

From: [REDACTED]

ROYAL NAVY, PA (8)



MEDICAL DEPARTMENT OF THE NAVY,
(ADMIRALTY),
QUEEN ANNE'S MANSIONS,
ST. JAMES'S PARK,
LONDON, S.W.1.

GS 2109/2/1
W 0028/006

28th August, 1958.

Dear [REDACTED]

Thank you for your letter of the 19th August, 1958. I am glad to hear [REDACTED] has arrived safely and that he is getting on well.

With regard to the two points you raise, here are our comments:

- (a) [REDACTED] return to U.K. Our plans for [REDACTED] are that he should spend some time at either A.W.R.E. or A.E.R.E. on his return to the U.K. and join "a ship" on December 15th. Provided he can be back here by the end of October or very shortly afterwards we will be well satisfied. Will this give him time to relieve [REDACTED] I have discussed this with [REDACTED] who did not think it was necessary to take it to the Director as the arrangement would be made purely locally. I would be grateful, however, if you could let me know when the timetable is fixed approximately when we can expect him back as there may be some courses for him to catch up with at EXCELLENT or places like that and we would like to know when he will be available for this sort of thing.
- (b) Blood Tests. C.A.F.O. 81 was not re-drafted by this Department, we saw it just before it went to press and as a tri-Service decision on blood examinations for relief personnel had not been agreed at that time M.D.G. felt it was better to let the Order go out and include Grapple personnel rather than to defer it for a further month which would have meant that quite a lot of people would have been missed if eventually the decision to blood test all personnel was taken. It was one of those decisions that was going to be wrong either way.

I have just been speaking to [REDACTED] the Director of Hygiene and Research at the Air Ministry, who tells me that the War Office reply is very similar to our own, namely that if Grapple Task Force Headquarters thought the blood count should be done then the War Office would follow suit. The Service Ministries must be advised by the people planning the trials who alone know what they are exposing the personnel in different areas to. I agree that the decision is a Ministerial decision but the advice on which this decision must be based can only be derived under the present circumstances from the people who know what is going on - your Headquarters! I understand that [REDACTED] view on this matter is likely to be reversed by [REDACTED] and that the Air Ministry will now take the view that reliefs for Grapple should be blood tested before they come out and will indicate this viewpoint to the other two Services. In this case we will fall into line. Do you think it wise to exclude personnel in ships? I note that you have written to [REDACTED] asking him to have the C.A.F.O. amended to exclude temporarily attached ships. I hope the amendment will make it quite clear which personnel in which ships are to have blood tests taken, or some confusion may arise here. I assume this C.A.F.O. does not cover R.F.A. or Store Ship personnel anyway.

I am very glad to hear that you are now satisfied with the medical arrangements on the Island and that you are pleased with the way [REDACTED] has coped. Thank you once again for all your kindly support for the "red stripe".

Yours,
[REDACTED]

[REDACTED] C.B.E., R.N.,
Office of The Captain Grapple Squadron,
British Forces Post Office 170.

P.S. I have a copy of a copy of this to [REDACTED]

R10-11 0194 X(a) V

FLAGPOLE AIR DROP

GRAPPLE-2

FORWARD AREA RE-ENTRY SCHEDULE

1. Introduction

1.1 Re-entry into the Forward Area after the firing will be by Landrover and helicopter.

1.2 All times are expressed in relation to the time of firing, H-hour.

1.3 Re-entry to the Forward Area is under the absolute control of the Scientific Superintendent. [redacted] will lead the re-entry party into the Forward Area.

1.4 On D-1 day, Health Control will move back from their present position at B-Site to the Road junction just south of G-Site and remain there throughout the night of D-1. About 0645 hours on the morning of D-Day, the [redacted] will retire to the northern extremity of G-Site. (ca. 6 miles from Ground Zero)

2. Method

2.1 After firing, when the all clear is given by the Scientific Superintendent, the Health Physics radiological survey party consisting of [redacted] and one RAF Regiment member will re-enter the Forward Area to determine [redacted] and [redacted] in the area. The Health Control circus will move to their position at the road junction south of G-Site after early re-entrants have been [redacted] at G-Site. [redacted] will report dose-rate readings by V.H.F. at [redacted] intervals to Forward Control, and radiological clearance of A-Site, B-Site, [redacted] D-Site and Instrument Lane in this order. 7 miles 6 miles 2 miles

2.2 Other personnel, as detailed in Appendix A of this schedule, will follow the Health Physics Landrover at convenient intervals after being [redacted] to move by Forward control and having been [redacted] by Health Control at G-Site. V.H.F. sets will be left on the whole time and in [redacted] from Health Physics Landrover or forward control implicitly [redacted].

2.3 A nominated member of a group leaving the convoy at the sites they have to visit will make periodic dose-rate readings and report any reading in excess of 0.3 r to forward control.

2.4 Any decision to withdraw personnel from the Forward Area for safety reasons will be made by the Scientific Superintendent and [redacted] in accordance with the terms of the Christmas Island Radiological Safety Regulations.

2.5 [redacted] will lead the de-sandbagging party in a V.H.F. fitted vehicle and will maintain contact with forward control by means of V.H.F. which will be left permanently switched on.

3. Protective Clothing

3.1 It should be borne in mind that as a result of the Pennant Firing, Health Control restrictions are already in force in the Forward Area in certain parts. All re-entrants will check with Health Control G-Site before re-entrance and observe dress regulations. It is anticipated that the following [redacted] of dress will apply:-

- Shirt with long sleeves (Personal)
- Hat (Personal)
- Socks and overshoes (Supplied by [redacted] (Physics))
- Long Trousers (Personal)
- Shoes or Sandals (Personal)



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Protective Clothing (Cont)

3.2 Socks and overshoes will be issued to re-entry personnel at the C-Site Health Control after the burst on D-Day. Crew men and scientific staff travelling by helicopters forward of C-Site will also need to wear issued socks and overshoes. These must be obtained at Building [redacted] J.O.C. before D-Day by arrangement with [redacted] J.O.C. Ext. 63.

3.3 A protective suit, underwear and gloves will also be issued in a polythene bag but these will only be put on if the measured radiation levels show they are necessary or if instructed to do so by Health Control C-Site.

3.4 All clothing worn in the Forward Area will be checked at C-Site Health Control for contamination and it is therefore advisable that a complete change of clothing be left at C-Site before re-entering.

3.5 All members of the re-entry party will have a quartz fibre dosimeter and a film badge; in addition dose rate meters will be issued so that dose-rate can be measured at all occupied sites in the Forward Area. These will be issued with the protective clothing (para. 5 above).

4. Helicopters

4.1 Re-entry by NT Group to D-Site will be by helicopter from J.O.C. On landing at C-Site after record recovery, the helicopter will be checked for contamination in a special landing area prescribed by [redacted]. In the event of a second helicopter operating from C-Site, this one will also be parked in the prescribed area until required. If the helicopters become contaminated they will be instructed to fly to the DC Area for cleaning after the schedule is completed. Forward Control will give warning to [redacted] in this case.

4.2 The programme for the water sampling helicopter will be as follows:-

4.2.1 Fly to J.O.C. helipad, pick up [redacted] and equipment

4.2.2 Fly to Surface Zero and collect sample

4.2.3 Return to "dirty" side of C-Site for monitoring check.
If cleared proceed to J.O.C. and disembark passenger and sample.
If instructed otherwise proceed to DC Area with passenger and sample.

[redacted]
Deputy Trial Planning Officer

A.W.R.E.
C-Site
Ext 809

26th August 1958

Distribution:-

All Members HQ Group
All Group Leaders (2) except
[redacted]

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GS 2109/2/1

WG028/006

Dated 19.08.58

- 2 -

Return to U.K.


You will be glad to hear that the medical set-up here has vastly improved since you were here in April. This is largely due to the very co-operative attitude of [redacted] the senior R.A.F. Medical Officer. The relations between the two Naval doctors in RESOLUTION and NARVIK and the up-country hospital could hardly be improved upon; [redacted] is doing very well; I would like very much to let him take about 10 days leave in October. At this time [redacted] will also be away and it would seem a pity to drop suddenly to no Medical Officers at all. Would [redacted] have any objection to [redacted] standing in for [redacted] for 10 days while he is away? It would mean he goes back to U.K. some 10 days later. I think it would be good value for [redacted] in the long term and he told me he would have no objection, provided it was O.K. by [redacted]. No appointing action is of course necessary and the "stand in" would be entirely a local arrangement. I would be most grateful if you could let me know whether this is acceptable to [redacted]

[redacted]

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Grapple - Z


Headquarters Task Force Grapple,
Royal Air Force,
Christmas Island,
B.F.P.O. 170


18th August, 1958

Ref: GRA/8/26/Air A.1

Deputy Task Force Commander.
Scientific Director (3 Copies) ✓
P.S.O. for T.F.C.
Army Task Group Commander
Base Commander
S.A.S.O.

Personnel Safety Plan - Air Drop

The enclosed draft Part II to the Personnel Safety Plan for the air drops is circulated as the basis for discussion at a meeting to be held shortly by T.F.C.


C.S.O. (N).

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DRAFT

PART II

Personnel Safety Plan Air Drop

Introduction

This plan which has limited distribution deals solely with the action to be taken in the very highly unlikely event of a crash on take off of the Valiant bombing aircraft.

Situation

2. The plans in Part I of the Personnel Safety Plan arrange for the personnel on Christmas Island to be distributed broadly as follows :-

- (a) Some 4,000 embarked in craft at the Port.
- (b) Some 400 distributed on essential tasks related to the Operation at X site, J.O.C. and Airfield.
- (c) Some 150 at C site.

3. Should the bombing Valiant crash during or immediately after take off there is a probability that a low yield kiloton explosion might occur. With a prevailing easterly surface wind this would produce mild fall out over a fan shaped area with its apex at the point of crash and its tail spreading over an area to the west covering much of the northern part of the Island and sea to the westward.

4. The extent, location, period of development and shape of the area thus contaminated would depend on the exact force and direction of the wind as well as the yield involved.

5. To ensure complete safety it is necessary to evacuate personnel from any area likely to be contaminated, before the arrival of fallout. Having done this the extent and intensity of the Area is established by special monitoring teams operating from the ground and aircraft. Subsequently and depending on the degree and extent of contamination it may be possible to re-enter parts of the North end

/of the Island;

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of the Island; on the other hand it may be necessary to evacuate some or all personnel elsewhere.

Task Organisation

6. Task Force 333

Task Group 333.1 All afloat units.

Task Group 333.2 All shore units assembled at C site.

Own Forces

7. Task Force H.Q. together with all units remaining ashore of all four services assembled at C site.

8. Afloat Units comprising :-

- (a) H.K.S. Narvik C.T.G. 333.1
- (b) H.H.S. Scarborough
- (c) H.H.N.Z.S. Rukaki
- (d) R.F.A. Fort Beauharnois
- (e) R.F.A. Olua
- (f) M.V. Lord Codrington
- (g) An evacuation flotilla of some twenty four craft including L.C.Ms, D.U.K.Ws, pontoons and N.S.Ts under command of R.N.O. Christmas.

Mission

9. To ensure the immediate safety of all personnel ashore on Christmas Island immediately following an accident on take off of a Valiant bomber.

The Plan

10. Airborne aircraft will be diverted to Halden, Hickam or Palmyra by H.Q.T.F. Grapple from the J.O.C. Narvik will if required take over guard of these aircraft.

11. All personnel at X site J.O.C. and Airfield will proceed as ordered in P.S.P. Part I to the vicinity of C site where they will assemble under service commanders.

12. Task Force H.Q. will open at "C" site.

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13. The evacuation flotilla at the Port will proceed to sea with despatch sailing either to the North or South as directed under command of the R.N.O.

14. C.G.S. will embark in H.M.S. Narvik from the Copra Jetty in a motor cutter and Narvik will slip and proceed clear of the predicted fall out area.

15. Major units of the Naval Task Group will be ordered to R.V. at a position clear of the fall out area ready to return to the anchorage to uplift personnel from the evacuation flotilla should this be necessary.

16. At approximately X + one hour monitoring of the contaminated area will commence from C site. Simultaneously monitoring craft from the evacuation flotilla and acting under the direction of R.N.O. will proceed north or south (depending on direction of evacuation) to establish the nearer edge of the fall out pattern to seaward.

Subsequent Action

17. By approx X + 6 hrs the degree of contamination ashore will have been roughly established and dissipation of fall out in the sea area to the west of Christmas Island will be advanced. Re-entry into the anchorage should be possible without contamination by X + 6 hrs provided no direct contact by personnel with water is made and distillation is avoided.

18. Depending on the location of the contaminated area and the level of contamination the following courses of action may then be available :-

(a) To evacuate some or all seaborne and other personnel from Christmas Island,

is not landing to be made at Port? (b) To return to certain areas of the Island under controlled conditions.

(c) To establish a temporary camp for a limited period in the Paris and Spal Areas pending decay of contamination in the Northern Part of the Island.

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Evacuation from Christmas Island.

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Evacuation from Christmas Island.

19. Evacuation by sea will be undertaken in major units of the Naval Task Group working to the following approximate loading capacities and loading in Christmas Island anchorage.

H.M.S. Narvik (9 knots)	420 Gilbertese already embarked and who would be landed at Fanning Island
R.F.A. Fort Beauharnois (10 knots)	1100
R.F.A. Olua (15 knots)	1300
H.V. Lord Codrington (15 knots)	400
H.M.N.Z.S. Pukaki and H.M.S. Scarborough	300 each ex C site

Logistics

(to be completed)

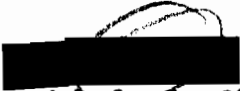
Communications

(to be completed)

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Trial Planning Officer,
J.O.C.

Location of Rehabilitation Party for B-Site

Following our discussion, I have made these estimates of the most intense thermal and blast effects from the airdrop weapon:-

<u>Location</u>	<u>Overpressure</u> p.s.i.	<u>Thermal Flux</u> cal/sq. in. <i>cm.</i>
C-Site	1 . 0	6 . 5
Northeast Point	0 . 72	3 . 9
J.O.C.	0 . 56	2 . 4

Comments

C-Site

Blast is acceptable if men are sitting or lying on ground. Thermal flux is acceptable if men are shielded from the direct radiation and are in addition wearing white protective clothing to shield from the reflected radiation.

Northeast Point

Comment regarding blast is as for C-Site. Protective clothing alone should be adequate shielding against total heat flux.

J.O.C.

Comments regarding both blast and heat flux are as for Northeast Point.


A.W.R.E./TP Group.

14th August 1958

A.W.R.E.
J.O.C.

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GRAPPLE - 2

C.S.O.

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GS 2109/2

W0028/006

FILM BADGES

1. It is not intended to provide film badges for everyone on Christmas Island. Badges will be issued to all members of A.W.R.E. and to those Service personnel working in active areas. On firing day aircrew employed on sampling and survey duties will also be supplied with badges.

2. The object is first to provide a check on the radiation dose received by individuals in the ordinary course of their employment on trials, which is recorded and controlled as a routine matter for all persons. Secondly in the event of an incident they would give an indication of the doses received by all personnel on the island.

3. Badges for all members of your Group are enclosed. Should anyone not have received a badge, or if you employ servicemen in your group, please let me have their particulars and I will issue them badges.

4. Badges will be changed every 3 to 4 weeks. Since the films are ruined if they become wet they are in polythene envelopes. Pins are provided and the badges should preferably be worn pinned to the clothing or else carried in a pocket. The need to carry them at all times must be brought home to all concerned. Your co-operation in this would be appreciated.

5. As on 'Pied Piper' during Grapple Y a further issue to selected personnel, both A.W.R.E. and Service, will probably be made on firing days. Further details of this issue will be given later.



Health Physics Controller

1st August 1958

Distribution:-

Scientific Director
Scientific Superintendent
C.S.O. (Navy) ---
Army Task Group Commander
S.A.S.O.
All Group Leaders



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GRAPPLE-2

GRAPPLE SQUADRON ORDERS
(Short Title G.S.O.)

(A.L. 20)
30th July, 1958

CHAPTER II - GENERAL INSTRUCTIONS

25. A.B.C.D.

These orders amplify, for the purposes of a peacetime trial, the instructions contained in B.R. 2170 (Ship A.B.C.D. Manual), B.R. 2171 (A.B.C. Handbook) and current Fleet Orders.

2. It is not intended that ships should be exposed to the effects of the bursts, but precautions must be taken so that, in the event of any mishap, damage or casualties can be prevented.

3. The Squadron A.B.C.D. Officer is available to advise on organisation and procedure, and to assist in training.

4. Preparation

Commanding Officers are to ensure that particular attention is paid to the following points:-

(a) Material

(i) A.B.C.D. Risk and Control markings must be complete and up to date. (See B.R. 2170 Chapter 22)

(ii) If possible, a closing down trial should be carried out prior to arrival in the operational area. When this cannot be done, a thorough visual check is to be made of all closing down arrangements, and this is to be supplemented by a "vacuum" or "U-tube" test. (See B.R. 2170 Chapter 32.12)

(iii) A thorough test of proventing arrangements is to be carried out. (See B.R. 2171(4) Chapter 3).

(b) Equipment

(i) The full outfit of Protective Clothing and Respirators is to be on board. Respirators of all officers and men are to be inspected and tested.

(ii) All stores including Radiac Instruments allowed for A.B.C. purposes (with the exception of those used only for defence against chemical attack) are to be on board.

NOTE: The supply of any special stores for an operation is dealt with in paragraph 5 of this instruction.

(c) Training.

It is essential that all men should have a good knowledge of Atomic Defence, and training is to cover:-

(i) A brief explanation of the effects of nuclear weapons.

(ii) Explanation of the medical aspects of radiation.

(iii) Personal protection from the effects of heat, light, blast and radiation, including the use of various types of protective clothing and respirators.

/ (iv) Collective

CHAPTER II - GENERAL INSTRUCTIONS

25. A.B.C.D. (Continued)

(iv) Collective Protection - A.B.C.D. Risk and Control markings, Closing Down, Shelter Stations, Prewetting, States of Readiness.

(v) Monitoring.

(vi) Decontamination.

(vii) Cleansing Procedure

(viii) Practical exercises to cover:-

Assumption of States of Readiness.

Organisation for Prewetting.

Shelter Procedure.

Training of Monitoring Teams, Decontamination Parties, and Cleansing Station Crews.

"Action" Messing while at Shelter Stations.

Relief of Machinery Space personnel.

Work in protective clothing and respirators.

5. Special Equipment, Radiac Instruments and Clothing.

(a) Special equipment, radiac instruments and clothing will be supplied to bring the quantities in ships up to the scale listed in Appendix 2 to this order. Instructions for the use and maintenance of the instruments are given in the A.W.R.E. pamphlets issued with them. One hundred per cent battery spares are also issued for each instrument, which should be sufficient for the operation.

(b) Defects. Defective instruments should be returned to the Squadron A.B.C.D. Officer for replacement.

(c) Return of Instruments. At the first opportunity after each operation, all equipment, instruments and clothing issued by the Squadron A.B.C.D. Officer are to be returned to him, together with batteries and the appropriate pamphlets.

6. Protective Clothing. For the purposes of the operation the following types of protective clothing are to be used:-

(a) Anti-Flash Clothing. To be worn by all exposed personnel within 50 miles of Ground Zero witnessing a megaton explosion:-

No.8 dress in good repair, with sleeves rolled down,
shirt buttoned to the neck, and trousers tucked into socks.

Boots or shoes with socks

Full anti-flash gear.

NOTE: Officers may wear overalls in lieu of No.8's. This dress is not required for personnel witnessing kiloton explosions.

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GRAPPLE SQUADRON ORDERS
(Short Title G.S.O.)

(A.L. 20)
30th July, 1958

CHAPTER II - GENERAL INSTRUCTIONS

25. A.B.C.D. (Continued)

(b) Light Protective Clothing. To be worn by monitoring parties, decontamination parties, machinery space watchkeepers, and by any other personnel necessarily exposed to dry contamination:-

Underwear, or service overalls, and socks.
A.W.R.E. gaberdine overall suit or hood.
Plastic gloves.
Respirator
Rubber Boots.

(c) Wet Protective Clothing. To be worn by monitors and decontamination parties exposed to wet contamination:-

Underwear, or service overalls, and socks.
Plastic foul weather smock and hood
Either -
Foul weather trousers
Light oilskin
Or -
Anti-gas hood.
Plastic gloves, or gloves A/G, or rubber gloves.
Rubber boots
Respirator.

7. Additional Clothing

Protective clothing required to enable ships to comply with paragraph 6 above will be issued on the scale listed in Appendix 2 to this order.

8. Respirators.

Ships companies are to be issued with light type respirators to the limit of the numbers supplied. On completion of the operation all personnel are to retain the respirators issued to them. Any general service respirators withdrawn in exchange are to be taken on charge in the ship's Armament Store account, for return to an R.N. Armament Depot at the first opportunity.

9. Surgical Masks.

Masks of surgical gauze may be supplied for wear in lieu of respirator when working in areas of low level contamination.

10. A.B.C.D. States of Readiness (See B.R. 2170 Chapter 21)

(a) H.M. Ships

(i) All H.M. Ships in the Grapple Area are to come to State 1A by H - 1 hour; having reached this state they may revert to State 3C and remain thus for kiloton tests. For megaton tests, ships within fifty miles should assume State 1B by H-Hour.

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GRAFFLE SQUADRON ORDERS
(Short Title G.S.O.)

(A.L. 20)
30th July, 1958

CHAPTER II - GENERAL INSTRUCTIONS

25. A.B.C.D. (Continued)

(ii) Subsequent to H-Hour, permission will be given to all ships to revert to normal, or in the case of an emergency, to assume higher degrees.

(b) R.F.A.s and Merchant Ships

(i) All R.F.A.s and Merchant ships who have no particular role to play in actual tests will be sailed clear of the declared Danger Area prior to a test, and will be informed on conclusion of the test when they are permitted to return.

(ii) R.F.A.s whose presence in the Danger Area is necessary for operational reasons, e.g. Air Sea rescue or replenishment, will be positioned so that the necessity to close down the ship is avoided.

(iii) The only special precaution which will still need to be taken by these ships are those given in paragraph 13(b) to safeguard personnel from the effect of witnessing visually the weapon flash.

11. Precautions for Witnessing Bursts.

(a) The possible hazards in witnessing an atomic or nuclear test from a distance result from the effect of flash and blast. By far the most serious hazard is to the eye of a witness who actually observes the initial flash. This flash can cause temporary or permanent injury to the eye out to the maximum range at which it can be directly observed. It is therefore essential that all personnel exposed at the moment of burst should be facing away from Ground Zero.

(b) Depending on the weapon yield and the range of the observer there may be risk of flash burn or blast. These risks are covered when necessary by the wearing of anti-flash clothing, and by securing ships for sea.

(c) H.M. Ships. As many personnel as practicable should witness tests, suitable precautions being taken to protect them from hazard. Precautions are necessary as follows:-

(i) All witnesses must be facing away from Ground Zero with eyes closed from immediately before the burst until H + 15 seconds.

(ii) For megaton tests, all exposed personnel within 50 miles range of Ground Zero must be wearing protective clothing (see paragraph 6). The wearing of protective clothing is unnecessary outside 50 miles range of megaton tests and for any afloat personnel witnessing kiloton tests.

(d) R.F.A.s Who Are Within The Declared Danger Area. Due to the limited communications available in R.F.A.s, it is not practicable to permit any personnel to be exposed at the moment of burst. Arrangements are to be made for all personnel to be between decks, and away from scuttles which face towards Ground Zero.

/ Immediately

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GRAFFLE SQUADRON ORDERS
(Short Title G.S.O.)

(A.L. 20)
30th July, 1958

CHAPTER II - GENERAL INSTRUCTIONS

25. A.B.C.D. (Continued)

Immediately after burst, i.e. at H + 15 seconds, this restriction is removed and personnel may view the after effects in absolute safety.

12. The Count Down (For details see Naval Action Schedule)

(a) The "count down" broadcast from the operational control centre should be repeated throughout the ship and utilised as follows:-

<u>Count Down</u>	<u>Ships Broadcast and Action</u>
One hour to the burst	One hour to the burst
H minus 30 minutes	Hands muster for inspection of dress.
H minus 10 minutes	Hands to be at "Burst Stations" by this time.
H minus 5 minutes	Hands sit down facing port or starboard (as necessary to face away from Ground Zero.)
H minus 2 minutes	Two minutes to the burst.
H minus 40 seconds	The weapon is falling. Close the eyes. (Repeat the count down to the burst and the count up to H + 15 seconds.)
H plus 15 seconds	Open the eyes. Stand up and face the blast.
H plus (distance from ground zero in miles) x 5	Stand by for the blast wave.

(b) If the weapon is not released the following broadcast is to be made: "The weapon was not released. There will be a delay of approximately 15 minutes before the next five-minute warning."

13. Distilling. Ships are to ensure that fresh water and feed tanks are topped up by H-1 on the day of each live burst. Distillation is not to be resumed until clearance has been given by C.T.G. 333.1. In emergency, ships may distil to make-up-feed only at the Commanding Officer's discretion.

14. Water Sampling. Under normal circumstances one ship in the target area will be detailed to undertake continuous sea water sampling following each live burst. All ships are to be prepared to undertake this task. There are three methods of which (a) below is the one normally to be used.

(a) A hose from the firemain is led into a 40 gallon oil drum suitably punctured to ensure that a continual flow of water is maintained. The floating probe which will be provided by A.W.R.E. for the Type 1257C Ratemeter supplied for Fish Sampling, sealed into a polythene envelope, is floated in the drum. A continuous watch must be kept on the meter.

(b) The probe of the Contamination Meter No.1 can be used in a similar manner.

(c) The water Sampling Head is fitted to the Contamination Meter No.1 and used as described in the Instruction Pamphlet. This method alone enables a direct measurement of the activity of the water to be made, but the sensitivity of detection is not so great as with the Type 1257C.

~~UNCLASSIFIED~~

GS2109/4/2

Office of
The Captain Grapple Squadron,
Christmas Island,
British Forces Post Office 170.

26th July 1958.

No. GS.109/5.
THE COMMANDING OFFICERS,
H.M. SHIPS SCARBOROUGH AND NARVIK.
THE COMMANDING OFFICER,
H.M.N.Z.S. FUKAKI.
THE MASTERS,
R.F.A'S FORT BEAUHARNOIS AND OLNA.

OPERATION GRAPPLE Z - PROVISION OF PROTECTIVE EQUIPMENT
AND RADIAC INSTRUMENTS TO H.M. SHIPS AND R.F.A'S

Reference: G.S.O. 25

The scale of protective clothing and radiao instruments required by you during Operation Grapple Z is listed in the appendix to this letter.

2. A stock of all stores listed is held by the Squadron A.B.C.D. Officer, who will issue the required stores to ships, together with the appropriate pamphlets. Where such stores are already held by ships, the balance required to complete to scale will be issued.

3. Two copies of an accounting note are enclosed.

4. All stores issued by the Squadron A.B.C.D. Officer are to be returned to his store in H.M.S. RESOLUTION immediately on completion of Operation Grapple Z. It is essential that the necessary accounting action be taken on board for any equipment or instruments lost while held by you.

D. 28. 7. 58.


CAPTAIN

Appendix:

Scale of Issue of Protective Clothing and Radiao Instruments

Enclosure:

Two copies of Accounting Note.

APPENDIX to The Captain Grapple Squadron's Letter No. GS.109/5 dated 26th July 1958

SCALE OF ISSUE OF PROTECTIVE CLOTHING AND RADIO INSTRUMENTS

<u>Pattern Number</u>	<u>Description</u>	<u>L.S.T.</u>	<u>Destroyer</u>	<u>Frigate</u>	<u>VSIS</u>	<u>Tanker</u>
6665-110001	Dosimeters Q.F. No. 1	10	10	8	6	4
6665-110161	Dosimeters Q.F. No. 2	10	10	8	6	4
6665-110003	Dosimeters Q.F. No. 3	10	10	8	6	4
6665-110004	Dosimeter Charging Units	2	2	2	2	1
6665-110107	Contamination Meter No. 1 Mk. 2	3	3	3	3	3
6665-110030	Battery Holders	3	3	3	3	3
5965-400046	Rocketeer Headgear	3	3	3	3	3
C.V. 2886	Valve, Water Sampling	4	4	4	4	4
6665-110097	Calibration Jig and Source	1	1	1	1	1
6665-110057	Water Contamination Calculator	1	1	1	1	1
6665-110099	Calibration Jig and Source	1	1	1	1	1
6665-110130	Survey Meter No. 2	2	2	2	2	2
6665-110098	Calibration Jig and Source	1	1	1	1	1
6665-	Survey Trainer No. 1	2	2	2	2	2
6135-101161	Battery Dry 1½ volt	100% for each instrument and 100% spares				
6135-101161	Battery Dry 9 volt					
6135-101163	Battery Dry 30 volt					
6135-101164	Battery Dry 30 volt					
6135-101165	Battery Dry 150 volt					
	Bags, Polythene	15	15	15	15	15
	Sacks, paper, gasproof	10	10	10	10	10
	Slide Rule, Radio	1	1	1	1	1
	<u>Instrument Instruction Pamphlets:</u>					
	Q.F. Dosimeters	One each per ship				
	Dosimeter Charging Units					
	Contamination Meter No. 1 Mk. 2					
	Survey Meter No. 2					
	Survey Trainer No. 1					
	<u>Protective Clothing:</u>					
	A.W.R.E. Protective Suits	40% of complement				
	A.W.R.E. Plastic Gloves	60% of complement				
	Surgical Gauze Masks	100% of complement				
	Boots, Rubber, Half-Wollington	10% of complement				

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