the Blue Book or HSA files of a high dose having been received, but no pre- or post-deployment checks were recorded in any of their Medical Records. For example, one notable individual, Sailor M, served aboard HMS DIANA, and was the only person aboard to have a recorded radiation dose (albeit a very low dose) in the HSA record. We did not find any evidence of his dosage being noted in his medical records, or of any blood count being carried out. We have found individuals without recorded doses in the HSA data who nevertheless have radiation doses recorded in their medical records and equally people with doses recorded in the HSA data who have no notes of a dose in their medical records. For example, Sailor K shows a dose of '1440' in the HSA record, but a dose of 'Nil' recorded in his Medical Record.
55. The requirement to use an ink stamp to record an individual's radiation dosage from their issued film badge (even if nil) does not appear to have been followed regularly or uniformly. The small number of stamps found in the sample records refer to 1952 (HURRICANE) and 1957 (GRAPPLE 1-3 or GRAPPLE X), with the majority of these being for 1957. We did not find any evidence in our sample records of stamps noting radiation doses from the 1956 & 1958 tests. MOSAIC (1956) test participants who received dosages did in certain cases receive a slip indicating their dose. Some individuals had doses handwritten as opposed to stamped, and one individual had the individual doses of each film badge recorded (this case was unique from this sample). We identified two individuals who had recorded doses from Operation BUFFALO, but both of their medical records were recorded by DBS KI as having been destroyed.
56. At a late stage in the discovery exercise, the RN team identified a small number of Medical Records from individuals in our sample that had been stored separately by Restore Records Management, having apparently been used in support of medical pension claims. These records are notable for being much more comprehensive than those of their peers in the sample, even where both Service and Medical Record are available. For example, Sailor P's file contains detailed and clear discussion of his case, noting that he received a radiation dose at HURRICANE, and that he received three sequential E.S.R. (Erythrocyte Sedimentation Rate) blood tests as part of his release medical, which were directly linked to his exposure to radiation at Monte Bello. Importantly, much of the information in these expanded records came from their medical records after they had left the Royal Navy, reflecting medical conditions that occurred later in life, and it was this additional information that was often the basis for a claim, rather than information in their RN records.
57. Overall, the sample records appear to provide a mixed picture. There is some limited evidence of blood counts and urine tests being conducted on a few individuals as a result of their presence at the nuclear tests. However, there is no evidence in the sample that Admiralty Fleet Orders and Task Force Orders about pre- and post-deployment blood counts were consistently followed. There are very few records of any blood counts being taken, and even fewer examples of urine tests specifically related to the nuclear

tests, and no evidence of a clear link between the blood counts that were recorded and radiation doses being recorded. In fact, there is some contradictory evidence that shows blood counts being recorded in the absence of a recorded radiation dose but also instances of no blood count being captured in the record despite a radiation dose being logged. It is impossible to tell whether this was because no counts were taken, or because counts were taken but not recorded, or because counts were recorded but subsequently lost or separated from the original medical record over time.

Navy Healthcare review of Medical Records

58. The RN review team asked Navy Healthcare to provide expert medical advice in support of the review of Medical Records, to provide assurance that anything in the Medical Records that might be relevant, was identified. A report of the work and findings of the Navy Healthcare doctors is provided at Annex A. The doctors reviewed all 270 Medical Records held by the review team. They observed a wide variation in the material retained in the Medical Record, and similar variation in the sample around recording of radiation doses and blood counts. They identified evidence of a small number of blood counts being carried out as mandated by RN Orders but found no evidence that this was being done consistently – only 20 individuals in the sample were identified as having had blood counts, and only one of those was taken post-deployment. They found no evidence of routine post-deployment blood counts. No evidence was found in the Medical Records of clinical notes or interpretation of the blood counts. They did not find any evidence of routine urine testing associated with individuals' participation in the nuclear tests. Eight individuals' Records contained evidence of medical conditions which may have related to radiation exposure but equally may have been naturally occurring. One of those eight was the subject of a coroner's report, which concluded that there was no evidence that radiation exposure was implicated in the subject's death.

Conclusions

59. The RN team engaged in this discovery exercise conducted a wide-ranging and thorough examination of the policy records and orders available to us via the National Archives, Restore Records Management and the collections held at the Naval Historical Branch. **80,000 individual records and orders covering the whole period of the nuclear test programme, as well as earlier and later files, were reviewed to see if they held anything relevant.** This review of RN policy documents and Orders, validated by an examination of the Medical Officers Journals we could locate and a review of a dip sample of individual sailors' Service and Medical Records, has provided us with some insight into medical testing of participants in the UK atmospheric nuclear test programme. **However, this discovery exercise has not provided a definitive, conclusive picture either of policy or of practice for the whole period of the nuclear test programme.** It should be noted that there are a variety of records that we were not able to review during this discovery exercise, including DEFE records, material held in the AWE MERLIN database, Restricted Collations of records managed by DBS KI, and records held by other Government Departments.

60. As explained in this report, **we have identified evidence of policies and orders setting out in detail a regime of blood counts for RN personnel deployed to the HURRICANE and GRAPPLE tests, but have found no evidence of similar measures being put in place by the RN for the other tests. We found no evidence relating to RFA or Merchant Navy personnel participation in the nuclear tests.** The policies we found required pre-deployment blood counts for all personnel deployed to the nuclear tests, to establish a baseline if later counts were required, and also required that personnel thought to have been exposed to radiation, as measured by film badges and dosimeters, should receive post-deployment blood counts. These findings are backed up by notes from Medical Officers Journals from ships present at HURRICANE and

GRAPPLE which show that Medical Officers were aware of the requirement for pre-detonation blood counts, and that results should be recorded in individuals' Medical Records and Paybooks. **We found no evidence of orders mandating urine tests or X-rays for personnel deploying to the nuclear tests.** We did find evidence of personnel receiving urine tests and X-rays, but these were either regular screening tests as part of the annual PULHEEMS assessment of medical fitness for service, or diagnostic tests used in a wide variety of treatments for illnesses unrelated to participation in the nuclear tests. **We found one reference in the policy documents to urine tests being given to a small number of personnel on an *ad hoc* basis, following their suspected exposure to radioactive contamination.**

61. In contrast to the findings from the review of policy records and orders, **the individual Service and Medical Records examined in our dip sample provide very little evidence of blood counts being recorded in Medical Records, as mandated by the orders in place at the time. Only 20 individuals from a sample of 389 had evidence of blood counts in their Records.** We found no evidence that would explain the absence of blood counts in so many of the records – blood counts may not have been taken, or they may have been taken but not recorded in the Medical Record (for example if the results were normal and there was no perceived need to retain them), or they may have been recorded in the Medical Record originally but then separated or destroyed with the passage of time. **There was no evidence that the 59 individuals who we included in the sample for having been involved in activity more likely to have resulted in exposure to radiation, were more or less likely to have a radiation dose recorded, or to have evidence of a blood count in their Medical Record, than others in the sample.**
62. **The findings from the small number of Records with evidence of blood counts were also inconclusive.** Some individuals had a record of having received a blood count despite their records showing no evidence of being exposed to radiation, while some individuals had a note of a reading of radiation exposure, either in their Medical Record or in the AWE Blue Books or UK HSA lists, but had no evidence of a blood count in their record. **This picture is further complicated by the wide variation in the quantity and nature of the material retained in the Medical Records we examined, with some Records containing very little information at all.** Again, we have no evidence to give a definitive answer as to why this variation occurred – material may have been removed, for example to support a military pension claim, or may have been lost as the physical records deteriorated over time, which would not be unusual for records of this age. Consequently, **there is no evidence in the sample to confirm that Admiralty Fleet Orders and Task Force Orders about pre- and post-deployment blood counts were consistently followed.**
63. To answer the questions originally put to the review teams in November 2024:
 - a. **There is evidence that pre-deployment blood counts were mandated for all RN personnel deployed to two of the major nuclear tests (HURRICANE and GRAPPLE), but limited evidence that counts were taken.** Counts were taken either in the UK or once deployed, by RN doctors. There is no evidence of a regime of urine testing or x-rays. **Counts after the test detonations were mandated for personnel whose film badges or dosimeters registered exposure to radiation above safe levels. Only one post-detonation blood count was identified in our sample.**
 - b. **Data from those blood counts was supposed to be recorded in RN Medical Records and Paybooks, but this was seen very rarely in our sample of Medical Records.**
 - c. **If blood counts were taken but not found in the records included in this exercise, it is impossible to know with any certainty what happened to that**

information subsequently. The sample of RN Medical Records shows wide variation in the quantity and quality of information recorded. This may be due to the deterioration of physical records over time, or parts of the records being separated or lost. Unfortunately, 30% of the Medical Records the RN requested for the dip sample have either been destroyed on the authority of DBS KI, or lost over time.

Royal Navy Nuclear Test Veterans Review

Annex A: Navy Healthcare Report: Medical Aspects of Nuclear Test Veterans' Sample Review

Introduction and Methods

1. A sample of 270 records was reviewed by 4 accredited medical practitioners over a period of 63.5 hours in Nov 25.
2. Notes were identified by the Naval Historical Branch (NHB) and were reviewed, in hardcopy, in the NHB offices. They were presented as medical notes with a paired record of service. Some Medical Officers' journals and histology reports were also presented.
3. Notes were reviewed in line with a rubric written with input from SMEs in occupational, nuclear and radiation medicine. This ensured consistency amongst reviewers and details are at Appendix A to this report. In general terms the available notes were in good condition with the majority of entries typed and in chronological order.

Results

4. Medical records administration was found to be variable. Some, but not all, records were marked with a stamp or slip indicating radiation exposure, and some Release Medicals specified service on, for example, Christmas Island.
5. Of the 270 records, 71 (26.30%) mentioned nuclear trials. 20 records (7.41%) referred to blood tests being undertaken "in accordance with CAFO", sometimes detailed as CAFO 99/58. These tests were undertaken pre-deployment with one example of an additional post-deployment blood test and one example of a pre-deployment chest x-ray. No evidence of urine testing for reasons pertaining to radiation was found.
 - a. CAFO 99/58 specified that, before joining a nuclear-weapons trial party, blood testing for "full erythrocyte count, haemoglobin estimation, leucocyte count and differential leucocyte count" was required "...to provide a baseline against which to assess the results of possible future blood examinations..." There is no mention of routine post-deployment testing or any reference to chest x-rays.
6. Whilst results were clearly stated, there were no notes of interpretation or matched clinical entries. There is therefore no evidence the results were reviewed by a clinician. There was, however, evidence of periodic medical examinations (PULHHEEMS medicals) which often involved a "routine" chest x-ray.
7. Eight records (2.96%) indicated medical conditions which may relate to radiation exposure but equally may be naturally occurring. Three were cancer-related, one of cataracts, one haematology, one anxiety, one chronic lung disease and one sterility.
 - a. The haematological case had a high profile and there was extensive investigation with the conclusion being that radiation exposure was not implicated. It was noted that the individual's widow was satisfied with this finding.
8. Medical Officers' Journals. Separate to medical records, a selection of journals was made available for review. There are accounts from 1952 (HMS CAMPANIA) that "some 237 pre and post weapon tests [were] done in theatre" and from 1957 (HMS NARVIK) of "a health physicists' cleaning station conducting white blood counts on all Officers and Ratings who might become contaminated, a week before each 'drop'". Evidence of this was not obvious in the sample, possibly due to:
 - a. Results held in some other local record; or

- b. The field laboratory was not a permanent fixture; or
- c. This sample of records, by chance, did not involve any individual tested locally.

Limitations

9. There were some obvious omissions from several sets of medical notes. There was no apparent pattern and discussion with NHB personnel led to the suggestion this was not uncommon, often due to notes being sent to other Departments for review post-discharge (e.g. for pension reasons) and not being returned.

Discussion

10. Policy existed for pre-deployment blood testing for nuclear test parties. CAFO 99/58 was the most recent such policy but, in this sample, there was no positive evidence that relevant policy was followed in 92.59% of cases. Without an understanding of the wider context of policy in the 1950s it is difficult to draw conclusions, but there was neither sample evidence of issues post-deployment not being investigated, nor of any policy relating to post-deployment medical procedures.

11. The absence of interpretation of blood tests performed is not without precedent. Policy stated the tests were done to provide a baseline figure. As such, it is reasonable to suggest they would only have been reviewed if it subsequently became necessary.

12. 2.96% of the sample evidenced medical conditions which may have been caused by radiation exposure, but they may not be related. In addition, as most individuals left the Service within 5 years of their assignment to nuclear test parties and radiation-induced conditions generally take longer time periods to develop, the true figure may be higher.

Annex A, Appendix A: Summary of Clinical Rubric for Review of Medical Records

Section	Detail
Demographics	Name
	Date of Birth
	Year of Release Medical
Radiation Exposure Evidence	Specific evidence of radiation testing
	Presence of radiographs
	Evidence of cancer
	Evidence of cancer under the age of 50
	Evidence of infertility
	Evidence of haematological abnormalities
	Evidence of autoimmune conditions
	Evidence of chronic respiratory disease
	Evidence of cardiovascular disease
	Evidence of hypothyroidism
	Evidence of cataracts
	Evidence of peripheral neuropathy
	Evidence of early onset cognitive decline
	Evidence of post-traumatic stress disorder
	Evidence of anxiety or depression
	Evidence of acute radiation sickness
Summary Items	List of major diagnoses
	Notes

Annex B: UK Atmospheric Nuclear Tests Timeline 1952-1963³⁵

Operation HURRICANE

Date	Location
3 October 1952	Monte Bello Islands, Australia

Operation TOTEM

Date	Location
14 October 1953	Emu Field, Australia
26 October 1953	Emu Field, Australia

Operation MOSAIC

Date	Location
16 May 1956	Monte Bello Islands, Australia
19 June 1956	Monte Bello Islands, Australia

Operation BUFFALO

Date	Location
27 September 1956	Maralinga, Australia
4 October 1956	Maralinga, Australia
11 October 1956	Maralinga, Australia
22 October 1956	Maralinga, Australia

Operation ANTLER

Date	Location
14 September 1957	Maralinga, Australia
25 September 1957	Maralinga, Australia
9 October 1957	Maralinga, Australia

Operation GRAPPLE

Date	Locations
15 May 1957	Malden Island, Kiribati
31 May 1957	Malden Island, Kiribati
19 June 1957	Malden Island, Kiribati
8 November 1957	Christmas Island
28 April 1958	Christmas Island
22 August 1958	Christmas Island
2 September 1958	Christmas Island
11 September 1958	Christmas Island
23 September 1958	Christmas Island

Minor Trials (Non-Operation Named)

Dates	Locations
1953-1961	Emu Field and Maralinga, Australia

³⁵ This timeline adapted from 'Eligibility Criteria for the Nuclear Test Medal – Revised 9 Nov 25', via https://assets.publishing.service.gov.uk/media/6911ef2ee9348ac8fb54f485/Nuclear_Test_Medal_-_Eligibility_Criteria_Extended_9_Nov_25.odt

1955-1963	Emu Field and Maralinga, Australia
1956 and 1960	Maralinga, Australia
1959 and 1961	Maralinga, Australia
1960 and 1963	Maralinga, Australia

Annex C: Fallout Sampling Undertaken by HMS DIANA During Operation 'MOSAIC' (1956)

HMS DIANA (Daring class destroyer) was tasked with sailing through the fallout of both detonations of Operation 'MOSAIC' (1956) and the '*collection of deposited fall-out at two sites*'.³⁶ More broadly, DIANA was present to test '*...the protection of modern ships when passing through the fall-out of a nuclear explosion*'.³⁷ Operation MOSAIC was composed of two detonations, referred to as G.1 & G.2 or HOTSHOT & FLASHPOINT respectively. Prior to the selection of DIANA specifically, a desire was expressed '*To exercise ships in the procedures laid down for protective action under atomic attack. This will include pre-wetting the ship before arrival of fall-out, and measurements to determine its effectiveness*'.³⁸ It is stated in ADM 1/26714 that this trial was to be conducted '*...without undue hazard to personnel*'.³⁹ The ship's crew were closed down into 'citadels' for extended periods of time which are detailed as follows in ADM 296/3: 207 in the Forward Citadel, 95 in the Aft Citadel and 4 on watch in the Machinery Spaces.⁴⁰ It is stated that '*up to 150 film badges*' were issued to the ship's crew.⁴¹ Individuals on watch in the Machinery Spaces were issued with both film badges and Quartz Fibre Dosimeters, to allow for more immediate readings of dosage received.⁴² ADM 296/44 states that '*no individual readings*' of radiation were recorded, referring specifically to the G2 detonation.⁴³ We have so far been able to identify a single individual with a recorded radiation dose aboard DIANA. HMS DIANA's report following MOSAIC notes that '*low dose rates recorded inside the citadels, it has not been considered worthwhile attaching details of them ... with a few exceptions they were well below 10MR*'.⁴⁴ It is unclear whether this was personal dosimetry.

Though the ship's core task was to monitor the fallout from each detonation, a number of other trials were also conducted simultaneously. The machinery spaces of the ship were externally ventilated and it is discussed in ADM 265/90 that '*...opportunity was taken to conduct a number of ad-hoc trials to investigate the radiological hazards caused by fall-out to machinery spaces and machinery*'.⁴⁵ The conclusions from said trials were as follows:- '1. *That fall-out can and will enter the intakes of boilers and of running ventilation systems in large quantities, of which very little if any leaves the ship.* 2. *That the resulting contamination is mainly loose, that is, easily transferred to the lungs and stomach, and must therefore be considered a hazard even though the external dose rate is very low. No test equipment is in service, and little doctrine exists on the hazard.* 3. *Proper decontamination of machinery spaces is impracticable.* 4. *Seawater contamination from fall-out may linger at or near the surface for some time. It is therefore impracticable to avoid all contamination of evaporators in existing ships simply by stopping them whenever fall-out is suspected.*'⁴⁶

Particular issues were raised regarding the ship's sea water evaporators, which were found to be '*...most troublesome both at the time and afterwards. Whether or when a previously*

³⁶ Operation MOSAIC : Monte Bello Atomic Tests 1956 – Report by the Operational Commander P. 112

³⁷ ADM 1/26714 - Operation MOSAIC: stationing of HMS Diana for observation of fall out

³⁸ ADM 296/25 - Observations and trials by HMS Diana

³⁹ ADM 1/26714 - Operation MOSAIC: stationing of HMS Diana for observation of fall out

⁴⁰ ADM 296/3 - HMS Diana's report on MOSAIC

⁴¹ ADM 1/26714 - Operation MOSAIC: stationing of HMS Diana for observation of fall out

⁴² ADM 296/3 - HMS Diana's report on MOSAIC

⁴³ ADM 296/44 - Report of proceedings: G2

⁴⁴ ADM 296/3 - HMS Diana's report on MOSAIC

⁴⁵ ADM 265/90 - Effect of fall-out on machinery spaces: trials in HMS Diana

⁴⁶ ADM 265/90 - Effect of fall-out on machinery spaces: trials in HMS Diana

*contaminated evaporator can be used on ship's tanks, the use of sections of filling line common with fresh water tanks were all questions requiring immediate decision which were extremely difficult to answer....*⁴⁷ Prior to the tests, it was stated that the ship should be *'...steamed with machinery space ventilation running so that we could find out precisely what contamination was drawn in, but we could not tell how serious a problem this contamination might produce.'*⁴⁸ Despite this, the report for the G2 detonation notes that her fans were stopped and the vents to the engine room were shut.⁴⁹ The report on the effect of fall-out produced after the trials identified that 75% of the outside contamination present was able to enter the ship as a result of her ventilation system and boilers.⁵⁰ Loose contamination in the machinery spaces was monitored using smear tests, though DIANAs report states that there was a *'lack of counting device for air sampling and smear tests'*.⁵¹ This proved to be time-consuming to undertake, requiring 20 minutes for Beta or Gamma particles and *'at least 5 hours'* for Alpha particles.⁵²

To mitigate the risks posed to the 4 men on watch in these spaces, they were issued with protective equipment which included *'a plastic suit similar to the Windscale Alpha Suit which completely encloses the body and has its own air line'*.⁵³ Further to this, men were issued with *'a closely woven fabric suit similar to the Hurricane suit. They have no hoods for this clothing and have been using an ordinary flash hood + respirator + anti-gas hood as a substitute.'*⁵⁴ Both protective measures were noted to be imperfect. It was noted that the *'Windscale' suit 'tends to tear and the casualty rate in engine rooms of this type of suit is high.'*⁵⁵ The *'Hurricane' suit was 'heavy and most uncomfortable to wear'* and the use of a respirator and flash hood or anti-gas hood left *'...the neck region exposed.'*⁵⁶ The men worked in alternating 35-minute watches, as the discomfort of the protective suits prohibited longer periods.⁵⁷ For the men inside the ship's 'citadels', the ships commanding officer recalled that they were closed down for c.13 hours at a time, experienced high levels of humidity and at times poorly circulated airflow.⁵⁸ He further stated these conditions led to cases of heat exhaustion, headaches, fatigue and shallow breathing (amongst other complaints)⁵⁹. The inability to smoke, and the monotony of rations also affected morale.⁶⁰

HMS DIANA had been internally and externally modified prior to the tests to further improve crew protection. A pre-wetting system continually sprayed seawater onto the ships deck and surfaces to prevent fallout falling onto and adhering to them. It is identified in ADM 204/2149 that 70% of the possible fallout deposited onto DIANA was removed by pre-wetting. It is stated in ADM 296/3 that one of DIANAs pre-wetting hoses *'blew out'* during the first trial *'due to a defective coupling...'*⁶¹ This resulted in one section of the deck showing a reading

⁴⁷ ADM 296/3 - HMS Diana's report on MOSAIC

⁴⁸ ADM 1/26714 - Operation MOSAIC: stationing of HMS Diana for observation of fall out

⁴⁹ ADM 296/44 - Report of proceedings: G2

⁵⁰ ADM 265/90 - Effect of fall-out on machinery spaces: trials in HMS Diana

⁵¹ ADM 296/3 - HMS Diana's report on MOSAIC

⁵² ADM 265/90 - Effect of fall-out on machinery spaces: trials in HMS Diana

⁵³ ADM 296/26 - Radiation hazard in HMS Diana (May 1956)

⁵⁴ ADM 296/26 - Radiation hazard in HMS Diana (May 1956)

⁵⁵ ADM 296/26 - Radiation hazard in HMS Diana (May 1956)

⁵⁶ ADM 296/26 - Radiation hazard in HMS Diana (May 1956)

⁵⁷ J.R. Gower, *Pierhead Jump – Some Jump!* (Personal Account of the Trials)

⁵⁸ J.R. Gower, *Pierhead Jump – Some Jump!* (Personal Account of the Trials)

⁵⁹ J.R. Gower, *Pierhead Jump – Some Jump!* (Personal Account of the Trials)

⁶⁰ J.R. Gower, *Pierhead Jump – Some Jump!* (Personal Account of the Trials)

⁶¹ ADM 296/3 - HMS Diana's report on MOSAIC

of 40 Milliroentgen per hour (0.04 Roentgen).⁶² During the second test, one of the ships STAAG (Stabilised Tachymetric Anti-Aircraft Gun) turrets was not pre-wetted and was found to be '*off the charts*' on a Contamination Meter No.1 (with a maximum reading of 10 milliroentgen).⁶³ Following each test, '*decontamination parties*' went out on deck to '*hose and scrub the upper deck and external surfaces*' to remove fallout that had not been removed by pre-wetting.⁶⁴ This was undertaken in darkness for both tests.⁶⁵ These men also wore protective clothing, with specific reference made to white overshoes.⁶⁶ The ship was fitted with an 'Undressing Station' which proved to be inadequate, '*The wind blows the curtains aside and brings in radioactive spray on personnel being undressed...*' and pre-wetting water also leaked into the space, which was contaminated.⁶⁷

Prior to the tests, '*All men joined the ship having spent one week at the Devonport ABCD school.*'⁶⁸ This was supplemented by lectures delivered once the men were onboard ship, though despite this, it was noted that '*After the trials were over however, there was a noticeable tendency among some men to relax and assume a more casual attitude towards the health rules still in force. This was despite a number of lectures on board before the trials. This attitude was improved before the second trial but it did emphasise the importance of this aspect of training.*'⁶⁹ Further to this, it is identified that '*...very great difficulty was experienced in driving home to decontamination teams and, indeed, all others, the dangers of the ingestion of loose radioactive particles. This subject does not appear to be sufficiently emphasised in the ABCD schools and is hardly covered in LCAFO's (Vide LCAFO 117/55, paragraph 71). By the end of FLASHLIGHT it is believed that this lesson has been learnt.*'⁷⁰ With specific reference to airborne contamination '*very little was known about the internal hazard from radioactive particles or about measures to detect or avoid it.*'⁷¹

Responsibility for the safety of DIANA was held by the Admiralty, as can be seen from exchange between Scientific Superintendent Maddock and Commodore Special Squadron H. C. Martell. Maddock stated '*We can not, however, assume any direct responsibility for the Radiological safety of DIANA since this lies outside our terms of reference.*'⁷² In reply, Martell confirmed '*I fully understand your comments on the question of responsibilities.*'⁷³ Following the G2 detonation, DIANA made for Singapore where contaminated paintwork was removed and one of her boilers was 'rebricked', as it was found to be 'hot' (contaminated).⁷⁴ DIANA then formed part of the naval contingent during the Suez Crisis, before returning to the UK.

⁶² ADM 296/3 - HMS Diana's report on MOSAIC

⁶³ ADM 296/3 - HMS Diana's report on MOSAIC

⁶⁴ J.R. Gower, *Pierhead Jump – Some Jump!* (Personal Account of the Trials)

⁶⁵ J.R. Gower, *Pierhead Jump – Some Jump!* (Personal Account of the Trials)

⁶⁶ ADM 296/3 - HMS Diana's report on MOSAIC

⁶⁷ ADM 296/3 - HMS Diana's report on MOSAIC

⁶⁸ ADM 296/3 - HMS Diana's report on MOSAIC

⁶⁹ ADM 296/3 - HMS Diana's report on MOSAIC

⁷⁰ ADM 296/3 - HMS Diana's report on MOSAIC

⁷¹ ADM 296/3 - HMS Diana's report on MOSAIC

⁷² ADM 296/26 - Radiation hazard in HMS Diana (May 1956)

⁷³ ADM 296/26 - Radiation hazard in HMS Diana (May 1956)

⁷⁴ J.R. Gower, *Pierhead Jump – Some Jump!* (Personal Account of the Trials)

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⁷⁵ Orders blood tests to be carried out on all personnel working with radioactive compounds at intervals of not more than six months

⁷⁶ Extracts from speeches made in the House of Commons during a recent debate on foreign

policy have been reprinted as a broadsheet, for exhibition on notice boards if desired. Distribution is being made with his issue of Admiralty Fleet Orders

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⁷⁷ And from HMS Excellent to HMS Phoenix

⁷⁸ Describes role of the Defence Officer and the Monitoring Officer, and also shown which courses should be attended by the Medical Officer

⁷⁹ Great importance is attached to all Medical, Dental, Nursing and Wardmaster Officers becoming acquainted with developments in the defensive aspects of atomic warfare and principles of radiological safety. Short courses of instruction will be given for Naval personnel

and also for members of other Services at the RN Medical School.

⁸⁰ Paragraph 9 states: All workers continuously engaged in any of the occupations listed in paragraph 4 should receive a total and differential blood count before commencement of the work and thereafter at three-monthly intervals and at such additional times as the Medical Officer, Admiralty Surgeon or Agent, or the MDG may decide.

⁸¹ Covers atomic and radioactive contamination

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- AFO 948/1951: Establishments: RN Medical School and RN Physiological Laboratory, Alverstoke⁸⁴
- AFO 1133/1951: ABCD: Respirators: Responsibility for Repair
- AFO 1686/1951: Medical Research: Coordination: Reports⁸⁵
- AFO 1988/1951: ABCD: Inspection of Arrangements for
- AFO 2272/1950: Establishments: RN Medical School and RN Physiological Laboratory, Alverstoke
- AFO 2325/1950: ABCD: Decontamination Arrangements: As and As: HM Ships down to and including frigates
- AFO 2627/1950: ABCD: Reports of Inspections of HM Ships and Shore Establishments
- AFO 2704/1951: Medical: Documentation: Introduction of New System
- AFO 3167/1951: ABCD Officer in Small Ships
- AFO 3168/1951: ABCD: Terminology⁸⁶
- AFO 3366/1951: ABCD Headquarters: Internal Communication
- AFO 3367/1951: ABCD: Respirators, Anti-Gas, Light Type: (a) Periodical Examination and Test; (b) Exchange of those not fitted with clear speech device; (c) Exchange of containers, Mark 1
- AFO 3441/1951: ABCD: Decontamination Arrangements in New Construction RFAs and Existing Vessels
- AFO 3680/1951: Courses: ABCD Training
- AFO 3833/1951: Naval Stores (Class E, Group 12): Insecticide DDT Emulsion: Pattern 4864: Method of Using
- AFO 3961/1951: ABCD School Training Programme, 1952
- AFO 4030/1951: ABCD: Biological Attack
- AFO 4122/1951: Courses: ABCD Training

⁸² One copy each of the American films has been supplied to HMS Phoenix and the RN Medical School, Alverstoke.

⁸³ Part 1 of the American Training Film entitled "Medical Effects of the Atomic Bomb" has been acquired for the Naval Service and the supply of one copy has been made to each of the RN Schools of ABC Defence and the RN Medical School, Alverstoke, as "outright issue".

⁸⁴ States that the RN Medical School and the RN Physiological Laboratory are both classified as Admiralty Research and Development Establishments.

⁸⁵ The coordination of medical and applied physiological research between the Medical Service of the Royal Navy, Army and Royal Air Force is to be kept in mind. Small scale and

locally organized researches in clinical subjects pursued in Service establishments, because their interest may appear limited, may be overlooked.

In order that none of the value of any such work may be lost the Medical Director-General and the Director of Medical Research, RN Medical School, should both be informed of any medical or applied medical research which is initiated by RN Medical and other officers in hospitals and establishments. A brief description of its scope and object should be given.

⁸⁶ Clarifies that ABCD is short for Atomic, Biological and Chemical Protection and Damage Control. The letters ABC may be used without the letter D when it is desired to refer specifically to ABC Warfare or ABC Protection.

- AFO 4220/1951: Nomenclature: RN Gunnery and ABCD Range Wembury: Change of Title and Function⁸⁷
- AFO 4234/1951: Medical: Mass Radiography: Examination and Recording
- AFO 4292/1951: Publications: ABCD: "The Effects of Atomic Weapons": Issue of Book to Ships' Reference Libraries
- LCAFO 301/1952: Weapons: Responsibilities for Guided Weapons, Airborne Weapons and Future Naval Atomic Weapons
- CAFO 17/1952: ABCD: Radiac Instruments: Prototype Patrols: Reports
- CAFO 31/1952: Defence: The Role of the Navy in Civil Defence
- CAFO 37/1952: ABCD Headquarters, Secondary ABCD Headquarters and Section Bases: Equipment, Layout, Internal Communications etc: As and As
- CAFO 100/1952: Squadrons: Special Squadron: Constitution
- CAFO 128/1952: ABCD: Radiac Instruments: Provision for Training
- CAFO 154/1952: ABCD: Monitoring Officer in HM Ships
- AFO 234/1952: Courses in Radiological Defence for RN Medical, Dental, Nursing and Wardmaster Officers
- AFO 242/1952: ABCD: Decontamination Arrangements: As and As
- AFO 243/1952: ABCD: Respirators AG: Painting of Names on Haversacks
- AFO 470/1952: Courses: ABCD Training
- AFO 628/1952: ABCD Organisation in HM Ships
- AFO 825/1952: ABCD: Anti-Gas Respirators
- AFO 891/1952: Victualling Stores: Clothing: Protective: ABCD Parties in HM Ships
- AFO 925/1952: Courses: ABCD Training
- AFO 996/1952: Radiation Hazards: Precautions for Protection of Personnel Concerned with the use of X-Ray Apparatus or Radioactive Materials
- AFO 1250/1952: ABCD: Commanding Officer, HMS Phoenix: Duties and Responsibilities for ABC Defence
- AFO 1339/1952: Training: Boys and New Entries: ABCD Course
- AFO 1421/1952: Naval Stores (Technical) (Class F, Group 3A): Radiac Slide Rule: Introduction⁸⁸
- AFO 1829/1952: Films and Filmstrips: Instructional: Titles: "Protection in Atomic Warfare" Part 1: Distribution
- AFO 1975/1952: ABCD: Radiac Instruments: Use of Quartz Fibre Dosimeter to Measure Dose Rate
- AFO 2024/1952: ABCD: Darken Ship: Responsibilities
- AFO 2273/1952 ABCD: Inspection of Arrangements
- AFO 2529/1952: Courses: ABCD Training: Revised Policy and Schedule of Courses
- AFO 2776/1952: ABCD: Organisation in HM Ships
- AFO 3562/1952: Courses: ABCD Schools: 1953
- AFO 3623/1952: ABCD Organisation, Headquarters and Communications
- LCAFO 135/1953: ABCD: Radiation Hazard following an Atomic Burst and Monitoring Organisation

⁸⁷ Relating to the ABCD School at Devonport which has been split into the ABC Section, situated in the WRNS Quarters in St Budeaux, and the Damage Control and Fire Fighting Section in the Royal Navy Barracks.

⁸⁸ The danger to personnel exposed to the fission products following Atomic warfare cannot be

fully estimated by measurement of the dose rate at any particular time, owing to the natural decay of these products.

A slide rule to be known as the RADIAC SLIDE RULE has been devised, which will enable this decay rate to be accurately and rapidly calculated.

- CAFO 23/1953: Alterations and Additions: ABCD Items: Re-Classification
- CAFO 26/1953: Admiralty Passive Defence Policy Committee
- CAFO 39/1953: ABCD: Collective Protection: Policy and Organisation
- CAFO 40/1953: ABCD: Collective Protection: Application to Ships
- CAFO 43/1953: Nomenclature: ABCD Terminology: Use of Certain Terms
- CAFO 46/1953: ABCD: Collective Protection: Application to Floating Docks and Yardcraft
- CAFO 93/1953: ABCD Organisation: ABCD States of Readiness and ABC Risks and Control Markings
- CAFO 132/1953: Stores: Respirators, Anti-Gas: Spares issued to HM Ships
- CAFO 154/1953: ABCD: Collective Protection: Application to Ships
- CAFO 167/1953: Passive Defence: Policy for Passive Defence in Naval Establishments at Home
- CAFO 168/1953: Passive Defence: Policy for Passive Defence in Naval Establishments Abroad
- CAFO 169/1953: Passive Defence in Naval Establishments at Home: Requirements of Personnel
- CAFO 173/1953: Passive Defence in Naval Establishments at Home and Abroad: Requirements of Personnel
- CAFO 180/1953: ABCD: Closing Down Trials: Procedure and Reports
- AFO 486/1953: ABCD: Cleansing and Decontamination Arrangements: As and As
- AFO 487/1953: ABCD: Respirators, Anti-Gas: Policy as to Type and Scale of Supply
- AFO 716/1953: ABCD: Anti-Gas Respirators⁸⁹
- AFO 924/1953: ABCD: Respirators Anti-Gas: Ratings drafted to RN Depots
- AFO 958/1953: ABCD and Passive Defence: Responsibilities on Staffs of Commanders-in-Chief and Flag Officers
- AFO 1203/1953: ABCD: Damage Control: Modification to Splinter Boxes and Strongbacks
- AFO 1396/1953: ABCD: Personnel and Stationing⁹⁰
- AFO 1540/1953: Naval Stores (General): Stores for ABC Purposes: Usages and Allowances
- AFO 1651/1953: Organization: ABCD States of Readiness and ABC Risk and Control Markings
- AFO 1965/1953: Establishments: RN Medical School and RN Physiological Laboratory, Alverstoke
- AFO 1977/1953: Films and Filmstrips: Instructional: Titles: "The Atom Bomb – Its Effects and How to Meet Them": Distribution
- AFO 2254/1953: ABCD: Respirators, Anti-Gas, GS, Fitted with Short Tube: Withdrawal from Service
- AFO 2369/1953: Medical: Documentation: Instructions
- AFO 3040/1953: Decontamination Arrangements in New Construction RFAs and Existing Vessels
- AFO 3041/1953: ABCD: Pumping and Flooding Boards
- AFO 3318/1953: Films and Filmstrips: Instructional: Titles: "The Atom Bomb – Its Effects and How to Meet Them": Distribution
- AFO 3341: ABCD: Cleansing and Decontamination Arrangements: Alterations and Additions
- AFO 3463/1953: Courses: ABCD Schools: 1954 Programme
- LCAFO 117/53: Weapons: Responsibilities for Weapons and Associated Equipment, including those in which Guidance Techniques and/or Atomic Energy are used

⁸⁹ The policy that all personnel should be trained in the use of anti-gas respirators should apply to Royal Fleet Reservists.

⁹⁰ Published to provide guidance prior to the publication of the Ship ABCD Manual.

- CAFO 19/1954: Ratings: Passive Defence Duties
- CAFO 27/1954: Defence: The Role of the Navy in Civil Defence
- CAFO 47/1954: ABCD: Decontamination of Ships: Pre-wetting System
- CAFO 75/1954: ABCD: Collective Protection: Application to Ships
- CAFO 105/1954: ABCD Arrangements: Surveying Ships
- CAFO 106/1954: ABCD: Closing Down Trials in Machinery Compartments: Precautions
- CAFO 129/1954: Ventilation: ABCD, Organisation: Crash-stopping and Re-starting of Fans: Switchboard Indication for Non-Ring-Main DC Ships
- AFO 14/1954: Courses: ABCD School: 1954 Programme
- AFO 452/1954: ABCD Organisation in HM Ships
- AFO 709/1954: Stores: Annual Allowance of Naval Armament Stores for Passive Defence Training
- AFO 763/1954: Films and Filmstrips: Instructional: Titles: "Atomic Support of the Soldier": Distribution⁹¹
- AFO 1324/1954: Films and Filmstrips: Instructional: Titles: "The Atom Bomb – Its Effects and How to Meet Them": Distribution
- AFO 1348/1954: Stores: Annual Allowance of Naval Armament Stores for Passive Defence Training
- AFO 1512/1954: Establishments: RN Medical Records Depot, Drayton Parslow: Removal⁹²
- AFO 1700/1954: ABCD: Darken Ship: Responsibilities
- AFO 2008/1954: Passive Defence: Industrial Civil Defence Service: Formation of Admiralty Units
- AFO 2032/1954: ABCD: Identification Markings: 1950 System: Phase II
- AFO 2038/1954: Victualling Stores: Clothing: Protective: ABCD Parties in HM Ships
- AFO 2136/1954: Weapons: Responsibilities for Weapons and Associated Equipment including those in which Guidance Techniques and/or Atomic energy are Employed
- AFO 2361/1954: Victualling Stores: Clothing: Passive Defence of Shore Establishments (Naval, Royal Marine and Civil): Equipment for ABC and Decontamination Purposes
- AFO 2890/1954: Films and Filmstrips: Instructional: Titles: "Operation Hurricane": Distribution
- AFO 3140/1954: Courses: ABCD Schools: 1955 Programme
- AFO 3264/1954: Decontamination Arrangements in RFAs
- AFO 3307/1954: Examinations: Command of Destroyers: ABCD Section
- LCAFO 55/1955: ABCD: Megaton Explosions at Sea: Effects and Defence
- LCAFO 154/1955: ABCD: Radiation Hazards and Monitoring Organisation in HM Ships (including Submarines)
- CAFO 54/1955: ABCD: Collective Protection: Application to Ships, excluding submarines
- CAFO 55/1955: ABCD Collective Protection: Policy and Organisation
- CAFO 85/1955: ABCD: Collective Protection: Lessons Learned from Recent Fleet Trials
- CAFO 113/1955: Squadron: Special Squadron: Constitution⁹³

⁹¹ American Army film. The film reports an experiment at Yuca Flats to determine the effects of an atomic explosion on military positions.

⁹² Department moved to the Admiralty Record Office section, Public Record Office Repository,

Bourne Avenue, Hayes, Middlesex. "Provision has also been made at Hayes for the accommodation of medical records of RN Hospitals at home and abroad which exceed five years of age".

⁹³ Special Squadron for Operation Mosaic

- CAFO 115/1955: Passive Defence in Naval Establishments at Home: Requirements of Personnel
- CAFO 116/1955: Passive Defence: Policy for Passive Defence in Naval Establishments Abroad
- CAFO 117/1955: Passive Defence: Policy for Passive Defence in Naval Establishments at Home
- CAFO 121/1955: Naval Stores General, Class B: Fittings for ABCD Purposes: Introduction
- CAFO 122/1955: Passive Defence in Naval Establishments at Home and Abroad and Requirements of Personnel
- AFO 80/1955: Films and Film Strips: Instructional: Titles: Protection in Atomic Warfare: Distribution
- AFO 413/1955: ABCD: Respirators, Anti-Gas: Policy as to Type and Scale of Supply
- AFO 562/1955: Naval Stores (General): ABCD: Damage Control and Firefighting: Mustering
- AFO 795/1955: ABCD and Passive Defence: Responsibilities on Staffs of Commanders-in-Chief and Flag Officers
- AFO 883/1955: ABCD: Organisation in HM Ships
- AFO 1049/1955: Medical: Records of RN Hospitals: Disposal
- AFO 1180/1955: Courses: General: ABCD Schools: Amendment to 1955 Programme
- AFO 1272/1955: ABCD: Personnel and Stationing
- AFO 1362/1955: Medical Research: Coordination: Reports
- AFO 1406/1955: Courses: General: ABCD Schools: Amendment to Appendices of 1955 Programme
- AFO 1539/1955: Medical: Pulheems Assessment: Annual Review⁹⁴
- AFO 1963/1955: Courses: General: ABC Courses for WRNS Officers and Ratings
- AFO 2231/1955: Naval Stores General: Stores for ABC Purposes: Usage and Allowances
- AFO 2412/1955: ABCD Organisation: ABCD States of Readiness and ABC Risk and Control Markings
- AFO 2476/1955: Medical: Documentation: Instructions
- AFO 2656/1955: ABCD: ABC Arrangements in New Construction RFAs and Existing Vessels
- AFO 2667/1955: ABCD: Pumping and Flooding Boards
- AFO 3093/1955: Courses: ABCD Schools: 1956 Programme
- AFO 3105/1955: Films and Filmstrips: Instructional: Titles: The Effects of Atomic Weapons on Troops in the Field: Distribution⁹⁵
- AFO 3454/1955: Courses: General: ABCD Schools: Amendment to 1956 Programme
- LCAFO 100/1956: ABCD: Introduction and Allowances of Radiac Instruments: Naval Stores Class F, Group 3A
- LCAFO 142/1956: Radar: Radioactive Valves: Handling and Disposal: Precaution
- CAFO 53/1956: ABCD: Collective Protection: Application to Ships excluding submarines
- CAFO 109/1956: Naval Stores General: Class B: Fittings for ABCD Purposes
- CAFO 115/1956: Operation GRAPPLE, GRAPPLE Squadron: Constitution
- CAFO 134/1956: Naval Stores General: Stores for ABC Purposes: Usages and Allowance: Nerve Gas Simulant for Use with the VDK⁹⁶: Supply of Bromine Ampoules

⁹⁴ Notes that Annual Review of Pulheems is to be discontinued. Instead, Pulheems profile of most personnel is to be reviewed every four years as routine but that "examinations for Special

Service as laid down in Chapter III of BR1750A(50) are to continue at present".

⁹⁵ War Office film.

⁹⁶ Vapour Detector Kit.

- AFO 332/1956: Medical: Documentation: Disposal, and Periodical Muster of Medical Envelopes (F.Med.4)
- AFO 468/1956: Medical: Documentation: Instructions
- AFO 803/1956: Passive Defence: Scales of Rescue Equipment for Shore Establishments
- AFO 1205/1956: Radiation Hazards: Precautions for Protection of Personnel concerned with use of X-Ray Apparatus or Radioactive Materials
- AFO 1290/1956: Medical: Labels for Industrial Gassing Casualties Sent to Hospital
- AFO 1682/1956: Uniform: Badges for ABCD Parties
- AFO 1836/1956: Books: Introduction into Service of the Ship ABCD Manual, BR2170, and the ABC Handbook, BR2171: Reports
- AFO 2095/1956: ABCD: Respirators, Anti-Gas, Light Type: Exchange of Respirators and Containers of Certain Patterns
- AFO 2108/1956: Introduction into Service of the Ship ABCD Manual, BT2170, and the ABC Handbook, BR2171
- AFO 2250/1956: Films and Filmstrips: Instructional: Titles: Nevada Tests: Distribution⁹⁷
- AFO 2268/1956: ABCD: Respirators, Anti-Gas, Light Type: Exchange of Respirators and Containers of Certain Patterns
- AFO 2383/1956: Films and Filmstrips: Instructional: Titles: The H Bomb: Distribution
- AFO 2497/1956: Books: Medical: Hazards to Man of Nuclear and Allied Radiations: Distribution⁹⁸
- AFO 2978/1956: Courses: ABCD Schools: 1957 Programme
- LCAFO 102/1957: Naval Stores: Class F, Group 3A: ABCD: Radiac Instruments: Dose Rate Meters, Trainer, etc: Supply
- LCAFO 120/1957: Naval Stores: Class F, Group 3A: ABCD: Radiac Instruments: Meters, Survey, Radiac, No 2: Issue
- CAFO 121/1957: Nuclear weapons trials parties: Blood examinations
- AFO 243a/1957: Establishments: Paying off HMS Phoenix and Formation of Atomic Defence and Damage Control School
- AFO 329/1957: Courses: ABCD School: 1957 Programme
- AFO 420/1957: ABCD: Respirators, Anti-Gas: Policy as to type and scale of supply
- AFO 512/1957: Admiralty: Deputy Engineer-in-Chief (Nuclear) and Rear Admiral, Nuclear Propulsion: Appointment⁹⁹
- AFO 588/1957: ABCD: Responsibilities Under the New Officer Structure
- AFO 665/1957: Films and Filmstrips: Instructional: Titles: Radiological Defence: Survey and Monitoring: Distribution¹⁰⁰
- AFO 740/1957: Films and Filmstrips: Instructional: Titles: Medical Effects of the Atomic Bomb, Part 3 and Medical Effects of Nerve Gas: Obsolete
- AFO 1275/1957: Medical Research: Coordination: Reports
- AFO 2081/1957: Films and Filmstrips: Instructional: Titles: Protection in Atomic Warfare: Part 3: Monitoring and Decontamination: Distribution¹⁰¹

⁹⁷ Pathe News footage.

⁹⁸ Book prepared by the Medical Research Council and published by HM Stationery Office to be made available to Naval Medical Officers.

⁹⁹ This is connected with nuclear propulsion, but the post is also meant to keep in touch and follow up on developments in the atomic field.

¹⁰⁰ War Office Instructional Film.

¹⁰¹ Admiralty produced film.

- AFO 2106/1957: Naval Stores
General: Stores for ABC Purposes:
Usage and Allowances
- AFO 2299/1957: Medical:
Documentation: Instructions
- AFO 2781/1957: ABCD: Nuclear
Explosions: Shelter from Radiation
Effects
- AFO 2782/1957: ABCD: Nuclear
Explosions: Radiation Problems in
Machinery Spaces
- AFO 2876/1957: Courses: ABCD
Schools: 1958 Programme
- AFO 3049/1957: ABCD: Megaton
Explosions at Sea: Effects and
Defence
- AFO 3058/1957: Clothing: Payment for
Clothing Rendered Unusable on
Christmas Island
- AFO 3081/1957: Training: ABCD:
Training Aids for Use in Fleet Shore
Establishments
- LCAFO 34/1958: Naval Stores, Class
F, Group 3: ABCD: Radiac
Instruments: Vibrator Units and Jogs
Calibrations for Survey Meters: Issue
- CAFO 81/1958: Nuclear Weapons
Trials Parties: Blood Examinations
- CAFO 99/1958: Nuclear Weapons
Trials Parties: Blood Examinations
- AFO 9/1958: Clothing: Payment for
Clothing Rendered Unusable on
Christmas Island
- AFO 132/1958: Establishments:
Commissioning of Naval
Establishment on Christmas Island
- AFO 424/1958: ABCD Headquarters,
Secondary ABCD Headquarters and
Section Bases: Equipment, Layout,
Internal Communications, Etc., As and
As
- AFO 793/1958: ABCD Monitoring
Officers: Future Organisation¹⁰²
- AFO 831/1958: ABCD: Improvised
Prewetting Arrangements
- AFO 960/1958: ABCD:
Communications: Replacement of
Handset by Headset in HQ1 and HQ2
- AFO 1023/1958: Advancement: ABCD
Qualifications for Advancement
- AFO 1135/1958: Radiation Hazards:
Precautions for Protection of
Personnel Concerned with the Use of
X-Ray Apparatus or Radioactive
Materials
- AFO 1154/1958: Films and Filmstrips:
Instructional: Titles: Civil Defence
Makes Sense: Distribution¹⁰³
- AFO 1230/1958: Medical: Labels for
Industrial Gassing Casualties Sent to
Hospital
- AFO 1278/1958: ABCD: Officers:
Responsibilities and Training¹⁰⁴
- AFO 1682/1958: Films and Filmstrips:
Instructional: Titles: Radioactive
Fallout: Distribution¹⁰⁵
- AFO 2022/1958: Courses: Officers:
Introductory Nuclear Course
- AFO 2369/1958: ABCD Headquarters.
Secondary ABCD Headquarters and
Section Bases: Equipment, Layout,
Internal Communications, Etc., As and
As
- AFO 2394/1958: Courses: ABCD
Schools: 1959
- AFO 2484/1958: Medical: X-Ray of
Close Contacts of Cases of Pulmonary
Tuberculosis
- AFO 2677/1958: Closing down trial
report: Form S230: Introduction
- AFO 2947/1958: Claims Against the
Ministry of Supply in Respect of
Atomic Weapons Trials
- AFO 2972/1958: Courses: ABCD
Courses: Reservation of Standard
Courses for NATO Navies in 1959

¹⁰² It has been decided that, because of their special training and maintenance responsibilities for radiac instruments, officers of the Electrical Specialisation are most suitable to undertake the duties of Monitoring Officer both afloat and ashore.

¹⁰³ Home Office Training Film.

¹⁰⁴ It has been decided that, in future, the Squadron Engineer Officer in each Destroyer and Frigate Squadron will also be appointed "...and as Squadron ABCD Officer".

¹⁰⁵ Home Office Civil Defence training film.

- AFO 3006/1958: Radioactive luminous articles sent by Post
- AFO 3100/1958: Medical: Disclosure of Service Medical Records to Persons outside the Service
- CAFO 1/1959: Passive Defence: Policy for Naval Shore Establishments: General
- CAFO 11/1959: ABCD: HM Ships: Revised Collective Protection and Closing Down Arrangements for Atomic Defence
- CAFO 21/1959: ABCD: HM Ships: Revised Collective Protection and Closing Down Arrangements for Atomic Defence
- CAFO 40/1959: Ratings: Passive Defence Duties: Records on Service Documents
- CAFO 92/1959: ABCD: Collective Protection: Air Filtration Units: Porton, Type I, Service Life and Renewal of Type "G" Containers
- CAFO 99/1959: ABCD: HM Ships: Speech transmitting partition in voicepipes¹⁰⁶
- CAFO 104/1959: Nuclear Weapons Trials Parties: Blood Examinations¹⁰⁷
- AFO 337/1959: Administrative Arrangements for the Introduction of Above-Water Nuclear Weapons into the Royal Navy
- AFO 497/1959: Forms S425(11), S428(3), S428(4): Inspection Report Forms: ABCD: Introduction of Revised Forms
- AFO 564/1959: Advancement: ABCD Qualifications for Advancement
- AFO 827/1959: Courses: ABCD Schools: 1959 Programme
- AFO 924/1959: ABCD Monitoring Officers: Future Organisation
- AFO 1007/1959: Courses: ABCD Schools: 1959 Programme
- AFO 1021/1959: Training: General: Instruction in ABCD
- AFO 1206/1959: Medical Research: Coordination: Reports
- AFO 1360/1959: Medical: Disclosure of Service Medical Records to Persons Outside the Service
- AFO 1407/1959: Claims Against Ministry of Supply in Respect of Atomic Weapons Trials
- AFO 1424/1959: Ratings: Provision of Assistant to the ABCD Officer in HM Aircraft Carriers, Cruisers, Destroyers and Frigates
- AFO 1467/1959: Films and Filmstrips: Instructional: Titles: Operation Grapple: Distribution¹⁰⁸
- AFO 1792/1959: Courses in Nuclear Science and Technology at RN College Greenwich
- AFO 1834/1959: Naval Stores Technical: Radiac Instruments: Class F. Group 3: Dosimeter QF No 3, 0-50R, Pattern 911-0003: Defect
- AFO 1835/1959: Naval Stores Technical: Radiac Instruments: Dosimeter QF No 3, 0-50R, Pattern F3/911-0003: Procedure for the Use of Sub-Standard Instruments
- AFO 2049/1959: Courses: Officers: Introductory Nuclear Course
- AFO 2157/1959: Naval Stores General: Radiac Instruments: Allowances of Spares
- AFO 2203/1959: Medical: Documentation: Instructions
- AFO 2219/1959: Films and Filmstrips: Instructional: Titles: Nuclear Explosions (Air Burst): Distribution¹⁰⁹
- AFO 2220/1959: Films and Filmstrips: Instructional: Titles: Nuclear Fission: Distribution¹¹⁰
- AFO 2638/1959: Courses: ABCD Schools: 1960 Programme

¹⁰⁶ This is a specific amendment to CAFO 21/1959.

¹⁰⁷ Cancels CAFO 99/1958.

¹⁰⁸ Air Ministry film.

¹⁰⁹ Admiralty produced film using material supplied by AWRE Aldermaston.

¹¹⁰ War Office film.

- AFO 2693/1959: ABCD Efficiency: Inspection Reports: Small Ships
- AFO 2920/1959: Naval Stores: Class F, Group 3: Radiac Instruments: Calibration Test Set No. 2: Availability
- AFO 2921/1959: Naval Stores: Class F, Group 3: Radiac Instruments: Dosimeters etc.: Availability
- AFO 3063/1959: ABCD Exercises: Reports
- LCAFO 31/1960: Disbandment of Grapple Squadron and Reduction of HMS Resolution
- CAFO 21/1960: Passive Defence: Preservation of Passive Defence Buildings etc
- CAFO 102/1960: ABCD: HM Ships: Communication across the Citadel Boundary
- AFO 25/1960: Medical: Disclosure of Service Medical Records to Persons Outside the Service
- AFO 227/1960: ABCD: Nuclear Explosions: Shelter from Radiation Effects¹¹¹
- AFO 228/1960: ABCD: Radiological Monitoring Organisation and Techniques
- AFO 229/1960: ABCD: Radiation Hazards: Protection Afforded in Ships from Residual Radiation
- AFO 230/1960: ABCD: Radiation Hazards: Guidance on the Institution of Radiological Countermeasures
- AFO 231/1960: ABCD: Nuclear Explosions: Radiation Problems in Machinery Spaces
- AFO 232/1960: Admiralty: The Post of Rear Admiral, Nuclear Propulsion
- AFO 401/1960: Forms: ABCD: Radiac Graph: Abolition of Form S1650
- AFO 509/1960: ABCD: Risk and Control Markings and States of Readiness
- AFO 691/1960: ABCD: Risk and Control Markings and States of Readiness
- AFO 1061/1960: Medical: Regulations for Personnel who Volunteer for Service in Nuclear-powered Submarines¹¹²
- AFO 1106/1960: Exercises: Closing Down Machinery Spaces
- AFO 1338/1960: Courses: Officers: Introductory Nuclear Course
- AFO 1567/1960: Radiation Hazards: Precautions for Protection of Personnel Concerned with the Use of X-Ray Apparatus of Radioactive Materials¹¹³
- AFO 1637/1960: Nomenclature of Nuclear Weapons
- AFO 1826/1960: Courses: ABCD Schools: 1960 Programme
- AFO 1829/1960: Courses: Medical Aspects of Atomic Warfare: August to December 1960
- AFO 1868/1960: Victualling Stores: Accounts: ABCD Badges
- AFO 2595/1960: Films and Filmstrips: Instructional: Titles: A Matter of Contamination Sense: Distribution¹¹⁴

¹¹¹ The opening statement of this AFO is *Experience gained during tests of nuclear weapons and trials simulating radiation effects from nuclear weapons have shown that men can obtain considerable protection by taking shelter within the ship...*

¹¹² *"each individual must have one full blood examination – erythrocyte count, packed cell volume, leucocyte count and differential leucocyte count – carried out and recorded to be within the limits of normal at a naval pathological laboratory. It must also be ascertained that he has not previously been*

exposed to any occupational radiation hazard which would disqualify him from service in a radiation-controlled environment".

¹¹³ *...All workers continuously engaged in any of the occupations listed in paragraph 4 should also receive a total and differential blood count before commencement of the work and thereafter at six monthly intervals and at such additional times as the Medical Officer, Admiralty Surgeon or Agent, or the MDG may decide.*

¹¹⁴ United Kingdom Atomic Energy Authority film.

- AFO 2811/1960: Films and Filmstrips: Instructional: Titles: Decontamination: Distribution¹¹⁵
- AFO 2942/1960: Courses: ABCD Schools: 1961 Programme
- AFO 3003/1960: Naval Stores, Class F, Group 3: ABCD: Radiac Instruments: Types and Allowances
- AFO 3015/1960: Films and Filmstrips: Instructional: Titles: Civil Defence Operational Control: Distribution¹¹⁶
- AFO 3307/1960: Radiation Hazards: Guidance on the Institution of Radiological Countermeasures
- AFO 3342/1960: Courses: Medical Aspects of Atomic Warfare: January to July 1961
- LCAFO 52/1961: Nuclear Weapons in the Royal Navy: Publicity
- CAFO 48/1961: Ratings: Passive Defence Duties: Records on Service Documents
- CAFO 69/1961: Return of Information of All Sources of Ionising Radiation
- CAFO 78/1961: ABCD: Shortcomings in Ships' Organisations and Material: Officers' Responsibilities
- CAFO 86/1961: Gunnery Organisation: Readiness to Meet Nuclear Threats
- AFO 349/1961: ABCD: Future of RN Atomic Defence School, Portsmouth¹¹⁷
- AFO 457/1961: Classified Messages for Christmas Island
- AFO 1186/1961: Courses: Medical Aspects of Atomic Warfare: September to December 1961
- AFO 1202/1961: Ratings: ABCD Qualifications and Scale "A" Pay
- AFO 1237/1961: ABCD: Ventilation Systems: 1950 System of Identification
- AFO 1240/1961: Passive Defence: General Policy for Naval Shore Establishments
- AFO 1252/1961: Ratings: Provision of Assistant to the ABCD Officer in HM Aircraft Carriers, Cruisers, Destroyers and Frigates
- AFO 1302/1961: Films and Filmstrips: Instructional: Titles: Radioactive Fallout Parts I and II (Admiralty Serial No E1445): Distribution¹¹⁸. Radioactive Fallout Parts I and II (Admiralty Serial No E1010): Obsolete
- AFO 1396/1961: Films and Filmstrips: Instructional: Titles: Decontamination: Radiological Defence: Protection: Residual Effects: Distribution¹¹⁹
- AFO 1873/1961: ABCD: HM Ships and RFAs: Collective Protection and Closing Down Arrangements¹²⁰
- AFO 2305/1961: Courses: ABCD Training Programme, 1962
- AFO 2494/1961: ABCD: Radiation Hazards: Use of Radiac Survey Meter No. 2 for Personnel Monitoring
- AFO 2517/1961: Clothing: ABCD Clothing: Introduction of Revised Scales and New Items
- CAFO 20/1962: Passive Defence: Structure: Preservation of Passive Defence Buildings etc
- AFO 7/1962: Courses: Officers: Radiological Defence, Underwater Medicine and Survival, and Tropical Medicine 1962
- AFO 58/1962: Courses: ABCD Training Programme, 1962
- AFO 101/1962: Regulations for Protection of Personnel Exposed to Ionising Radiation from Radioactive Materials, X-ray Apparatus and other Electronic Devices

¹¹⁵ United Kingdom Atomic Energy Authority film.

¹¹⁶ Home Office film.

¹¹⁷ Describes move of HMS Phoenix from Stamshaw to Whale Island.

¹¹⁸ Home Office Civil Defence Training Film.

¹¹⁹ War Office Film.

¹²⁰ This order commences, *Pressurised Citadels: Experience gained by ships which have steamed through radioactive fall-out shows that a higher degree of protection will be afforded to men and equipment by maintaining a positive pressure within the citadel boundaries than by existing closing down arrangements alone.*

- AFO 102/1962: Radiation Hazards: Maximum Permissible Levels of Exposure to Ionising Radiation
- AFO 103/1962: Radiation Hazards: Symbol Indicating the Presence of Ionising Radiation or Radioactive Material
- AFO 257/1962: The Ionising Radiations (Sealed Sources) Regulations, 1961¹²¹
- AFO 308/1962: Medical: The Ionising Radiations (Sealed Sources) Regulations, 1961: Application to RN and RM Personnel, WRNS, QARNNS and RN Nursing Auxiliaries¹²²
- AFO 387/1962: ABCD: Breathing Apparatus Patt. 5665: Air Supply Points in Machinery Spaces
- AFO 472/1962: Courses: Nuclear Science and Technology at RN College, Greenwich: Medical Requirements¹²³
- AFO 516/1962: Damage Control: Small Ship ABCD Drawings: Command Incident Board
- AFO 743/1962: ABCD: Exercises: Closing Down Machinery Spaces
- AFO 773/1962: Films and Filmstrips: Instructional: Titles: "Radioactive Fallout" (Admiralty Serial No. E. 1445): Part III: Distribution: "Radioactive Fallout": (Admiralty Serial No. E. 1010): Part III: Obsolete
- AFO 790/1962: ABCD: Identification Markings
- AFO 923/1962: Films and Filmstrips: Instructional: Titles: "Ship Safety – Control of Openings" (Serial No. SA.1178): Part III: Distribution: "Ship Safety (Part 3) - Control of Openings": (Serial No. SA. 148): Obsolete.
- AFO 1023/1962: Establishments: Admiralty Reactor Test Establishment, Dounreay: Arrangements for Visits
- AFO 1423/1962: Courses-Officers- Nuclear Science and Technology at Royal Naval College, Greenwich.
- AFO 1509/1962: Films and Filmstrips- instructional-titles "Nuclear Defence- Radiological Countermeasures" (Serial No. A.1396)-Distribution "Protection in Atomic Warfare" Part 3-Obsolete.
- AFO 1529/1962: A.B.C.D.-Radiation Hazards-Protection Afforded Against Residual Radiation in Armament Positions
- AFO 1982/1962 : Radiation Hazards – Regulations for Protection of Personnel Exposed to Ionising Radiation from Radioactive Materials, X-ray Apparatus, etc.
- AFO 2364/1962: Courses-Officers- Radiological Defence, Underwater Medicine and Survival, and Tropical Medicine, 1963.
- AFO 54/1963: A.B.C.D.-Training Programme, 1963.
- AFO 143/1963: Medical-Mass X-Ray Arrangements in the United Kingdom- Inter-service Scheme.
- AFO 576/1963: A.B.C.D. - Terms of Reference of the Captain.

¹²¹ Regulations issued by the Minister of Labour under the powers granted by the Factories Act, 1937.

¹²² When personnel are issued with film badges or other personal dosimeters, the readings and sufficient detailed information to enable Form 2066 to be completed at a later date are to be recorded on Form F.Med 7. The flimsy is to be inserted in medical envelope F.Med 4 and the card record forwarded to Medical Director General (Medical Records Branch). Consideration is to be given to the introduction of more suitable forms for this purpose.

¹²³ Attention is drawn to AFO 101/62 which required all workers continuously engaged in radiation work to receive a total and differential blood count before commencement of the work. Students joining RN College, Greenwich, for nuclear courses of more than one month's duration should arrange through their own Medical Officer for a blood count to be taken before joining the College. A copy of the report on this blood count should be sent to the Senior Medical Officer, RN College, Greenwich.

- AFO 576: Courses-Officers-Nuclear science and Technology at Royal Naval College, Greenwich .
- AFO 606: A.B.C.D.-Closing Down Trial Report-Form S.230-Revision.
- AFO: 696/1963: ABCD: Training Programme 1963
- AFO: 747/1963: ABCD: Risk Markings
- AFO: 790/1963: ABCD: Risk and Control Markings and States of Readiness: Amendment of BRs
- AFO: 826/1963: Ratings and RM Other Ranks: Volunteers for Tests at Porton
- AFO 1271/1963: ABDC: Future Training Policy
- AFO 1276/1963: Complements: Provision of Assistant to the ABCD Officer in HM Cruisers, Destroyers and Frigates
- AFO 1542/1963: Books: Miscellaneous Publications: ATP25 (NAVY) Nuclear Fall-out Forecasting and Warning Organisation: Downgrading
- LCAFO 53/1963: Weapons: Nuclear Weapons in the Royal Navy: Publicity
- AFO 1833/1963: A.B.C.D.-Training Programme 1964.
- AFO 2174/1963: Medical- Establishment of Admiralty Radiation Records Centre.
- AFO 2335/1963: Medical Officers- Pulheems Examinations and Chest X-Ray-Need for Early Reporting.
- AFO 2366/1963: A.B.C.D.-Future of R.N. Atomic Defence School, Portsmouth.
- AFO 22/1964: Medical: Officers: Pulheems Examinations and Chest X-Rays: Need for Early Reporting
- AFO 493/1964: Tests: Periodical Air Testing of Compartments in HM Ships: Equipment for Air Pressure and Vacuum Methods
- AFO 521/1964: Hurt Certificates: Officers
- AFO 531/1964: Incident Board: ABCD Organisation: Small Ships (Frigates and Destroyers): Command Incident Board
- CAFO 94/1964: Naval Stores: General: Class Group 0474: Patt. 6196 Ointment, Anti-Gas No 6: Deletion from Rate Book and Disposal of Stocks
- DCI RN 144/1967: Radiological Protection: Naval Mobile Monitoring Team: Transfer to Naval Radiological Protection Service at Royal Naval Medical School, Alverstoke
- DCI RN J 100/1982: Establishment of a Defence Radiological Protection Service

ADMs & DEFES

- ADM 1/26714 - Operation MOSAIC: stationing of HMS Diana for observation of fall out
- ADM 296/3 - HMS Diana's report on MOSAIC
- ADM 296/26 - Radiation hazard in HMS Diana
- ADM 296/35 - Navy, Army and Air Force Institute (NAAFI) arrangements for HMS Narvik
- ADM 296/1 - Operation MOSAIC: health physics; Atomic Weapons Research Establishment (AWRE), Aldermaston, reports
- ADM 296/54 - Christmas Island: planning and progress report
- ADM 296/42 - Ships' reports of proceedings: G1
- ADM 296/44 - Report of proceedings: G2
- ADM 296/25 - Observations and trials by HMS Diana
- ADM 204/2168 - Mosaic: preliminary Naval fall-out report
- ADM 296/38 - Radiological hazards: food
- ADM 204/2080 - Operation Hurricane decontamination of personnel and equipment
- ADM 116/6084 - Operation HURRICANE: radioactive contamination of Special Squadron ships
- ADM 296/50 - Decontamination of aircraft
- ADM 1/29346 - Report of Naval participation in Operation GRAPPLE
- ADM 204/2157 - Monte Bello 1952: evaluation of a ship pre-wetting system
- ADM 204/2158 - Monte Bello 1952: evaluation of a pre-wetting system
- ADM 265/82 - Effect of nuclear fall-out on engineering departments of HM Ships
- ADM 1/25258 - Atomic warfare: hazard to exposed personnel in ships and safe levels of gamma ray contamination
- ADM 204/2065 - Improved film badge for radiation quality measurements
- ADM 204/1175 - Photographic badges to estimate gamma and x-radiation quality
- ADM 204/2169 - Mosaic: fall-out on HMS Diana
- ADM 265/90 - Effect of fall-out on machinery spaces: trials in HMS Diana
- ADM 204/2076 - Naval scientific measurements on Operation Hurricane
- ADM 204/2081 - Operation Hurricane decontamination of personnel and equipment
- ADM 280/965 - Operation HURRICANE: pre-test plans for naval experiments
- ADM 204/2082 - Naval radiological measurements on Operation Totem
- ADM 290 - Scientific planning
- ADM 296/47 - On arrival arrangements at Onslow
- ADM 296/8 - Scientific planning
- ADM 204/2089 - Naval radiological measurements on Operation Buffalo
- ADM 1/26990 - Operation GRAPPLE (Atomic Weapons test at Christmas Island): review of officer requirements
- ADM 1/30970 - Personnel employed on nuclear weapons
- ADM 1/28219 - Ionising radiation: dosimetry records for Naval and civilian personnel
- ADM 1/29051 - Radiation: provision of whole body monitoring facility at RN Medical School, Alverstoke
- ADM 204/1217 - Decontamination of human and animal skin
- ADM 1/28604 - Health Physics in the Royal Navy 62-63
- ADM 105/118 - Medical Research in the Royal Navy: report for 1959 and 1960
- ADM 1/27502 - Medical research in RN 1958: report
- ADM 298/289 - Annual report of medical research in RN for 1958

- ADM 1/28064 - Medical research in the Royal Navy 1958-1960
- ADM 234/752 - Instructions for RN hospitals and medical establishments
- ADM 280/968 - List of AWRE reports on Operations HURRICANE and TOTEM
- ADM 204/2087 - Naval radiological measurements on Operation Totem: Part V; protection afforded by a steel box
- ADM 204/2084 - Naval radiological measurements on Operation Totem: Part II; energy of flash gamma radiation
- ADM 296/9 - MOSAIC timetable
- ADM 296/5 - MOSAIC executive meetings
- ADM 296/22 - Arrangements for VIPs and press at test G1 (Operation HOTSHOT)
- ADM 296/2 - Progress reports of Monte Bello Working Party on Operation MOSAIC: meetings 2-6 and 8
- ADM 296/43 - Orders for rehearsal for firing of weapons G2 (Operation GLIMMER) and its actual firing (Operation FLASHLIGHT)
- ADM 296/4 - Final report by the Operational Commander
- 296/20 - Ground radiological survey
- ADM 296/16 - HMS Narvik: LCMs (Landing Crafts Mechanized)
- ADM 296/40 - Quarantine arrangements in Onslow, Western Australia
- ADM 296/14 - Scheme of special complement
- ADM 296/37 - AWRE stores
- ADM 296/45 - Squadron reports of proceedings
- ADM 204/2160 - Monte Bello 1952: methods for decontaminating dry surfaces
- ADM 204/2159 - Monte Bello 1952: photochemical measurement of thermal radiation
- ADM 204/2931 - Notes in Monte Bello trials: fluid fall-out hazard
- ADM 204/2161 - Monte Bello 1952: some alpha and beta emissions from contaminated paintwork
- ADM 280/963 - Report on Tripartite Conference on effects of nuclear weapons on human beings and their environment, Washington, 15-19 February 1954
- ADM 1/23042 - INVENTIONS AND VISIONARY SUGGESTIONS (59): Effect of atomic warfare on service respirator: report of trials and medical opinion
- ADM 1/26689 - Naval Staff targets for atomic weapons
- ADM 234/574 - ABC handbook: part 1; atomic warfare
- ADM 1/26416 - Atomic attacks on ships: effects, implications and defence
- ADM 265/88 - Atomic Biological and Chemical (ABC) defence measures in ships
- ADM 282/25 - The problem of re-entry into a port after atomic attack
- ADM 280/1002 - Atomic bomb: official correspondence and liaison work, includes progress reports
- ADM 204/2140 - Shielding afforded by ships against gamma radiation from fallout
- ADM 254/96 - Use of radioactive isotopes for gamma radiography. Includes 23 photographs depicting: Use of radioactive isotopes for gamma radiography: containers for sources; equipment for protection of personnel; wireless valves; steel penetrometer block; non ferrous cast chain link; steel manoeuvring valves - cracks and defects; carbon arc welded HT. Dated 1952.
- ADM 204/3068 - Decontamination experiments on human and animal skin
- ADM 204/1211 - Decontamination tests on naval aircraft panels
- ADM 204/1213 - Techniques for ship decontamination and personnel cleansing

- ADM 204/2164 - Decontamination of personnel with hand held spray
- ADM 204/2735 - Protective finishes for radiological instruments: 1 - decontamination tests on instruments
- ADM 325/1 - Radiological decontamination of aircraft
- ADM 204/2156 - Hurricane: suggested decontamination methods
- ADM 264/64 - Radiological decontamination of aircraft: draft handbook
- ADM 1/23714 - Fourth Landing Ship Squadron: report of proceedings of HMS Zeebrugge and HMS Narvik Feb. - June
- ADM 204/1974 - Intensity of gamma-rays after scattering by thick plates
- ADM 204/1176 - Penetration of gamma rays into compartments on HMS Arethusa: preliminary report
- ADM 204/1177 - Penetration of gamma rays into compartments on HMS Arethusa: final report part 1
- ADM 204/1178 - Penetration of gamma rays into compartments on HMS Arethusa: final report part 2
- ADM 1/25258 - Atomic warfare: hazard to exposed personnel in ships and safe levels of gamma ray contamination
- ADM 1/21485 - This file was originally catalogued under more than one subject code. These subject codes and details of this file are as follows: ATOMIC WARFARE (8): Training and organisation of defence against atomic, biological and chemical warfare. CHEMICAL WARFARE (45): Training and organisation of defence against atomic, biological and chemical warfare. DISEASES - EPIDEMICS - ANTI-BIOLOGICAL WARFARE MEASURES (37): Training and organisation of defence against atomic, biological and chemical warfare
- ADM 53/144705 - Narvik April 1956
- ADM 53/144706 - Narvik May 1956
- ADM 53/144707 - Narvik June 1956
- ADM 53/144708 - Narvik July 1956
- ADM 53/147307 - Narvik April 1957
- ADM 53/147308 - Narvik May 1957
- ADM 53/147309 - Narvik June 1957
- ADM 53/147310 - Narvik July 1957
- ADM 296/6 - General planning
- ADM 280/964 - Report on Operation TOTEM (With photographs and drawing)
- ADM 116/6091 - Operation HURRICANE: photographs and maps. Includes 112 photographs depicting: Operation Hurricane: environmental aspects of Hermite, Alpha, NW, Trimouille, Delta, Epsilon, Flag and Spar Islands, off NW Coast of Australia. Dated 1949-1954.
- ADM 234/993 - Report on the health of the Navy in the years 1953-1956
- ADM 204/2167 - Mosaic: fall out predictions
- ADM 296/7 - Planning: Royal Engineers
- ADM 116/6088 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Volume 2
- ADM 116/6089 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Volume 3
- ADM 116/6087 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Volume 1
- ADM 296/12 - Mission to Australia, July
- ADM 296/13 - Task Force organisation
- ADM 296/10 - Command set-up and responsibilities
- ADM 296/19 - Damage areas: placarding and fencing
- ADM 296/34 - Victualling
- ADM 296/48 - Air Plan
- ADM 296/49 - RAF: Task Group detachment orders
- ADM 204/2088 - Operation Buffalo ARL plane
- ADM 1/26663 - Operation GRAPPLE: victualling arrangements

- ADM 204/2092 - Naval radiological on Operation Grapple energy of flash gamma radiation
- ADM 204/2954 - Monte Bello test 1952: radiochemical decontamination; Pt 2-experiments on contaminated dry samples
- ADM 1/28189 - Nuclear safety arrangements at Plymouth
- ADM 1/29124 - Committees and Panels on Atomic Biological and Chemical Defence (ABCD): review and reorganisation of Committees and change to Nuclear, Biological and Chemical Defence (NBCD) nomenclature
- ADM 204/1180 - The multi-directional gamma radiation collimator: designs for atomic weapon tests
- ADM 1/23047 - This file was originally catalogued under more than one subject code. These subject codes and details of this file are as follows: ATOMIC WARFARE (8): Tactical implications of atomic attack: report based on results of Bikini trials. INVENTIONS AND VISIONARY SUGGESTIONS (59): Tactical implications of atomic attack: report based on results of Bikini trial
- ADM 1/23044 - ATOMIC WARFARE (8): Atomic weapons: report on the estimated area of radio-active fallout
- ADM 1/26922 - Naval aspects of atomic warfare
- ADM 252/302 - Eye protection from flash of atomic weapons
- ADM 204/2266 - Fall out pattern from large yield atomic weapon
- ADM 1/25793 - Defence of merchant navy against atomic, bacteriological and chemical hazards
- ADM 1/28768 - Re-location of the Royal Naval NBCD School (atomic defence school)
- ADM 1/23209 - Protection for flight deck personnel against atomic bacteriological and chemical damage
- ADM 1/21763 - This file was originally catalogued under more than one subject code. These subject codes and details of this file are as follows: ADMIRALTY (5): Atomic bacteriological and chemical warfare. ATOMIC WARFARE (8): Atomic bacteriological and chemical warfare. DAMAGE AND LOSS SUSTAINED AT SEA (31): Atomic bacteriological and chemical warfare
- ADM 1/22676 - This file was originally catalogued under more than one subject code. These subject codes and details of this file are as follows: ADMIRALTY (5): Probable effects of atomic attack on a naval dockyard: report by Civil Defence Joint Planning Staff Working Party. ATOMIC WARFARE (8): Probable effects of atomic attack on a naval dockyard: report of Civil Defence Joint Planning Staff Working Party. DOCKYARD AND NAVAL ESTABLISHMENTS (41): Probable effects of atomic attack on a naval dockyard: report of Civil Defence Joint Planning Staff Working Party
- ADM 1/22905 - This file was originally catalogued under more than one subject code. These subject codes and details of this file are as follows: ATOMIC WARFARE (8): Defence of merchant ships in port against atomic, bacteriological and chemical attack: report of investigation held on board SS MANAAR, 10-12 Mar. CHEMICAL WARFARE (45): Defence of merchant ships in port against atomic, bacteriological and chemical attack: report of investigation held on board SS MANAAR 10-12 Mar. DAMAGE AND LOSS SUSTAINED AT SEA (31): Defence of merchant ships in port against atomic, bacteriological and chemical attack: report of investigation held on board SS MANAAR, 10-12 Mar.
- ADM 204/2064 - Accuracy of integrating ion chambers for measuring gamma radiation

- ADM 204/704 - Effect of continued exposure to radiation from decaying fission products (1950)
- ADM 1/21466 - This file was originally catalogued under more than one subject code. These subject codes and details of this file are as follows:ADMIRALTY (5): Atomic Energy Production Establishment Windscale: programme of necessary measures for laying pipelines out to sea and provision of vessels and moorings.ATOMIC WARFARE, POLICY RESEARCH ETC (8): Atomic Energy Production Establishment Windscale: programme of necessary measures for laying pipelines out to sea and provision of vessels and moorings. BUILDINGS AND LAND (OTHER THAN ADMIRALTY OFFICES AND DOCKYARDS) 14a: Atomic Energy Production Establishment Windscale: programme of necessary measures for laying pipelines out to sea and provision of vessels and moorings
- ADM 281/328 - Gamma radiation: safe dosage in relation to naval operations
- ADM 116/6093 - Operation HURRICANE: testing of first British atomic weapon. Volume 2
- ADM 116/6092 - Operation HURRICANE: testing of first British atomic weapon. Volume 1
- ADM 204/2077 - Trails of glass, crystal and self-developing photographic dosimeters on Operation Hurricane
- ADM 116/6090 - Operation HURRICANE: records of Deputy Chief of the Naval Staff. Volume 4
- ADM 280/968 - List of AWRE reports on Operations HURRICANE and TOTEM
- ADM 239/434 - Operation HURRICANE (nuclear weapon test at Monte Bello, 1952): report by naval commander
- ADM 280/966 - Operation HURRICANE: report on testing of atomic weapons in vicinity of Monte Bello Islands, Australia
- ADM 204/2085 - Naval radiological measurements on Operation Totem: Part III; response of fluorescent glass flash gamma dosimeters
- ADM 204/3229 - Naval radiological measurements on Operation TOTEM: Final Report pt 1; polar distribution of the flash gamma radiation
- ADM 204/2083 - Naval radiological measurements on Operation Totem: Part 1; polar distribution of flash gamma radiation
- ADM 204/2086 - Naval radiological measurements on Operation Totem: Part IV; response of high range quartz fibre dosimeters
- ADM 296/22 - Arrangements for VIPs and press at test G1 (Operation HOTSHOT)
- ADM 296/39 - Finance
- ADM 296/51 - Cloud sampling
- ADM 296/15 - HMS Narvik: refit and conversion
- ADM 296/41 - Monte Bello Working Party: minutes of meetings
- ADM 296/23 - Security requirements in Australia
- ADM 296/53 - Crater and ground surveys: supply of ice
- ADM 296/36 - HMS Narvik: loading plan at Marchwood, Hants
- ADM 296/30 - Stores: general
- ADM 280/972 - Defence Research Policy (AES) Staff, Target Response Working Party: requirements for 1958 and subsequent atomic weapons tests; effect on planning of deferment of Operation LIGHTHOUSE
- ADM 1/27088 - Nuclear propulsion: naval personnel training
- ADM 1/28501 - HMS/M Dreadnought: requirement for white overalls for industrial employees working on nuclear submarines; protective clothing for radiation monitors and Dockyard workmen
- ADM 280/973 - List of reports and papers held by Department of Physical

- Research (DPR) on the effect of atomic weapons
- ADM 281/82 - Introduction to design of radiation shielding
 - ADM 285/168 - Surface phenomena at Operation Hurricane
 - ADM 285/167 - Fallout distribution at Operation Hurricane
 - ADM 204/2070 - Quartz fibre dosimeters for trials on Operation Hurricane
 - ADM 285/169 - Decay rates of fallout at Operation Hurricane
 - ADM 204/2279 - Operation HURRICANE: growth of fireball and cloud
 - ADM 1/25503 - HMS Vidal: hurricane relief operations in Haiti, October 1954. Includes 14 photographs depicting: Hurricane relief operations carried out by HMS Vidal in Haiti. Dated 1954.
 - ADM 296/60 - Meteorology: supplies and services
 - ADM 296/24 - Press releases and security
 - ADM 296/62 - Meteorology: training of personnel
 - ADM 296/58 - Meteorological plan
 - ADM 296/52 - RAF: facilities at Onslow
 - ADM 296/18 - Damage HMS Cosort
 - ADM 296/28 - Manufacture of "T" section girder
 - ADM 296/27 - Hydrophone trials
 - ADM 296/31 - Cargo
 - ADM 296/21 - Premature press release by HMAS Junee
 - ADM 296/57 - Visit of First Sea Lord Admiral Earl Mountbatten, 15th April
 - ADM 296/56 - Visit of First Sea Lord Admiral Earl Mountbatten, 15th April
 - ADM 296/59 - Weather ships
 - ADM 296/46 - Hydrographical requirements
 - ADM 296/32 - Fuel and water
 - ADM 296/55 - Christmas Island: radio, radar and balloon equipment
 - ADM 296/61 - Meteorology: reconnaissance flights by Canberras
 - ADM 296/17 - Damage to HMS Concord
 - ADM 296/33 - Shark nets
 - ADM 296/11 - Australian assistance
 - ADM 1/22249 - INVENTIONS AND VISIONARY SUGGESTIONS (59): Improvements relating to mosaic target electrodes in TV transmission tubes: EMI Ltd provisional specification and patent application No 18647/51
 - ADM 296/29 - Stores: lost
 - ADM 204/2089 - Naval radiological measurements on Operation Buffalo
 - ADM 204/2091 - Naval radiological measurements on Operation Buffalo: Part II energy of flash gamma radiation
 - ADM 204/2090 - Naval radiological measurements on Operation Buffalo: Part 1; polar distribution of flush gamma radiation
 - ADM 204/1392 - Operation Grapple underwater noise measurements
 - ADM 204/3003 - Operation GRAPPLE: underwater noise measurements
 - ADM 220/2360 - Preliminary report on AVOCADO minewatching radar during Operation GRAPPLE (nuclear bomb tests)
 - ADM 204/3056 - Naval measurements on Operation GRAPPLE Z - bangmeter: measurements of time to thermal minimum
 - ADM 204/3057 - Naval measurements on Operation GRAPPLE Z - bangmeter: measurements of time to thermal minimum
 - ADM 1/30871 - Commendations awarded to officers and men of the Royal Fleet Auxiliary by the Commander, Task Force GRAPPLE (nuclear bomb tests)
 - ADM 204/2063 - Naval measurements on Grapple-Z-bangmeter
 - ADM 280/844 - Team NC 1: report on underwater shock measurements at Christmas Island

- ADM 1/28297 - Nuclear Prototype Test Installation, Dounreay (AB – Photocopies in file)
- ADM 205/178 - Exercises SHOP WINDOW, CRESCENT, JET and STRIKEBACK; training and ceremonial; nuclear propulsion
- ADM 1/28870 - RN College, Greenwich: major works items to provide nuclear propulsion training facilities
- ADM 1/30987 - Storage for nuclear weapons
- ADM 1/26927 - Suez Canal: effect of nuclear attack
- ADM 1/27372 - Staff requirements for first nuclear submarine
- ADM 204/2281 - Bhangmeters to determine energy in nuclear explosions
- ADM 1/27488 - Use of nuclear weapons by UK naval forces
- ADM 204/2280 - Possible nuclear explosion surveillance systems for naval use
- ADM 204/2062 - Nuclear weapon yield measuring device for Naval application
- ADM 204/2139 - A Naval bhangmeter for recording nuclear flash and yield
- ADM 1/26425 - Nuclear weapons attack on convoys: tactical countermeasures against a shallow underwater burst
- ADM 1/27584 - Nuclear weapons: organisation in case of accident
- ADM 284/77 - Possible radiation effects on properties of steel
- ADM 252/489 - Effect of ultraviolet radiation on conducting films of cadmium oxide
- ADM 220/882 - Effect of ship's superstructure on radiation pattern of a cheese type aerial
- ADM 302/324 - The effect of radiated noise on the tactical use of ONGAR
- ADM 307/5 - Meteorological aspects of atomic explosions
- ADM 1/26690 - Naval atomic weapons: number required (AB – Photocopies in file)
- ADM 204/1825 - Acoustic monitoring of distant underwater atomic explosions
- ADM 281/175 - Atomic weapons: notes on their effect on ship design
- ADM 280/119 - Crushing damage caused to ships funnels by atomic bomb blast
- ADM 280/970 - Prediction of surface wave systems generated from atomic explosives
- ADM 280/183 - Small scale experiments on refraction of shock waves from underwater atomic explosions
- ADM 280/168 - Effect of refraction on pressure pulse from underwater atomic explosions
- ADM 1/25386 - Formation of Atomic Energy Authority Constabulary: transfer of staff from Admiralty Constabulary
- ADM 280/242 - Design of circular funnels to withstand effects of atomic bomb blast: part 1. (Part 2 missing at transfer)
- ADM 1/24606 - Weapons Working Party: report on responsibilities in Admiralty and the Fleet for atomic and guided weapons
- ADM 280/1000 - The simulation of water surface effects from underwater atomic explosions by high explosive charges within the range 300-800 lbs
- ADM 280/114 - Investigation on the resistance to atomic bomb blast of proposed funnel design of HMS Victorious
- ADM 280/647 - Measurements of the lethal radius of underwater atomic explosions at shallow depth using 1/35th scale submarine models
- ADM 285/11 - Levels of external Gamma radiation intensity
- ADM 204/1179 - The multi-directional gamma radiation collimator: general theory

- ADM 204/2952 - Washdown effectiveness of ship's pre-wetting installation
- ADM 204/2282 - Nuclear emulsions to measure high energy gamma radiation from nuclear explosions
- ADM 204/2072 - Shielding afforded by HM Ships against gamma radiation from surface contamination
- ADM 204/2136 - Shielding afforded by HM Ships against gamma radiation fallout (same as ADM 204/1222)
- ADM 280/193 - Study of effect of length, orientation and concentration mass on lethal radius of model submarines from scalded shallow underwater atomic explosions
- AB 6/1120 (was ADM) Preparative Group progress reports
- ADM 116/6273 - Naval Command in the Mediterranean
- ADM 204/2267 - Theoretical treatment of effects of 10 megaton weapon on Fleet in Scapa Flow
- ADM 204/2071 - Gamma radiation in boiler coastal positions of HMS Royalist from simulated radioactive simulation
- ADM 1/28957 - Ionising Radiations (Sealed Sources) Regulations 1961 (SI 1470): application to Admiralty Establishments (Blood Mentioned)
- ADM 204/1222 - Shipboard shielding against gamma radiation
- ADM 227/2311 - ARL design Beta/Gamma handprobe
- ADM 227/1685 - Underwater gamma probe assembly: shock test
- ADM 227/1851 - Neutron/gamma portable survey equipment Mk 2 NRM
- ADM 204/2467 - Shielding afforded by HM ships against gamma radiation from surface contamination
- ADM 204/2152 - HMS Cumberland evaluation of pre-wetting system
- ADM 291/117 - Aircraft pre-wetting trials in HMS Ocean
- ADM 281/73 - HMS Ocean: pre-wetting and washdown trials
- ADM 204/2150 - Evaluation of ships' pre-wetting installation
- ADM 281/76 - HMS Cumberland: pre-wetting and washdown trials.
- ADM 281/76 - Includes 4 photographs depicting: HMS Cumberland 1955 pre-wetting and washdown trials: photographs of system in operation. Composite photographs. Dated 1955.
- ADM 204/2149 - Water consumption needed for a pre-wetting system
- ADM 204/1007 - Radiological decontamination: sea water pre-wetting as a means of minimising contamination
- ADM 204/2151 - HMS Ocean radiological trials of pre-wetting system and decontamination of aircraft
- ADM 204/1212 - Relation between water consumption and residual contamination for a ships pre wetting system (SAME AS 2014/2149)
- ADM 1/26464 - Protection of aircraft from effects of pre-wetting and from radio-active fall out: trial reports of new design cover
- ADM 204/763 - Protective finishes for radiological instruments: decontamination tests on some enamels
- ADM 204/2278 - Contamination control during radiological decontamination of an aircraft
- ADM 204/2733 - Simulants of radioactive contamination for training decontamination parties
- ADM 204/1221 - Radioactive decontaminating agent DA3
- ADM 204/1006 - Preparation of fission products, solutions of low uranium and plutonium content for decontamination experiment
- ADM 204/2626 - Foam decontaminant: an alternative to DA 3
- ADM 204/2553 - Foam decontaminant: an alternative to DA 3
- ADM 204/2135 - Decontaminant for radioactive materials - DA3
- ADM 204/2147 - Dual-purpose cleaner and decontaminant for ship use

- ADM 1/22414 - This file was originally catalogued under more than one subject code. These subject codes and details of this file are as follows: DOMINIONS, COLONIES, PROTECTORATES AND MANDATED TERRITORIES (21): HMS MESSINA: report of proceedings on passage to and from Persian Gulf for Abadan operations. FOREIGN COUNTRIES (52): HMS MESSINA: report of proceedings on passage to and from Persian Gulf for Abadan operations. NAVAL STATIONS (50): HMS MESSINA: report of proceedings on passage to and from Persian Gulf for Abadan operations
- ADM 1/21152 - NAVAL STATIONS (50): Cruise of HMS HART to Cocos and Christmas Islands: report of proceedings (1948)
- ADM 1/26860 - Nuclear fuel submarines (1950-53)
- ADM 213/865 - Effect of regional ultra violet radiation on sweating rate (1948)
- ADM 213/864 - Effect of general ultra violet radiation on sweating rate (1948)
- ADM 229/43 - Reduction of effects of solar radiation on an aircraft carrier flight deck by using a reflective coating (1948)
- ADM 204/1648 - Effect of changing humidity on dimensions of aluminium paper laminate (1948)
- ADM 281/329 - Atomic blast effects on funnels, uptakes, etc: minutes of meeting, 8 November 1950
- ADM 281/327 - The atomic aspect of ship defence as affecting Engineer-in-Chief's commitments
- ADM 280/10 - Effects produced by explosion of charges in shallow water with particular reference to atomic bomb
- ADM 280/363 - Atomic blast on funnels, uptakes and boilers
- ADM 280/364 - Atomic blast on funnels, uptakes and boilers: notes
- ADM 116/5779 - Exercise 'Sunrise': report and analysis of tactical problems affecting use of naval and air forces, remarks on fleet disposition under atomic bomb attack and anti-submarine methods. Volume 1
- ADM 205/71 - First Sea Lord's records: notes of C's-in-C meetings concerning European integration and British policy towards Soviet communism. Revised new construction programme for 1950/51, research and development of atomic energy and decision not to close RNAS Bramcote in view of the Harwood Report
- ADM 280/78 - Effects produced by explosion of shallow charges in deep water with particular reference to the atom bomb
- ADM 1/25238 - Standing Committee of Service Ministers: current affairs education and indoctrination in armed forces
- ADM 247/116 - Proposals for flame radiation research
- ADM 220/1384 - Radiation patterns of small electro-magnetic horns
- ADM 204/755 - Atmospheric attenuation of infra-red and visible radiation
- ADM 204/886 - Measurements of response of some thermal detectors to interrupted radiation
- ADM 220/494 - Simple radiation pattern recorder (1949)
- ADM 204/878 - Production of instructional film strips for demonstration of wave motion
- *HMS CAMPANIA* - ADM 53/131978
- *HMS PLYM* - ADM 53/133500
- *HMS NARVIK* - ADM 53/133310
- *HMS TRACKER* - ADM 53/133981
- *HMS ZEEBRUGGE* - ADM 53/134250
- *HMS ALERT* - ADM 53/142876
- *HMS ALERT* - ADM 53/142877
- *HMS DIANA* - ADM 53/143741
- *HMS DIANA* - ADM 53/143742
- *HMS COMUS* - ADM 53/143462
- *HMS COMUS* - ADM 53/143463

- *HMS CONSORT* - ADM 53/143498
- *HMS CONSORT* - ADM 53/143499
- *HMS NEWFOUNDLAND* - ADM 53/144731
- *HMS NEWFOUNDLAND* - ADM 53/144732
- *HMS CONCORD* - ADM 53/143474
- *HMS CONCORD* - ADM 53/143475
- *HMS COSSACK* - ADM 53/143557
- *HMS COSSACK* - ADM 53/143558
- *HMS WARRIOR* - ADM 53/148073
- *HMS WARRIOR* - ADM 53/148074
- *HMS MESSINA* - ADM 53/147160
- *HMS MESSINA* - ADM 53/147161
- *HMS SALVICTOR* - ADM 53/147641
- *HMS SALVICTOR* - ADM 53/147642
- *HMS COSSACK* - ADM 53/146352
- *HMS MESSINA* - ADM 53/147166
- *HMS CAVALIER* - ADM 53/148715
- *HMS ULYSSES* - ADM 53/150288
- *HMS NARVIK* - ADM 53/149700
- *HMS NARVIK* - ADM 53/149704
- *HMS NARVIK* - ADM 53/149705
- *HMS SCARBOROUGH* - ADM 53/149993
- *HMS SCARBOROUGH* - ADM 53/149994 ,
- Operation Buffalo: radiological safety orders – DEFE 16/453
- Radiological safety orders for KITTENS 55 trials – DEFE 16/807
- Monte Bello Islands: contamination of buoys and moorings, radiological safety and training and permits to enter prohibited area – DEFE 16/839
- Circular letters issued by Medical Director General (Navy) on preventive medicine and occupational health – ADM 1/26563
- ADM 1/27060 - Control of nuclear weapons carried by HM ships and their aircraft
- ADM 1/26708 - Exchange of Atomic Information Agreement: request for outline of RN Special Weapon Programme
- ADM 1/28892 - Nuclear Weapons: 2000lb bomb - smear and neutron testing

The Following Documents were Requested but not Received

- ADM 218 - Admiralty: Scientific Research and Experiment Department and Royal Naval Scientific Service: Papers of Dr Albert B Wood, Physicist (1915-64)

Annex E: Keyword Search Terms

- A.B.C.D.
- ABCD
- Alert
- Antler Nuclear
- Antler Test
- Atomic
- Atomic Blood
- Atomic Safety
- Atomic Test/ing
- Atomic Trials
- Atomic Urine
- Blood
- Blood Sample
- Blood Test
- Brigadoon Nuclear
- Buffalo Nuclear
- Buffalo Test
- Buffalo Tests
- Campania
- Cancer
- Cavalier
- Christmas Island
- Christmas Island Nuclear
- Christmas Island Nuclear Test/ing
- Civilian Nuclear Test/ing
- Concord
- Consort
- Cossack
- Decontamination
- Diana
- Dominic Nuclear
- Emu Field
- Epicure Nuclear
- Epicure Test
- Film Strip
- Fort Beauharnois
- Fort Constantine
- Fort Rosalie
- Gamma
- Gamma Radiation
- Gold Ranger
- Grapple Nuclear
- Grapple X
- Grapple Y
- Grapple Z
- HMS ALERT
- HMS Alert
- HMS CAMPANIA
- HMS Campania
- HMS CAVALIER
- HMS Cavalier
- HMS CONCORD
- HMS Concord
- HMS CONSORT
- HMS Consort
- HMS COSSACK
- HMS Cossack
- HMS DIANA
- HMS Diana
- HMS MESSINA
- HMS Messina
- HMS NARVIK
- HMS Narvik
- HMS NEWFOUNDLAND
- HMS Newfoundland
- HMS PLYM
- HMS Plym
- HMS RESOLUTION
- HMS Resolution
- HMS SALVICTOR
- HMS Salvictor
- HMS SCARBOROUGH
- HMS Scarborough
- HMS TRACKER
- HMS Tracker
- HMS ULYSSES
- HMS Ulysses
- HMS WARRIOR
- HMS Warrior
- HMS ZEEBRUGGE
- HMS Zeebrugge
- Hurricane Nuclear
- Hurricane Test
- Indoctrinate
- Indoctrinee
- Kittens Experiment
- Kittens Nuclear
- Kittens Test
- Kittens Trial
- Leukaemia
- Light house Nuclear
- Lighthouse Nuclear
- Maralinga
- Maralinga Nuclear
- Maralinga Nuclear Test/ing
- Messina
- Monte Bello
- Monte Bello Island
- Monte Bello Nuclear
- Monte Bello Nuclear Test/ing
- Montebello Island
- Montebello Nuclear
- Montebello Nuclear Test/ing
- Mosaic 1
- Mosaic 2
- Mosaic Nuclear
- Mosaic Test
- Narvik
- Navy Cancer
- Navy Leukaemia
- Newfoundland
- Nuclear Admiralty
- Nuclear Antler
- Nuclear Blood
- Nuclear Brigadoon
- Nuclear Buffalo
- Nuclear Clothing
- Nuclear Contamination
- Nuclear Decontamination
- Nuclear Dominic
- Nuclear Epicure
- Nuclear Exposure
- Nuclear Flash Exposure
- Nuclear Grapple
- Nuclear Hurricane
- Nuclear Kittens
- Nuclear Light house

- Nuclear Lighthouse
- Nuclear Mosaic
- Nuclear Navy
- Nuclear Observation
- Nuclear Observer
- Nuclear Rats
- Nuclear Safety
- Nuclear Test
- Nuclear Test Clothing
- Nuclear Test Expose
- Nuclear Test Navy
- Nuclear Test Observation
- Nuclear Test Radiation Hazard
- Nuclear Test Risk
- Nuclear Test Safety
- Nuclear Test Training
- Nuclear Test/ing Admiralty
- Nuclear Test/ing Australia
- Nuclear Test/ing Blood
- Nuclear Test/ing Decontamination
- Nuclear Test/ing Exposure
- Nuclear Test/ing Impact Nuclear Test/ing Individual
- Nuclear Test/ing Medical
- Nuclear Test/ing Pacific
- Nuclear Test/ing Personnel
- Nuclear Test/ing Precaution
- Nuclear Test/ing Protection
- Nuclear Test/ing Safety
- Nuclear Test/ing Sample
- Nuclear Test/ing Serviceman
- Nuclear Test/ing Servicemen
- Nuclear Test/ing Urine
- Nuclear Test/ing Volunteer
- Nuclear Testing
- Nuclear Tims
- Nuclear Totem
- Nuclear Training
- Nuclear Urine
- Nuclear Vixen
- Nuclear Water Lily
- Olina
- Operation Antler
- Operation Antler Test
- Operation Brigadoon
- Operation Buffalo
- Operation Dominic
- Operation Epicure
- Operation Grapple
- Operation Grapple Test
- Operation Hurricane
- Operation Hurricane Test
- Operation Kittens
- Operation Kittens Test
- Operation Light house
- Operation Light house Test
- Operation Lighthouse
- Operation Lighthouse Test
- Operation Mosaic
- Operation Mosaic Test
- Operation Rats
- Operation Tims
- Operation Totem
- Operation Totem Test
- Operation Vixen
- Operation Water Lily
- Photographic Badge
- Photographic Film
- Plym
- Prewetting
- Pre-wetting
- Radiation
- Radiation Dose
- Radiation Effect
- Radiation Exposure
- Radiation Safe Dose
- Radiation Sickness
- Radiation Test
- Rats Nuclear
- Resolution
- RFA FORT BEAUHARNOIS
- RFA Fort Beauharnois
- RFA FORT CONSTANTINE
- RFA Fort Constantine
- RFA FORT ROSALIE
- RFA Fort Rosalie
- RFA GOLD RANGER
- RFA Gold Ranger
- RFA OLINA
- RFA Olina
- RFA WAVE PRINCE
- RFA Wave Prince
- RFA WAVE RULER
- RFA Wave Ruler
- RFA WAVE SOVEREIGN
- RFA Wave Sovereign
- RFA WAVE VICTOR
- RFA Wave Victor
- Salvictor
- Scarborough
- Tims Experiment
- Tims Nuclear
- Totem 1
- Totem 2
- Totem Nuclear
- Totem Test
- Tracker
- Ulysses
- Urine
- Urine Sample
- Urine Test
- Visual incapacity following exposure to a nuclear explosion
- Vixen Experiment
- Vixen Nuclear
- Warrior
- Water Lily Nuclear
- Wave Prince

- Wave Ruler
- Wave Sovereign
- Wave Victor
- White Blood Cell
- Woomera
- Woomera nuclear
- Woomera safety
- X-Ray (s)
- Zeebrugge

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