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○ 2

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7 4

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Part 19  
77 pages

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16 JUL 1956

Declassified on the Authority of

BDRSS JAA/243/01/ATC 37 Misc/8858(MTL1)

dated [REDACTED] 85

BUFFALO TRIALS

16th July, 1956.

INDOCTRINEE FORCE INSTRUCTION NO. 1

GENERAL

1. Some 250 officers of the Armed Forces of the UNITED KINGDOM, AUSTRALIA AND NEW ZEALAND will participate as indoctrinees in the first of a series of nuclear trials to be carried out in August/September, 1956, at MARALINGA. 177 of these officers will be from Home and overseas Commands of the British Army and 2 from the Royal Navy. They will travel by air.
2. This indoctrinee force will be one of a number of "groups" taking part in the trials and will be referred to in later instructions as the "IF Group".
3. After basic instruction in LONDON or SINGAPORE and detailed briefing at MARALINGA on the nature and conduct of the trials, indoctrinees will be exposed at a safe distance to the flash, thermal and blast effects of a nuclear explosion. They will make a conducted tour of the firing area and of the various items of Service equipment, vehicles, structures etc exposed for trials purposes, both before and after firing.

AIM

4. To enable these selected officers:
  - (a) To experience the effects of a nuclear explosion
  - (b) To examine the effects of such explosion on the ground and on weapons and equipment
  - (c) To pass on their experience to other members of the Armed Forces at the conclusion of the trial.

METHOD

5. ASSEMBLY

- (a) In the UNITED KINGDOM
  - (i) Officers attending from Home Commands, BAOR, WEST AFRICA, MALTA and GIBRALTAR will report to No 1 Army Air Transit Unit, 209 Harrow Road, Paddington, London W2, not later than 1600 hours Thursday, 9th August, 1956. There they will receive their passports and air travel tickets and have their medical certificates and the other documents detailed in para 14 below checked. They will also write in the book provided, their addresses and telephone numbers in case changes in travel arrangements prove necessary.
  - (ii) Officers from BAOR, WEST AFRICA, MALTA and GIBRALTAR will be required to show their AFS# 5133.
  - (iii) Officers will be responsible for making their own arrangements for accommodation in the LONDON area from the time of arrival until departure for AUSTRALIA.

(b) In SINGAPORE

All officers except those covered by sub-para (a) above and the officer from the CARIBBEAN area will assemble and be accommodated under arrangements made by GHQ FARELF. They will report in SINGAPORE not later than 18th August, 1956. GHQ FARELF will notify all concerned (copy to War Office MTL1) of the complete assembly arrangements including arrangements for the preliminary instruction detailed in para 6(b) below.

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6. PRELIMINARY INSTRUCTION

(a) In LONDON

(i) A two day period of preliminary instruction will be held in the Recreation Room, Wellington Barracks, LONDON, on Friday and Saturday, 10th and 11th August, 1956. This will be attended by all officers assembling in London. Syllabus is attached as Annexure "A".

(ii) Dress - Service Dress or Battle Dress

(b) In SINGAPORE

Preliminary instruction will be given to personnel attending from Overseas Commands, less those from BAOR, GIBRALTAR, MALTA, WEST AFRICA and the CARIBBEAN Area at SINGAPORE on 19th and 20th August, 1956, under arrangements made by GHQ FARELF and the Chief Instructor, Joint School of Chemical Warfare

The latter will arrange all further details with GHQ FARELF, through the War Office (MTLL). A syllabus on similar lines to that attached as Annexure "A" will be sent to GHQ FARELF by [redacted] through the War Office (MTLL), for reproduction and issue to all concerned.

7. MOVEMENT OUTWARD

(a) Officers assembling in UNITED KINGDOM

The bulk of these will be despatched either by BOAC/QUANTAS scheduled flights leaving LONDON between 12th and 19th August to SYDNEY or by a Hastings aircraft leaving LONDON on 14th August direct for MARALINGA. Those routed via SYDNEY will be moved by local charter aircraft to MARALINGA. A few officers will be moved by scheduled trooping flights to SINGAPORE. Thence they will move to MARALINGA with officers assembling in SINGAPORE

(b) Officers Assembling in SINGAPORE

These officers will be despatched from SINGAPORE on a charter aircraft direct to MARALINGA

(c) Full arrangements for outward movement are given in Annexures "B" and "C" attached.

8. PROGRAMME IN MARALINGA

(a) Officers will have a rest period of from one to five days after arrival at MARALINGA.

(b) It is intended that the programme of work should be as follows:-

D - 3: Rehearsal and pre-firing tour of area and equipment  
D - 2) Instruction in the nature and conduct of the trials  
D - 1) Witness explosion  
D Day: First half of IF Group tour firing area  
D + 1: Second half of IF Group tour firing area  
D + 2:

(c) In order to help in the assessment of the value of indoctrination during trials of this nature, officers will be asked to complete an individual questionnaire at MARALINGA before 'D' Day and a follow-up questionnaire later.

(d) Whilst theoretically some officers could be moved out of MARALINGA from D + 2 onwards, owing to the uncertainty of the date of firing, a few days delay is expected before movement can start.

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9. MOVEMENT ON RETURN

(a) Officers originally assembling in UNITED KINGDOM

- (i) The bulk of these officers will be lifted by local charter aircraft from MARALINGA to the SYDNEY area to await seats on scheduled BOAC/QUANTAS aircraft to final destination
- (ii) One Hastings load will be flown direct from MARALINGA to the UNITED KINGDOM.

(b) Officers originally assembling in SINGAPORE

All these officers will be moved in the same way as those in para 9(a)(i) above.

ADMINISTRATION

10. DRESS

(a) During Travel

- (i) By civilian airlines - civilian clothes
- (ii) By Service aircraft - uniform - (Service dress or Battle Dress).
- (iii) Officers proceeding to Australia by Service aircraft may return by civilian airlines and vice versa, therefore, both uniform and civilian clothes are required.

(b) In MARALINGA Area

- (i) Two suits of Australian Army Battle Dress per officer will be issued as working dress on arrival at GUNDULPH Camp. Great coats will also be provided.
- (ii) For the examination of effects after the explosion special protective clothing will be provided.
- (iii) Due to shortage of water for laundry purposes a plentiful supply of socks, shirts and underwear should be taken.

(c) In SYDNEY Area

- (i) Due to the limitation on weight little formal dress can be taken but a lounge suit will be required.
- (ii) Nearly all officers will be staying either on the outward or return journey with the Australian Army. Those in possession will wear service dress whilst attached, others will wear British battle dress.

EQUIPMENT

11. (a) Only essential equipment will be taken. This is:-

- (i) web belt,
- (ii) respirator anti-gas, light MK6
- (iii) water bottle,
- (iv) small pack (for pack meals)
- (v) binoculars

(b) The respirator must be serviceable and properly fitted in accordance with Section 11 of "Gas Training 1951", War Office Code No.8511 paras 3 to 6 inclusive.

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- [REDACTED]
- (c) Officers who require to wear spectacles at all times will be in possession of Service spectacles with flattened side members designed for wear with respirators. Instructions are contained in Section 11 of "Gas Training 1951".

12. BAGGAGE

- (a) Baggage limit for all personnel regardless of method of travel will be restricted to 44 pounds, except as especially authorised at para 23 below.
- (b) Articles such as respirator, binoculars, trench coat etc will not be weighed but a brief case or small bag retained by the individual while on the aircraft may be weighed and counted against the limit of 44 pounds.
- (c) Officers are strongly advised to carry with them two bags, one to be retained during the flight with such items as shaving kit, towel, slippers, etc plus a change of socks, shirt etc.

13. PASSPORTS

- (a) Passports of all officers of the Indoctrinee Force from the United Kingdom, BAOR, GIBRALTAR, MALTA and WEST AFRICA, will be forwarded to the War Office (PAL Family Passages) by not later than 18th July, 1956.
- (b) The requisite visas will be obtained by the War Office, renewals will be made if required and passports will be re-issued to officers on arrival at No 1 Army Air Transit Unit.
- (c) Passport arrangements for overseas Commands (less BAOR, GIBRALTAR, MALTA and WEST AFRICA) will be under Command arrangements.

14. MEDICAL

- (a) International Certificates of Vaccination/Inoculation

- (i) All officers of the Indoctrinee Force will be in possession of valid International Certificates of Vaccination/Inoculation against:-

Smallpox (F Med 101) dated not less than eight days (except in the case of re-vaccination when valid immediately) nor more than two years before expected date of departure.

Cholera (F Med 102) dated not less than six days (except in the case of re-inoculation within six months of previous inoculation when valid immediately) nor more than two months before expected date of departure.

Yellow Fever (F Med 103) dated not less than 10 days nor more than five years and eight months before expected date of departure.

- (ii) The times given will ensure that re-vaccination/inoculation is not required for the return journey.
- (iii) All immunization except against Yellow Fever can be carried out at the nearest medical centre. Immunization against Yellow Fever is carried out at specially authorized centres addresses of which may be obtained from the nearest medical headquarters.

- (b) TABT

All personnel will be fully protected by TABT prior to leaving permanent duty stations. Appropriate entries must be shown in AB 439.

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(c) Blood Count and Chest X-ray

In the officers' own interest they will be subjected to a blood count as for workers with radioactive substances plus a chest X-ray. Both to be completed prior to leaving permanent duty stations.

(d) Medical Examination

All officers not now serving in the tropics will be medically examined for fitness to serve in the tropics and issued with certificates of fitness before leaving permanent duty stations.

(e) Dental Treatment

All personnel will have any necessary dental treatment completed prior to leaving permanent duty stations.

15. ACCOMMODATION

(a) At MARALINGA

Officers will be accommodated during their stay in the MARALINGA area in a tented camp to be erected by the Australian Army at GUNDULFH, 11 miles North of WATSON near MARALINGA, about 600 miles North West of ADELAIDE. Conditions will be austere and water in short supply. This camp will be run by the Australian Army who will provide bedding and camp equipment.

(b) At SYDNEY

Outward Journey - Those officers who do not fly direct from UK or SINGAPORE into MARALINGA will be accommodated by the Australian Army in SYDNEY except for seven senior officers who will be accommodated in a Civilian Club.

Return Journey - All officers except the thirtythree returning to UK direct from MARALINGA on the HASTINGS will be accommodated in SYDNEY. Owing to the uncertainty of the date of firing, it will probably be a month after 'D' day before the airlines can move the last officer out of SYDNEY. Waiting time in SYDNEY is likely to average 14 days. The Australian Army authorities have at considerable inconvenience made special arrangements to accommodate the bulk of the Indoctrinee Force with Army units for the period required whatever that period may turn out to be. It is hoped to accommodate seven senior officers, not below the rank of Colonel at SYDNEY clubs. All details will be given out in due course.

16. DISCIPLINE

(a) For purposes of discipline, all military officers from the British Army comprising the Indoctrinee Force will be attached to the Royal Air Force under the provisions of Section 179A of the Air Force Act and Section 179A of the Army Act and thus subject to the Air Force Act.

(b) In order to effect such attachment a disposal order, an example of which is shown below, will be published by Headquarters, Eastern Command and GHQ F A R E L F immediately prior to departure of the Indoctrinee Force from London and Singapore. A copy of the order will be forwarded to Headquarters Bomber Command, Royal Air Force.

"The personnel detailed below (individual names to be inserted) will serve with the BUFFALO TASK FORCE and whilst so serving will be subject to the provisions of Section 179A of the Air Force Act and Section 179A of the Army Act".

(c) Headquarters, Bomber Command, Royal Air Force, will publish a reciprocal attachment order upon receipt of the orders mentioned in sub para (b) above.



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(d) Nominal rolls to be used for the purpose of the orders will be forwarded by the War Office (MT11) to Headquarters, Eastern Command and GHQ FARELF.

17. WEAPONS

No weapons or ammunition will be taken to Australia.

18. PAY AND ALLOWANCES

See Annexure 'D' attached.

19. POSTAL

(a) Postal address for the Indoctrinee Force will be:-

Rank, Name,  
IF Group,  
British Forces Post Office 151.

(b) British Forces Post Office 151 must be written in full to avoid possible confusion with BAOR.

20. NOMINAL ROLL - INDOCTRINEES AND RESERVES

Nominal roll of all indoctrinees and reserves, by Commands, showing ultimate destinations is attached as Annexure "E". Officers who become casualties after arrival in LONDON or SINGAPORE will be replaced by reserves nominated by the War Office (MT11) and GHQ FARELF respectively.

COMMAND AND CONTROL

21. BUFFALO TRIALS EXECUTIVE STAFF

Trials Director: [REDACTED]  
Trials Deputy Director: [REDACTED]  
Trials Co-ordinator: [REDACTED]  
Co-ordinator of Indoctrinee Force: [REDACTED]

22. Personnel assembling at SINGAPORE

These officers will be put under command, for the duration of their stay in SINGAPORE and whilst en route to KARALINGA, of a senior indoctrinee to be nominated by GOC-in-C FARELF. This officer will be assisted by [REDACTED] of the JSCW.

23. Personnel assembling in LONDON

These officers will be under the command of [REDACTED] DSO from 9th August, 1956 until return to permanent duty stations.

The Commander will be assisted by:-

[REDACTED] GSO 1 MT11) GS  
[REDACTED] (GSO 1 GS(W)11) GS and Liaison with AWRE Trials Staff  
[REDACTED] GS  
[REDACTED] Adm  
[REDACTED] Mov  
[REDACTED] Pay/Finance

The above officers will be allowed an additional ten pounds excess baggage to cover the carriage of essential papers/documents etc related to their special duties.



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14. Command and Control in AUSTRALIA

██████████ assisted by the staff detailed in para 23 above will exercise command over the whole Indoctrinee Force as a group on arrival in AUSTRALIA.

25. Overall Command in AUSTRALIA

The Indoctrinee Force will be under the overall command of the BUFFALO TASK FORCE Commander, ██████████, RAF who is in charge of all military groups.

26. Conducting Officers

Certain Officers from amongst the indoctrinees will be appointed as Conducting Officers. They will be selected from those with some scientific background and will act as leaders during the trials.

SECURITY

27. Positive Vetting

All officers comprising the Indoctrinee Force will be positive vetted prior to emplaning.

28. Classified Documents

Owing to the difficulty of safeguarding classified documents whilst in the MARALINGA area, the minimum number of documents of high security grading will be taken.

29. Cameras

Cameras may be taken for use during the journey to and from Australia but must be handed in immediately on arrival at GUNDULPH Camp.

30. Regulations and Instructions

Whilst in the MARALINGA area officers comprising the Indoctrinee Force will comply with all security regulations and instructions issued by the Trials Director.

██████████  
Lieutenant-General,  
Director-General of Military Training.

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BUFFALO TRIALS  
PROGRAMME OF  
PRELIMINARY INSTRUCTION OF INDOCTRINEES

Annexure 'A' to Buffalo Trials  
Indoctrinee Instruction No.1  
dated 16 July, 1956.

10th and 11th August 1956

WELLINGTON BARRACKS, LONDON

Friday 10th August.

Serial	Time	Subject	Speaker/Remarks
1	0930 - 0945	Opening address	[Redacted]
2	0945 - 1000	Administrative Points	[Redacted]
3	1000 - 1010	Introduction	[Redacted]
4	1010 - 1040	General Conduct of the Trial	[Redacted]
5	1040 - 1115	Coffee break	on cash payment
6	1115 - 1140	Film. "The Atom Strikes" (C5339)	[Redacted]
7	1145 - 1230	Lecture. Characteristics of Nuclear Explosions	[Redacted]
8	1235 - 1255	Film. Atomic Support for the Soldier (55494)	[Redacted]
9	1255 - 1400	Lunch Break	Officers will make own arrangements
10	1400 - 1445	Lecture. Surface and Sub-surface explosions.	[Redacted] Instructor [Redacted] C
11	1450 - 1520	Films. "Effects of Atomic Explosions" (C5459) Pathe News Reel	[Redacted]
12	1525 - 1605	Lecture. Protection - Immediate Effects	[Redacted]
13	1610 - 1650	Lecture. Protection - Residual Effects	[Redacted]
14	1655 - 1730	Film. Effects of atomic weapons against troops in the field.	[Redacted]

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Annexure 'A' (Contd)

Saturday 11th August.

Serial	Time	Subject	Speaker/Remarks
15	0930 - 1015	Lecture. Radiac Instruments	[REDACTED]
16	1020 - 1100	Lecture. Monitoring	
17	1130 - 1215	Lecture. Decontamination	
18	1220 - 1250	Films. Operation "Crossroads" Operation "Totem" }	



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Annexure 'B'  
to Buffalo Trials  
Indoctrines  
Instruction No. 1  
dated 16 July, 1956.

Movement to and from AUSTRALIA

Method of Movement - Outward Journey

1. From UK and BAOR

- (a) Personnel from BAOR will travel to UK by the normal surface route and will be despatched in time to report to No. 1 Army Air Transit Unit by not later than 1600 hrs 9th August 1956.
- (b) The UK and BAOR contingent totalling 135 will travel from UK-AUSTRALIA by the following means -
- (i) RAF Transport Command Hastings aircraft departing UK approx 14 August 1956 and arriving MARALINGA approx 21 August 1956 33 passengers.

(ii) BOAC Tourist Class scheduled services to SYDNEY as under:-

<u>Date ex LONDON</u>	<u>Date of arrival at SYDNEY</u>	<u>No of Passengers</u>
12 Aug	16 Aug	11
13 "	17 "	50
16 "	20 "	15
17 "	21 "	10
19 "	23 "	10
	<b>Total:</b>	<u>96</u>

Onward movements from SYDNEY to MARALINGA for these officers will be by two charter aircraft, one leaving pm 20 August 1956 and one pm 23 August 1956.

- (iii) Air Trooping service to SINGAPORE on date to be notified later. For onward movement SINGAPORE-AUSTRALIA see para 6. No of passengers 6.
- (c) Detailed instructions for the above moves will be issued separately on arrival in London or Singapore.

2. From GIBRALTAR, MALTA and WEST AFRICA

Personnel will be despatched under local arrangements to UK by the normal air trooping service in time to report to No 1 Army Air Transit Unit by not later than 1600 hrs 9th August 1956. They will then be moved to SINGAPORE by air trooping (date to be notified later) and onwards to AUSTRALIA as in para 6 below. No of passengers 3.

3. From MELF

Personnel will be moved under MELF arrangements to BAHREIN and thence to SINGAPORE by air trooping. Flight number and date will be notified later. For movement SINGAPORE to AUSTRALIA see para 6. No of passengers 12.

4. From EAST AFRICA

Personnel will travel from NAIROBI to SINGAPORE by civil commercial services to arrive SINGAPORE by 18 August 1956. GHQ EAST AFRICA will be responsible for booking tourist class passages through the local BOAC office by the most economical route requesting that the cost be charged to the War Office through BOAC LONDON. For movement SINGAPORE to AUSTRALIA see para 6. No of passengers 2.

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5. Personnel from UKSLS Staffs

Personnel from UKSLS staffs, ie, one each from PRETORIA, SALISBURY and KARACHI, will travel by civil commercial services to SINGAPORE to arrive by 18 August. Bookings will be made locally with BOAC for tourist class passages by the most economical route, with the request that the cost be charged to the War Office through BOAC LONDON. For movement from SINGAPORE to AUSTRALIA see para 6. No of passengers 3.

6. From FARELF

- (a) Personnel will be concentrated at SINGAPORE under FARELF arrangements. No of passengers 20.
- (b) A chartered DC4 aircraft carrying 46 passengers will depart SINGAPORE 21 August 1956. It will go direct to MARALINGA arriving 22 Aug. Passengers carried will be as under -

from FARELF	-	20	
MELF	-	12	
UK	-	6	
GIBRALTAR	-	1	Total 46
MALTA	-	1	
WEST AFRICA	-	1	
EAST AFRICA	-	2	
UKSLS Staffs	-	3	

7. From CARIBBEAN

The officer will travel by civil commercial air services from KINGSTON to SYDNEY via SAN FRANCISCO. HQ CARIBBEAN Area will book a return tourist class passage locally through BOAC to ensure arrival at SYDNEY not later than 23 August 1956. The cost will be chargeable to the War Office through BOAC LONDON.

Notification of Emplanements

8. Despatching authorities will signal names of passengers, service on which emplaned, and estimated arrival date as follows:-

War Office to Army Melbourne (for Q Mov)	in respect of personnel in para 1(b)(1)	
" " to " " " " " "	" " " " " " " 1(b)(ii)	
" " to FARELF	" " " " " " " 1(b)(iii)	
		& 2
GHQ MELF to FARELF	" " " " " " " 3	
GHQ EAST AFRICA to FARELF	" " " " " " " 4	
UKSLS Staffs to FARELF	" " " " " " " 5	
HQ CARIBBEAN Area to Army Melbourne (for Q Mov)	" " " " " " " 7	

Method of Movement - Return Journey

9. (a) UK-BAOR

- (i) 33 passengers by RAF Transport Command Hastings aircraft direct from MARALINGA to UK.
- (ii) 102 passengers by BOAC tourist service SYDNEY to UK.
- (iii) BAOR personnel will return from UK to BAOR by normal surface route.

(b) GIBRALTAR

By BOAC tourist service SYDNEY to UK and thence by air trooping to GIBRALTAR.



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[REDACTED]

(c) MALTA, WEST AFRICA, EAST AFRICA, UKSIS Staffs and CARIBBEAN

By commercial tourist air services from SYDNEY direct to destination.

(d) MELF

BOAC tourist service to SINGAPORE, thence by air trooping to BAHREIN and onward under MELF arrangements.

(e) FARELF

BOAC tourist service to SINGAPORE and onwards under FARELF arrangements.

10. Except for 9(c) these arrangements are provisional only and are subject to alteration nearer the time of return in the light of transport facilities available.

Passports

11. Instructions regarding the provision of passports have already been issued to all Commands vide WCM 57/Misc/8858(MT11) dated 28 June 1956 to Home Commands, Troopers Signal 00411/MT11 dated 220900Z June 1956 to BACR, and Troopers signal 00187/MT 11 dated 14 June 1956 to all other addressees.

12. Air routes to AUSTRALIA may involve passengers calling at some or all of the following countries where tourist visas are required. Instructions for obtaining appropriate visas are contained in para 13 of these instructions.

SIAM (for air trooping flights only)  
INDONESIA  
EGYPT (in the event of nightstops only)

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Annexure 'C' to Buffalo Trials  
Indoctrinee Force Instruction No. 1  
dated 16 July, 1956.




12th August, 1956 - EOAC



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13th August, 1956 - E.O.C



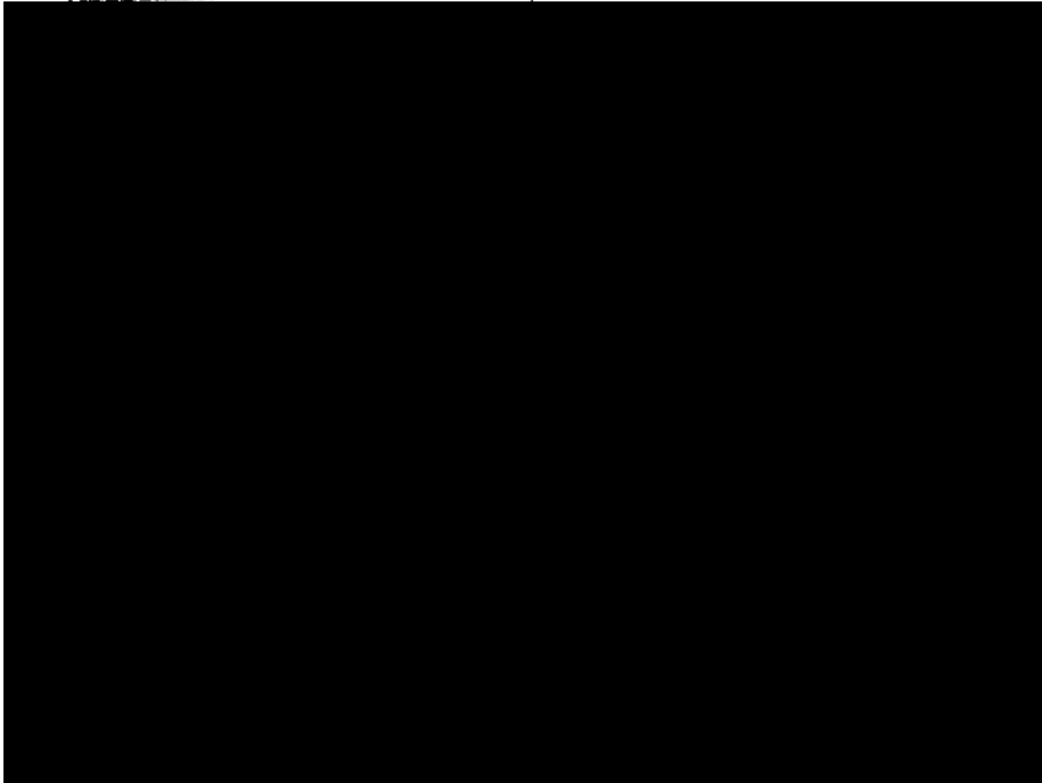
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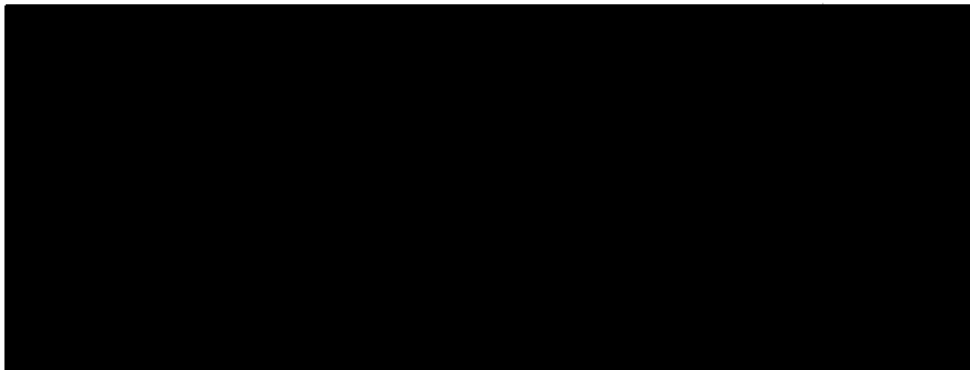
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14th August, 1956 - R.F (Hastings)

- 3 -



16th August, 1956, - B.O.C



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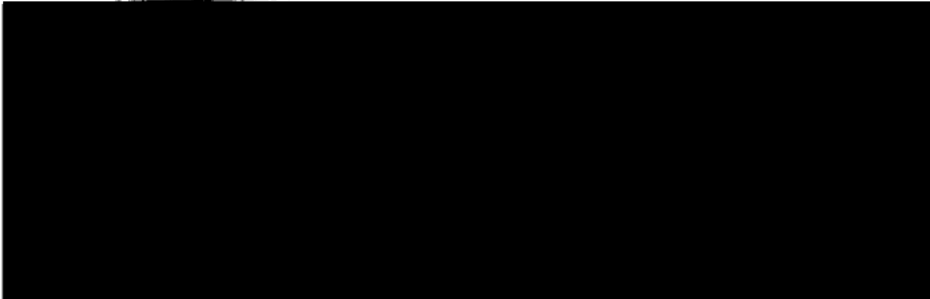
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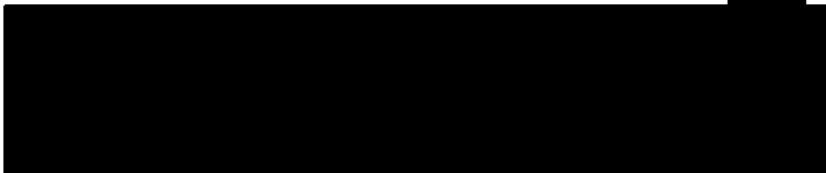
17th August, 1956, - BOAC



19th August, 1956, - BOAC



Air Trooping Service - "A" (Date to be notified).

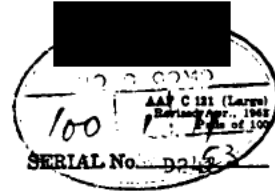


Air Trooping Service - "B" (Date to be notified)



12 29.42  
16 JULY 1956

AUSTRALIAN MILITARY FORCES



**CIPHER MESSAGE  
PRIORITY**

938

F.F.—12/52—600 Pads

<b>FROM</b> ARMY MELBOURNE	<b>DATE—Time of Origin</b> 161030K
<b>FOR ACTION</b> MILCOMMANDS at BRISBANE/SYDNEY/MELBOURNE/ADELAIDE/PERTH/ HOBART	
<b>TO</b>	
<b>FOR INFORMATION</b> MILCOL DUNTRON STAFF COLLEGE QUEENSLIFF MEDSCHOOL - HEALSVILLE TAGADMIN SEYMOUR	

SD5662.

Ref AMQ TRG 5292 of 27 JUNE 56. INDOCTRINEES BUFFALO.

FIRST. Commands will ensure. ABL3. Indoctrinees are fitted and issued with respirators anti-gas light decontamination GS prior mov transit camp MARLINGA.

Indoctrinees who wear spectacles are provided with special spectacles with flat metal sidepieces suitable for ~~air transport~~ wear under respirator.

SECOND. Approval is given provide these at public expense.

THIRD. Respirators will be fitted and all personnel will be subjected to tear gas tests.

FOURTH. GGS request SOUTHERN COMMAND arrange above for AMQ and OMI indoctrinees

PRIORITY

MILCOMMAND ADELAIDE

*What about UK personnel?*

**OTP**



563103

R29.281

16 Jul 1956

SAM 8601 U/C ROUTINE

[REDACTED]

I THINK SOMEONE SHOULD TELL [REDACTED]  
AFFECTED OUR PLANS FOR FALL OUT TESTS.  
THEY ARE BOUND TO FIND OUT SHORTLY WITH  
MOVEMENTS OF PERSONNEL THROUGH THEIR AREAS  
AND IGNORANCE ON THEIR PARTY MAY CAUSE MORE  
DIFFICULTIES THAN IF THEY ARE BROUGHT INTO  
THE PICTURE OFFICIALLY RIGHT NOW

READS [REDACTED]

[REDACTED] 56 [REDACTED]

563104

RC60.003  
16 JUL 1956

[REDACTED]  
Royal Australian Navy.

RC60.003

36

IN REPLY PLEASE QUOTE

No. \_\_\_\_\_

H.M.A.S. PENGUIN  
BALMORAL, SYDNEY  
16th July, 1956.

The Commanding Officer,  
H.M.A.S. PENGUIN.

The following report on operation Mosaic, Long Distance Fall Out Section, is submitted.

2. The object of the participation by H.M.S. DIANA as to fulfil seven separate functions which are listed below:-

- (a) To determine quantity and quality of the Fall Out material and their variation with time.
- (b) To collect samples of air borne Fall Out and to determine its particle size distribution.
- (c) To provide a continuous measurement of gamma radiation intensity.
- (d) To study the vertical movement of activity down through the sea.
- (e) To determine the temperature and its variation with time at depth down to 30' in the sea.
- (f) To obtain a continuous record of radiation intensity at depths down to 30' throughout and after the period of Fall Out.
- (g) Determination of the effectiveness of the ship's pre-wetting and washdown measures.

3. It should be noted that another section of the scientific team onboard DIANA were primarily concerned with the distribution of radio activity from air-drawn into ship machinery, spaces, etc. The observer from the R.A.N. was not connected with this phase.

4. The method by which each function was performed is as listed below:-

- (a) Sector shaped trays were placed in an open whaler and onboard DIANA. These trays were mounted on a 3' diameter circular disk, over which was mounted a revolving circular cover which exposed one shutter per revolution. Other trays with "Sticky Paper" were exposed at both sites.
- (b) Three air samplers and three cascade impactors were operated in DIANA and one in the whaler.
- (c) Scintillation counters were exposed over both wetted and non-wetted areas of DIANA and readings recorded.
- (d) Five water pumps were attached to 30' cable, and spaced at 6' intervals which was suspended from a special boom. Samples were pumped intermittently through P.V.C. tubing and counted in a scaling instrument.

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- (e) Resistance thermometers were incorporated alongside the water pumps.
- (f) Geiger counters sheathed in stainless steel were positioned at the same places as were the water pumps and intensities were recorded continuously on rate meters in the scientific centre and on a revolving chart.
- (g) Surveys before and after washing down were taken (and in addition a portion of the deck was left un-prewitted in order that an accurate assessment might be made.

5. The whole of the equipment provided worked very well, and a large number of samples were obtained, the majority of which were flown back to the U.K. before the rate of decay had proceeded too far.

6. The health physics regulations drawn up for the complete protection of personnel from the injurious effects of alpha, beta and gamma radiation were designed so as to provide the minimum interference with the scientific observation, it is pertinent to point out that the regulations so imposed were within the scale laid down by the International Commission of Radiation Protection, and were approved by the Health Physics Controller, Operation "Mcgaic".

7. The enforcement of these regulations were rigidly carried out and although it is extremely difficult to convince the average sailor of a danger from something which he can neither see, feel, taste nor smell, a demonstration of Smear Tests was all convincing.

8. The arrangements of DIANA's pre-wetting system was as follows - 14 instantaneous couplings were fixed on various parts of the ship's structure mounted on adjustable quadrants which were in turn fed by hoses from two major rising mains, forward and aft and were in fact adjusted in a very few minutes. Ordinary canvas hose was used and except for one length of plastic hose (under trial from H.M.S. PHOENIX) proved quite effective. The advantage of canvas hose is that as it 'bleeds' it has in fact its own in-built pre-wetting system, whereas the plastic hose being completely sealed remains highly radio-active. The pre-wetting couplings were adjusted as necessary after G.I. (Hotshot), and in fact required very little attention. The advantages of a well thought-out pre-wetting system were shown to be over whelming. In one part of the upper deck on the extreme stern, one of the hoses was found to have blown out from its attendant coupling, and in consequence that particular part of the ship received very little, if any, of the pre-wetting. The reading of this non-protected deck was four times as high as its neighbouring deck which had been pre-wetted. In no case was the result unexpected; the pattern was clearly the same everywhere; if the area was pre-wetted then the readings were substantially lower. The theory that the use of radio active water as a pre-wetting agent would spread radio activity was proved, as it was anticipated it would be, to be false, the fact of course being amply demonstrated that the sea water is of course contaminated but dilution reduces the radio active level far below that of the Fall Out droplets. This bears out the report in the R.N. S.S. Journal of March, 1956 pages 44 et seq.

9. The levels of contamination were continuously checked from inside the citadels by both counters and air sampling outfits. The whole of the ship's company (with the exception of the protected engine room personnel) being of course, within the two citadels. After the various recording devices had shown that activity was dropping, air samples were taken of the outside atmosphere from inside "A" turret and as these showed below tolerance level, pre-wetting systems were switched off and a thorough monitoring of the ship commenced. As soon as an accurate picture was evolved the decontamination squads under my charge commenced their task. It was speedily apparent that all canvas gear, boats covers, torpedo tubes covers, gun covers, etc. were contaminated beyond recovery and these were

collected and sunk. Decontamination proceeded until 0200 when certain pathways were established as 'Clean' thus enabling essential movement to take place. The ships' Company remained at Shelter Stations and restricted movement was allowed from 0900 the following morning. The overall contamination was fairly readily removed, and it was only necessary to resort to tepol in odd patches. However, the real work commenced when detailed measurements were made of contamination levels in grease caps, breach blocks, staag mountings, etc., some of which had been left deliberately uncovered and were therefore grease protected. As an example the starboard staag was found to have pockets of contamination from which one reading of 177,860 counts per 100 seconds was obtained, the starboard torpedo tube breaches offering only a minor reading of 86,850 counts. The removal of this contamination was undertaken by me and techniques developed during decontamination of the Land Rover from Monte Baldo were found effective.

10. Various solvents were used (shale oil and petrol mainly) and the readings were steadily reduced until the tolerance level was reached. It was only necessary at this stage to insist on surgical masks for such tasks as chipping paintwork, etc. The operation was well-planned and valuable information will undoubtedly evolve to the ultimate benefit of the Service.

11. Certain recommendations for consideration by the Naval Board are submitted as a result of experience gained during operation Mezaic.

12. The measuring of an integrated dose of so many R.F.P. presents no difficulty with the instruments as supplied to, or envisaged as going to be supplied to, H.M.A. Ships and Establishments, but what does at present, present difficulty, is the accurate determination of "Loose" contamination by means of smear tests. This is absolutely necessary if one is to assure a clean and safe ship or area. This technique is thoroughly understood by the Officer in Charge, A.E.G. Section, H.M.A.S. PENGUIN, and although it is not suggested that a complete counting outfit is either necessary nor desirable in every ship and establishment, it is for the consideration that one set as listed be supplied to the A.E.C. School, H.M.A.S. PENGUIN in order that the technique so necessary in war time may be taught. The items required would be as follows:-

- (i) Standard Lead Castle
- (ii) Ekco Automatic Scaler Type N5300.  
(Input Resolution 5 micro seconds)
- (iii) Geiger Type 2 B.7.

13. One of the lessons learned from these operations is that the prevention of the internal hazard is assuming far greater importance than has hitherto been devoted to this phase of radio active hazards. This is fully borne out in the recent report of both the American A.E.C. and the report of the British Medical Association on hazards to be expected. This is going to be strongly stressed in the Health Physics Reports from DIANA. The lecture on this phase of health hazards at present used at the A.E.C. Section, H.M.A.S. PENGUIN is being completely re-written and copied will be forwarded to all associated schools.

14. The presence of an experienced observer at these operations has been of the utmost benefit to the R.A.N. and will enable absolutely up to date technique and lessons learned to be applied immediately instead of waiting for reports from H.M.S. PHOENIX.

15. Further detailed information on any one aspect of these operations will be supplied if considered necessary or desirable.


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16 JUL 1956

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R060.003 (33)

16. Various types of protective clothing were in use during operation Mosaic for specific purposes and photographs of this clothing with data as to its use are attached as an appendix to this report.

II

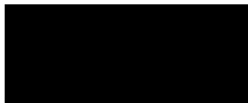
 0123/1/24  
THE FLAG OFFICER-IN-CHARGE,  
EAST AUSTRALIAN AREA.

Submitted.

I concur in the remarks concerning a Counting Outfit, vide paragraph 12 of Minute I, and recommend early supply to PENGUIN.



H.M.A.S. PENGUIN  
18th July, 1956.

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R603  
16 JUL 1956



5.200/11/27

(35)

Flag Officer-in-Charge,  
EAST AUSTRALIAN AREA.

Submitted for the information of the Naval Board,  
the following report on operation Mosale, Long Distance Fall Out Section

The object of the participation by H.M.S. "DIANA"  
was to fulfil seven separate functions which are listed below :-

- (1) To determine quantity and quality of the fall out material and their variation with time.
- (2) To collect samples of air borne Fall out and to determine its particle size distribution.
- (3) To provide a continuous measurement of gamma radiation intensity.
- (4) To study the vertical movement of activity down through the sea.
- (5) To determine the temperature and its variation with time at depth down to 30' in the sea.
- (6) To obtain a continuous record of radiation intensity at depths down to 30' throughout and after the period of fall out
- (7) Determination of the effectiveness of the ship's pre-wetting and washdown measures.

It should be noted that another section of the scientific team onboard "DIANA" were primarily concerned with the distribution of radio activity from air-drawn into ship machinery, spaces, etc.. The observer from the R.A.N. was not connected with this phase.

The method by which each function was performed is as listed below :-

- (1) Sector shaped trays were placed in an open whaler and onboard "DIANA". These trays were mounted on a 3' diameter circular disk, over which was mounted a revolving circular cover which exposed one shutter per revolution. Other trays with "sticky paper" were exposed at both sight sites.
- (2) Three air samplers and three cascade impactors were operated in "DIANA" and one in the whaler.
- (3) Scintillation counters were exposed over both wetted and non-wetted areas of "DIANA" and readings recorded.
- (4) Five water pumps were attached to a 30' cable, and spaced at 6' intervals which was suspended from a special boom. Sample were pumped intermittently through P.V.C. tubing and counted in a scoping instrument.
- (5) Resistance thermometers were incorporated alongside the water pumps.
- (6) Geiger counters sheathed in stainless steel were positioned at the same places as were the water pumps and intensities were recorded continuously on rate meters in the scientific centre and on a revolving chart.
- (7) Surveys before and after washing down were taken and in addition a portion of the deck was left un-pretreated in order that an accurate assessment might be made.

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16 Jul 1956

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The whole of the equipment provided worked very well, and a large number of samples were obtained, the majority of which were flown back to the U.K. before the rate of decay had proceeded too far.

The health physics regulations drawn up for the complete protection of personnel from the injurious effects of alpha, beta and gamma radiation were designed so as to provide the minimum interference with the scientific observation, it is pertinent to point out that the regulations so imposed were within the scale laid down by the International Commission of Radiation Protection, and were approved by the Health Physics Controller, Operation "Mosaic."

The enforcement of these regulations was rigidly carried out and although it is extremely difficult to convince the average sailor of a danger from something which he can neither see, feel, taste nor smell a demonstration of Smear Tests was all convincing.

The arrangement of "DIANA's" pre-wetting system was as follows - 14 instantaneous couplings were fixed on various parts of the ship's structure mounted on adjustable quadrants which were in turn fed by hoses from two major rising mains, forward and aft and were in fact adjusted in a very few minutes. Ordinary canvas hose was used and except for one length of plastic hose (under trial from H.M.S. "PHOENIX") proved quite effective. The advantage of the canvas hose is that as it 'bleeds' it has in fact its own in-built pre-wetting system, whereas the plastic hose being completely sealed remains highly radio-active. The pre-wetting couplings were adjusted as necessary after G.1 (Hotshot) and in fact required very little attention. The advantages of a well thought out pre-wetting system were shown to be over-whelming. In one part of the upper deck on the extreme stern, one of the hoses was found to have blown out from its attendant coupling, and in consequence that particular part of ship received very little, if any of the pre-wetting. The reading of this non-protected deck was four times as high as its neighbouring deck which had been pre-wetted. In no case was the result unexpected, the pattern was clearly the same everywhere if the area was pre-wetted then the readings were substantially lower. The theory that the use of radio active water as a pre-wetting agent would spread radio activity, was proved, as it was anticipated it would be, to be false, the fact of course being amply demonstrated that the sea water is of course contaminated but dilution reduces the radio active level far below that of the fall out droplets. This bears out the report in the R.N. S.S. Journal of March, 1956 pages 44 et seq.

The levels of contamination were continuously checked from inside the citadels by both counters and air sampling outfits. The whole of the ships' company (with the exception of the protected engine room personnel) being of course within the two mid citadels. After the various recording devices had shown that activity was dropping air samples were taken of the outside atmosphere from inside "A" turret and as these showed below tolerance level pre-wetting systems were switched off and a thoroughly monitoring of the ship commenced. As soon as an accurate picture was evolved the decontamination squads under Lieutenant A.A. Andrew R.A.N. commenced their task. It was speedily apparent that all canvas gear, boats covers, torpedo tubes cover, gun covers, etc. were contaminated beyond recovery and these were collected and sunk. Decontamination proceeded until 0200 when certain pathways were established as 'Clean' thus enabling essential movement to take place. The ships' Company remained at Shelter Stations and restricted movement was allowed from 0900 the following morning. The overall contamination was fairly readily removed, and it was only necessary to resort to tepol in odd patches. However, the real work commenced when detailed measurements were made of contamination levels in grease caps, breach blocks, stagg mountings et some of which had been left deliberately uncovered and were therefore grease protected. As an example the starboard stagg was found to have pockets of ~~mark~~ contamination from which one reading of 177,860 counts per 100 seconds was obtained, the starboard torpedo tube breaches offering only a minor reading of 86,850 counts. The removal of this contamination was undertaken by the R.A.N. A.B.C. Officer and techniques developed during decontamination of the Land Rover from Monte Bello were found effective.

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16 JUL 1950

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(28)

Various solvents were used (shale oil and petrol mainly) and the readings were steadily reduced until the tolerance level was reached. It was only necessary at this stage to insist on surgical masks for such tasks as chipping paintwork etc. The operation was well-planned and valuable information will undoubtedly evolve to the ultimate benefit of the Service.

Certain recommendations for consideration by the Naval Board are submitted as a result of experience gained during operation Mosaic.

The measuring of an integrated dose of so many R.F.P. presents no difficulty with the instruments as supplied to, or envisaged as going to be supplied to, H.M.A. Ships and Establishments, but what does at present present difficulty is the accurate determination of "Loss" contamination by means of smear tests. This is absolutely necessary if one is to assure a clean and safe ship or area. This technique is thoroughly understood, ~~XXXXXXXXXXXX~~ by the Office in charge, A.B.C. Section, H.M.A.S. "PENGUIN" and although it is suggested that a complete counting outfit is either necessary nor desirable in every ship and establishment it is for the consideration of the Naval Board that one set as listed be supplied to the A.B.C. School, H.M.A.S. "PENGUIN" in order that the technique so necessary in war time may be taught. The items required would be as follows:-

- (1) Standard Lead Castle
- (2) Ekco Automatic Soaler Type N530C. (Innert  
(Input Resolution 5 micro seconds)
- (3) Geiger Type 2 B.7

One of the lessons learned from these operations is that the prevention of the internal hazard is assuming far greater importance than has hitherto been devoted to this phase of radio active hazards. This is fully borne out in the recent report of both the American A.E.C. and the report of the British Medical Association on hazards to be expected. This is going to be strongly stressed in the Health Physics Report from "DIANA". The lecture on this phase of health hazards at present used at the A.B.C. Section, H.M.A.S. "PENGUIN" is being completely re-written and copies will be forwarded to all associated schools.

The presence of an experienced observer at these operations has been of the utmost benefit to the R.A.N. and will enable absolutely up to date technique and lessons learned to be applied immediately instead of waiting for reports from H.M.A.S. "PHOENIX."

Further detailed information on any one aspect of these operations will be supplied if the Naval Board consider this necessary or desirable.

Various types of protective clothing were in use during operation Mosaic for specific purposes and photographs of this clothing with data as to its use is attached as an appendix to this report.



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16 JUL 1956

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PROTECTIVE CLOTHING.

- (1) This suit designed by U.K.A.E.U. was used by monitoring teams and affords complete protection to personnel.
- (2) This Polythene suit was used by decontamination squads and has the advantage that it is quickly adjusted and is water proof. It is however, torn rather easily.
- (3) This pressurised suit was supplied specifically to engine room personnel who were required to proceed along the upper deck and man the after engine room and the boiler room. The bellows were used to pump air whilst proceeding along the upper deck, on arriving at the engine room the bellows were disconnected and the connecting tube was attached to an air compressor.

There is no particular advantage seen in any of these suits as compared with the normal service protective clothing.

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563114

R94.10  
17 JUL 1956

ATOMIC WEAPONS TESTS SAFETY COMMITTEE

SAFETY MEASURES AT MONTE BELLOS

1. The Notice to Mariners advising of danger area of 150 miles radius centred on Flag Island, has been revoked.
2. The area enclosed by a circle of 45 miles radius centred on Flag Island remains a Prohibited Area under the Defence Special Undertakings Act of 1952.  
  
This means that no person can enter this area without the permission of the Naval Officer in Charge, Western Area.  
  
Permission has been given in respect of certain persons wishing to visit Barrow Island and they have been instructed to keep at least 3 miles away from the Monte Bello group.
3. In his report to 15th Meeting of Atomic Weapons Tests Committee Captain Marks stated notices were placed in position by the 23rd June prior to "Narvik" leaving the area.
4. [REDACTED] holds a map of positions where it was planned to put the notices. (Some positions may have been varied for practical reasons).
5. "Karangi" will visit and lift some moorings before end of this year.
6. "Karangi" or similar vessel will visit again next year to lift moorings too hot to lift now.
7. Admiralty and U.K. have not expressed any intention to revisit the islands to measure radioactivity at any future date.
8. Should there be a requirement for scientists to visit the Islands there will be no difficulty in R.A.N. supplying transport in "Karangi" or similar vessel.

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27 JUL 1956

~~OFFICIAL~~ MATTER

3.

ROYAL AUSTRALIAN AIR FORCE

MEDICAL BRANCH

MEDICAL MEMORANDUM

No 13.

(132/1/1295)

Declass



Department of Air  
Melbourne S.C. 1

27th July, 1956

The following Medical Memorandum is hereby promulgated for information and guidance and necessary action by all medical officers.

R.A.A.F.

RADIOLOGICAL SAFETY REGULATIONS

Introduction

Undue exposure of the body to ionising radiation may have serious consequences on health. The risk of such exposure has greatly increased in recent years with the ever increasing applications of atomic energy.

R.A.A.F. personnel who are posted to units connected with atomic energy trials may run the risk of exposure to ionising radiation. Further, since radio-active sources are now being used to train personnel in defence against harmful radiation from atomic weapons, this could similarly be a health hazard.

SERIOUSNESS OF RADIOLOGICAL HAZARDS

The serious nature of radiological hazards calls for the most scrupulous observance of precautions. Radium, for instance, is continuously active, sending off radiations at all times, and precautions must constantly be observed to protect personnel and equipment.

In order that personnel working in a radio-active area may be properly informed as to the hazards and the safety measures to be observed, initial and continued indoctrination must be provided. It is particularly important that persons in immediate charge of working parties be aware of their specific responsibilities with regard to the supervision and execution of safety measures.

Various aspects of radiological safety, particularly maximum permissible exposure levels (MPE), are constantly being studied and revised, and changes will be necessary for some time to come. As quickly as possible such changes will be issued in connection with this memorandum.

The maximum permissible levels listed in this memorandum are based primarily on the recommendations of the International Commission on Radiological Protection published in British Journal of Radiology, Supplement No.6 (1955) and on similar recommendations made by the Medical Research Council. They have been endorsed by the Health Panel of the Authority

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at a meeting with the consultants to the Project Health Committee.

All exposures to radiation and to radio-active substances must be kept to the lowest practicable levels and no unnecessary exposures should be incurred. No exposure may exceed the permissible levels listed below.

It shall be understood that, unless stated otherwise, all maximum permissible levels refer to the total exposure of the part of the body under consideration, as a result of simultaneous or successive exposures to one or more types of radiation from external or internal sources. In general, therefore, exposures of all kinds must be treated as additive in effect unless stated otherwise or unless, in a particular case, the exposures can be shown to be different parts of the body.

### Nature of Examination.

Scope. The pre-employment examination will be a complete physical examination, including blood examination, urinalysis, breath samples, and chest X-ray. If a similar examination has been conducted within the past six months, it will be accepted, provided a record of such examination is available as part of the individual's record.

### History

During

- (a) If a similar physical examination has been conducted within the past six months and an X-Ray of chest within the past twelve months, it will be accepted, provided a record of such examination is available as part of the individual's record".
- (b) Any previous unusual radiation exposure (occupational)
- (c) Any doses previously received as a result of X-ray diagnostic examinations or radiation therapy (including infancy and childhood).

### Blood Examination.

A complete blood count, including a leukocyte differential count, will be made on three successive days prior to lunch for the purpose of establishing a normal baseline for later use in the evaluation and detection of early radiation injury.

### Urinalysis.

Facilities for radio-chemical analysis are not available, but when this is possible it should be done in the case of persons who have previously been engaged in handling radioactive substances.

### Breath Samples.

When facilities are available at the Commonwealth X-ray and Radium Laboratories breath samples for the determination of radon concentration shall be taken for personnel who will be engaged in the handling of radium salts or compounds which are not hermetically sealed.

### PHYSICAL REQUIREMENTS

General

The general physical requirements shall be as follows:

### Disqualifying Findings.

In addition to failure to meet the general physical requirements the following findings are considered disqualifying.

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### Exposed Wounds.

Exposed wounds (whether lacerations, abrasions, or ulcerations) are considered disqualifying for personnel handling radi-active materials which are not hermetically sealed. Personnel with exposed wounds or open lesions are never to be permitted to work in a contaminated area.

### Blood Abnormalities.

Total white blood cells counts below 4,000 or above 12,000 are disqualifying.

In cases where abnormal white cell counts may be due to transient diseases or other temporary conditions, re-examinations shall be made upon recovery.

Also disqualifying are total red blood cell counts below 3.5 million or above 6.5 million and persistently abnormal leukocyte differential counts.

### Urine.

The presence of plutonium, uranium, or radio-active rare earths in the urine disqualifies a person for employment.

### Breath.

The presence of more than  $5 \times 10^{-13}$  curie per litre of radon in expired air is disqualifying.

### Other.

Any evidence of previous radiation injury which is considered disqualifying by the medical examiner shall bar a person from employment.

### Follow up Examination.

#### When Conducted.

Personnel engaged in work involving regular exposure to ionising radiation or handling of radio-active materials shall be examined at the discretion of the medical examiner and must be seen at intervals of not more than 4 months.

Nature of: After personnel are removed from any further risk of radiation such personnel will receive a complete follow-up examination every six months for a period of two years.

Signs: Such radiation such personnel will receive a complete follow-up examination every six months for a period of two years. Signs such as lack of vitality, loss of appetite, weight loss, cracking of the skin on fingers, and excessive longitudinal corrugation and brittleness of the finger nails. These findings shall be recorded on Form A.F. Med. 12 and record of exposure to radiation form.

### Tests for Chronic Radiation.

#### Blood Counts.

Complete blood counts, including leukocyte differential counts, shall be made when indicated, at intervals not greater than 4 months. The specimens shall be collected immediately prior to lunch.

#### Urinalysis.

Where appropriate, radi-chemical urinalysis shall be made at intervals of 4 months.

#### Breath Samples.

When facilities are available breath samples shall be collected at intervals of six months from personnel engaged in the handling of radium salts or radium compounds which are not hermetically sealed.

#### Exceptions.

Chest X-rays and routine urinalysis are not considered an essential part of the re-examination of individuals engaged in working with radio-active materials or radiation unless specifically indicated.

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SPECIAL OR EMERGENCY EXAMINATIONS

Over-Exposure to External Radiation.

An individual receiving external radiation greater than 25 rads in a single exposure requires immediate hospital evaluation.

Possible Over-Exposure to Internal Radiation.

In the event of personnel who may possibly be exposed to ingestion or inhalation of significant amounts of radio-active material, special radio-chemical examinations shall be performed as indicated.

Abnormal Findings.

Individuals showing abnormal findings in any special or routine follow-up examinations shall be removed from further exposure to radiation and given an exhaustive examination. A full report on each known case will be submitted as soon as possible to the Director-General of Medical Services.

Examination Findings.

The results of physical and laboratory examinations given preliminary to the individual's commencing work, also interim and final examination shall be recorded on the Personal Record of Exposure to Radiation form, A.F. Med. 12 and Form P/M.5 where applicable.

Duplicates of the Personal Record of Exposure to Radiation form shall be forwarded normally every three months to the Director-General of Medical Services through the usual channels. Originals of the above mentioned form will be placed in the members A.F. Med. 4.

A copy of the new form - "Personal Record Of Exposure to Radiation" is at Appendix "A".

MAXIMUM PERMISSIBLE LEVELS OF OCCUPATIONAL EXPOSURE TO EXTERNAL RADIATION

Whole Body Exposure.

Exposure of the trunk, not necessarily involving exposure of the extremities, shall be deemed to be whole body exposure.

Exposure to Gamma Radiation up to 3 MeV.

0.3 rads per week measured in air at the surface of the body or in free air.

The Rad.

The unit of absorbed dose, is 100 ergs per gramme of absorbing material and may be taken as numerically equivalent to the roentgen for protection purposes for gamma radiation up to 3 MeV.

Exposure to Gamma Radiation above 3 MeV.

0.3 rads per week in any part of the body. The corresponding weekly dose in air at the surface of the body will be less than 0.3 rads per week.

Exposure to Beta Radiation.

1.5 rads per week measured in air at the surface of the body. Additional protection of the eyes must be provided in cases where the weekly dose is regularly above 2 MeV, in order to reduce the dose to the local of the eye to the maximum permissible dose of 0.3 rads per week.

Exposure to Neutrons up to 10 MeV.

Exposure to the neutron fluxes, averaged over a period of 40 hours per week, listed in Table 1.

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Table 1

Neutron Energy	Neutron Flux ( n/cm <sup>2</sup> /sec)
Thermal to 10 eV	2000
10 KeV	1000
0.1 MeV	200
0.5 MeV	80
1.0 MeV	60
2.0 MeV	40
3 to 10 MeV	30

Partial Exposure of the Body.

The term partial exposure is used to mean exposure of the hands and forearms, feet and ankles and head and neck.

The following maximum permissible exposures include any exposure due to whole body irradiation and may be applied whether or not whole body exposure is also incurred.

Partial Exposure to Gamma Rays up to 3 MeV.

Hands and forearms, feet and ankles - 1.5 rads per week in air at the surface of the tissue.

Head and neck, excluding eyes - 1.5 rads per week in air at the surface of the tissue.

Eyes - 0.3 rads per week in the lens.

Partial Exposure to Gamma Rays above 3 MeV. As for whole body.

Partial Exposure to Beta Rays. As for whole body.

Partial Exposure to Neutrons up to 10 MeV. As for whole body.

Exposure to Mixture of Beta and Gamma Radiation.

In cases when the beta exposure of the lens of the eye is negligible the maximum permissible dose measured in air at the surface of the body is 1.5 rads per week, of which not more than 0.3 rads per week shall be due to gamma radiation.

In cases where the beta exposure of the lens of the eyes can be neglected, and cannot be assessed, the maximum permissible weekly dose is 0.3 rads per week in air at the surface of the body.

Permissible Dose Rates.

No upper limit to the radiation dose rate has yet been laid down, provided that the maximum permissible weekly doses are not exceeded. However, because of the difficulty of keeping adequate control of exposure times, exposure to dose rates above 10 rads per hour should deliberately be incurred only in exceptional circumstances. In this context, dose rate is taken as the mean dose rate over a few seconds.

Although weekly doses, rather than dose rates, should be used in evaluating possible hazards, it is often convenient in the course of measurements to consider a dose rate of 10 milli-rads per hour in air as a level equivalent to the maximum permissible level of 300 millirads per week in tissue for occupational gamma exposure of the whole body.

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Table 2.

Maximum Permissible Concentrations in Air and Water.

Nuclide	Continuous M.P.C. (Parent uc/ml)		40 hr week M.P.C. (Parent dis/min/m <sup>3</sup> )
	Water	Air	Air
H <sup>3</sup> (as H <sub>2</sub> O)	0.2	10 <sup>-5</sup>	7x 10 <sup>7</sup>
O <sup>14</sup> (as CO <sub>2</sub> )	3x 10 <sup>-3</sup>	10 <sup>-5</sup>	7x 10 <sup>7</sup>
Na <sup>24</sup>	8x 10 <sup>-3</sup>	10 <sup>-6</sup>	7x 10 <sup>6</sup>
P <sup>32</sup>	2x 10 <sup>-4</sup>	10 <sup>-7</sup>	7x 10 <sup>5</sup>
A <sup>41</sup>	5x 10 <sup>-4</sup>	5x 10 <sup>-7</sup>	3x 10 <sup>6</sup>
Ca <sup>45</sup>	10 <sup>-4</sup>	8x 10 <sup>-9</sup>	5x 10 <sup>4</sup>
Co <sup>60</sup>	4x 10 <sup>-4</sup>	8x 10 <sup>-8</sup>	5x 10 <sup>5</sup>
Cr <sup>64</sup>	5x 10 <sup>-3</sup>	9x 10 <sup>-7</sup>	6x 10 <sup>6</sup>
Br <sup>89</sup>	7x 10 <sup>-5</sup>	2x 10 <sup>-8</sup>	10 <sup>5</sup>
Br <sup>90</sup> (+Y <sup>90</sup> )	8x 10 <sup>-7</sup>	2x 10 <sup>-10</sup>	10 <sup>3</sup>
Zr <sup>95</sup> (+Nb <sup>95</sup> )	6x 10 <sup>-4</sup>	8x 10 <sup>-8</sup>	5x 10 <sup>5</sup>
Rn <sup>106</sup> (+Rb <sup>106</sup> )	10 <sup>-4</sup>	2x 10 <sup>-8</sup>	10 <sup>5</sup>
I <sup>131</sup>	6x 10 <sup>-5</sup>	6x 10 <sup>-9</sup>	4x 10 <sup>4</sup>
Cs <sup>137</sup> (+Ba <sup>137</sup> )	2x 10 <sup>-3</sup>	2x 10 <sup>-7</sup>	10 <sup>6</sup>
Ce <sup>144</sup> (+Pr <sup>144</sup> )	10 <sup>-4</sup>	2x 10 <sup>-9</sup>	10 <sup>4</sup>
Al <sup>198</sup>	6x 10 <sup>-4</sup>	10 <sup>-7</sup>	7x 10 <sup>5</sup>
Po <sup>210</sup>	3x 10 <sup>-6</sup>	10 <sup>-10</sup>	700
Ra <sup>222</sup> + (R)	-	10 <sup>-7</sup> (total po)	7x 10 <sup>5</sup> (total disintegrations)
Ra <sup>226</sup> (+R)	4x 10 <sup>-8</sup>	8x 10 <sup>-12</sup>	50
As <sup>227</sup> (+R)	3x 10 <sup>-6</sup>	4x 10 <sup>-12</sup>	30
Th natural	5x 10 <sup>-7</sup>	3x 10 <sup>-11</sup>	400
U. natural	2x 10 <sup>-6</sup>	3x 10 <sup>-11</sup>	400
U. enriched	4x 10 <sup>-6</sup> (total uc)	6x 10 <sup>-11</sup> (total uc)	total disintegrations 400 (total disintegrations)
U <sup>233</sup>	3x 10 <sup>-6</sup>	3x 10 <sup>-11</sup>	200
Pu <sup>239</sup>	3x 10 <sup>-6</sup>	2x 10 <sup>-12</sup>	10
Any fission product mixture	10 <sup>-7</sup>	10 <sup>-9</sup>	7x 10 <sup>3</sup>
Any mixture of alpha emitters	10 <sup>-7</sup>	5x 10 <sup>-12</sup>	30

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Over exposures.

As far as is practicable any of the weekly doses listed must be treated as the maximum permissible dose in any one week, some degree of averaging over successive weeks will, however, sometimes be necessary.

In the case of any exceptional exposure of a radiological worker in any one week to a dose in excess of the maximum permissible weekly amount recommended by the International Commission on Radiological Protection, an average weekly dose shall be assessed for the irradiation of the worker during the 13 weeks prior to, and including, the week in which overexposure occurs. If this average value exceeds the maximum permissible weekly value, the worker shall be placed under medical supervision and his duties shall be re-arranged so as to involve considerably less exposure for a compensatory period. If the average weekly value of the 13 weeks in question is less than the maximum permissible weekly value, the worker can continue on normal duties.

MAXIMUM PERMISSIBLE LEVELS OF OCCUPATIONAL EXPOSURE TO RADIO-ACTIVE SUBSTANCES IN AIR AND WATER.

Occupational maximum permissible levels are usually estimated for continuous exposure. For occupational exposure limited to 40 hours per week the figures may be increased by a factor of three.

Maximum Permissible Concentrations.

A few more useful figures are listed in Table 2.

Some beta emitters in chemical forms insoluble in lung fluids have lower maximum permissible concentrations in air than those tabulated.

All the figures tabulated have been rounded off to one significant figure.

All the figures tabulated refer to average concentrations. NO particular harm is to be expected if these values are exceeded for a short period of time - a few weeks, and no readily detectable biological damage is expected to result if the average body burdens or the average concentrations over a long period do not exceed the maximum permissible values. In particular, exposures of individuals for a few days to air and water concentrations 10 times those listed would not be any cause for alarm provided the average concentration over any interval of a year does not exceed these recommended values.

The figures quoted for unidentified mixtures of fission products and of alpha emitters should not be used for periods of more than a few months unless separate consideration can be given to the concentrations of radium 226, plutonium 239, actinium 227 and strontium 90.

Over Exposures.

Because and individual's integrated exposure to radioactive substances cannot be assessed by any convenient form of personnel monitoring, efforts must be made to avoid high transient concentrations. However, such transient concentrations need be treated as significant overexposures only if they are likely to result in a body burden in excess of the maximum permissible, or in a tissue dose which exceeds weekly dose when averaged over 13 weeks.

Average concentrations of radio-active substances in drinking water and air must be controlled to levels below the appropriate maximum permissible levels. Alternatively, if this is impracticable, the water must be declared unfit for drinking.

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Access to the area in which there is contaminated air must be controlled so that the average daily intake is less than the maximum permissible daily intake. The maximum permissible daily intake can be obtained from the "continuous m.p.l." column of Table 2 by assuming a daily intake (24 hours) of cubic metres of air.

**MAXIMUM PERMISSIBLE LEVELS OF SURFACE CONTAMINATION BY RADIO-ACTIVE CONTAMINANTS.**

The basic maximum permissible levels of surface contamination are expressed as microcuries per unit area. In practice it is convenient to relate these to counting rates on the commonly available contamination monitors. The relationship depends on the energy of the radiation emitted by the contaminant and on the physical state of the surface as well as on the way in which the monitor is used. The figures shown in Table 3 are typical and may be used to convert the basic m.p.l.'s. to counting rates

Table 3

Conversion Table

Typical Counting Rates Equivalent to a Uniform Surface Contamination of  $10^{-4}$   $\mu\text{c}/\text{cm}^2$

Type of Probe	Counting rate (counts per sec.)
Type <del>1024</del> <sup>1257c</sup> Standard beta	5
Standard alpha	3
End Window beta	1.5
Type <del>1027</del> <sup>1257</sup> Standard beta	5
Standard alpha	3
Standard alpha, selected and modified.	10
Type <del>1024</del> <sup>1257</sup> Floor probe, alpha	30
Large area floor probe, beta	25

Hands.

The following maximum permissible levels for hand contamination apply to any contaminant and to prolonged periods. They apply to contamination during working hours and also to residual contamination. The main limitation is set by irradiation of the skin and since exposure to external radiation may also be incurred the levels should be regarded as far as practicable as upper limits rather than average maximum permissible levels.

Alpha Active Contaminants

$10^{-6}$  microcuries per hand or 1 m.p.l. on installed hand monitors.

Beta Active Contaminants

$3 \times 10^{-6}$  microcuries per hand or 1 m.p.l. on installed hand monitors.

Skin on Other Parts of Body

Alpha Active Contaminants

$3 \times 10^{-8}$  microcuries per square centimetre ( $\mu\text{c}/\text{cm}^2$ ) averaged over 30  $\text{cm}^2$

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Radio-active Contaminants

$10^{-4}$   $\mu\text{c}/\text{cm}^2$  averaged over  $30 \text{ cm}^2$

Inanimate Surfaces.

Radio-active contamination on inanimate surfaces is not a direct danger to health unless it causes levels of external radiation or of radio-active materials in air to exceed the maximum permissible levels, or unless it may be directly, or indirectly, ingested. The maximum permissible levels of surface contamination in Table 4 are such that in no normal circumstances will any of the basic maximum permissible weekly doses be exceeded and in many circumstances they will not be approached. Thus, although the levels in Table 4 should not normally be exceeded, higher levels may be acceptable in particular cases where, because of adequate control measures, or for other reasons the basic maximum permissible weekly doses are not exceeded. In particular, contamination levels in areas accessible only to people suitably protected by special protective clothing, e.g. pressurised suits, may properly be allowed to exceed the levels in Table 4.

Table 4

Summary of m.p.l.'s of Surface Contamination

Site	Size of affected area	Contaminants	M. P. L. ( $\mu\text{c}/\text{cm}^2$ )
Inactive Locations and	Widespread Areas	Pu Ra Ac Po Other Alphas All Betas	$10^{-5}$ $10^{-4}$ 10
	Blue Contamination Areas (see note 1)	Pu Ra Ac Po Other Alphas All Betas	$10^{-4}$ $10^{-3}$ $10^{-3}$
Red Contamination Areas		Any size of area Pu Ra Ac Po Other Alphas All Betas	$10^{-4}$ $10^{-3}$ $10^{-3}$

Notes:

Blue Contamination areas are those in which contamination is unlikely to reach hazardous levels.

Red Contamination areas are those in which the normal procedure in the area may sometimes give rise to hazardous levels of contamination of surfaces and of inhaled air.

Limited areas are those covering less than about  $100 \text{ cm}^2$  in each square metre of surface. The relaxation for such areas should be applied with discretion, particularly if the surface is liable to frequent handling.

Articles below 1 m.p.l. (Blue contamination area, may be regarded as free from significant contamination and may be removed to inactive locations.

All figures in Table 4 apply to contamination which is only loosely attached to the surface. When the future use of an article is known it may be possible to allow a relaxation for firmly fixed contamination

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The figures in Table 4 are based on the need for safeguard health. In practice they prove adequate in most cases to avoid interference with technical work. However, in few cases where very sensitive measurements of radiation are involved additional care should be taken to control the entry of articles from Restricted Areas.

MAXIMUM PERMISSIBLE LEVELS OF NON-OCCUPATIONAL EXPOSURE TO RADIATION AND RADIO-ACTIVE SUBSTANCES

The exposure of individual members of the general public and any other workers, who have not been declared fit for occupational exposure to radiation shall be known as non-occupational exposure.

In the case of prolonged non-occupational exposure to maximum permissible levels shall be reduced by a factor of not less than two below those accepted for occupational exposure.

RELATIVE BIOLOGICAL EFFECTIVENESS

The relative biological effectiveness (RBE) applicable to exposure to radiation from external sources is given in Table 5.

Table 5  
RBE VALUES

Radiation	RBE	Biological effect
X-rays, gamma rays, electrons, and beta rays of all energies.	1.0	Whole-body-irradiation (blood forming organs critical).
Fast neutrons and protons up to 10 MeV	10	Carcinogenesis
Naturally occurring alpha particles	Compare with 0.1 microcurie Ra, otherwise =10.	
Heavy recoil nuclei	20	

The following are the approximate values of dose received by nearer skin surfaces in diagnostic X-ray Examinations.

- Chest, posterior - anterior 0.1r
- Chest " (photofluoroscopic X-Ray) 1.0r
- Lumbar spine, anterior-posterior 1.5r
- " " , lateral 5.7r
- Pelvis 1.1r
- Pregnancy, anterior - posterior 3.6r
- Kidney - ureter - bladder 1.2r
- Women 1.3r
- Gastro - intestinal series (6 films) 4.0r
- Gall - bladder 0.6r
- Extremities 0.3r
- Skull, posterior - anterior 1.3r



AIR BOARD ORDER SECTION 125/54

RADIOLOGICAL SAFETY IN RELATION TO THE RESULTS OF ATOMIC EXPLOSIONS

A.E.C. "A"125/54 is being amended to include relevant information covered in this memorandum.

R30 34

30 JUL 1958

RECEIVED BY SECURE MEANS



PRIORITY

CY/30 70

FM AWRE ALDERMASTON

TO AWSTAFF SALISEURY

AWRE POULNESS

INFO MARSU MARALINGA

R E S T D ZK2931 30 JUL.

INFO [REDACTED] [REDACTED] [REDACTED] [REDACTED]. XZ1992 AND XZ2926 REFER. BRIDGES CONTAMINATED BOTH BUFFALO AND ANTLER. ALL WORK MUST BE CARRIED OUT UNDER [REDACTED] HEALTH PHYSICS SUPERVISION. CONSULT [REDACTED] REGARDING SUITABLE PLACE FOR STRIPPING CHECKING AND REPAIRING AS WE DO NOT WISH TO SPREAD CONTAMINATION TO NEW SITE. SUITABLE SITE MAY BE AT EDGE OF PRESENT RED AREA OR AT HP1. FINAL NEW SITE FOR BRIDGES LIKELY TO BE IN AREA NORTH AND WEST OF GONA SOMEWHERE BETWEEN GONA AND [REDACTED] KITE. CURRENT PLANS FOR [REDACTED] [REDACTED] DUE WITH YOU MARCH. GRATEFUL FUTURE SIGNALS ON THIS SUBJECT PASSED THROUGH ME.

THIS SIGNAL MUST BE PARAPHRASED AND THE DATE-TIME GROUP REMOVED BEFORE IT IS REPRODUCED IN PRINTED OR TYPED POSTED ON NOTICE BOARD OR RELEASED TO ANY PERSON OUTSIDE BRITISH GOVERNMENT SERVICES AND DEPARTMENTS. NO REFERENCE IS EVER TO BE MADE TO THIS SIGNAL IN AN UNCLASSIFIED MESSAGE.

CRYPTOGRAPHIC CENTRE  
30 JUL 1958  
MARALINGA

D.T.G. : 281440Z

T.O.R. : 300005Z

P.C. : 300105Z



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APPENDIX

COMPOSITION OF THE AUSTRALIAN RADIATION DETECTION UNIT  
AT OPERATION BUFFALO.

The A. R. D. U. was under the Command of [REDACTED]

(a) R. A. N.

Sick Berth Petty Officer [REDACTED]  
Stores Petty Officer (S) [REDACTED]  
Petty Officer Airman Fitter (E) [REDACTED]  
Petty Officer Electrician (P) [REDACTED]

(b) ARMY.

Major [REDACTED]  
~~Second Lieutenant~~ [REDACTED]  
" " [REDACTED]  
" " [REDACTED]  
Warrant Officer Class 2 [REDACTED]  
~~Sergeant~~ [REDACTED]  
" [REDACTED]  
" [REDACTED]  
~~Craftsman~~ [REDACTED]  
" [REDACTED]

(c) R. A. A. F.

Pilot Officer [REDACTED]  
Flight Sergeant [REDACTED]  
L. A. C. [REDACTED]  
L. A. C. [REDACTED]

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Binder No. 8 File No. 65 Document No.

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BUFFALO TRIALS

INDOCTRINEE FORCE INSTRUCTION NO. 2

July, 1956.

1. SECURITY

The present security classifications allocated to the various aspects of the BUFFALO Trials are as follows:-

(a) Top Secret Guard

- (i) The specific nature and purpose of each weapon trial.
- (ii) Design details of the weapons.
- (iii) Nuclear efficiency, multiplication rate and radio chemical measurements relating to efficiency.

(b) Secret

Guard

- (i) The yield of experimental weapons tested.
  - (ii) Details of measuring equipment used, except that in normal commercial (supply).
- Guard \*
- (iii) Height of weapon towers.
  - (iv) The number of rounds to be fired.

(c) Confidential

- (i) Precise month in which trials are to take place. \*
- (ii) The layout and details of the weapon sites, instrumentation and equipment for test (but see sub-para. (b) (ii) and (iii) above.

\* Items starred will or may be downgraded later.

2. IDENTITY CARDS

Each officer of the Indoctrinee Force will be in possession of British Army Identity Card - (AFB 2603).

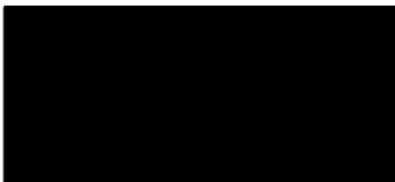
3. CAMERAS

Further to para. 29 of Indoctrinee Force Instruction No. 1.

In view of the many restrictions in the carrying and use of cameras either during flight or at stop-overs Officers are advised not to take a camera with them.

4. STAFF MEETING

A meeting of officers detailed for special duties will be held in Room 241, The War Office, (Main Building) at 1030 hours Thursday 9th August, 1956. The following will attend:-



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dated 85

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Note: [REDACTED] is replacing [REDACTED].

5. STAFF - GUNDULPH CAMP

- (a) The Australian Army is providing a staff of approximately forty other ranks which will include drivers for vehicles to be used by the IF Group.
- (b) A Camp Commandant and Adjutant for GUNDULPH Camp is being provided from the Australian contingent of the IF Group.

6. BREAKDOWN BY PARTIES

- (a) These are detailed in Annexure "A" to this Instruction which contains the breakdown of the British contingent of the IF Group into parties of approximately twenty each.
- (b) Wherever possible parties have been made up from members of one particular Arm or Service.

7. DEPARTURE FROM UK

Annexure "C" to Indoctrinee Force Instruction No. 1 notified the dates certain groups of officers would emplane from the United Kingdom. To further assist officers in planning their personal arrangements the time and place of reporting etc., are shown below:-

(a) BO&C

12th August, 1956	-	BO&C Party "A"
13th August, 1956	-	BO&C Party "B"
16th August, 1956	-	BO&C Party "C"
17th August, 1956	-	BO&C Party "D"
19th August, 1956	-	BO&C Party "E"

Officers Travelling by BO&C will report to Airways Terminal, Buckingham Palace Road, London, S.W.1. at 1830 hours (summer time) on the applicable dates given above.

(b) RAF (HASTINGS)

Officers Travelling by RAF (HASTINGS) will report to the RTO STINDON JUNCTION at 1600 hours (summer time) on 13th August, 1956.

(c) Air Trooping Service "A" and "B"

(i) Officers Travelling by Air Trooping Service "A" or "B" will report to No. 1 Army Air Transit Unit, 209 Harrow Road, Paddington, London, W.2, at 0615 hours on 15th August, 1956.

(ii) Officers who anticipate difficulty in reporting at such an early hour may obtain overnight accommodation at No. 1 Army Air Transit Unit if desired. Officers requiring overnight accommodation must submit a request for such accommodation when reporting to No. 1 AATU on 9th August, 1956, vide para. 5(a) of Indoctrinee Force Instruction No. 1.

8. REFIRING SCHEDULES

A copy of the Refiring Schedules is attached as Annexure "B" to this instruction for retention. An explanation of these schedules will be provided at GUNDULPH Camp.

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9. Reference para. 10 of Indoctrinee Force Instruction No. 1.

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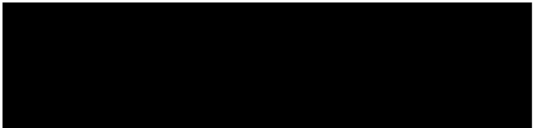
Dress to be provided by the Australian Army is "protective dress - khaki summer weight", designed for wear over battle dress and not actual battle dress. Accordingly, officers will now take a suit of British battle dress for wear during working hours.

10. NOTES FOR GUIDANCE OF INDOCTRINEES

Some notes which will be of interest to officers of the IF Group outlining requirements and conditions are attached as Annexure "C" to this Instruction.

11. AMENDMENTS

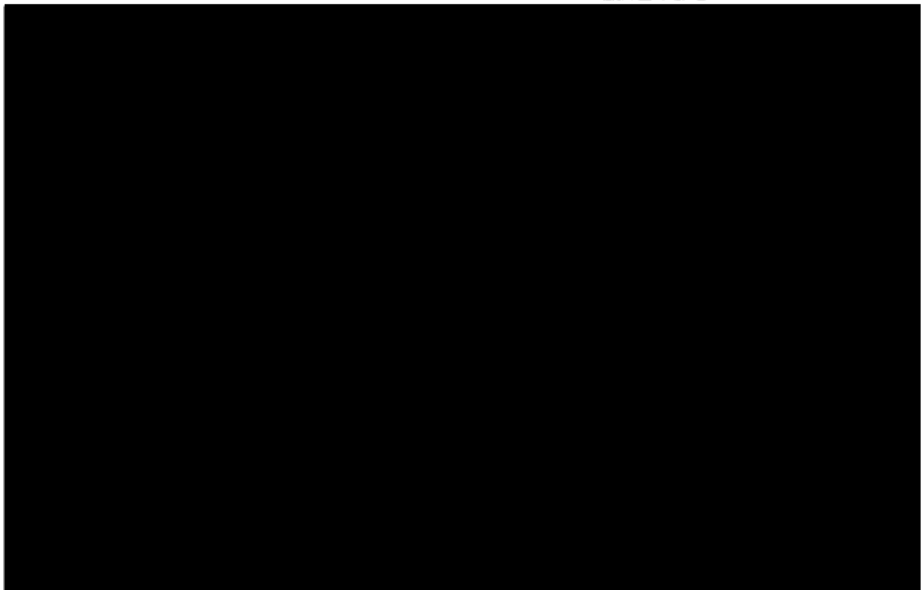
Certain changes, particularly in names of officers comprising the IF Group will be required to Indoctrinee Force Instructions Nos. 1 and 2. Amendments will be forwarded to all concerned from time to time.

  
Lieutenant General,  
Director General of Military Training.

R 29-041

31 JUL 1956

Annexure A to BUFFALO Trials  
Indoctrinee Force Instruction  
No. 2 dated 31 July 1956



Conducting Officer:

4

Party No. 2

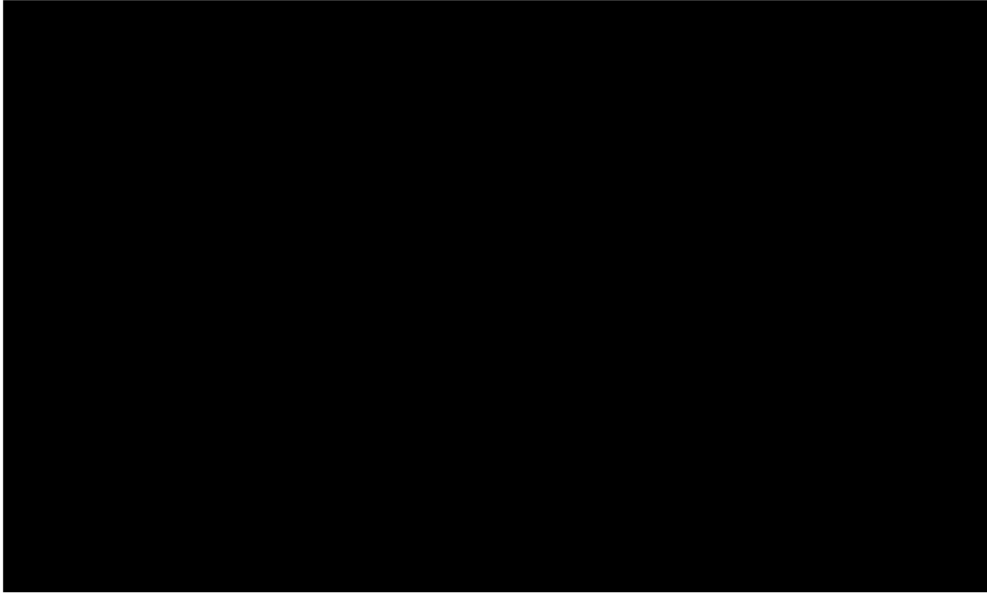


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Party No. 3

IF number



Party No. 4

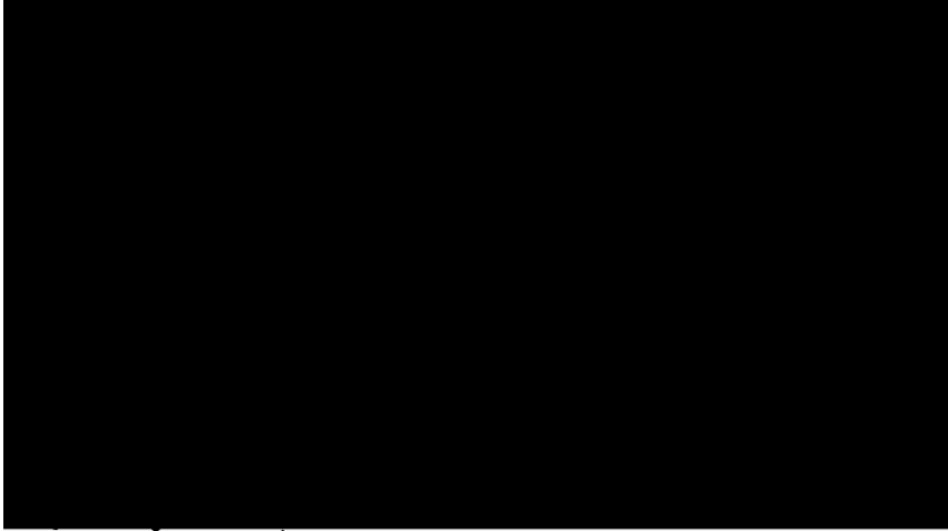


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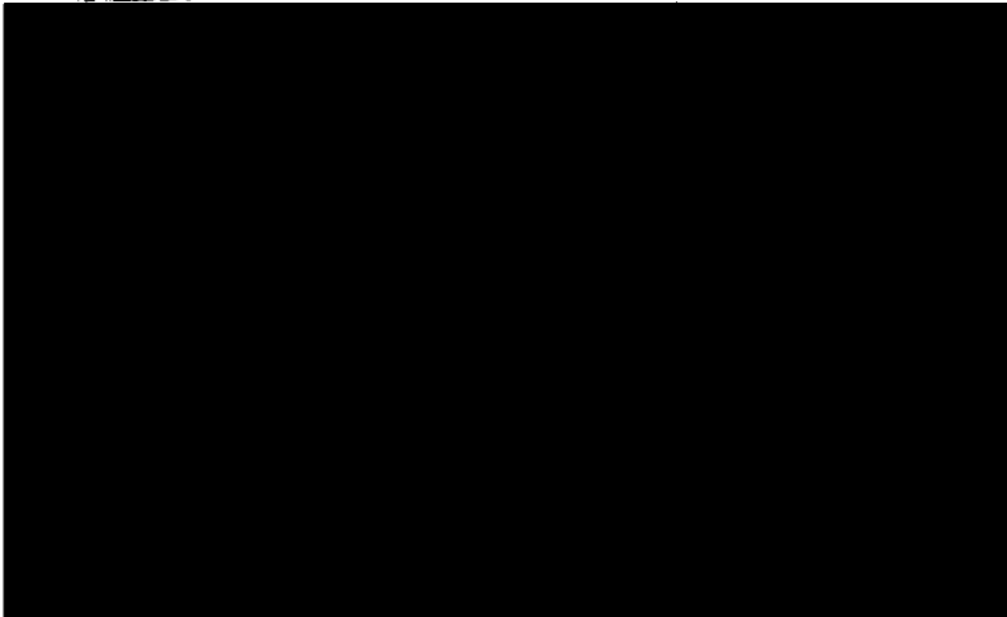
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Party No. 5

IF number



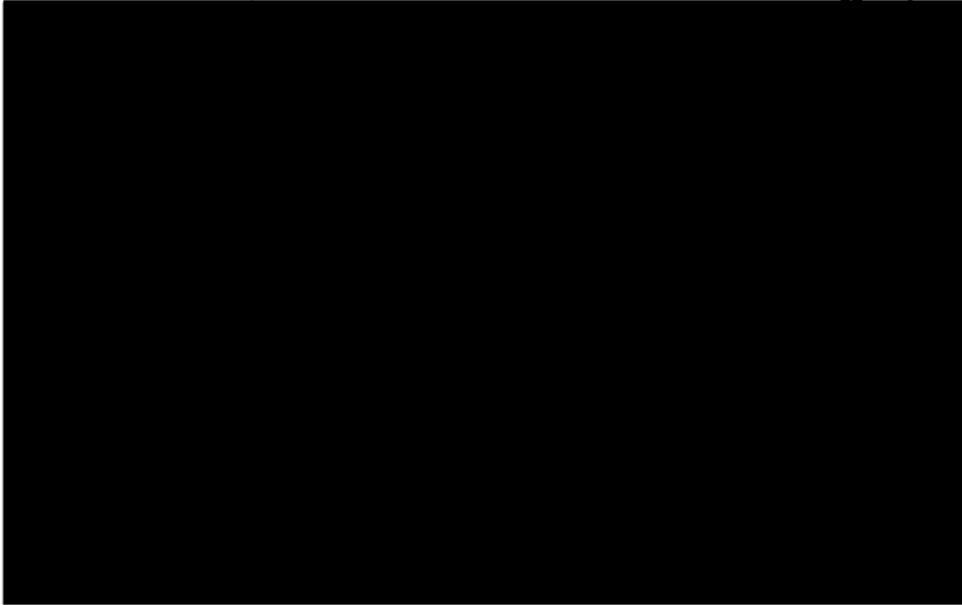
Party No. 6



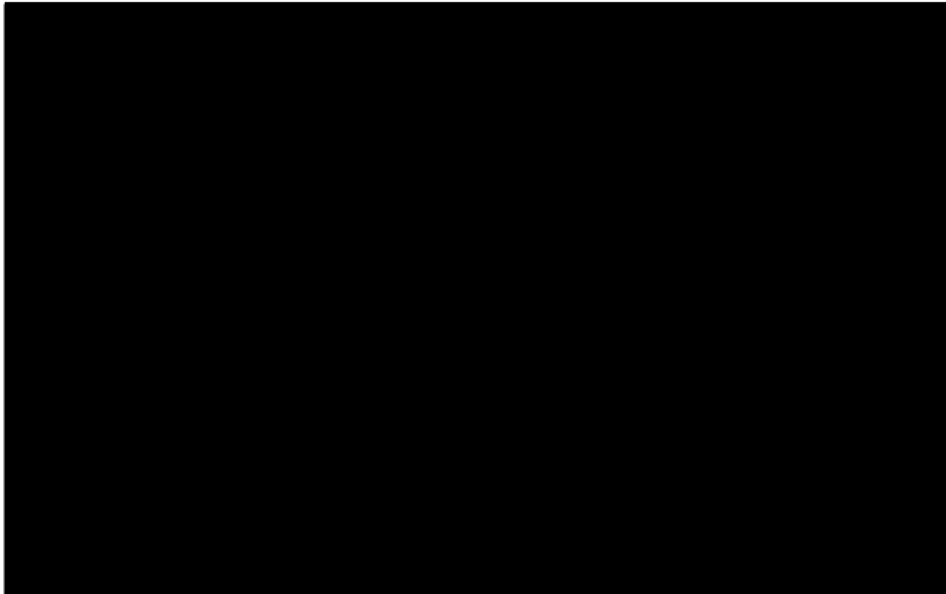
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Party No. 7



Party No. 8

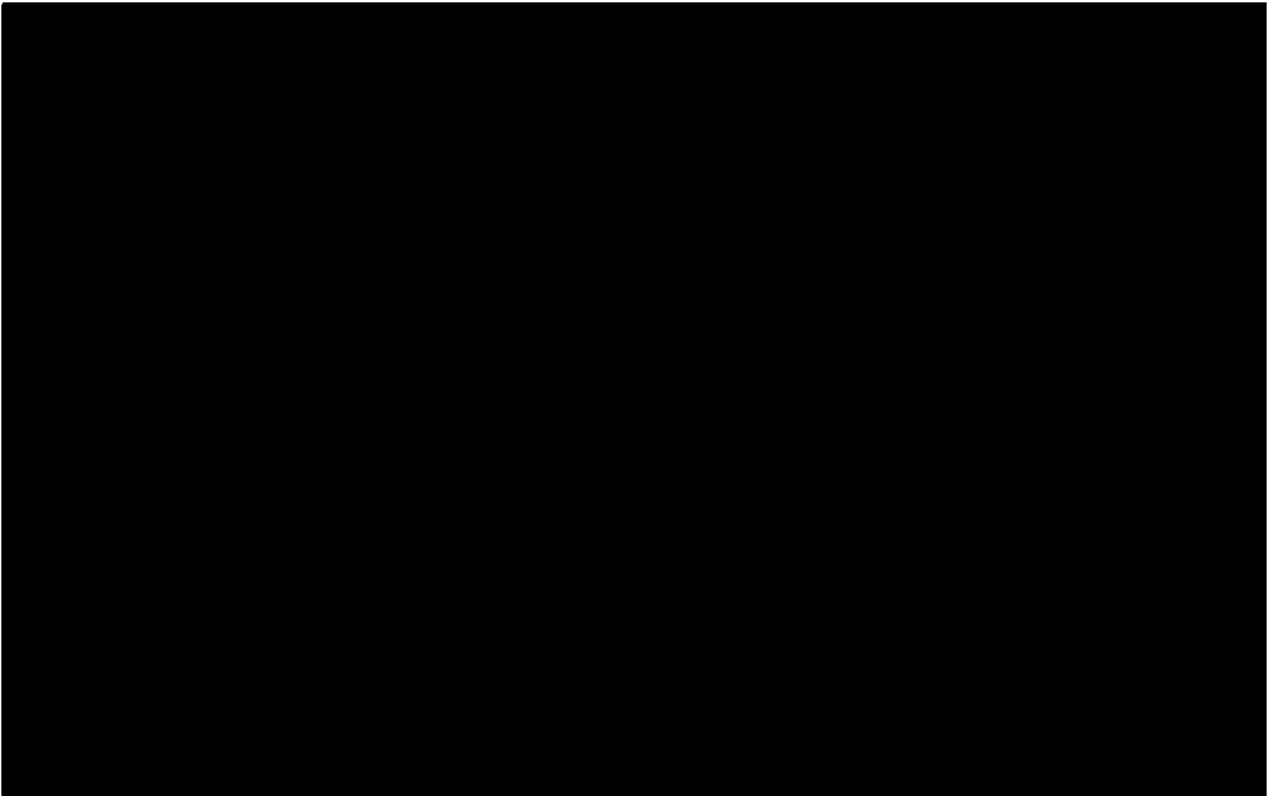


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Party No. 9

IF number



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OPERATION BUFFALO - PREPARING SCHEDULE

ANNEXURE 'B' TO  
BUFFALO TRIALS INDOCTRINER  
FORCE INSTRUCTION NO. 2  
DATED 31 JULY, 1956

IF GROUP ROUND 1

Schedule	Time	Vehicle	Site	Action and personnel involved	Reporter	Method
	1900 (approx)		Base Control	██████████ confirms provisional D-1 with IF Commander and SIBU security post	██████████	Phone
	2100 (approx)		Base Control	██████████ gives second confirmation of D-1 with IF Commander and SIBU security post		Phone
	0100		Gundulph	IF Commander confirms D-1 with Forward Control before IF Reveille at 0100 hrs.		Phone
	0245	V 1-12	Gundulph	IF Commander reports to Forward Control IF preparing to leave Gundulph for Roadside Party No. 1 (IF4, IF16 to 35, and (IF 251) in vehicle No. 1. Remainder to follow at 2 minutes interval.		Phone
	0310	V 13	Gundulph	IF Commander reports to Forward Control, parties 1 to 12 left Gundulph for Roadside. Party No. 13 (IF1, IF2 and IF3) departing for Roadside.		Phone
	0310	R 1	Base Control	██████████ (SP1) departs for Roadside		In person
	0355	R 1	Roadside FC1,2	Arrival of ██████████ (SP1)		In person
	0410 to 0435		Roadside	Arrival of IF parties 1 to 13. Report to ██████████		-
	0440	R1 V1-13	Roadside FC 1.2	██████████ (SP1), and IF parties 1 to 13 (IF1 to IF262) depart for North Base		In person
	0500	R1 V1-13	North Base	Arrival of ██████████ (SP1), and IF parties 1 to 13 (IF1 to IF262)		I/C

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OPERATION BUFFALO - PREFIRING SCHEDULE

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IF GROUP

ROUND 1 (Cont

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Schedule	Time	Vehicle	Site	Action and personnel involved	Reporter	Method
	0600	-	North Base	Report that count down receipt and rebroadcast is satisfactory	[REDACTED]	I/C
	0635	-	North Base	[REDACTED] reports on request from Forward Control: IF personnel present.	[REDACTED]	I/C
	0715	R1.V1-13	North Base	[REDACTED] (SP1) and IF parties 1 to 13 (IF1 to IF262) depart to Hendon	[REDACTED]	I/C on phone
	0830	R1.V1-13	Hendon	[REDACTED] (SP1) and IF parties 1 to 13 (IF1 to IF262) depart for Health Control.	[REDACTED]	Phone
	0915	R1.V1-13	Health Control	[REDACTED] (SP1) and IF parties 1 to 13 (IF1 to IF262)	[REDACTED]	I/C on phone
	0945	V1-13	Health Control	IF parties 1 to 13 (IF1 to IF262) depart for Gundulph	[REDACTED]	I/C on phone
	1000	R1	Health Control	[REDACTED] parts for Billage, reporting at Forward Control that all IF force have left Test Area.	[REDACTED]	In person
		V1-13	Gundulph	IF Commander reports arrival of IF force.	[REDACTED]	Phone

- Note: 1. At time of firing, [REDACTED] and total IF force (262 men) will be at North Base.
2. A copy of Prefiring Schedule will be taken to Australia by each officer comprising the Indoctrines force. Further details will be provided by [REDACTED] shortly after arrival. GUNDULPH Camp.

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OPERATION: BUFFALO - REFIRING SCHEDULE

IF GROUP

ROUND 1 (Cont'd)

Numbering of Indoctrinee Force

IF 1	IF Commander	} who travel in Hooce Vehicle (No. 13)
IF 2	Gundulph Camp Commandant	
IF 3	IF Adjutant	

	Conducting Officer	
	" "	" "
	" "	" "
	" "	" "
	" "	" "
	" "	" "
	" "	" "
	" "	" "
	" "	" "
	" "	" "

Part	No. 1	Consists of	
"	No. 2	"	
"	No. 3	"	
"	No. 4	"	
"	No. 5	"	
"	No. 6	"	
"	No. 7	"	
"	No. 8	"	
"	No. 9	"	
"	No. 10	"	
"	No. 11	"	
"	No. 12	"	

(Note: All parties consist of 20 officers plus 1 Conducting Officer, except for No. 12 Party which is 19 officers plus 1 Conducting Officer)

Drivers

	is driver for vehicle No. 1	1
	" " " 2	2
	" " " 3	3
	" " " 4	4
	" " " 5	5
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	" " " 7	7
	" " " 8	8
	" " " 9	9
	" " " 10	10
	" " " 11	11
	" " " 12	12

R 29.041  
31 JUL. 1956

Declassified on the Authority of  
BDRSS JAA/243101/ATC  
dated 85

BR 125 21589 TJM

DECLASSIFIED

ANNEXURE 'C' TO BUFFALO TRIALS  
INDOCTRINE FORCE INSTRUCTION  
No. 2 DATED - 1 JULY, 1956

NOTES FOR GUIDANCE OF BUFFALO INDOCTRINEE  
CONDITIONS AND REQUIREMENTS AT BARRINGA

1. The site for the Atomic Trials you are to attend is not such that the provision of creature comforts is a simple matter. It is only fair to warn you that the Camp area is endowed with neither a comfortable climate nor pleasing aspects.

Our sojourn at the Camp is for an indefinite period. If the elements are kind we may remain only a matter of days. In any event it is unlikely that our stay will exceed four weeks.

Regardless of the time we remain in the area the following information may assist in the most suitable choice of kit.

2. Site and Climate

- (a) The Camp is situated in SOUTH AUSTRALIA, on the edge of the Nullabor Plain eleven miles from WATSON. The nearest township of any size is PORT AUGUSTA (500 miles) with a population of some 7,000. Fresh water and stores are railed from PORT AUGUSTA to WATSON siding on the Trans Australian Railway.

ADELAIDE, the capital of SOUTH AUSTRALIA, is 700 miles by rail from WATSON and approximately 600 miles by air.

- (b) The site of the camp is generally flat with areas of low sand hills. Low scrub, salt bush and blue bush cover a great deal of the area with occasional scattered stands of Sheoaks. There is no grass and the surface soil breaks up easily.
- (c) Conditions will vary from occasional warm days to cool to cold nights. The wind is normally strong and cold at this time of the year and upwards of an inch of rain may fall a month. The temperature range is approximately as follows :-

	<u>MAXIMUM</u>		<u>MINIMUM</u>	
	<u>Average</u>	<u>Extreme</u>	<u>Average</u>	<u>Extreme</u>
August	68	93	41	30
September	75	102	44	35

- (d) Dust is a nuisance when the wind blows. Should it rain, the dust is replaced by red mud which may permanently stain clothing. It would be wise not to bring your best kit.
- (e) Flies are quite numerous, even on cold days, and although the area will be sprayed we must expect some inconvenience in this regard.

3. Accommodation

- (a) Messing and sleeping will be under canvas.
- (b) Folding wire beds, mattresses, blankets, sheets, pillows and slippers will be provided.
- (c) Sufficient staff will not be available for batman duties and with few exceptions Indoctrinees must be prepared to fend for themselves.

4. Messing

- (a) Two Officers' Messes will be established with a bar in each. The bars,

R 29.041  
31 JUL 1956

[REDACTED]

beside providing liquid refreshment, will have confectionary, cigarettes, toilet requisites, etc., for sale.

(b) All transactions will be on a cash basis.

5. Ablution and Laundering Facilities

Other than electric washing machines which should cope with our "smalls", the ablution facilities will be of a rudimentary nature, e.g. Soyer stoves and canvas showers. Unfortunately, we have still have not devised a system better than the standard Army field latrine.

6. Amenities

- (a) Daily newspapers, periodicals and books will be available.
- (b) It is proposed to show entertainment films thrice weekly.
- (c) Chess, darts and such games will be provided.
- (d) Cricket gear and mats will be held at the Camp. (This may well afford the opportunity to settle any differences of opinion on the Tests).
- (e) Volley ball, badminton and deck tennis equipment will be on hand.

7. Issues

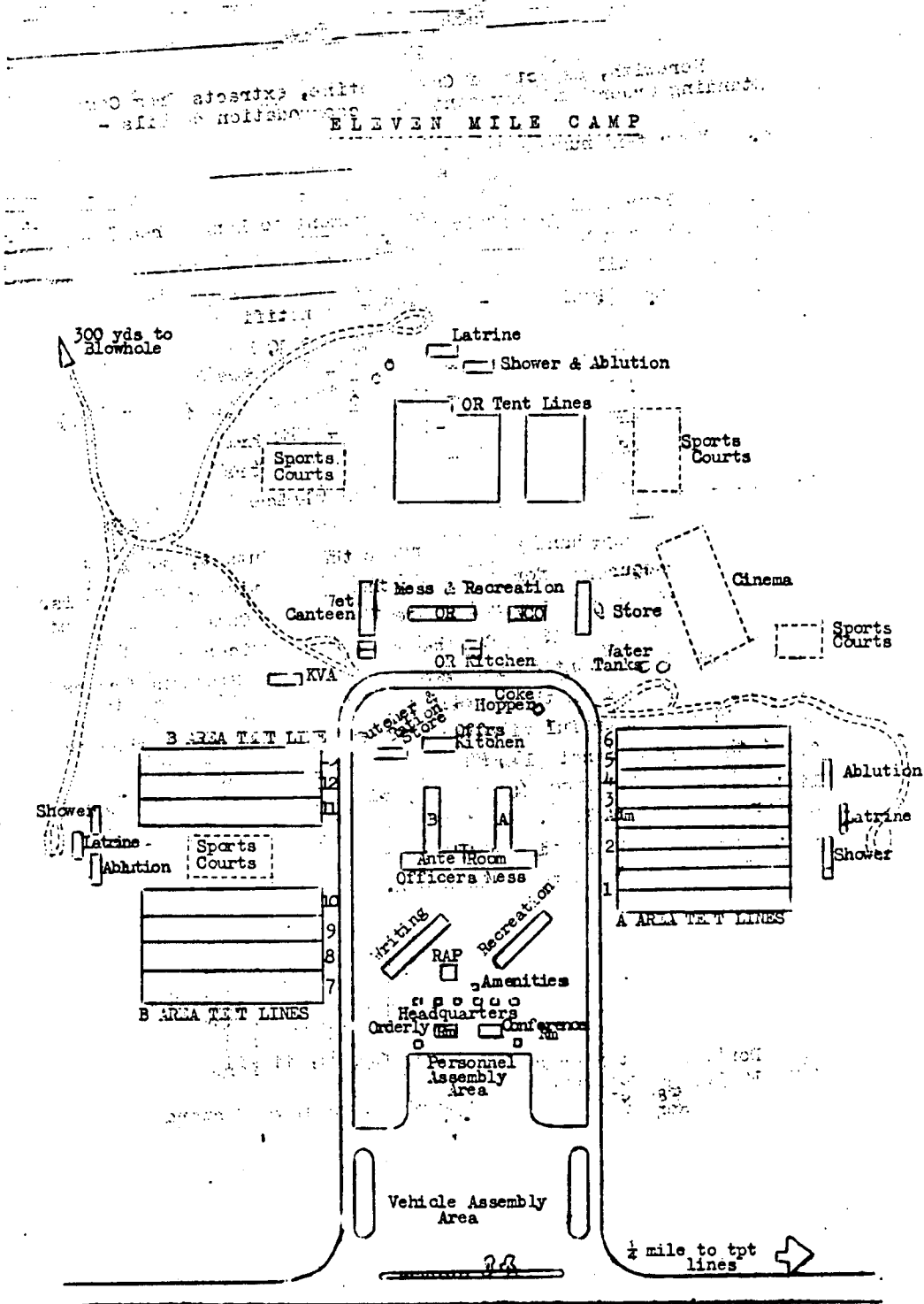
The issues you will receive on arriving at the Camp are as follows :-

- (a) Two towels,
- (b) Two suits of Australian Army Battle Dress,
- (c) Leather jacket,
- (d) Five blankets,
- (e) Pillow and case,
- (f) Two sheets,
- (g) Old Pattern (single breasted) greatcoat.

8. Suggested Items of Kit

- (a) A pair of boots,
- (b) Warm outer and under clothing,
- (c) Badges of rank on slides for the Australian Army Battle Dress.
- (d) Dust covers for clothing. (These will be available for purchase at the canteen).
- (e) A mirror.

R 29.102  
(C) AUG. 1956



Scale 1" = 66'8" approx 563303

R 30.175

AUG 1956

MESSAGE FORM

P240 51 54

PRIORITY

021605K

FROM ARMY MELBOURNE

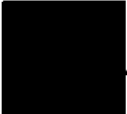
TO MILCOMAND BRISBANE  
MILCOMAND SYDNEY  
MILCOMAND MELBOURNE  
MILCOMAND ADELAIDE  
MILCOMAND PERTH

MILCOMAND HOBART  
MILCOL DUNTRON  
STAFFCOL QUEENCLIFF  
MEDSCHOOL HEALESVILLE  
TACADMIN SEYDOUR

CONF

TRG 6156

BUFFALO (.) Health measures (.) All personnel likely to be subject to radiation hazards will be examined medically in accordance with paragraphs 13(a) and 14(a) of MBI 78/56 and will be given protective inoculation against typhoid and para typhoid and tetanus in accordance with Appendix A MBI 68/55 (.) Annual chest X-ray for 1956 will also be completed (.) Technical instrs for medical examination contained DGMS administrative Instruction No 9 (.) C Comd responsible for Health Physics and Radiation Detection Gp and other personnel already in area (.) Indoctrinings will be responsibility of comds concerned prior to mov (.) Forms "Personal Record of Exposure to Radiation" are being forwarded direct Comds (.) Forms will be completed in duplicate and be treated as a regimental document (.) Detailed instrs will be issued shortly



Handwritten notes: AM60, 7/2, 7/2

Aug 56 DMT

Distr: AG Branch; QMG Branch; HGO Branch; Secretary; BGS(B); DMO; DMI; DSD; DGMS; D Mov.

0032.

Removed for discovery in JOHNSTONE V. THE COMMONWEALTH OF AUSTRALIA

Binder No. 15 File No. 175 Document No. 2

563321

R3C-150

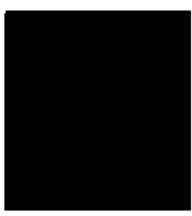
(C) AUG. 1956

Buffalo Administrative Notice No. 48

OPERATION BUFFALO

Entry into Restricted Areas

1. Access to certain areas of the Range is restricted to a very few people. The areas are:
  - (a) Ia Area
  - (b) Xa Area
  - (c) Yb Area
  - (d) Zc Area
  - (e) The Firing Sites
2. Free access to these areas is limited to those who regularly work in the area and who are named in the attached lists. These lists will be held by the Peace Officer guard in the area. All those on this list should have a red band on their passes.
3. Those having occasional duties in this area and who have a red band on their passes will be permitted access only after the Peace Officer guard has first checked with the officer in charge of the area or his deputy.
4. Those having occasional duties in the area but who do not have a red band on their pass must first arrange for their names to be included in the daily list prepared by the Range Security Officer. Such visitors will be required to wear a visitors badge issued by the Peace Officer whilst in the area.
5. POSSESSION OF A PASS WITH OR WITHOUT RED BAND DOES NOT GIVE RIGHT OF ENTRY INTO RESTRICTED AREAS. THE NOMINATED OFFICER IN CHARGE OF AN AREA OR HIS DEPUTY MUST RIGOROUSLY APPLY THE 'NEED TO KNOW' PRINCIPLE IN ACCEPTING STAFF INTO THE AREA WHO ARE NOT MEMBERS OF HIS GROUP.
6. In the event of an emergency the following may approve entry into a restricted area if the officer in charge or his deputy are not available:



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Binder No. 16 File No. 186 Document No. 1

563322



R 30 150

(C) AUG 1950

Circled Place	St. M Regularity	Officer-in-charge and Deputies
---------------	---------------------	-----------------------------------

<p>XX Area</p>	<p>XX Group</p>	
----------------	-----------------	--

<p>XX Area</p>	<p>W. Group</p>	
----------------	-----------------	--

<p>XX/9 only</p> <p>XX/3.1, 3.3, and 3.4 only.</p>	<p>R. Group</p> <p>XX Group</p>	
--	---------------------------------	--

<p>TH Area</p>	<p>TH Group</p>	
----------------	-----------------	--

Removed for discovery in JOHNSTONE V. THE COMMONWEALTH OF AUSTRALIA

Binder No.	16	File NO.	186	Document No.	/
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563323

R3C-186

(c) AUG, 1956

Closed Place	Staff Regularly Employed	Officer-in-Charge and Deputies
Number (while no written trials)	[REDACTED]	[REDACTED]
All Areas	[REDACTED]	

Removed for discovery in JOHNSTONE V. THE COMMONWEALTH OF AUSTRALIA

Binder No. 16 File No. 186 Document No. 1

563324

R 29.42  
2 AUG. 1956

AUSTRALIAN MILITARY FORCES  
MINUTE PAPER

SUBJECT: BLOOD TESTS - HARALINGA AREA

10-041 Head rang 1130 hrs 2 Aug 56 and advised:-

- i. Three Head Medical Officers in conference had decided that all people subject to radiation in Haralinga area should be blood tested.
- ii. HQ will send a staff signal today.
- iii. [REDACTED] (DMS Officer) will forward technical instructions.
- iv. Personnel to be tested as under :-

- Industrious Unit - In originating Command.
- UK - before arrival in Aust.
- ME - In ME.
- RMF - by RMF before arrival.
- RAAF - by RAAF before arrival.

Radiation Detection Unit - C Comd before on movement about 9 Aug.  
 11 Mile Camp Staff - C Comd before on movement.  
 Services Task Forces - by arrangement Range Comd.

(Duty of Supply personnel not responsibility of C Comd)

- v. I rang UNKON who in turn rang Odl Bureau regarding number at Haralinga and they are :-

Service Personnel and Officers - 219  
 Customs and odd attachments bring total to 230.  
 The Comptons in the area (Service personnel) are 20.

Therefore, suggest we work a requirement of 250.

Aug 56



DISTRIBUTION

- GCS
- DMS
- 
- A
- Q
- 11 Mile Camp

563372

R 944.10

(C) 3 AUG. 1956

301

"WASH-OUT" AT OODNADATTA

On the basis of [redacted] report (Memo. 6/55) a dose in 10 weeks of 3 rontgens to the gastro-intestinal tract (the limiting dose in this case) will be delivered with the following concentrations in 400 gallons (direct deposition) assuming a consumption of 1.5 litres of water per day.

<u>"Fall-out"</u> <u>at</u>	<u>1 hour Fission</u> <u>Products</u>	<u>Concentration</u>
		<u>Activity at time</u> <u>of "Fall-out"</u>
24 hours	367 $\mu\text{c}/\text{l}$	9 $\mu\text{c}/\text{l}$
60 hours	545 $\mu\text{c}/\text{l}$	4 $\mu\text{c}/\text{l}$

The dose received is level "A".

For level "B" the figures are:-

<u>"Fall-out"</u> <u>at</u>	<u>1 hour Fission</u> <u>Products</u>	<u>Concentration</u>
		<u>Activity at time</u> <u>of "Fall-out"</u>
24 hours	3230 $\mu\text{c}/\text{l}$ .	75 $\mu\text{c}/\text{l}$
60 hours	4540 $\mu\text{c}/\text{l}$	33 $\mu\text{c}/\text{l}$

[redacted] notes that these concentrations will not result in a deposition of  $\text{Sr}^{90}$  to more than one tenth of the I.C.R.P. body burden.

At Oodnadatta it has been assumed that fall-out has occurred on a 1000 sq. ft. roof area and that following rain the fission products are washed into a 1000 gallon tank where uniform distribution in the water occurs.

Concentrations of 4  $\mu\text{c}/\text{l}$  and 1.4  $\mu\text{c}/\text{l}$  following wash-out" at 24 and 60 hours would be present. These activities are at time of "wash-out" and would correspond to 180  $\mu\text{c}/\text{l}$  of 1 hour fission products.

These concentrations correspond to a dose of 1.3 rontgens and 1 rontgen to the gastro-intestinal tract in 10 weeks on the basis of 1.5 litre of water consumed per day.

The I.C.R.P. figure for maximum permissible concentrations of any fission mixture for a life-time is  $10^{-4}$   $\mu\text{c}/\text{l}$ . (for occupational exposure).

British Emergency Permissible Levels for Drinking Water agreed to by the Advisory Panel of the Medical Research Council are:-

<u>Time after Burst</u>	<u>Concentrations</u>
24 hours	60 $\mu\text{c}/\text{l}$
48 hours	24 $\mu\text{c}/\text{l}$

Concentrations at Oodnadatta might be expected to give counts in a liquid counter of 5000 c/m and with a prospector's counter against a beer bottle of 500 c/m.

Discussed at H.M. meeting on 3<sup>rd</sup> Aug

As I recall in modification to para 2 of Report

[redacted]

1672

563386

R29-42  
9 AUG. 1956

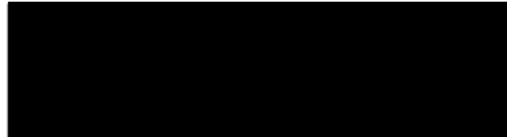
DECLASSIFIED



Annexure to WOI  
7/Misc/8858 (MT 11)  
dated 9 August, 1956.

Number Rank Initials Name

Maj. Gen.  
Maj. Gen.  
Maj. Gen.  
Maj. Gen.



(DMT)



(DGAS)



(Paymaster-in-Chief)



(Army Operational Research Group)



(DFD)



(MT 11)



(MT 10)

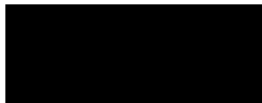


Declassified on the Authority of  
BDRSS JAA/24301/ATC  
dated 85

DECLASSIFIED

BR 126

21-5-85



563455

R 29.42  
9 AUG. 1956

Number	Rank	Initials	Name
<u>Joint Services Staff College</u>			
[REDACTED]			
<u>Staff College</u>			
[REDACTED]			
<u>Senior Officers School</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>Royal Armoured Corps Centre</u>			
[REDACTED]			
<u>School of Artillery</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>Reserve</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>School of Anti-Aircraft Artillery</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>Royal Military College of Science</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>School of Military Engineering</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>School of Infantry</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>Royal Military Academy</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

R29-42  
9 AUG. 1956

Number	Rank	Initials	Name
<u>Joint School of Chemical Warfare</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>School of Signals</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>Field Training Centre &amp; HQ/AER Royal Army Medical Corps</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>Royal Electrical &amp; Mechanical Engineers Training Centre</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>School of Land/Air Warfare</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>Admiralty</u>			
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<u>Middle East Land Forces</u>			
[REDACTED]			
<u>Far East Land Forces</u>			
[REDACTED]			

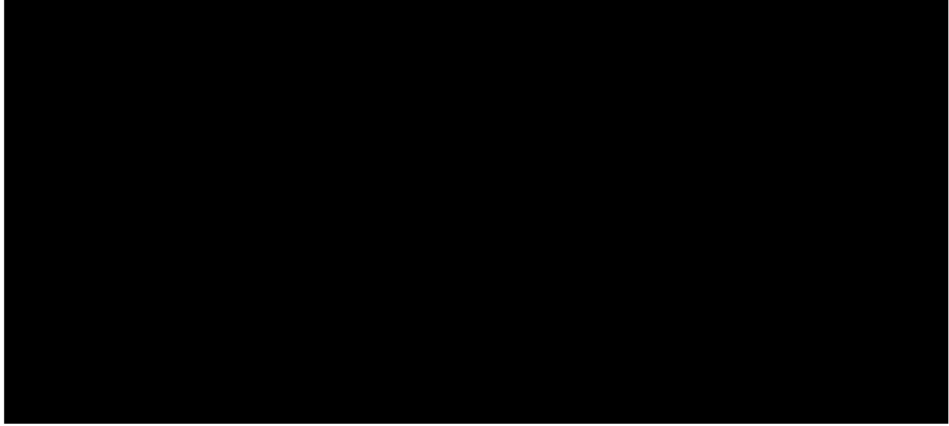
R 29.42  
9 AUG. 1956

Number	Rank	Initials	Name
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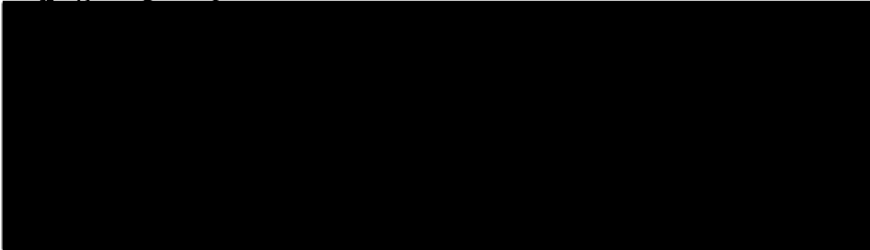
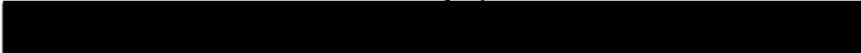
Far East Land Forces Cont'd



Eastern Command



Reserves





R 29.42  
9 AUG. 1956

<u>Number</u>	<u>Rank</u>	<u>Initials</u>	<u>Name</u>
---------------	-------------	-----------------	-------------

Northern Command Cont'd

[REDACTED]	[REDACTED]	[REDACTED]	Miller
------------	------------	------------	--------

Scottish Command

[REDACTED]

Southern Command

[REDACTED]

Western Command

[REDACTED]

R 29.42  
9 AUG. 1956

Number	Rank	Army of the Rhine CC
		Maj. Maj. Maj. Maj. Maj. Maj. Maj.

Number	Rank	Initials	Name
--------	------	----------	------

Northern Ireland District

[Redacted]

United Kingdom Service Liaison Staff

[Redacted]

Korea

[Redacted]

Gibraltar

[Redacted]

Caribbean Area

[Redacted]

East Africa Command

[Redacted]

West Africa Command

[Redacted]

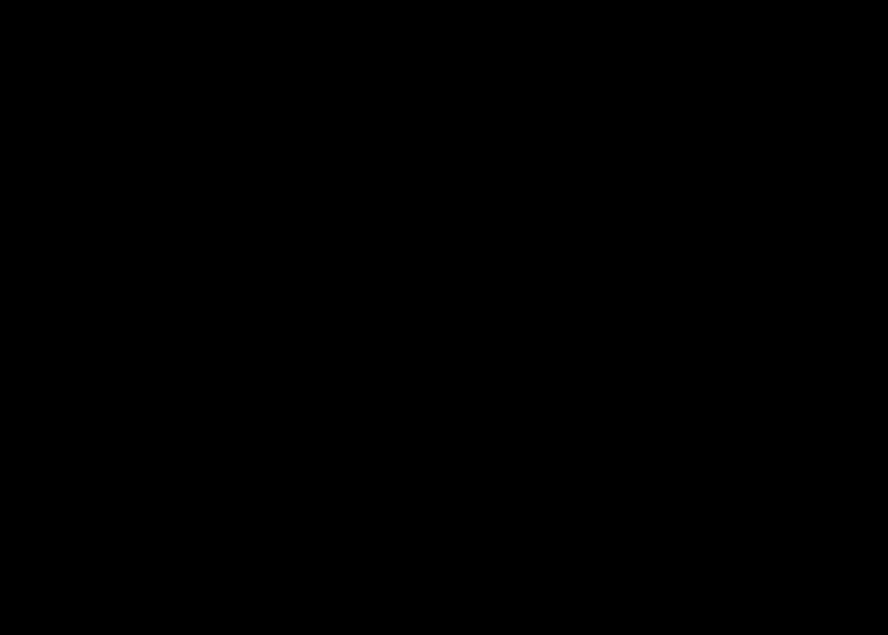
British Army of the Rhine

[Redacted]

R29.42  
9 AUG. 1956

Number	Rank	Initials	Name
--------	------	----------	------

British Army of the Rhine Cont'd



B.7/8/8

563461

R 165.001

c 9 AUG 1956

Telephone FA 6485  
(Extension 211)



AUSTRALIAN MILITARY FORCES

HQ Eastern Command  
Victoria Barracks  
MADDINGTON NSW

13 / 601 / 11

9 AUG 56

Quote in reply:- 1461

NUCLEAR WEAPON EFFECTS - "BUFFALO" -  
HEALTH MEASURES

1. In accordance with AMF instructions, the following officers will be medically examined and given protective inoculation, where applicable, prior to 16 Aug 56:-



2. Detail of examinations and inoculations is as follows:-

- (a) Medical examination vide MBI 78/56, paragraphs 13 (a) and 14 (a), and DGMS 12th instruction Number 9.
- (b) Protective inoculations against typhoid, paratyphoid and tetanus vide Appendix A to MBI 68/55.
- (c) 1956 annual chest X-ray. 7X14.

3. Formations and units of the above officers will liaise direct with DGMS HQ E Comd as required to ensure completion of action by 16 Aug 56.

4. Forms "Personal record of exposure to radiation" for completion and inclusion with regimental documents will be forwarded when available.



DISTRIBUTION

RMC  
2 Div (2)  
Camp HQ E Comd  
1 AGRA (AA)  
RAA 1 Corps

1 FC Regt  
SME  
A  
ST  
Med (2)

Copy to:-



563472

R30.153  
18 AUG 1956

43

APPENDIX "A" TO ADMINISTRATIVE INSTRUCTION 35/56

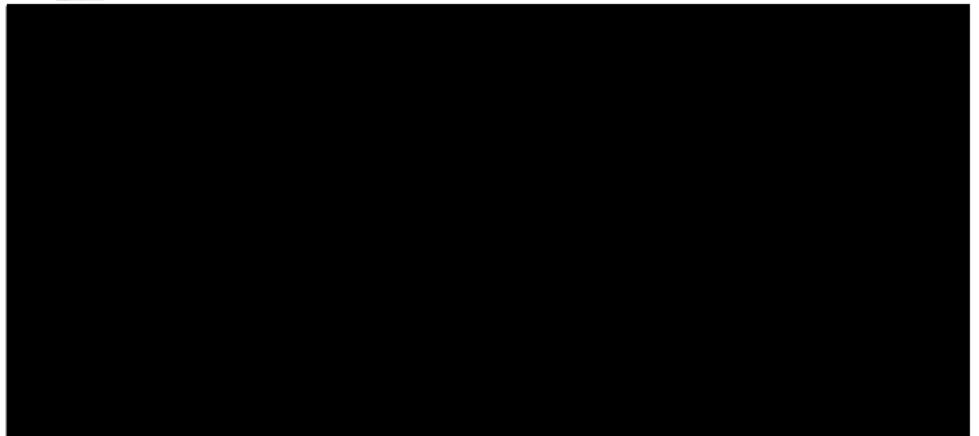
SPECIAL MEDICAL EXAMINATIONS

BLOOD TEST

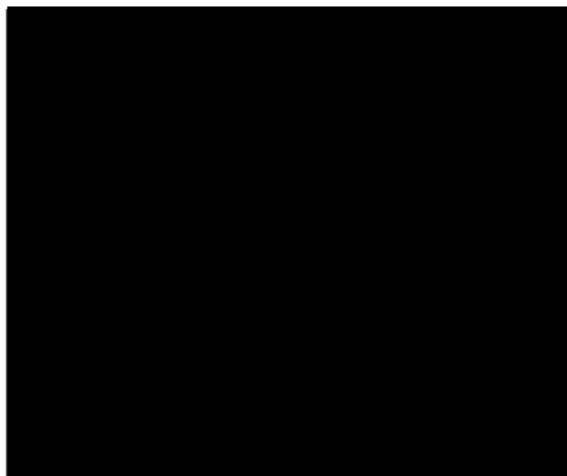
PERIOD - 19 AUG 56 - 21 AUG 56:

1. The following personnel will report to the Maralinga Hospital (West end) at 1030 hours on 19 Aug 56, 20 Aug 56 and 21 Aug 56 for blood test (i.e., to report on three consecutive days).
2. Each test will take approximately 1 minute per person and when each daily test is completed, individuals may return to their duties.
3. Service OCs. must arrange with Group Leaders for all personnel listed to attend for test. The loss of some man hours is to be accepted.

(a) ARA:



(b) RAN:



563572

R30.153  
18 AUG 1956

43A

-2-

(c) RAAF:



563573

R30.16

20 AUG 1956

Buffalo Administrative Notice No. 48

OPERATIONAL ORDER

Entry into Restricted Areas

1. Access to certain areas of the Range is restricted to a very few people. The areas are:
  - (a) III Area
  - (b) X. Area
  - (c) III Area
  - (d) K. Area
  - (e) The Firing Sites
2. Free access to these areas is limited to those who regularly work in the area and who are named in the attached lists. These lists will be held by the Peace Officer guard in the area. All those on this list should have a red band on their passes.
3. Those having occasional duties in this area and who have a red band on their passes will be permitted access only after the Peace Officer guard has first checked with the officer in charge of the area or his deputy.
4. Those having occasional duties in the area but who do not have a red band on their pass must first arrange for their names to be included in the daily list prepared by the Range Security Officer. Such visitors will be required to wear a visitors badge issued by the Peace Officer whilst in the area.
5. POSSESSION OF A P. S. WITH OR WITHOUT RED BAND DOES NOT GIVE RIGHTS OF ENTRY INTO RESTRICTED AREAS. THE NOMINATED OFFICER IN CHARGE OF AN AREA OR HIS DEPUTY MUST RIGOROUSLY APPLY THE 'NEED TO KNOW' PRINCIPLE IN ACCEPTING STRAY INTO THE AREA WHO ARE NOT MEMBERS OF HIS GROUP.
6. In the event of an emergency the following may approve entry into a restricted area if the officer in charge or his deputy are not available:

MEMORANDUM

Distribution: All Group Leaders  
Range Commandant  
(See Range Daily Orders)

563575

R30.16  
20 AUG 1958

Group Name	St. CC	Officer-in-charge and Deputies
IX Area	<u>IX Group</u> [Redacted]	[Redacted]
XA Area	<u>WA Group</u> [Redacted]	[Redacted]
XA/9 only XA/3.1, 3.3, and 3.4 only.	<u>RA Group</u> [Redacted]	
	<u>TA Group</u> [Redacted]	
XB Area	<u>TH Group</u> [Redacted]	[Redacted]

/A. Area

563576



R3016

20 AUG 1956

Closed Place	Staff regularly Deployed	Officer-in-Charge and Deputies
K. Area (while no Kittens Trials)	[REDACTED]	[REDACTED]
All Areas	[REDACTED]	

563577

R30.153  
21 Aug 1956

23

Appendix D to  
Aust Services Task Force  
Adm Instr 35/56

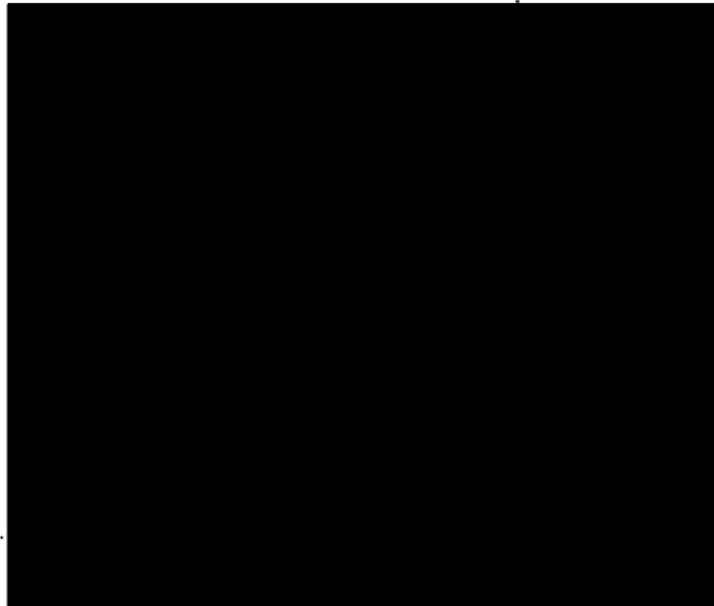
SPECIAL MEDICAL EXAMINATION

BLOOD TEST

Period - 26 Aug 56 and 27 Aug 56.

1. The following personnel will report to the MARALINGA Hospital (WEST END) at 1330 - 1530 hours and 1930 - 2130 hours on 26 Aug 56 and 27 Aug 56 for blood test.
2. Each test will take approximately one (1) minute per person and when each daily test is completed, individuals may return to their duties.
3. Service OCs must arrange with Group Leaders for all personnel listed to attend for test. The loss of some man hours is to be accepted.
4. [REDACTED] and [REDACTED] will make transport arrangements for personnel living at 43 Mile Camp and at WARSON to attend the MARALINGA Hospital.

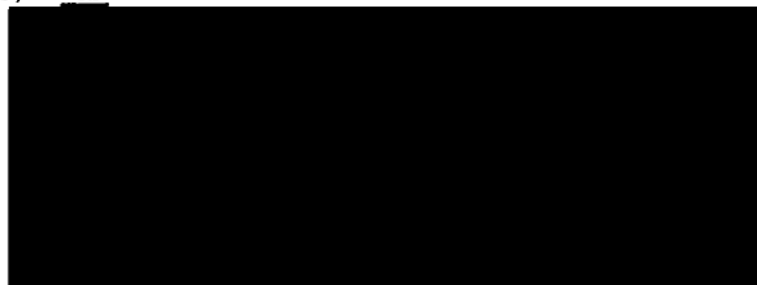
(a) RAN



NOTE : Any RAN members including Australian RDU not included on this list or Appendices A,B,C already published WILL report today 26 Aug 56 for Blood Test.

(b) ARA

563592



R30.153  
21 AUG 1956

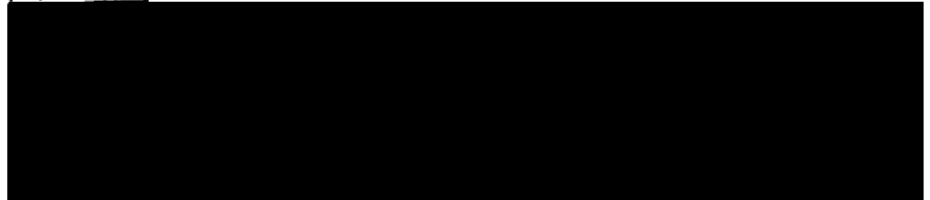
- 2 -

(b) ARA (continued)



NOTE : Any ARA members including RDU not included on this list or Appendicies A,B,C already published WILL report today 26 Aug 56 for Blood Test.

(c) RAAF



NOTE : Any RAAF members including RDU not included in this list or Appendicies A,B,C already published WILL report today 26 Aug 56 for Blood Test.

(d) Security and Peace Officers



Any Security or Peace Officer members not included in this list WILL report today 26 Aug 56 for Blood Test.

(e) 11 Mile Camp

563593

As arranged with MARALINGA Hospital.

R 29.42  
23 AUG. 1956

[REDACTED]

100 1 11

100 1 11  
HQ Central Command  
Keswick Barracks  
KESWICK S.A. 124

25 Aug 56

BUFFALO TRIALS

GENERAL

1. The following additional indoctrinees from C Comd are selected to attend :-

[REDACTED]

- 2. The aims of the trials are
  - (a) To experience the effects of nuclear explosion
  - (b) To examine the effects of the explosion on ground weapons and equipment
  - (c) To pass on experience to other members at the conclusion of the trials.

3. Indoctrinees are recommended to study the following publications prior to attendance at the trials :-

- Notes on Atomic Warfare
- Atomic Digest No 1 published in AAF 78
- Atomic Weapons published in AAF 81

4. The programme at MARALINGA will include a rehearsal, a pre-firing tour of the equipment and area, and also instruction in the nature and conduct of the trials.

SECURITY CLEARANCE

5. Indoctrinees will report to GSO 2 (Int) on Fri 24 Aug for security clearance.

MEDICAL EXAMINATIONS

6. Medical examinations will be arranged by SOMS HQ C Comd.

ADMINISTRATION

7. Indoctrinees will draw haversacks and water bottles from 11 Mile Camp. Binoculars will be taken by indoctrinees.

8. Respirators will be drawn from Q store HQ C Comd.

MOVEMENT

9. A bus will depart from the GROSVENOR Hotel at 0600 hrs 28 Aug 56 for EDINBURGH Airfield.

10. The plane departs EDINBURGH airfield at 0645 hrs 28 Aug 56 for MARALINGA.

[REDACTED]

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DISTRIBUTION

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