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Type T Patch Code (New Document)

For use with Documents with Protective Markings up to and including [redacted]

Document UIN

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PM **Caveat**

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NOTE: [redacted] and other Caveats are NOT PERMITTED. Give document special handling.

Prepared By **Number of Sheets**

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Note: See coding sheet for Protective Marking (PM), Caveat and Prepared By codes.

For use with Documents with Protective Markings up to and including [redacted]

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Intro[redacted]ed Dec 80

Department of Defence

DOWNGRADING OF CLASSIFIED DOCUMENTS

PART 1 – REQUEST FOR DOWNGRADING OF CLASSIFIED DOCUMENTS

To:	From:
Dept. of Defence	Royal Commission into the British Nuclear Tests

1. The document/s listed below are considered to be overclassified and it is requested that their classification be reviewed.

2. If downgrading/declassification is agreed, please state new classification in column (g); otherwise insert 'Nil Change'. The classification/s or other marking/s considered appropriate are shown in column (f) below.

Serial	Reference No	Description, eg letter, report, file etc	Date of Origin	Present Classification	Proposed Classification	Revised Classification
(a)	(b)	(c)	(d)	(e)	(f)	(g)
	R57/6/6 Part 1	File	30/8/56	[redacted]		[redacted]

[redacted]

Signature .....

Date 25/10/84

DEFINITIONS OF SECURITY CLASSIFICATION

1. **TOP SECRET** – Official matter the unauthorised disclosure of which would cause EXCEPTIONALLY GRAVE DAMAGE to National Security. To be used with the utmost restraint.

2. **SECRET** – Official matter the unauthorised disclosure of which could be expected to cause SERIOUS DAMAGE to National Security. To be sparingly used.

3. **CONFIDENTIAL** – Official matter the unauthorised disclosure of which could be expected to cause DAMAGE to National Security. Most National Security matter will merit classification no higher than CONFIDENTIAL.

4. **RESTRICTED** – Official matter the unauthorised disclosure of which could be HARMFUL to National Security.

NOTE: The 'privacy' or 'covering' marking system should be used rather than a security classification if official matter requires protection for reasons of administrative privacy rather than National Security.

PART 2 – AUTHORITY TO DOWNGRADE CLASSIFIED DOCUMENTS

To:	From:
[redacted]	[redacted]

1. Please note that the document/s listed above should now be graded as shown in column (g) above.

2. Other addressees of the document/s listed abo[redacted]ion.

Date 25/10/84 Signature [redacted] Rank/Grade SEO ACC

FOR ASCC

Referred to	Folio No.	Date	Inits.	Referred to	Folio No.	Date	Inits.	Referred to	Folio No.	Date	Inits.
Closed 1st January 1958 — Part II opened.											

RC 13/ 2810 1-11-84

[redacted] 25/10/84 [redacted] Reclassified

This file must not be marked PUT AWAY unless checked to ensure all action thereon has been completed. When action is pending this file should be returned to the Registry marked with appropriate R/S date.

R57 6 6

[redacted]

FILE NO. 67 DEPARTMENT OF SUPPLY FILE R57/6/6 PART 1

1. Minutes of the Fourteenth Meeting of the Atomic Weapons Tests Safety Committee on 30 August 1956.

2. Minutes of the Twenty First Meeting of the Atomic Weapons Tests Safety Committee on 19 July 1957.

3. Minutes of the Twenty Second Meeting of the Atomic Weapons Tests Safety Committee on 1 August 1957.

4. Minutes of the Twenty Fifth Meeting of the Atomic Weapons Tests Safety Committee on 5 September 1957.

CLOSED JANUARY 1

MINUTES OF THE THIRTY-SECOND MEETING OF THE A...I.J.C. - DISTRIBUTION.

Copy No. 1	-	Minister for Supply
2	-	File
3	-	[redacted]
4	-	[redacted]
5	-	[redacted]
6	-	[redacted]

--oOo--

[redacted]

COPY NO. 2.

[redacted] RECORD MEETING OF THE ATOMIC WEAPONS [redacted] COMMITTEE HELD AT COMMONWEALTH [redacted] AND RADIUM LABORATORY, SUBIACO, PERTH, [redacted] COURT AT 9.30 A.M. ON 9th DECEMBER, 1957.

PRESENT:

[redacted]	-	Chairman
	-	Bureau of Meteorology
	-	C.X.R.L.
	-	Cancer Institute Board
	-	Secretary

Present for part of the meeting:

[redacted]	-	C.X.R.L.

1. MINUTES OF THE THIRTY-FIRST MEETING:

The minutes were accepted.

2. MATTERS ARISING OUT OF THE MINUTES

(a) [redacted] paper - Item 2 (d) of the minutes of the thirty-first meeting, etc.

The Chairman informed the Committee that because of its objections the Board of Standards for the C.S.I.R.O. journals has resolved to submit this paper to overseas referees before publication.

See also Item 3 (b) of these minutes.

(b) Blood Counting at Maralinga - Item 11 (1) of the minutes of the thirtieth meeting, etc.

The Chairman read a copy of a letter from [redacted] to [redacted] dated 27th November, 1957, referred to him for comment. Briefly, the letter states:-

1. The purpose of the blood counting is to exclude people with existing pathological conditions from the range and to be able to demonstrate that this has been done in any case in which a claim for damage is made.

2. (a) Before arrival at the range blood counts will be required of all service personnel, scientific staff and other civilians required to work in active areas.

(b) Blood counts will not be required of those civilians [redacted] do not require

2/...

them to enter active areas, but should they wish to enter such areas, then a blood count would be necessary.

3. Film badges will continue to be issued to all entrants to the range.

The Committee accepted the proposal and expressed strong support for the continuation of the film badge measurements. The Chairman will reply formally to [redacted] and the Secretary will inform [redacted] and the Maralinga Board of Management of the Committee's views.

Action:
Chairman
Secretary

(c) Radio-active Fall-out in Australia from the Buffalo Series - Item 5 of the minutes of the thirty-first meeting.

The paper drafted by the Secretary was discussed. Considerable revision was necessary; individual sections will be re-written by the Chairman and [redacted] with the intention of approving a final draft at the next meeting.

Action:
Chairman
[redacted]

3. CORRESPONDENCE FROM [redacted].

The Chairman informed the Committee of a letter he had received from [redacted] which discussed the following points:

(a) Next Weapons Trial Series -

No test series will be held at Maralinga during 1958; the next series is proposed during 1959.

(b) Publication of the Strontium 90 Survey Data -

He is fully in agreement with the publication of this data at the discretion of the Committee. If it is thought desirable it could be done to show that the opinions expressed in [redacted] paper are grossly pessimistic.

4. SUCCESSFUL COMPLETION OF THE ANTLER SERIES.

In a letter to the Chairman the Minister for Supply formally thanked the Committee for its work during the recent series. He also requested that his appreciation be passed to all those who assisted in this work.

5. RADIO-ACTIVE FALL-OUT DATA FROM THE ANTLER SERIES.

[redacted] tabled the results for air, rain and high-walled pot sampling and also the comparison of adjacent sticky papers. Apart from confirming the earlier evidence that the adio-activity deposited on the continent from the explosions was exceedingly small the results allowed interesting comparisons to be drawn for the various sampling met[redacted]as asked to draft a paper

3/...

[redacted]

[redacted] the high-walled pot - sticky paper - sticky paper [redacted]. This will form the basis of a [redacted] which the Committee will consider for possible publication later.

6. STRONTIUM 90 SURVEY.

The Secretary outlined the programme for the sampling of human bones. Pathologists have been approached in each capital city and to date active assistance has been received in Perth, Adelaide and Melbourne. It is intended to secure sources of both adult and children's bones with emphasis on the latter.

7. EXTENSION TO CONTINENTAL WIND-FINDING NETWORK.

A proposal to equip three or four meteorological stations for incorporation in the upper wind-finding network was submitted by [redacted]. He pointed out during discussion that these are essential for any improvement in the prediction of cloud trajectories over the continent. The accurate prediction of such trajectories is of considerable interest to the Committee. The proposal will be included on the Agenda for the next meeting.

8. RADIO-ACTIVE FALL-OUT OVER AUSTRALIA FROM OPERATION ANTLER.

Action: [redacted] was asked to prepare a preliminary draft of a [redacted]. paper describing the results of this operation. It will be considered at the next meeting.

9. DATE OF THE NEXT MEETING.

The Committee will next meet in the Conference Room, 339 Swanston Street at 9.30 a.m. on Thursday, 9th January.

[redacted]

S E C R E T A R Y.

Approved [redacted]

.....

[redacted]

NOTE FOR FILE:

Fall-out results tabled at 32nd meeting carried on file R57/6/2.

R59/6/6.

[redacted] Bureau of Meteorology,

6th December, 1957.

[redacted]
Chairman,
Australian Weapons Tests Safety Committee.

Cloud Tracking Requirements - Major Trials

Substitution of upper wind finding stations for aircraft tracking after three hours.

It is desired that consideration be given to altering the means of checking the movement of radio-active clouds across eastern Australia.

2. Under previous arrangements

(a) It has not been possible for sufficient aircraft to be supplied for detailed searching at all levels,

(b) the cost of providing sufficient aircraft would be extremely high,

(c) the uncertainty in analysing the wind field on the " preferred track" of the radio-active cloud across New South Wales has increased the difficulty of the aircraft locating and identifying the cloud more than a few hours after firing,

(d) it is not certain that the searching aircraft have in fact located the significant portions of the cloud, and

(e) it is not certain that relatively small vertical movement, for which it is almost impossible to make adequate allowance, has not been responsible for some failures in detection.

3. It is therefore proposed that the present method, which employs aircraft on a limited scale, should be replaced by installing upper wind finding stations equipped with suitable radars at either BOURKE and WAGGA, or at COBAR.

4. The meteorological aspects of this proposal are ... indicated briefly in the attached report.

5. It is stressed that aircraft would still be required to obtain a complete description of the distribution of radio-activity with height at, say, three hours after firing.

6. If the proposal is supported, it is suggested that it be conveyed to the United Kingdom authorities [redacted] requiring their assistance.

[redacted]
Director of Meteorology

DEPARTMENT OF THE INTERIOR

6 copies

MINUTE PAPER

Subject THE REQUIREMENT FOR ADDITIONAL UPPER AIR STATIONS

Last year, following Operation Buffalo an assessment was made of the facilities required to provide adequate meteorological advices on atomic weapons trials. The network of upper air observing stations in Australia (radiosonde and radar or visual upper wind finding) was shown on a chart a copy of which is attached.

When a radio active cloud rises to a height of about 30,000 ft. [redacted] upper wind finding by visual methods is of extremely limited value due to cloud cover and darkness, so that the effective reporting network is as shown in black on the chart.

Additional stations at which radar wind finding equipment was said to be necessary were -

Carnarvon	Kalgoorlie	Bourke
Albany	Oodnadatta	Wagga
Meekatharra	Woomera	Rockhampton

Carnarvon, Albany and Woomera were equipped with MK 7 radar wind finding sets for Operation ANTLER and at Kalgoorlie a Metox radio wind set was installed. This means that the stations still remaining are -

Meekatharra	Wagga
Oodnadatta	Rockhampton
Bourke	

A new station is scheduled to open at Gladstone at the end of December 1957 which will remove the requirement for Rockhampton. The priority with which the remaining stations should be equipped is considered to be as follows:

Bourke)	Oodnadatta
Wagga)	Meekatharra

The station at Bourke would be a completely new installation, there is no meteorological observing station there at present. However, if it is impracticable to install both Bourke and Wagga an alternative site offering a ~~large~~ high utility would be Cobar .

The purpose of installing upper wind finding facilities at these places would be two-fold

(a) for upper wind forecasting at Maralinga

(b) for radio active cloud tracking.

2/...

[redacted]

[redacted]on at Meekatharra would have high utility but virtually none for cloud tracking.

[redacted]tta would have high utility for both purposes.

Bourke/Wagga (or Cobar) would have very high utility for cloud tracking but only small utility for forecasting.

Highest priority is given to Bourke/Wagga (or Cobar) because it is considered that stations in this area of New South Wales would enable the wind fields to be drawn to a sufficiently accurate degree to permit major modification of the present arrangements for radio active cloud tracking by RAF aircraft.

Two examples are attached to illustrate this [redacted] the 15,000 ft. level and the other for the 30,000 ft. Each example shows that the gap in the network is su[redacted] some uncertainty in drawing the wind field in this ar[redacted] In example one, the isotach gradient is such that the[redacted] the radio active cloud in this area would be subject [redacted] considerable uncertainty, in example two not only wo[redacted] be uncertain but the direction of movement would be [redacted] on the exact position of the trough line.

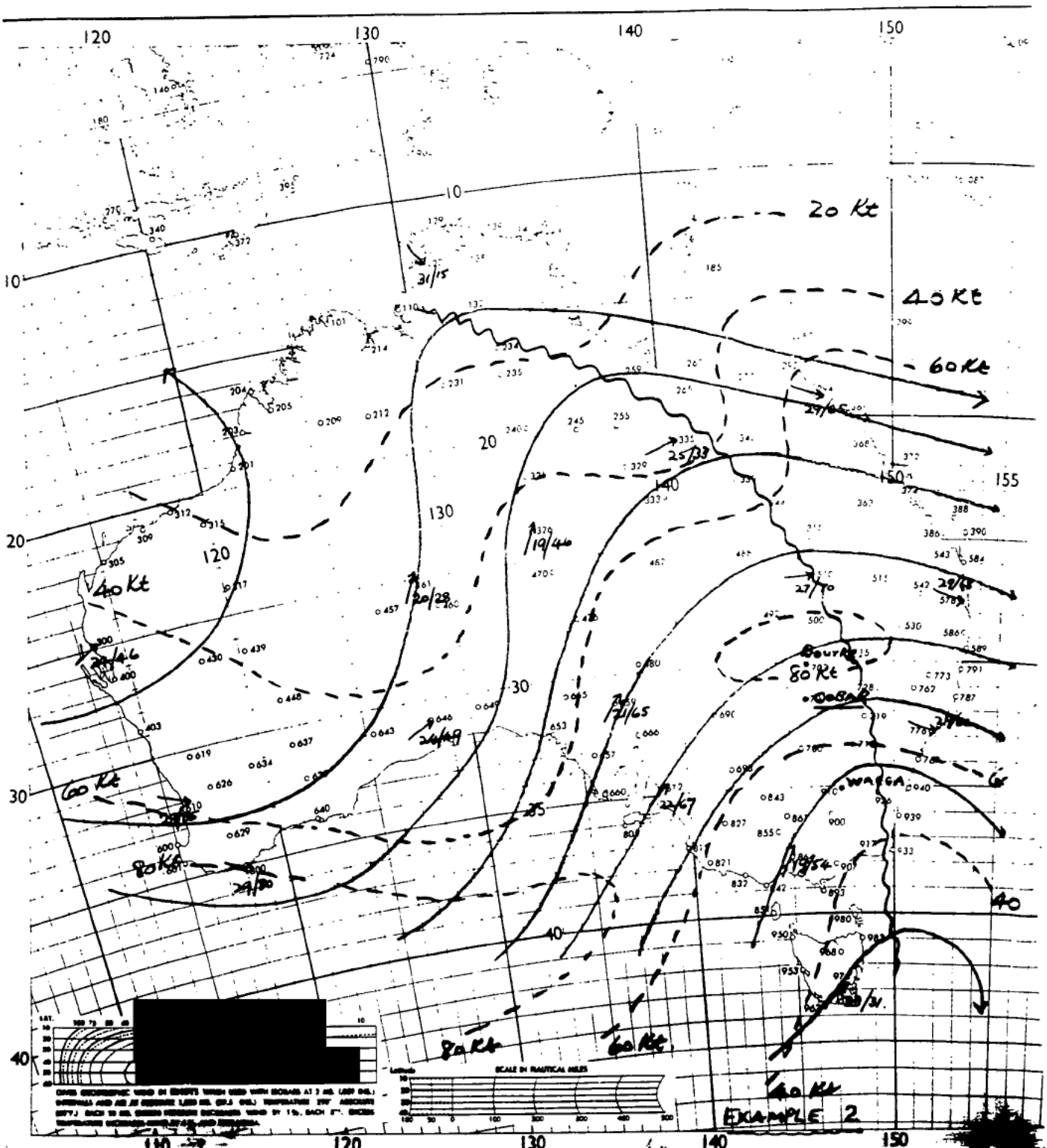
This uncertainty could not be claimed to be very serious for cloud tracking organized as it is at present, although it undoubtedly reduces the accuracy of the meteorological advices and directions to the tracking aircraft. However, it is considered that with a station in this area the wind field could be drawn with a sufficient degree of confidence to make it possible to draw the trajectory of the radio active cloud at any level to an acceptable order of accuracy from meteorological upper wind data alone. This area is particularly important because of the general prevailing upper westerly wind regime. Under these conditions the requirement for cloud tracking could be re-defined as a requirement to obtain a complete description of the distribution of radio active material from the ground to the cloud top at say F plus 3 hours, i.e. the significance of any temperature inversions in trapping any debris or levels of high concentration would be known. With this information the Met. Group would then know at which levels cloud tracking was significant and trajectories could be drawn for these levels.

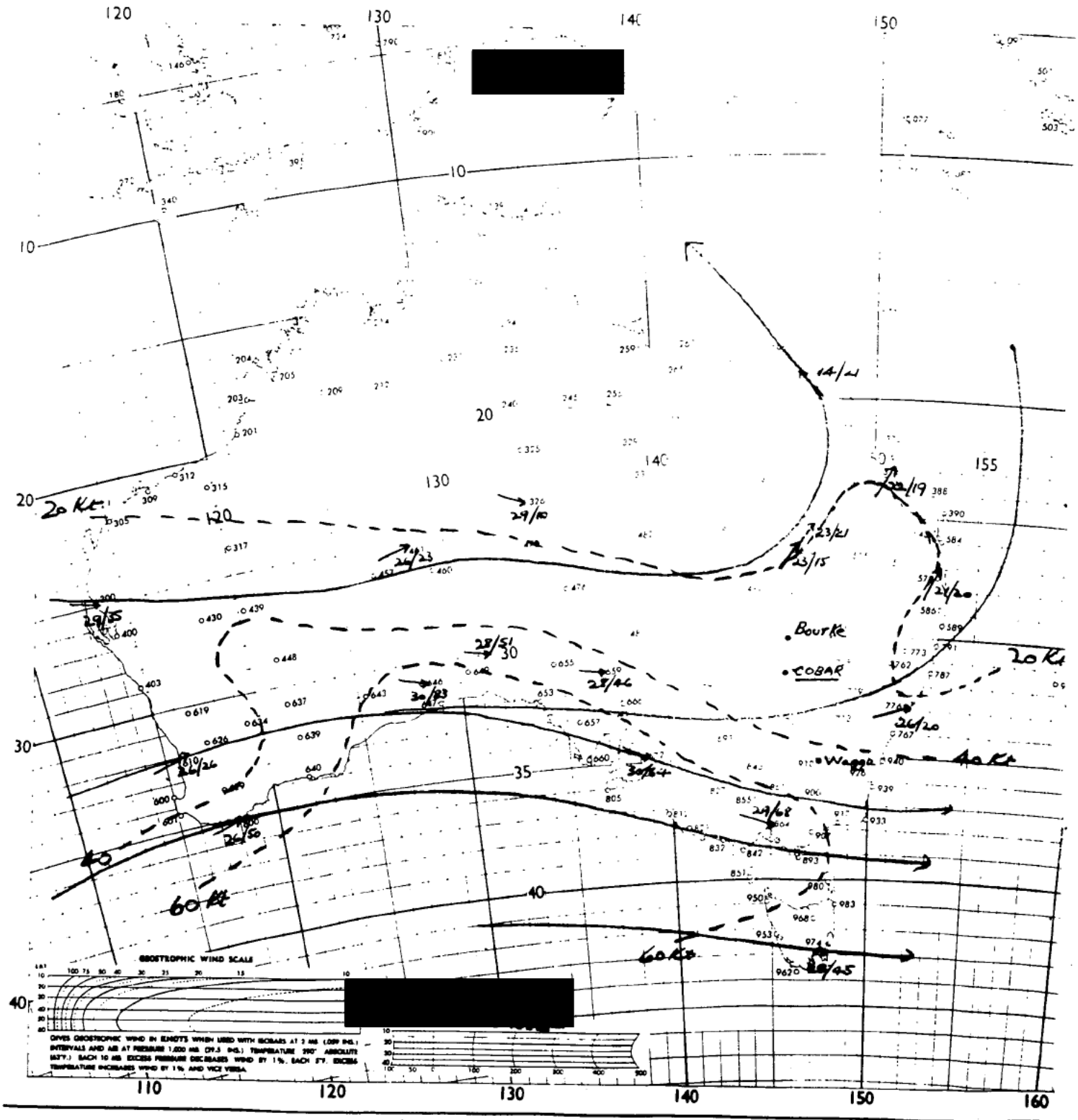
If the station at Bourke (or Cobar) ~~was~~ were equipped with a radiosonde it could be expected that the accuracy of rainfall forecasting would be improved, but it is not desired to confuse this point with the requirement for upper wind measurements and the modification of the present cloud tracking organisation.

[redacted]

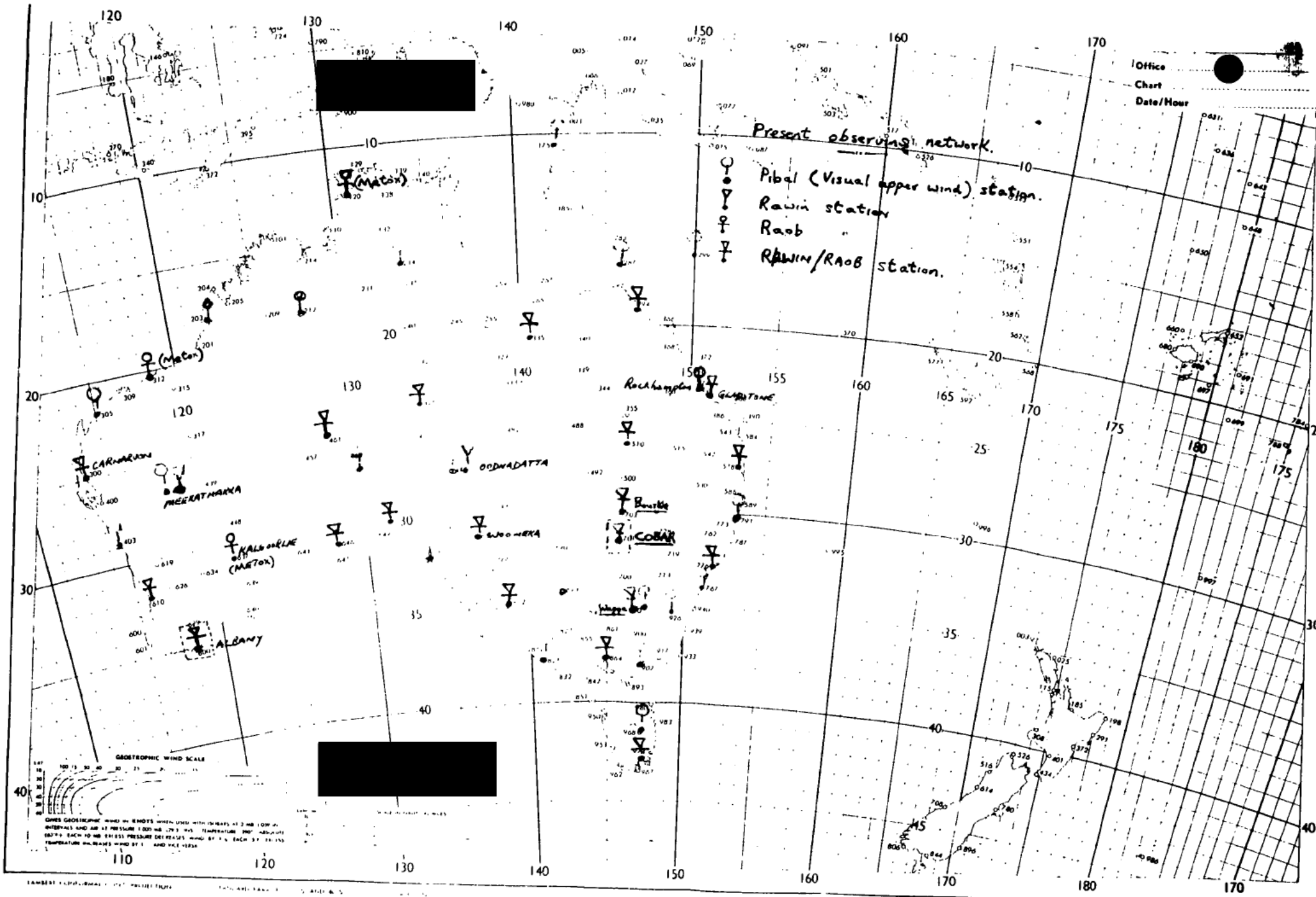
[redacted]

[redacted]





EXAMPLE 1



R57/6/6

UNITED KINGDOM ATOMIC ENERGY AUTHORITY.

ATOMIC WEAPONS RESEARCH ESTABLISHMENT,
ALDERMASTON,
BERKSHIRE.

27th November, 1957

A8/233/CAA

Dear [redacted]

Blood counts at Maralinga

At the meeting of the Maralinga Board of Management held on 18.10.57, I raised the question of blood counts. At the Chairman's request a decision was deferred to allow the matter to be discussed between [redacted] and me. We held a discussion by telephone as a result of which I agreed to raise the matter again in U.K. from the medico legal aspect. After consultation with our Medical and Health Physics Divisions I now wish to continue to press for blood counts. The reasons are substantially those I gave at the Board meeting. U.K. has a responsibility under the Agreement with Australia for radiological safety at the Range. In the first instance we wish to exclude people with existing pathological conditions from the Range. In the second we wish to be able to demonstrate that this has been done in any case in which a claim for damage is made.

In order to reduce the amount of work to the minimum I withdraw my previous suggestion of classification of personnel based on time spent at the range by the following:-

(a) Blood counts required before arrival on site.

All members of Services.
All scientific staff.
All other civilians who will be required to work in active areas.

(b) Blood counts not required before arrival on site.

Civilians whose duties do not require them to enter active areas.

In the case of civilians who enter the range under (b) but are subsequently found to have a need to enter an active area a blood count would be required. Facilities should preferably exist for such examinations at Maralinga.

..../2.

In my conversation with [redacted] he agreed that he would not oppose the request even though he thought it unnecessary from the Australian point of view. I believe therefore that he will agree with the above proposals, but I am in any case copying this letter to him.

In addition to blood counts, film badges would continue to be issued to all entrants to the Range.

I should be glad if you would raise this matter with the Board of Management. If it is agreed we shall include a suitable paragraph in the Maralinga Safety Regulations.

Hope you had a good visit here, and a better trip back than your outgoing journey.

All best wishes,

Yours sincerely

[redacted].

[redacted],
U.K.M.O.S.S.
339 Swanston Street,
MELBOURNE. AUSTRALIA

Copies to:- [redacted]

[redacted]

APPENDIX [illegible]

CORRESPONDENCE WITH THE U.S.A.E.C. NEW YORK OPERATIONS OFFICE "HIGH-WALLED POT" DETERMINATION OF 90Sr IN CONTINENTAL FALLOUT

[redacted] received a letter from [redacted] of the New York Operations Office, December 6th, 1956, requesting information on the ratio of ^{89}Sr and ^{90}Sr to total beta activity in Australian continental fallout. Sticky paper measurements have been made in the past but these samples were unsuitable for radio-chemical analysis and ^{90}Sr assessment. A programme of monthly high walled pot sampling was suggested, if necessary analysis could be performed by the U.S.A.E.C.

In reply, 22nd January, 1957, [redacted] anticipated the formation of the N.R.A.C. He referred the request to that Committee for consideration in the future. He noted that information on the ^{90}Sr content of fallout over Sydney and Melbourne had been published in the U.S., and referred to the arrangements between the U.K. and Australia regarding publication of fallout data.

This correspondence was considered by the N.R.A.C. at its first meeting on June 10th and referred to the Safety Committee. This body at its 19th meeting on June 11th, Item 6 of the Minutes considered the matter and referred it back to the N.R.A.C. It was not considered by the 2nd meeting of the N.R.A.C. on August 5th.

On July 19th [redacted] wrote to [redacted] of the New York Operations Office and amongst other matters suggested that the U.S.A.E.C. might care to correspond on the ^{90}Sr question directly with the Secretary of the N.R.A.C., then [redacted]. A reply to this letter is carried with this appendix.

The Safety Committee considered this matter at its thirtieth meeting on 29th October and anticipated the decision of the N.R.A.C. in directing the Secretary to accept the U.S. invitation.

31st Meeting November 14

120

THIRTY-FIRST MEETING OF ATOMIC WEAPONS TESTS SAFETY COMMITTEE.

DISTRIBUTION OF MINUTES.

Copy No. 1 - [redacted]

Copy No. 2 -

Copy No. 3 -

Copy No. 4 -

Copy No. 5 -

Copy No. 6 -

Copy No. 7 -

- - - - - - - - - - - - -

COPY NO. ....3.....

[redacted]

PRESENT:

[redacted] Meteorology

1. MINUTES OF THE THIRTIETH MEETING.

The minutes were discussed and accepted.

2. MATTERS ARISING OUT OF THE MINUTES

(a) Fallout Stations for Operation during Immediate Inter-Trials Period - Item 3 of the minutes of the thirtieth meeting

The Chairman reported that in correspondence with [redacted] he had described the arrangements made for fallout sampling in Australia for the period which will include the Grapple X series. The results will be made available to the United Kingdom. However, [redacted] informed the Committee that the United Kingdom authorities had installed air sampling pumps at two Air Force Stations, Amberley and Edinburgh. Samples had been collected by the Bureau's officers at the two stations but no information is to hand on the organisation responsible for the analysis.

When considered in the context of the Safety Committee programme these two stations appear to be redundant. The Secretary was instructed to inform the Head of Staff, UKMOSS(A) of the position, and to reaffirm the Committee's policy. Namely, the Committee desires to have all requests and suggestions relating to fallout sampling in Australia directed to it through its Secretary.

Action: Secretary

(b) Report to the Prime Minister on the Antler Series - Item 9 of the minutes of the thirtieth meeting.

[redacted] tabled the trajectory data and [redacted] the fallout data. After some discussion the structure and content of the report was finalised. The Secretary was requested to arrange for its completion.

Action: Secretary

(c) Fallout Data During Inter-Trials Periods.

(i) Request from International Geophysical Year Committee - Item 6 of the minutes of the thirtieth meeting etc.

The Chairman read a letter from [redacted] accepting the Safety Committee's offer of fallout data from its sampling programme.

[redacted]

.../2.

This data will be provided from the inter-trial stations and furnished in the measurement units the Committee has adopted. It was recommended that at some convenient time Mr. Kean of C.X.R.L. should assemble the available data from the sampling programme between the end of the Buffalo series, (defined for this purpose as November 19th 1956) and 31st December, 1957. The period of the Antler series, for which no data will be provided, may be considered as 14th September to 1st November, 1957. The Committee may publish a brief paper covering these inter-trials periods. The Secretary is to inform Professor Webster of these details and also of some essential information regarding the sampling programme.

Action: Secretary.

(ii) Request from the United Nations Scientific Committee on effects of Atomic Radiation for information on the Australian Continental Fallout - Item 6 of the minutes of the nineteenth meeting.

Referring to the details as summarised and recorded as that minute, the Committee agreed:-

(a) The request for data on the artificial Beta activity in fallout could be satisfied by a similar provision to that made for the International Geophysical Year Committee.

(b) Data on individual nuclides in the fallout material would be available from the proposed U.S.A.E.C. high-walled pot programme.

(c) The observations made with air sampling units, currently in operation, should meet the requirements for air-borne concentration data.

Action: Secretary.

(iii) An officer of the Department of External Affairs contacted the Chairman by telephone and suggested strongly that Australia should join the U.S. Stratospheric Monitoring Programme. (Item 8 of the minutes of the thirtieth meeting etc.) It became apparent that he knew little of the existing Australian sampling programmes and after explanation concurred in the Safety Committee's decision. The Chairman undertook to keep External Affairs informed and they will also be given the data discussed in (c) (ii).

Action: Chairman.

[redacted] paper proposed for publication - Item 10 (b) of the minutes of the thirtieth meeting etc.

A letter from the Chairman to [redacted] C.S.I.R.O., 11th November was read to the meeting. It detailed a number of points relating to this paper -

(i) He was asked to inform the Committee of the Journal in which the paper is to be published so that an accompanying paper may be prepared and submitted by the Committee.

(ii) The Committee to view the paper before publication to determine if an additional paper is necessary.

[redacted]

..../3.

(iii) If publication is sought in the Australian Journal of the Biological Sciences then perhaps he could recommend that the referees ensure the objectivity of the report.

The Chairman will prepare an appropriate paper if necessary. He outlined four points in which the paper was in error, apart from its unsatisfactory scientific nature. It may be necessary to publish the Strontium 90 data from the Committee's own sampling programme and to compare these with values derived from Mr. Marsten's observations.

The Chairman pointed out that it would be better to wait until a full report on the subject could be published, but this may not be possible.

(e) Interim Report of the Radio Iodine Measurements of Sheep Thyroids - Item 11 (2) of the minutes of the thirtieth meeting.

The Secretary was asked to examine this report in conjunction with the similar report from the Buffalo series and [redacted] paper. Particular attention may be devoted to the relative magnitude of Iodine 131 reported and the significance of the Xenon data.

Action: Secretary.

(f) U.S.A.E.C. Strontium 90 Sampling Programme - Appendix "A".

The Chairman reported that the N.R.A.C. concurred in the action taken by the A.W.S.T.C. in accepting the U.S. invitation to take part in this work. The Secretary indicated that he had sought the acceptance of costs of material and major transport by the U.S. authorities. The internal transport costs would be trivial and should be met by the Department of Supply.

3. Radiation Detection Unit Operating from Mount Clarence during the Antler Series.

The Committee was asked to state its requirement of the Unit during the recent test series with regard to the distribution of the costs involved. It was considered that the collection of sheep thyroids for radio-iodine assessment associated with the trials was the only requirement of the Unit for which the Safety Committee is responsible.

Action: Secretary

4. Organisation of the Australian Fallout Monitoring Programme.

The Secretary sought clarification of the overall organisation of the various sampling programmes. After some discussion it became clear that he is responsible for the fulfilment of the Committee's requirements. The Bureau of Meteorology and C.X.R.L. will carry out the collection and counting of the samples respectively as directed by the Committee through the Secretary. Storage space and maintenance facilities for sampling equipment are necessary within the Department of Supply but it would be more convenient for these to be situated in Melbourne than Salisbury. An approach will be made to that Department.

Action: Secretary.

5. Radio Active Fallout in Australia from the Buffalo Series.

It is proposed to seek publication in early 1958 of a paper on this test series. After a brief discussion, in [redacted]

....4.

which the possible structure of the paper was outlined, the Secretary was requested to prepare a first draft to be considered by the Committee at its next meeting.

Action: Secretary.

6. Transport of Radio-active Waste from Edinburgh to Maralinga.

With the decontamination of aircraft for servicing purposes now being performed at Edinburgh Airfield, it is proposed to transport the resulting radio-active waste material to Maralinga where disposal facilities are available. The R.A.F. will provide transport and the Safety Committee has been approached by the United Kingdom authorities who are seeking formal Australian approval. The Committee agreed to the proposal but asked that the relevant R.A.A.F. procedures and the International Air Transport Association packing and handling regulations be adhered to.

Action: Secretary.

7. Extension to the Commonwealth Hill Property.

[redacted] request of the Minister for Supply - 20th September - for a westerly extension to a property situated some 100 miles east of Maralinga has been considered previously by the Committee. An opinion was forwarded to the Department of Supply on the 7th October. With the advent of more correspondence detailing the proposed lease, the Committee has reiterated its earlier opinion. In particular, it stresses the inherent difficulty of the further encroachment from the east on to the range area.

Action Secretary

8. DATE OF NEXT MEETING

It was agreed that the Committee should meet next at 9.30 a.m. on Monday the 9th December and [redacted] invitation to hold the meeting at C.X.R.L., Barry Place was accepted.

[redacted]

Secretary,
ATOMIC WEAPONS TESTS SAFETY COMMITTEE.

Approved. [redacted]

CHAIRMAN

[redacted]

[redacted]

114

UNITED STATES
ATOMIC ENERGY COMMISSION

New York Operations Office
70 Columbus Avenue,
New York 23 New York.

JUL 31 1957

HSS:JCW

National Radiation Advisory Committee
339 Swanston Street
Melbourne, C.1.
Victoria, Australia

Attention : [redacted]

Gentlemen:

I have previously corresponded with [redacted] Director of the Commonwealth X-Ray and Radium Laboratory, concerning the collection of samples in Australia for determination of Strontium-90. In a letter dated July 3, 1957, he informed [redacted] of our Health and Safety Laboratory that the National Radiation Advisory Committee has been established under the chairmanship of [redacted] with overall responsibility in matters of radiation hazards in Australia, and suggested that the United States Atomic Energy Commission communicate with you if a cooperative sampling and analytical program still appears to be desirable.

I would be grateful if the National Radiation Advisory Committee would consider the collection of samples at a number of stations to determine Strontium-90 and its ratio to total beta activity. As I stated in my letter of December 6, 1956, to [redacted], we use duplicate stainless steel pots which are exposed for sampling periods of one month. We would be in a position either to receive all samples for analysis or receive one of the duplicate samples for comparison and cross check of results. All of the analytical results obtained from these samples would be made available to authorities in Australia and the United Kingdom before release in the United States.

If the Committee agrees to participate in the program I have briefly outlined, I will forward to you collection pots for as many stations as you deem appropriate or necessary, along with bottles for the shipment of samples to New York.

I feel certain that the data which would be obtained from such a program would significantly assist all of us in studying the distribution of Strontium-90.

Very truly yours,

[redacted]

APPENDIX "C"

[redacted]RAMME OF "HIGH WALLED" POT SAMPLING
[redacted]USTRALIA IN COOPERATION WITH USAEC

Monthly samples are to be taken at eight stations, sited at the major cities, and adequately covering the more heavily populated areas.

Samples are to receive preliminary scanning by the C.X.R.L. to determine total β activity before being sent to the U.S.A.E.C. laboratories for [redacted] and ^{90}Sr estimation.

Stations are to be sited at:-

Perth	Sydney
Adelaide	Brisbane
Melbourne	Townsville
Hobart	Darwin.

NOTE FOR FILE

Item 7 of minutes of 31st Meeting -

"Commonwealth Hill Station -

Representation by [redacted] to extend lease"

6328/4/24.

RESEARCH SCHOOL OF PHYSICAL SCIENCES

THE AUSTRALIAN NATIONAL UNIVERSITY

Box 4, G.P.O.,

CANBERRA

A.C.T.

[redacted]

11th November, 1957.

[redacted],
C.S.I.R.O.,
314 Albert Street,
EAST MELBOURNE, C.2. Vic.

My dear [redacted]

We have now looked over the final version of [redacted] paper and, as there are no security objections to it in its new form, we see no reason why it should not be submitted for publication.

[redacted] and I have indicated to you on earlier occasions that the paper is open to a number of objections on scientific grounds, and also in the interpretation of the date. I should therefore be grateful if you would advise me to which journal the paper will be sent, so that I can get into touch with the editor concerned with a view to publishing a simultaneous paper. It could be, of course, that the referees will do what is required to make the paper into an objective scientific report, and it would therefore be best if we could see the final version of the paper as it will be printed. If the journal concerned is the Australian Journal of Biological Sciences, I would be grateful if you could use your good offices to arrange this.

With good wishes,

Yours sincerely,

(Intd.) [redacted]

[redacted]

TABLE I (CONTD.)

Station Number	Location	Whole body gamma dose to 50 years in millirems/gram			
		Round 1	Round 2	Round 3	Total
68	Broken Hill	-	-	2.03	2.0
69	Coonabarabran	-	0.78	0.21	1.0
70	Dubbo	-	0.04	0.22	0.3
71	Hillston	-	0.04	0.90	0.9
72	Lismore	-	0.22	-	0.2
73	Tenterfield	-	0.19	-	0.2
74	Walgett	-	0.11	0.53	0.6
75	Williamstown	-	-	0.21	0.2
76	Wagga	-	-	0.90	0.9
77	Bale	-	-	1.70	1.7
78	Mthuna	-	0.04	1.45	1.5
79	Hamilton	0.03	-	0.30	0.3
80	Wilkara	-	-	1.00	1.0
81	Mhill	0.03	-	0.80	0.8
82	Swan Hill	-	-	1.05	1.1
83	Warrnambool	0.03	-	0.30	0.3
84	Currie	-	-	0.05	0.1
85	Hobart	-	-	0.15	0.2
86	Western Junction	-	-	0.25	0.3
87	Cedunna	-	-	0.38	0.4
88	Leigh Creek	-	-	0.65	0.7
89	Mares	0.04	0.04	1.10	1.2
90	Mt. Gambier	-	-	0.15	0.2
91	Port Augusta	-	-	1.55	1.6
92	Port Lincoln	-	-	-	-
93	Tarcoola	Not operating	-	Not operating	-
94	Eatson	-	0.01	-	-
95	Albany	-	-	-	-
96	Esperance	-	-	-	-
97	Forrest	0.08	-	0.03	0.1
98	Leonora	-	0.07	-	0.1
99	Southern Cross	-	0.06	-	0.1
100	Giles	-	0.52	0.19	0.7
251	Boulia	-	0.24	0.12	0.4
252	Windorah	-	0.16	0.28	0.4
254	Taroo	-	0.44	0.04	0.5
255	Winton	0.01	0.30	0.21	0.5
256	Forbes	-	-	0.08	0.1
257	Cook	-	-	-	-
258	Clove	-	-	0.60	0.6
262	Tibooburra	-	-	0.35	0.4
263	Finke	-	0.73	0.82	1.6
265	Birdsville	Not operating	Not operating	0.49	0.5

TABLE I

Station Number	Location	Whole body gamma dose to 30 years in milliroentgens			
		Round 1	Round 2	Round 3	Total
1	Adelaide	0.06	0.04	0.88	1.0
3	Woomera	-	-	0.82	0.8
4	Hall's Creek	0.18	0.11	0.60	0.9
6	Port Moresby	-	0.08	0.55	0.6
8	Broome	0.34	-	0.27	0.6
9	Kalgoorlie	-	0.02	-	-
10	Daly Waters	0.03	0.07	0.08	0.2
11	Oodnadatta	-	0.16	1.41	1.6
12	Onslow	-	-	0.45	0.5
13	Thursday Island	-	0.43	0.10	0.5
14	Wyndham	0.05	0.08	0.43	0.6
15	Melbourne	0.03	-	1.75	1.8
16	Port Hedland	0.27	-	-	0.3
17	Meekatharra	0.02	0.07	-	0.1
18	Geraldton	-	0.03	-	-
19	Alice Springs	0.71	0.24	1.07	[illegible]
20	Townsville	-	2.[illegible]4	0.48	2.[illegible]
21	Sydney	-	0.05	0.14	0.2
22	Charleville	-	0.69	-	0.7
23	Cloncurry	0.01	0.30	0.68	1.0
24	Cairns	-	1.02	0.67	1.7
25	Brisbane	-	0.29	0.08	0.4
26	Perth	-	-	-	-
27	Carnarvon	-	-	0.05	0.1
28	Darwin	0.05	[illegible].34	1.47	1.[illegible]
[illegible]1	Bundaberg	-	[illegible].38	[illegible].38	.5
52	[illegible]rnoweal	[illegible].1	[illegible].34	[illegible]	[illegible]
53	Cunnamulla	-	[illegible].30	-	[illegible]
54	Emerald	-	[illegible].7	-	[illegible]
55	Goondiwindi	-	[illegible].39	-	[illegible]
56	Longreach	-	0.69	.19	[illegible]
57	Mackay	-	0.61	0.13	0.7
58	Normanton	-	-	0.49	.5
59	Richmond	0.02	0.03	0.03	0.1
60	Rockhampton	-	0.57	.04	[illegible]
61	Roma	-	0.25	-	[illegible]
62	Thargomindah	-	[illegible].33	0.12	[illegible].0
63	Armidale	-	1.33	0.22	[illegible].6
64	Bourke	-	-	4.0	[illegible].0
65	Canberra	-	-	0.40	0.4
66	Cobar	-	-	0.69	0.6
67	Coff's Harbour	-	0.21	0.27	0.5

[redacted]

U.N.S.C.E. ON THE EFFECTS OF ATOMIC RADIATION
REQUEST FOR INFORMATION ON FALLOUT

Summarised as :

(a) The measured fall-out of artificial β activity given in mc. km^{-2}. At the end of each calendar year the reports should include an estimate of the β activity at the time, of the total accumulated deposition.

(b) Individual nuclides, such as ^{90}Sr and ^{137}Cs in mc. km^{-2};

(c) The monthly average airborne concentration in $\mu c\ m^{-3}$ of air.

Discussed at the 1st N.R.A.C. meeting 10th June having been referred to the Department of Supply by the Department of External Affairs, 8th April, 1957. The N.R.A.C. apparently considered the A.W.T.S.C. the more suitable authority in this matter and this Committee discussed the requirement at its 19th meeting, 11th June and referred it back to the N.R.A.C. The A.W.T.S.C. also requested its Secretary to inform the Department of External Affairs that the N.R.A.C. would handle all requests for information, both from local sources and from overseas on radioactive fall-out measurements made on Australian territory. Since mid-June there is no record of this matter having been discussed by either Committee.

[redacted]

AGENDA FOR 31ST MEETING OF THE A.M.T.S.C. TO BE HELD AT 2.15 P.M. THURSDAY, 14TH NOVEMBER, 1957, AT THE CONFERENCE ROOM, PHYSICS DEPARTMENT, UNIVERSITY OF MELBOURNE.

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1. Minutes of 30th meeting.

2. Matters arising out of the minutes.

   (a) Report to the Prime Minister on the Antler Series.

   (b) Request for information on fallout by the U.N.S.C. on Effects of Atomic Radiation.

   (c) [redacted] paper proposed for publication.

   Discussion of the Safety Committee's proposed accompanying paper.

   (d) Discussion of the Interim Report on Thyroid Measurement - Appendix D to the minutes of the 30th meeting.

   (e) Participation in the U.N.A.E.C. ^{90}Sr sampling programme.

3. Responsibility for the requirement of the R.D.U., operating from Mount Clarence during the Antler series.

4. Consideration of the arrangements between the bodies carrying out the fallout monitoring programme in Australia.

5. Preliminary discussion on the paper proposed for publication on the Buffalo series.

6. Transport of radioactive waste from Edinburgh to Maralinga for disposal. R.A.F. is seeking Australian approval.

7. Consideration of the proposed extension to the Christmas Hill property.

8. Any other matters.

30th Meeting October 29th.

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A.W.T.S.C. 30TH MEETING - DISTRIBUTION

Copy 1. - Minister (signed)

Copy 2. - File (signed)

Copy 3. [redacted]

Copy 4. [redacted]

Copy 5. [redacted]

Copy 6. [redacted]

Copy 7. [redacted]

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[redacted]

COPY NO ...2.....

[redacted]TH MEETING OF THE ATOMIC WEAPONS TESTS COMMITTEE HELD AT 339 SWANSTON STREET, [redacted], AT 9.30 A.M. ON 29TH OCTOBER, 1957

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PRESENT:

[redacted]	Chairman
[redacted]	Bureau of Meteorology
[redacted]	C.X.R.L.
[redacted]	Cancer Institute Board

PRESENT FOR ONLY THE LATTER PART OF THE MEETING:

[redacted]	A.W.R.E.
[redacted]	A.W.R.E.

1. MINUTES OF PREVIOUS MEETINGS.

The minutes of the 25th meeting were formally confirmed. They had been distributed early in September. The minutes of the 26th, 27th, and 28th meetings which related to the actual tests of the Antler series, were formally confirmed. The minutes of the 29th meeting were confirmed. These had been discussed by [redacted] on the 17th October. They are concerned solely with post Antler inter-trials health physics.

2. MATTERS ARISING OUT OF THE MINUTES

(a) Health Physics at Maralinga during inter-trials period

This has figured as Item 6 of the Minutes of the 23rd meeting, as Item 3 (b) of the 25th meeting, while the whole of the 29th meeting was devoted to its final clarification. The subsequent discussion on the 17th October based on the minutes of this meeting, [redacted] represented A.W.R.E. and [redacted] represented A.W.T.S.C., produced a submission to the Maralinga Board of Management. This is carried as Appendix A of these minutes, and was accepted by the Board as an amendment to its earlier minutes. The A.W.T.S.C. formally acknowledges the principles agreed upon and so recorded.

(b) Transport costs of members of Commonwealth Departments

The Secretary was asked at the 25th meeting (Item 10) to enquire of the Department of Supply if that Department would defray transport costs of members of the Committee who were also officers of the Commonwealth. A reply was received from that Department agreeing in this instance to arrange transport for all members with the understanding that costs incurred by these members in question would be borne by their Departments.

[redacted]

.../2.

[redacted]

[redacted] constitution of A.W.T.S.C.

[redacted] Secretary reported that [redacted] has been formally included in the membership of the A.W.T.S.C. The original instrument did not require revision for this addition. The matter was first discussed as Item 4 of the minutes of the 25th meeting.

3. FALLOUT STATIONS FOR OPERATION DURING IMMEDIATE AFTER TRIALS PERIOD

The Secretary outlined arrangements that had been made with [redacted] of the Bureau of Meteorology and [redacted], W.R.E., Salisbury, for the handling, maintenance and storage of the fallout monitoring equipment used during the recent test series. However, this will require revision since with the advent in the near future of the Grapple X series of tests at Christmas Island, sampling at a network of fallout stations detailed as Appendix B, is to be implemented as early in November as possible. Operation will continue until the requirement demands that the programme be revised. It was drawn to the attention of the Committee by [redacted] that the U.K. authorities were ignorant of Australian fallout sampling arrangements during Grapple X. The Secretary was requested to inform UKMDS(A) of the proposed organisation but later it was decided to inform the U.K. scientific authorities directly.

[redacted]

Action
Chairman
Secretary

4. ^{90}Sr SURVEYS IN AUSTRALIA

The A.W.T.S.C. have been asked through its Secretary to give an opinion as to the bodies responsible for the collection of bones, herbage, milk, and soil for ^{90}Sr assessment in the surveys carried out in May/June and August/September of this year. The Committee considers that it is scientifically responsible for all such official surveys carried out in this country including those in the immediate past as well as in the future. It would be pleased to have relevant enquiries directed to it through its Secretary. It was thought that the corresponding financial responsibility must reside with the appropriate Commonwealth authorities. It is apparent that a considerable fraction of the overall cost of this programme is incurred in carrying out the radio-chemical analysis of the samples in the U.K.; the U.K. Government will meet this cost. The Committee stressed the value of the contribution from A.W.R.E. Aldermaston in this regard.

Action
Secretary

5. PASTORAL LEASE IN WESTERN AUSTRALIA FOR EMPLOYMENT OF NATIVES

A letter from the Premier of Western Australia to the Prime Minister dated 30th September, 1957 requesting advice on the inconvenience to Australian defence authorities of a proposed pastoral lease in Western Australia was referred to the A.W.T.S.C. for comment. The leasing of the area defined by the coordinates latitude 24° and 28°S and longitude 127° and 129°E would not in the opinion of the Committee inconvenience activities at Mralinga to any marked degree.

Action
Secretary

[redacted]

.../3.

[redacted]

6. [redacted]

[redacted] Chairman tabled a letter from [redacted] International Geophysical Year Committee, requesting [redacted] Australian National Committee for the I.G.Y. requests for [redacted] of fallout measurements made in Australia. This question has been discussed previously by the A.W.T.S.C. as Item 6 of the minutes of the 29th meeting, 4/23rd meeting, and 3(a)/25th meeting. An I.G.Y. Sub-Committee has been set up consisting of [redacted] but their exact programme has not yet been finalized. [redacted] indicated that some hesitation existed on the question of the release of Australian fallout data to the I.G.Y. Committee. The A.W.T.S.C. considered that fallout data could be made available to the I.G.Y. Committee for those periods of measurement when the significance of the data did not demand restriction of its circulation. It was decided to provide the Committee for the [redacted] the results of measurements from July 1st to the [redacted] omitting data relating to the Antler series, but [redacted] information would not be available until March, [redacted]

Action
Chairman

7. EAST COAST PATROL DURING ANTLER SERIES

The results of the East Coast Dakota flight requested by the A.W.T.S.C. for Rounds 2 and 3 of the Antler series were tabled. It was apparent from the measurements that in both cases the environment traversed by the flight showed very low activity. The Committee expressed its gratitude for the cooperation of the R.A.A.F. in providing this service.

Action
Secretary

8. COOPERATION WITH THE UNITED STATES IN STRATOSPHERIC MONITORING PROGRAMME

A copy of the cable from the Australian Embassy, Washington, was referred by the Department of Supply to the Committee for comment. The preliminary proposal to cooperate on a high altitude monitoring programme had been discussed at an earlier meeting and its opinion was recorded as Item 9 of the Minutes of the 24th meeting. The Committee reaffirmed its opinion and again stressed that the programme would be acceptable only if the United States provided all facilities, equipment etc. free of cost.

Action
Chairman

9. REPORT TO THE PRIME MINISTER ON THE ANTLER SERIES

The Chairman circulated a draft of this report. It was fully discussed during the meeting. The Secretary was requested to provide at the next meeting a possible final form of the document allowing provision for the incorporation of the signatures of the members. Similarly [redacted] agreed to table copies of the figures and [redacted] copies of the fallout measurements for the series.

Action
[redacted]
Secretary

10. PAPERS FOR PUBLICATION

(a) Radioactive Fallout in Australia from Operation Mosaic

This paper had been completed by the Committee whilst attending the Antler series and then submitted to the Australian Journal of Science for publication. The Committee was informed that the paper had been accepted in its entirety for publication in the December issue. This should be available in mid-January; 300 reprints have been ordered.

[redacted]

...4

[redacted] Maralinga

[redacted]ion of the paper has occurred previously, [redacted]e the minutes of the 25th meeting, Item 1 (a), [redacted]), 23/8, 20/1, and 19/1. The Chairman informed the Committee that [redacted] intends to seek publication of his paper. The content of the paper is now in a form acceptable to the security requirements. It is intended to seek publication of an accompanying paper prepared by the A.W.T.S.C. in the same issue of the Journal in an endeavour to elucidate the scientific shortcomings of [redacted] paper.

Action
Chairman
Secretary

11. DISCUSSION WITH [redacted]

(1) Blood counting at Maralinga

The Chairman outlined a telephone conversation he had had with [redacted] regarding the desirability of blood counting of all personnel who intend to spend more than a week at Maralinga. The Secretary indicated that the Board of Management had discussed the matter and referred it to the A.W.T.S.C. for comment. The purpose of such an examination was two-fold and as Item 47 of the Board of Management minutes reads:-

(a) To disqualify from visiting the range any person whose blood counts showed abnormalities.

(b) In the event of a claim alleging illness or other damage due to radiation effects being lodged by a person who may have visited or worked at Maralinga for a week or longer, a record would be available upon which the Australian or U.K. Government may base a case. [redacted] agreed with this expression of the proposal and the A.W.T.S.C. accepted the principle so stated. However, the Chairman pointed out that [redacted] had agreed to communicate to him the views expressed by the U.K. authorities.

(2) Radio Iodine Measurements on Thyroids collected by the R.D.U. during the Antler series

An interim report as presented by [redacted] has been attached to the minutes as Appendix D. The samples received had been extracted satisfactorily and counting had proceeded without difficulty except in the first instance when contaminated glass ware was suspected.

12. DATE OF NEXT MEETING

It was proposed to hold the next meeting at 2.15 p.m. on Thursday, 14th November in the Conference Room, Physics Department, University of Melbourne.

[redacted]

S e c r e t a r y
[redacted]tomic Weapons Tests Safety Committee

Approved [redacted]

[redacted]

17th October, 1957.

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ANNEXURE "A"

SUBMISSION TO THE BOARD OF MANAGEMENT MEETING, 18TH OCTOBER, 1957, AGREED [redacted]

In order to implement the agreement on Health Physics responsibilities during inter trials periods at Maralinga the Board of Management and A.W.T.S.C. have agreed that C.X.R.L. will supervise on behalf of A.W.R.E. the activities of the Health Physics Representative. The Health Physics Representative has direct scientific responsibility to A.W.R.E. to whom he will report through the Range Commander, sending copies to the Board of Management, A.W.T.S.C. and C.X.R.L. C.X.R.L. will be administratively responsible for the Health Physics Representative.

The duties of the Health Physics Representative are laid down in general terms in the Radiological Safety Regulations, Maralinga, but in addition he will carry out as required certain specific items of investigational work for A.W.R.E.

A.W.R.E. and C.X.R.L. are agreed that the immediate programme of work demands that the Health Physics Representative should be assisted by 4 members of the Radiation Detection Unit in addition to the assistant Health Physics Representative supplied by U.K.

As a consequence of atomic weapons trials both at Maralinga and at Christmas Island the R.A.F. need to carry out servicing of radioactively contaminated aircraft at R.A.A.F. Edinburgh Field. The responsibility for the health physics aspects of this work lies with the Air Ministry, implementing procedures so far as health physics control is concerned, standards approved by A.W.R.E.

A.W.R.E. requires the Maralinga Health Physics Representative to visit Edinburgh Field periodically to check that the standards of such control do not fall below those laid down in the Radiological Safety Regulations, Maralinga, or subsequent R.A.F. institution agreed by A.W.R.E. He will report his findings directly to A.W.R.E. but he will have no executive authority.

[redacted] ANNEXURE "C" 600

[redacted] SAMPLING STATIONS IN AND NEAR AUSTRALIA FOR [redacted]

It was decided that sampling at selected stations throughout Australia as detailed below should be implemented. Operation is to commence as early in November as possible, and will continue until the requirement demands that the programme be revised.

Sampling by the "sticky-paper" method: to continue at the 24 stations listed below; papers are to be changed each 24 hours, following the procedure adopted during the Antler series.

Adelaide	Charleville
Port Moresby	Clermurry
Broome	Brisbane
Kalgoorlie	Perth
Daly Waters	Darwin
Coomadatta	Longreach
Onslow	Rockhampton
Melbourne	Bourke
Meekatharra	Wagga
Alice Springs	Hobart
Townsville	Cadumn
Sydney	Forrest

Air Sampling by the air pump method: to be implemented as soon as possible at the 8 stations listed below; filters are to be changed each 24 hours following the procedure adopted during the Antler series. It may be noted that this is the same complement of stations finally decided upon for operation during that series.

Adelaide	Brisbane
Melbourne	Perth
Townsville	Darwin
Sydney	Hobart

OPERATION ANTLER

SHEEP THYROID MEASUREMENTS — INTERIM REPORT

Round 1 fired 14th September

Samples Nos. 5 - 13

Round 2 fired 25th September

Samples Nos. 14 - 37

Round 3 fired 9th October

Samples Nos. 33 - 64.

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[redacted]

OPERATION ANTLER

[illegible] MEASUREMENTS — INTERIM REPORT

I^{131} found in the first four samples, taken before Round 1, was probably due to contamination in the laboratory, and care was taken with subsequent samples, by using fresh glassware, to avoid contamination.

Control Samples	Taken	Measured	Wt. gms.	I^{131} uc. x 10^{-3} per thyroid
1 Mabel Creek	31.8.57	3.9.57	3.69	6.9
2 Mt. Clarence	30.8.57	3.9.57	3.94	0.95
3 Mt. Willoughby	30.8.57	3.9.57	1.86	0.5
4 Ingomar	31.8.57	3.9.57	1.42	0.16

Samples 5, 6, 7. Taken on 17th Sept., 1957 at VICTORY DOWNS. Measured 18th Sept.

	Wt. of thyroid	Isotope	uc x 10^{-3} per thyroid	uc x 10^{-3} per gm. thyroid
5	3.16 gm.	I 131	40.4	12.78
		I 133	37.42	11.84
6	2.33 gm.	I 131	51.9	22.78
		I 133	40.13	17.22
7	4.43 gm.	I 131	27.4	6.19
		I 133	21.2	4.79

Samples 8, 9, 10 Taken on 19th Sept., at VICTORY DOWNS. Measured 21st Sept.

	Wt. of thyroid	Isotope	uc x 10^{-3} per thyroid	uc x 10^{-3} per gm. thyroid
8	5.0 gm.	I 131	83.08	16.62
		I 133	8.9	1.8
9	4.3 gm.	I 131	183.5	42.67
		I 133	22.75	5.29
10	4.58 gm.	I 131	56.63	12.37
		I 133	6.88	1.5

Samples 11, 12, 13. Taken on 23rd Sept., at VICTORY DOWNS. Measured 23rd Sept.

	Wt. of thyroid	Isotope	uc x 10^{-3} per thyroid	uc x 10^{-3} per gm. thyroid
11	3.91 gm.	I 131	118.00	30.19
		I 133	9.08	2.32
12	2.37 gm.	I 131	45.9	19.36
		I 133	5.6	2.36
13	2.66 gm.	I 131	111.4	41.89
		I 133	8.7	3.27

Samples 14, 15, 16. Taken on 26th Sept., following Round 2 at INGOMAR HOMESTEA[D]

No measurable activity was found.

Samples 17, 18, 19. Taken on 26th Sept., at MABEL CREEK.

No measurable activity was found.

Note.

Measurements are also being made on xenon 131 and xenon 133 present in samples 8 to 13 inclusive, but the data is insufficiently complete for inclusion in this report.

[redacted] Thyroid Measurements - Interim Report, continued.

Measurements made following Round 2.

	Wt. of thyroid	Isotope	uuc x 10^{-3} per thyroid	uuc x 10^{-3} per gm. thyroid.
Samples 20, 21, 22 Taken on 29th Sept. 1957 at INGOMAR. Measured 30th Sept.				
20	3.21 gm.	No measurable activity.		
21	4.33 gm.	I 131	3.53	0.81
22	3.85 gm.	I 131	0.48	0.12
Samples 23, 24, 25	Taken on 29th Sept., at MABEL CREEK. Measured 30th Sept.			
23	2.87 gm.	I 131	1.34	0.47
24	1.76 gm.	I 131	0.89	0.51
25	4.0 gm.	I 131	1.83	0.15
Samples 26, 27, 28	Taken on 2nd Oct., at INGOMAR. Measured 4th Oct.			
26	1.28 gm.	No measurable activity.		
27	1.83 gm.	I 131	1.01	0.55
28	0.83 gm.	I 131	0.43	0.52
Samples 29, 30, 31	Taken on 2nd Oct., at MABEL CREEK. Measured 4th Oct.			
29	4.19 gm.	I 131	5.64	1.07
30	2.53 gm.	I 131	1.73	0.68
31	3.86 gm.	I 131	3.12	0.81
Samples 32, 33, 34	Taken on 4th Oct., at INGOMAR. Measured 5th Oct.			
32	2.85 gm.	I 131	2.37	0.82
33	2.25 gm.	I 131	1.34	0.6
34	4.14 gm.	I 131	3.03	0.73
Samples 35, 36, 37.	Taken on 4th Oct. at MABEL CREEK. Measured 5th Oct.			
35	3.38 gm.	I 131	5.51	1.63
36	4.37 gm.	I 131	7.14	1.63
37	4.74 gm.	I 131	9.06	1.91

MARALINGA.
5th October, 1957.

[redacted]

[redacted] Report (Continued).

Measurements following Round One (contd)

Samples 8 to 13 inclusive.

Spectrographs of the samples show the presence of peak energies other than those of I 131 at 0.36 and 0.64 MEV. These were subsequently determined as being 0.08 MEV. 0.163 MEV. and 0.53 MEV.

The 0.53 Mev was characteristic of I 133, and by plotting values of the amount of the isotope present at various times after the initial measurement, the half life was eventually shown to be 21 hours, which verified the presence of I 133 (0.53 Mev, half life 20.9 hours).

The same procedure was adopted with the other isotopes, but it was found possible only to count on the 0.163 Mev peak, the others being impossible to distinguish by actual counting, although obvious peaks on the spectrograph.

The values of the isotope were plotted on a graph, and eventually indicated a half life of 9.15 days for sample 13, 7.5 days for sample 12 and 7.2 days for sample 11. The half life of Xenon 131 is 12 days, and being a gas it was possible that a certain amount of the gas was being continually lost from the polyethylene container, and thus the apparent half life would be expected to be less than the true half life.

A spectrograph of a standard source of Iodine 131 showed peaks corresponding to 0.08 Mev and 0.163 Mev, which were undoubtedly due to Xe 133 and Xe 131 respectively. The energy peaks on the samples were, therefore, accepted as being Xe 133 at 0.08 Mev and Xe 131 at 0.163 Mev.

The measured values of Xenon 131, expressed in milli-micro curies per gm. weight of thyroid are as follows;

Samples 8, 9, 10. Taken on 19th Sept., 1957 at Victory Downs.
Measured 21st Sept.

Sample 8. 0.12 Sample 9. 0.37 Sample 10. 0.11

Samples 11, 12, 13. Taken on 23rd Sept. at Victory Downs.
Measured 23rd Sept.

Sample 11. 2.17 Sample 12. 2.56 Sample 13. 3.14

Measurements following Round Three.

Samples 38, 39, 40 Taken on 10th Oct. at BULGAMBIA.
Measured 12th Oct.

	Wt. of thyroid	Isotope	ucs x 10^{-3}	ucs x 10^{-3} per gm. thyroid
38	2.41 gm.	I. 131	0.77	0.32
39	3.13 gm.	I 131	0.86	0.28
40	6.45 gm.	I 131	0.93	0.14
		I 133	1.41	0.22

Samples 41, 42, 43 Taken on 10th Oct. at TARCOOLA.
Measured 12th Oct.

41	6.0 gm.	I 131	0.34	0.057
42	4.25 gm.	I 131	0.28	0.066
43	4.18 gm.	I 131	0.302	0.072

Samples 44, 45, 46 Taken on 10th Octo. at MULGATHING.
Measured 12th Oct.

44	1.33 gm.	I [redacted] 5		0.11

75

45	1.48 gm.	I 131	0.25	0.15
46	1.34 gm.	I 131	0.33	0.19
		I 133	1.71	0.95

Values of Other Iodine and Xenon isotopes present in the above samples are still being measured and will be added at a later date.

(sgd) [redacted]

MARALINGA 13th Oct. 1957

Measurements following Round Three

Samples 47 to 55 inclusive. Taken on 12th October, 1957. Measured 15th Oct.

Location	gm. Wt.	I 131 mcs x 10^{-3} per thyroid	I 131 mcs x 10^{-3} per gm./thyroid	I 133 mcs x 10^{-3} per thyroid	I 133 mcs x 10^{-3} gm/thyroid	Xe 131 mcs x 10^{-3} per thyroid	Xe 131 mcs x 10^{-3} gm/thyroid
47 Mulgathing	2.37	4.22	1.78	2.01	0.85	0.49	0.21
48 "	3.13	10.79	3.45	5.33	1.70	1.2	0.38
49 "	2.51	7.48	2.98	3.82	1.52	0.88	0.35
50 Bulgannia	3.56	9.38	2.78	4.19	1.18	1.28	0.36
51 "	3.9	9.87	2.53	3.25	0.83	1.29	0.33
52 "	3.87	12.77	3.30	4.29	1.11	1.45	0.37
53 Tarcoola	1.72	0.093	0.048				
54 "	4.05	0.18	0.045				
55 "	2.86	0.11	0.04				

Samples 56 to 64 inclusive. Taken on 17th October, 1957.

	Location	gm. wt.	I 131 (measured 19th Oct.) thyroid	I 131 (measured 19th Oct.) gm/thyroid	Xe 131 (measured 21st Oct.) thyroid	Xe 131 (measured 21st Oct.) gm/thyroid
56	Mulgathing	2.75	14.69	5.34	1.12	0.41
57	"	3.17	23.64	7.46	1.83	0.58
58	Bulgannia	7.2	8.71	1.21	0.82	0.11
59	"	3.47	5.19	1.5		
60	Tarcoola	2.95	0.13	0.044		
61	"	3.17	0.13	0.043	Xe 131 (measured 22nd Oct.)	
62	Victory Downs	4.46	22.53	5.05	1.86	0.42
63	"	3.22	23.24	7.22	1.35	0.42
64	"	3.36	23.61	7.03	0.98	0.29

The Xenon 131 in samples 56 to 64 was not measurable before the dates indicated, because, although indentifiable on the spectrograph, it was not distinguishable by actual counting.

(sgd) [redacted].

Maralinga,
22nd Oct. 1957

[redacted]

[redacted] (interim report (continued)

[redacted]

[redacted]

Samples 65 to 73 inclusive.

Taken on 22nd October, 1957

Measured 24th Oct.

No.	Location	Wt. gms	IODINE 131 mμc x 10⁻³ per thyroid	IODINE 131 mμc x 10⁻³ per gm. thyroid	XENON 131 mμc x 10⁻³ per thyroid	XENON 131 mμc x 10⁻³ per gm. thyroid
65	Malgathing	3.17	2.06	0.65	0.051	0.016
66	"	3.23	4.11	1.27	0.89	0.27
67	"	3.63	5.29	1.46	0.34	0.093
68	Bulgunnia	2.38	14.52	6.1	1.34	0.58
69	"	3.13	15.92	5.01	1.39	0.44
70	"	2.8	16.45	5.88	1.44	0.51
71	Tarcoola	3.22	0.24	0.074		
72	"	2.48	0.44	0.18		
73	"	4.2	0.19	0.045		

The above results complete the Interim report.

(sgd) [redacted]

Maralinga,

24th October, 1957.

[redacted]

[redacted]

AUSTRALIAN NATIONAL COMMITTEE

FOR

THE INTERNATIONAL GEOPHYSICAL YEAR

The University of Queensland,

St. Lucia.

BRISBANE.

24th October, 1957.

[redacted],
Department of Nuclear Physics,
Research School of Physical Sciences,
The Australian National University,
Box 4, G.P.O.,
CANBERRA. A.C.T.

Dear [redacted]

The Australian National Committee for the International Geophysical Year some time ago considered what it should do about implementing the CSAGI recommendations on measurement of air radioactivity. It set up a sub-committee, consisting of [redacted], (Convenor) and [redacted] and some sort of programme was tentatively considered. We then learnt that regular measurements are made of fallout by a chain of stations operated by the safety committee using equipment supplied by U.K.A.W.R.E. and it seemed pointless for us to duplicate these measurements. Indeed, [redacted] hinted that legal action might be taken against us if we attempted to do so. He stated (and reiterated at a meeting in Sydney in August of a Commonwealth-States Committee on Radiation Safety) that the Australian organizations had no control over the data obtained and no authority to release it. (We gathered, however, that he did not personally consider it necessary to "classify" the information except during actual bomb tests).

Under the circumstances we had no option but to allow the matter to drop.

We now find that, judging by your article in A.J.S. (with [redacted]) your Committee does have control of the data. This would seem to imply that the objection was not to releasing the information but to allowing the I.G.Y. Committee to handle it. I should be grateful for information on this point as it will assist us in determining future policy. If you can let me know within a week or two I would appreciate it, as our Committee meets in Canberra on 22nd November.

I wrote to the Secretary of [redacted] committee about this matter some time ago, but [redacted] untimely death no doubt prevented its being considered.

Yours sincerely,

[redacted]

Convener.

[redacted]

DEPARTMENT OF SUPPLY

339 Swanston Street,
Melbourne, C.1.

5328/1/A

17th October, 1957.

Controller,
W.R.E.,
SALISBURY. S.A.

The Prime Minister has received a letter dated 30th September from the Premier of Western Australia (copy attached).

The area concerned is roughly on the border of South and Western Australia, westwards to the Warburton Range area, running northerly, and returning again to the State boundary. It is, of course, along the line of fire of the range of short to medium range missiles, and less than the longer range which will be required for tests at a later stage.

Your urgent comments would be appreciated.

Assistant Secretary
RESEARCH AND DEVELOPMENT

Secretary,
SAFETY COMMITTEE

Would you please obtain urgently the views of the Safety Committee on this proposal.

(sgd) [redacted]
Assistant Secretary
RESEARCH AND DEVELOPMENT

SECRET

PREMIER'S DEPARTMENT
PERTH, W.A.

[redacted]

30th September, 1957.

[redacted]

The appropriate Ministers of the State Government of Western Australia have been giving consideration to the question of throwing open for pastoral activities a portion of land near the borders of South Australia and the Northern Territory, with the object in view of providing useful employment to natives.

The Lands and Surveys Department intends to make an exploration survey of about 40,000 square miles in the area, following the summer of 1958.

The point has now been raised as to whether the country in question could be in the line of fire of guided missiles, and I am now writing to you to ascertain whether you think there is any substantial reason why the land in question should not be thrown open for settlement under the pastoral leasing system.

The portion of country particularly concerned is the region between latitudes 24° and 26° South and longitudes 127° and 129° East.

Trusting you may be able to make early advice available to me in connection with this matter, and with kind regards,

Yours sincerely,

[redacted]

THE RIGHT HONOURABLE [redacted] C.H., ..., M...,
PRIME MINISTER OF THE COMMONWEALTH,
CANBERRA.

[redacted]

[redacted]

[redacted]

Extract from Minutes of the Twenty Fourth Meeting of the Atomic Weapons Tests Safety Committee held 24th August, 1957.

- - - - - - - -

"9. STRATHOSPHERIC MONITORING

A copy of a cablegram from the Australian Embassy Washington was tabled and discussed at some length.

The Committee felt:

(a) The proposal was desirable from a scientific point of view.

(b) There would be no objection to the monitoring being carried out in Australia provided:-

(i) that the U. K. confirmed it would have no impact on any U. K. programme.

(ii) flights were restricted during the period of atomic trials.

(iii) the U. S. provided all facilities, equipment, etc. free of cost.

(c) If (b) (i), (ii) and (iii) were approved the programme could probably be handled by the University and tied in with the activities of the Bureau of Meteorology. "

[redacted]

[redacted]

[redacted]

COPY.

INWARD CABLEGRAM

I.11416

Dated: 14th August 1957
2040
Rec'd: 15th August 1957
1324

(Transmitted by leased channel).

FROM:

Australian Embassy,
WASHINGTON.

967. [redacted]

Stratospheric Monitoring.

At meeting at the State Department to-day, we were asked by representatives of the United States Atomic Energy Commission to enquire whether Australia would be interested in co-operating with the United States in instituting a stratospheric monitoring programme in Australia. Since last year the United States has established four monitering stations (Minneapolis, Texas, Canal Zone and Southern Hemisphere). Primary purpose of programme is to gather, by using balloons reaching between 50,000 and 90,000 feet, information on amount of strontium 90 in the atmosphere. It is hoped ultimately to have stations all around the globe. Australia is regarded as a good site not only because it is in the Southern Hemisphere, but also because the problem of recovering balloons would be easier. (A number of balloons have drifted out to sea and recording mechanisms have been damaged by sea water.)

2. The programme is unclassified and the data gathered would be available to all countries. The estimated cost is between $600,000 and $700,000 a year and the programme would last "several years." Details of the nature and size of individual contributions by Australia and United States could be worked out if you are agreeable in principle to the project. In any event the United States would propose to send a mission to Australia to work out all details, assuming you are interested.

3. Grateful for early indication of your views, which we have been asked to communicate in the first instance to the State Department. The Atomic Energy Commission representatives suggested that the Australian representative on United Nations Scientific Committee might be in position to offer comments on project, but in any event they would be happy to provide any information about the project which you might require.

15th August, 1957

[redacted]

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DEPARTMENT OF EXTERNAL AFFAIRS.

INWARD CABLEGRAM

1.15537/8/9/40

Dated: 23rd October, 1957.
2325.
Rec'd: 24th October, 1957.
1545.
(Via Leased Channel)

FROM:

Australian Embassy,
WASHINGTON.

1290. [redacted] PRIORITY

Stratospheric Monitoring

Your telegram No. 1067.

1. The following information was supplied at a meeting on 22nd October with the State Department and A.E.C. officials.

(a) The programme would involve sending up four balloons to four different altitudes a month, making a total of sixteen flights a month. Balloons would be sent to altitudes of 50,000 feet, 65,000 feet, 80,000 feet and 90,000 feet and above.

(b) Each balloon would contain a fibre glass "ash can" about three feet in both diameter and length, which would hold a battery-driven motor capable of drawing air through a filter. Electronic devices would be installed to send out signals by which the recovery parties could follow the path of the balloon and pick it up in descent. Balloons used in the United States are made by General Mills Inc.

(c) The duration of individual flights would depend on weather conditions. In the lower altitudes the balloons would stay up for one or two hours and in the higher altitudes from 4-5 hours, excluding ascent and descent times in both cases. Ascent and descent are fairly rapid.

(d) The project would require the provision by Australia of services, personnel and some equipment, a few United States technicians would go to Australia to install the station and stay on, but Australian personnel, including technicians and labourers, would also be required to operate it.

2/...

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In particular they would have to be trained in launching and recovery procedures. Four or five men would be sufficient for launchings and a similar number for recovery. Recovery parties would use one or two trucks containing equipment capable of picking up the radio signals of the balloon and would follow the balloon and recover it when it descended. (Launching equipment is neither elaborate nor expensive, but is unique. It could be made either in the United States or Australia.)

(e) A launching site covering two or three acres of open ground would be required. The site would be left to Australia to determine, taking into account such factors as the strength of prevailing winds (which would have a bearing on recovery procedures), the fact of a six - seven hours trajectory and the need to avoid mountain ranges. United States experience had been that some balloons returned to the site whereas others descended at points up to 200 miles distant.

(f) Radio chemical analysis of the filters might best be done in the United States and the resulting data sent back to Australia. However, this point could be discussed further with you.

(g) The A.E.A.C. had tentatively estimated the overall maximum cost per annum at one million dollars, broken down roughly as follows:

Flight Equipment	250,000
Balloons, parachutes, sampling Equipment, balloon release Equipment, cable, power supply, Communication, control, training, Tracking, ballast and valving, Pressure recording and transmitting, For 50 flights with overall recovery Factor of 50 per cent.	
Ground Equipment	100,000
(Tracking, maintenance, Assembly, launching, Communications, testing, Disassembly, etc.)	
Transportation and vehicle use	120,000
Supplies and Services	100,000
Salaries (12 full-time and 25 half-time)	200,000

3/...

Administrative Expenses	100,000
Analysis of Samples	50,000
Consultants	20,000
Travel and Communications	10,000

(h) While it was hoped that the costs could be shared on an equal basis, officials told us informally that since the United States was so anxious to get the programme going, it would probably accept a higher proportion of the overall cost. They pointed out in this connection that there was no precedent to use as a guide for the Australian programme. Projects in operation in the Canal Zone and one South American country (still unspecified) were being financed by the United States Air Force, while the project envisaged in co-operation with Australia was the first of its kind.

(i) Officials could not say how long the project would continue, but thought it would go on for "at least a few years" and, if successful, might be continued even if agreement on cessation of nuclear bomb testing was achieved in the meantime.

2. Officials made it clear that the United States was most anxious to have a station in Australia and to install it as soon as possible. They said that its purpose was primarily to determine the amount of debris in the stratosphere resulting from nuclear detonations, about which there were very many unanswered questions, and to produce some basic information on such issues as the unequal distribution of fall-out and the genetic effects of radioactivity. They believed that scientifically it would be of great mutual benefit to us. They were willing to send at least two people to Australia at any time to discuss the matter with you on the spot, informally or formally, as you wished.

3. There was some discussion whether a co-operative enterprise of this nature would require the signing of a formal agreement between the two countries. State Department officials suggested that if Australia signified agreement in principle to the project, the United States would be willing to draw up a draft agreement for our consideration. Your views were requested on the need for a formal agreement.

4. We were informed that there was no written material covering the technical details of the programme, but if you required such material, the A.E.C. would produce it. It would help the A.E.C. if you could specify in detail the type of technical information you required in determining whether this enterprise could be undertaken.

4/...

5. It was made clear that our co-operation in this matter would be much appreciated by United States authorities.

A/MIN&DEPT E.A.
MIN I/C A.A.E.C.
MIN&DEPT DEFENCE
MIN&DEPT SUPPLY
CHAIRMAN A.A.E.C.
N.D.
P.M'S DEPT
P.M'S

24th October, 1957

29th Meeting October 8th

82

29th MEETING - DISTRIBUTION

1 [redacted]
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[redacted]

Copy No .....3.....

MINUTES OF THE 29TH MEETING OF THE
ATOMIC WEAPONS TESTS SAFETY COMMITTEE
HELD AT MARALINGA ON TUESDAY, 8TH OCTOBER, 1957

PRESENT:

[redacted]

The meeting opened at 9.00 p.m. and was called to discuss health physics at Maralinga during the inter-trial period 1957-1958.

1. Responsibility for health physics at Maralinga during the inter-trial period

The question of responsibility for health physics at Maralinga had been confused for some time because of a misinterpretation of the original suggestions. There are three bodies whose interests are involved, A.W.R.E., U.K.A.E.A. and the Maralinga Board of Management. [redacted] clarified the issue by reference to correspondence and the minutes of the Board of Management. All had agreed that the responsibility for radiological safety at Maralinga is fundamentally that of the U.K. both morally and financially. Australian interest in health physics matters at Maralinga is recognised, and is acknowledged in the terms of appointment of the Health Physics Representative. To facilitate operations during the inter-trial period it would be convenient to have in Australia a body which could supervise health physics matters and advise the Health Physics Representative. It has been agreed that U.K.A.E.A. would act in this capacity, but clearly understood that the Health Physics Representative is directly responsible on scientific aspects to A.W.R.E. through the Maralinga Range Commander. He is required to report directly to A.W.R.E. through the Range Commander circulating copies to the U.K.A.E.A., Board of Management and U.K.A.E.A. So that supervision may be carried out efficiently copies of correspondence from A.W.R.E. to the Health Physics Representative should be made available to [redacted].

2. Requirement of Health Physics Representative

It was originally agreed by the three bodies that the Health Physics Representative would be an Australian; his appointment being conditional to a joint nomination by the Board of Management and the A.W.R.E./U.K.A.E.A. with final endorsement by A.W.R.E. acting for Ministry of Supply. [redacted] is the present occupant of the office of Health Physics Representative. Since he is an officer of U.K.A.E.A. they remain administratively responsible for him but as the Health Physics Representative he has direct scientific responsibility to A.W.R.E. In addition to his general duties as laid down in the Radiological Safety Regulations for Maralinga a number of specific tasks to be performed during the current inter-trial period were outlined by [redacted] and [redacted] and

.../2.

[redacted]

concurred in by the A.W.T.S.C. He would be assured of adequate staff to fulfil the approved requirements and if at any time this programme was satisfactorily in hand could concurrently institute measurements of his own interest, provided they met with A.W.R.E. approval.

3. Distribution of R.D.U. personnel from Mt. Clarence

During the inter-trial period it would be advantageous to maintain these personnel within the employ of the bodies interested in Maralinga, principally to avoid retraining before the next trials series. It has been agreed by A.W.R.E. and the Board of Management to allocate a number to the Health Physics Representative's group to bring it to the appropriate strength, and to absorb the remainder into the staff at Salisbury for the period. If practicable a continuous exchange is to occur to give all members as wide experience as possible.

4. Film Badges

These will not be worn during the inter-trial period by personnel working in areas cleared by the Health Physics Representative.

[redacted]
Secretary
Atomic Weapons Tests Safety Committee

Approved

Chairman

[redacted]

[redacted] of the Health Physics Representative at Maralinga [redacted] during Atomic Weapon Trials

His general duties are as laid down in the Radiological Safety Regulations, Maralinga. In addition to these the following specific items of work are required of him.

1. Survey of Tarnuaki Balloon Site

A regular survey of beta and gamma activities in a circular area of ½ mile radius centred on the centre of the site at monthly intervals for the first three months following the departure of the RN group at the end of the Antler Trial and then at three-monthly intervals so long as there is measurable activity.

2. Adjustment of Health Control Boundaries

To make such adjustments to the boundaries of the Health Control Region of the Forward Area South of an East-West line drawn through Marcoo as the changing radiation hazards permit.

3. Wash-out Effect of Rain on Ground Contamination

Measurements to determine wash-out effect of heavy rain. A small area, the contamination on which was known prior to Sunday, 13th October, 1957, and chosen on the basis of suitable contours in the region between Kite and Warn, to be surveyed immediately.

4. Air Sampling in Forward Area

Air sampling to be carried out in the Health Control regions of the Forward Area whenever work in these areas is in progress in order to relate ground contamination to concentration of activity in the air.

5. Water Sampling

Routine examination for radioactivity of samples of rain water, drinking water, and bore water, particularly those from Forward Area bores. This examination does not require radio-chemical or other analysis except in the event of the drinking water on the Range having activity levels in excess of those quoted in the Radiological Safety Regulations, Maralinga, or in the event of raw water showing and maintaining an activity rise to several times the previous average.

6. Inspection of Health Aspects of Decontamination of Aircraft by RAF at Edinburgh

Periodic visits not more frequently than once a month to Edinburgh to check that the standards of health control do not fall below those laid down in the Radiological Safety Regulations, Maralinga, or subsequent RAF Instructions agreed by AWRE.

In this connection the Health Physics Representative has no executive responsibility. He will report his findings to A.W.R.E. who will make whatever approach that may be necessary to Air Ministry to ensure rectification of any fault.

28th Meeting Item 5 Dec 6th 93

28TH MEETING - DISTRIBUTION

1 Minister

2 File

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7

8 Spare.

[redacted]

[redacted]

Attendance at the conferences varied with the requirements, in general those who were present were:-

Safety Committee

[redacted] — Chairman

Bureau of Meteorology

C.X.R.L.

Secretary to Committee

Trials Directing Staff

[redacted] — Trials Director

[redacted] — Deputy Trials Director

[redacted] — Trials Superintendent

Advisory Staff

Representatives of the Meteorology Group
" " " Theoretical Prediction Group.

The purpose of this meeting was the approval of the meteorological conditions for firing of Round 3 of the Antler test series, having regard to the health of the people and livestock on the Australian Continent.

First Firing Attempt

A number of difficulties, but principally the adverse directions of the low altitude winds, made conditions unfavourable to firing on 7th and 8th October. However developments in the stable pressure system which had been slowly traversing the southern part of the continent during this period, allowed the Safety Committee to concur with the Trials Director's proposal to fire at 1615 C.S.T. on the 9th October.

[redacted]

Approved [redacted]

CHAIRMAN

[redacted]

27th Meeting [illegible] 2 Sept [illegible]

27TH MEETING - DISTRIBUTION

1 Minister

2 File

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[redacted] COPY NO ..2..... 77

[redacted] OF THE 27TH MEETING OF THE A.W.T.S.C. [redacted] AT MARALINGA, SEPTEMBER 21ST TO 25TH

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Attendance at the conferences depended on the programme, those generally present were -

Safety Committee

[redacted]	Chairman
	Bureau of Meteorology
	Cancer Institute Board
	Secretary to Committee

Directing Staff

[redacted]	Trials Director
	Deputy Trials Director
	Trials Superintendent

Advisory Staff

Representatives of the Meteorology Group

" " " Theoretical Prediction Group

The purpose of this meeting was the approval of the meteorological conditions for firing of Round 2 of the Antler test series, having regard to the health of the people and livestock on the Australian Continent.

First Firing Attempt

Early on the 21st the meteorological observations gave some hope of firing that afternoon. However as time progressed the situation deteriorated with certain undesirable possibilities arising. After considering later meteorological data the Safety Committee declared the firing conditions to be unsuitable. The Trials Director concurred in this decision and the firing programme for the afternoon of the 21st was cancelled.

Second Firing Attempt

During the 22nd and 23rd a field characterised by light and variable winds at the lower altitudes made the acceptance of firing impossible. Early on the 24th a stable local pattern gave hopes for a firing during the afternoon. However, by F-2 hours, the situation had changed to one which the Safety Committee considered was not acceptable. The firing programme for the afternoon of the 24th was therefore cancelled.

Third Firing Attempt

A low pressure region moving very slowly eastward during the preceding days brought about a local wind structure suitable for firing during the 25th. Developments during the prefiring phase confirmed that the situation would be ideal. The Trials Director's proposal to fire at 1000 hours C.S.T. on September 25th was therefore agreed to by the Safety Committee.

Approved [redacted]

26th Meeting Round 1 Sept 11th - 14th

76

26TH MEETING - DISTRIBUTION

1 Minister

2 File

3 [redacted]

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8 Spare.

[redacted]

MINUTES OF THE 26TH MEETING OF THE A.W.T.S.C.
HELD AT MARALINGA - SEPTEMBER 11th - 14th.

- - - - - - - - - - - -

[redacted]

Attendance at the conferences varied with the requirements, in general those who were present were:-

Safety Committee

[redacted] — Chairman
Bureau of Meteorology
C.X.R.L.
Secretary to Committee

Trials Directing Staff

[redacted] — Trials Director
Deputy Trials Director
Trials Superintendent

Advisory Staff

Representatives of the Meteorology Group
" " " Theoretical Prediction Group

The purpose of this meeting was the approval of the meteorological conditions for firing of Round 1 of the Antler test series, having regard to the health of the people and livestock on the Australian continent.

PRELIMINARY DISCUSSION

(a) Radiation Levels Accepted by N.R.A.C.

In discussion with the Trials Directing Staff the radiation levels accepted by the N.R.A.C. for the forthcoming trials were tabled.

(b) Casual Population in the Range Area

An outline was given of the organisation for the thorough scanning of the Range before each firing. Aboriginal tribes are located and diverted by parties checking the Range boundaries.

FIRST FIRING ATTEMPT

Regular meteorological observations on the 11th and early 12th of September allowed the construction of wind fields which were characterised by low velocities and lack of definition in direction at the lower altitudes. The earlier data did imply some chance of local improvement, but this did not materialise. The proposed firing on the morning of the 12th was cancelled by the Trials Director.

SECOND FIRING ATTEMPT

During the 13th the local winds showed a development towards greater stability and higher velocities, but some doubt was expressed as to the future of the general wind field. After detailed consideration of the final meteorological data the Safety Committee declared that the conditions were not acceptable and the firing programme proposed for the afternoon of the 13th was cancelled.

[redacted]

.../2.

[redacted]

[redacted]tions made during the 13th and 14th showed a high [redacted]ancy in the form of the wind field. Calculation of the fallout pattern, predictions of cloud motion and forward weather forecasts were all appropriate for a firing. The Safety Committee therefore concurred with the Trials Director's proposal to fire at 1435 hours C.S.T. on September 14th.

SUNDAY FIRING

The question of firing on a Sunday was discussed by the Chairman with the Minister for Supply in a telephone conversation on the 13th. The Minister recommended that a Sunday firing be undertaken only after a series of cancellations. The Trials Director stated that in a communication to him, [redacted] had stated that firing on a Sunday would be accepted [redacted] if the round had been cancelled, in a situation otherwise acceptable, because it occurred on the previous Sunday.

[redacted]

S e c r e t a r y

Atomic Weapons Tests Safety Committee

Approved [redacted]

[redacted]

25th Meeting 5th September

DISTRIBUTION OF MINUTES OF 25TH A.W.T.S.C. MEETING.

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MINUTES OF THE THIRTY-FIFTH MEETING OF THE ATOMIC WEAPONS TESTS SAFETY COMMITTEE HELD AT THE PHYSICS DEPARTMENT, UNIVERSITY OF MELBOURNE ON THURSDAY, 5TH SEPTEMBER, 1957

PRESENT

[redacted] — Chairman
Director, Bureau of Meteorology
Director, C.S.I.R.O.
Cancer Institute Board of Victoria
Secretary to Committee

IN ATTENDANCE FOR INITIAL PART OF MEETING

[redacted] — University of Melbourne
Department of Supply

- - - - - - - - -

The meeting opened at 2.00 p.m.

[redacted] was co-opted to the Committee with the Minister's concurrence until such time as the new Constitution for the Safety Committee is drawn up naming him officially as a member.

1. PAPERS FOR PUBLICATION

(a) Radioactive Fall-out in Australia from Operation Mosaic

Discussion on the draft of this paper took place between the Committee, [redacted] and [redacted]. The final draft was completed except for the fourth paragraph of the section on "Air Filter Measurements". This is to be rewritten by [redacted] expressing the meeting's feelings on the scientific limitations of this particular application of the air pump method.

(b) [redacted]

Further discussion took place on the unscientific nature of this paper. Refer previous minutes of 34th meeting item 5 (a), 23rd - 8, 20th - 1 and 19th - 1. It was restated that if publication of the paper occurred, the Committee would endeavour to indicate its inaccuracies in a paper in the same journal. The Chairman circulated copies of a letter from [redacted] who did not envisage any difficulty in disposing of the paper on its technical grounds but considered that the alarmist passages would be better unpublished.

[redacted]

3. MATTERS ARISING FROM THE MINUTES

(a) Item 4 - Minutes of 23rd Meeting

The Secretary was asked to investigate the requirements of the International Geophysical Year Committee with respect to information on fall-out during the inter-trial period.

(b) Item 6 - Minutes of 23rd Meeting

The Board of Management was asked what it requires of the Safety Committee so far as inter-trial Health Physics at Maralinga is concerned. In reply it was stated in part "As the Department of Health, through C.X.R.L., is responsible for Health Physics at Maralinga during the inter-trial period nothing will be required of the Safety Committee by the Board. However, it was suggested by the Board that [redacted] may welcome the opportunity of referring some matters to the Safety Committee for advice."

After some discussion it was concluded that the actual responsibilities of the Safety Committee or C.X.R.L. in this matter were not clear, and Mr. Stevens would make further reference to the Board.

(c) Item 6 (c) - Minutes of 24th Meeting

It had been proposed to approach [redacted] to prepare an article for publication and if possible release it before the Antler series. A copy of a teleprinted communication was received by the Secretary -

"The Minister does not desire any further action on the idea of a press interview with [redacted]. However, the proposal could be revised in the advent of adverse public opinion developing during the period of the forthcoming trials."

4. NEW CONSTITUTION FOR SAFETY COMMITTEE

Due to the proposed addition of [redacted] to the committee and the proposed resignation of [redacted], the instrument originally drawn up for the committee will require revision. The Secretary was requested to attempt to hasten proceedings.

5. CHANGE OF FIRING PROGRAMME FOR ANTLER

The Chairman informed the Committee of changes to the firing programme for the forthcoming trials. These are as follows:-

100 ft. Tower	1 KT
100 ft. Tower	6 KT
1000 ft. on Balloon	24 KT

[redacted]

6. BLOOD COUNTING OF ALL PERSONNEL BEFORE ANTLER

The question has been discussed previously, refer to the minutes of the 21st meeting, item 4, and also 22/8, the Board of Management was approached through [redacted].

At the last meeting of the Board the United Kingdom representative advised that civilians refusing to submit to a blood count would be deemed unsuitable for entry to radioactive areas.

The Committee re-affirmed its lack of confidence in the usefulness of blood counting as a low level radiation monitor. Its members resolved that they did not intend to have blood counts.

7. DEPARTMENT OF CIVIL AVIATION - REGIONAL OPERATIONS LETTER

Atomic Trials - Maralinga 1957. Copies of this document were handed to members, their attention being directed to sections 1, 2, 6.1, 6.2, and 6.3. The Secretary was instructed to contact the Department of Civil Aviation to facilitate communication with them during the forthcoming trials.

8. QUESTION IN THE HOUSE OF REPRESENTATIVES

A question without notice was addressed to the Minister for Supply by [redacted]. This was referred on to the Safety Committee for further comment. After discussion a reply was drafted.

9. OPERATION ANTLER

[redacted] tabled documents which gave final information on "Sampling Procedure" and "Sampling Stations" and also on the "Alice Road Plan". Discussion took place mainly on the establishment of an Air Sampling Station at the Airport Meteorological Office, Adelaide. The results of sampling could be airfreighted to Melbourne twice daily for scanning, in this way data could be very quickly made available for comparison with Mr. Marston's results, should he choose to continue his measurements. [redacted] thought that this arrangement was acceptable to his Department.

10. PAYMENT OF MEMBER'S TRANSPORT COSTS

It was again queried if the transport costs when on Committee business of members of the Committee who are also members of Government Departments should be met by an organisation other than their own Department. It has been accepted that the transport costs of members from non-Government organisations should be met. The Secretary was asked to obtain a final decision on this question.

[redacted] COMMONWEALTH OF AUSTRALIA

Secretary
Atomic Weapons Tests Safety Committee

COPY

[redacted]

COMMONWEALTH OF AUSTRALIA - DEPARTMENT OF CIVIL AVIATION

Regional Operations Letter.

NOT TO BE RE-ISSUED.

[redacted]

ATOMIC TRIALS - MARALINGA 1957

During September and October, 1957 atomic trials will be conducted on Maralinga Range. This Department will cooperate with Department of Supply and RAAF in -

(i) Assisting aircraft participating in the trials with aids and communications;

(ii) Ensuring civil aircraft avoid areas which may be hazardous.

2. After each explosion a radio active cloud will exist which will move with the wind. Until the cloud disperses or moves out of the range of Australian based aircraft, it will be tracked by aircraft of the trials task force. These aircraft will keep the Safety Committee at Maralinga advised of the position of the cloud and the Safety Committee in turn will keep Head Office, DCA, informed of the area to be avoided by civil aircraft from day to day.

3. Assistance to tracking aircraft will include -

(a) The provision of navigation aids;
(b) The relaying of position reports and other messages to Maralinga.

3.1 Provision of Navigation Aids. - Edinburgh will advise ATC Adelaide which of the following navigation aids are required and when. ATC Adelaide in turn will pass the requests, unclassified, to the relevant Regional Director (for information), the ATC Centre of the FIR (for information) and the aerodrome at which the aid is located (for action) using priority as requested by Edinburgh. Two days notice will be given and the arrangement shall be maintained until otherwise advised by Edinburgh via Adelaide ATC.

3.1.1 South Australia/ Northern Territory Region -

(a) Adelaide: NDB and DME 24 hours per day;
(b) Ceduna: NDB and DME 24 hours per day;
(c) Leigh Creek: NDB and DME 24 hours per day;
(d) Coodnadatta: NDB and DME 24 hours per day;
(e) Whyalla: NDB and DME 24 hours per day;
(f) Alice Springs: DME, NDB 24 hours per day;
(g) Tennant Creek: NDB, DME 24 hours per day;
(h) Daly Waters: NDB, DME 24 hours per day;
(i) Katherine: NDB, DME 24 hours per day;
(j) Darwin: NDB, DME 24 hours per day.

3.1.2 Western Australian Region -

(a) Forrest: NDB, DME 24 hours per day;
(b) Halls Creek: NDB 24 hours per day;
(c) Wyndham: NDB 24 hours per day.

.../2

[redacted]

[redacted]

3.1.3 Queensland Region -

(a) Cooktown: NDB 24 hours per day;
(b) Cannonvale: NDB 24 hours per day;
(c) Clermarry: NDB, DME 24 hours per day;
(d) Mackay: NDB, DME 24 hours per day;
(e) Townsville: DME, NDB 24 hours per day;
(f) Cairns: NDB, DME 24 hours per day;
(g) Bundaberg: NDB, DME 24 hours per day;
(h) Longreach: NDB, DME 24 hours per day;
(i) Rockhampton: NDB, DME 24 hours per day;
(j) Brisbane: NDB, DME 24 hours per day;
(k) Charleville: NDB, DME 24 hours per day.

3.1.4 All Notams affecting the availability of any of the facilities mentioned above will also be addressed to "Adelaide ATC" and prefixed "For Edinburgh". Communications shall be by the shortest possible means using priority "DD".

3.2 Provision of Communications.

3.2.1 While it is expected that the tracking aircraft will work Maralinga direct on RAAF frequencies for a proportion of each operation, it is intended that air/ground watch shall be kept for them on the aeradio H/F frequencies as required by Edinburgh.

3.2.2 In the same manner as for Navigation Aids, Edinburgh will call for communication services with messages through Adelaide ATC.

3.2.2.1 South Australia/Northern Territory Region -

(a) Adelaide: Mobile HF;
(b) Ceduna: Mobile HF;
(c) Leigh Creek: Mobile HF day only;
(d) Alice Springs: Mobile HF;
(e) Tennant Creek: Mobile HF day only;
(f) Katherine: Mobile HF day only;
(g) Darwin: Mobile HF.

3.2.2.2 Queensland region -

(a) Cloncurry: Mobile HF;
(b) Mackay: Mobile HF day only;
(c) Townsville: Mobile HF;
(d) Cairns: Mobile HF day only;
(e) Longreach: Mobile HF day only;
(f) Rockhampton: Mobile HF;
(g) Brisbane: Mobile HF;
(h) Charleville: Mobile HF day only.

3.2.2.3 Western Australia Region -

(a) Forrest: Mobile HF day only

3.2.3 Where Mobile HF has been described as "Day only" this is not intended to limit the operating hours of the station if there exists a requirement to extend these hours.

3.2.4 During the experiments military aircraft when working Aeradio may have messages urgently required at Edinburgh. These messages will be passed to the Aeradio network reading "From (call sign)" followed by "For Edinburgh" followed by "message".

.../3

[redacted]

[redacted]

3.

3.2.4.1 Messages received by aeradio stations within the WA and NA regions will be passed over the fixed service network using priority "DD" along the most expeditious route to Adelaide ATC from where they will be passed by landline to Edinburgh.

3.2.4.2 Messages received by aeradio stations within the Queensland Region will be passed over the fixed service network using the priority "DD" along the most expeditious route (normally TT) to Melbourne Aeradio. In this case originating aeradio stations shall address the messages "NSMX" and incorporate in the text of the message the details "From (call sign) for Edinburgh":

EXAMPLE:

"DD NSMX
FROM (call sign) FOR EDINBURGH ETD ETC
OMEGA".

3.2.4.2.1 Upon receipt of a message at Melbourne aeradio addressed "NSMX" it shall be passed immediately to RAAF Frognall which for this purpose has been designated a tributary of Melbourne Aeradio, and allocated the temporary routing indicator "NSMX".

4. Release from commitment. - Edinburgh will advise Adelaide ATC who, in turn, will advise the appropriate Regional Director, ATC Centre and Aerodrome(s) immediately any one location or any group of locations can be withdrawn from these special commitments of para. 3 above. These messages shall be prefixed "From Edinburgh" and given priority "JJ".

5. Notification of Field OIC's. - Regional Directors shall issue to all locations listed above an Operations Letter covering paragraphs 3 and 4 above without disclosing the purpose of the arrangements. This Operations Letter shall be unclassified and shall be issued during the week commencing 3rd September, 1957. The Operations Letter shall require all queries to be referred to the Regional Directors personally.

6. Ensuring Civil aircraft avoid areas which may be hazardous.

6.1 The Woomera/Maralinga prohibited area will not be extended for this series of tests. Standing arrangements for obtaining permission for civil aircraft to pass through the prohibited area will continue. Flights within the prohibited area will be subject to the prior approval of the Range Superintendent and application for flights into or through the prohibited area will be made through ATC, Adelaide. For periods related to each explosion permission to enter the prohibited area will not be granted. Edinburgh will advise the RD, S.A. Region of the periods when flight is prohibited, who, in turn, will advise ATC Adelaide as necessary.

6.2 For S.A. R.D. Region. - Adelaide Air Traffic Control Centre shall be advised by the Department of Supply Chief Security Officer at Maralinga of phase state notifications. (See Department of Supply Operational Instruction No. 2). For the period between receipt of the phase states "Exercise Beta" and "Fired" the Adelaide Air Traffic Control Centre shall ensure that no aircraft operations occur north of the coast 50 miles east or west of Maralinga.

.../4

[redacted]

[redacted]

6.3 As required after each firing, the Safety Committee will advise Head Office, DCA of other areas which aircraft must avoid flying through. In these areas operations may be totally prohibited or operations at specific altitudes may be prohibited. Head Office will issue Notams detailing the areas affected with as much advance notification as the Safety Committee finds it possible to give and on receipt of this advice Regions concerned are to ground or divert civil aircraft accordingly and to enforce their instructions until notified that operations through the area may be re-commenced. No reason other than that flight is temporarily prohibited shall be given.

7. Effectiveness of Operations Letter - This Operations Letter is intended to cover a series of experiments and therefore will remain effective until cancelled by Head Office.

[redacted]

(sgd)
For DIRECTOR-GENERAL OF CIVIL AVIATION.

[redacted]

Copy [redacted]

Copy R57/6/5 65

U. K. A. E. A.
Atomic Weapons Research Est.,
Aldermaston, Berks.

331/8/57
D/32/03

9th August 1957

Dear [redacted]

Your letter of 29th July has crossed with mine of 31st. The conditions affecting publication of [redacted] paper are covered in my letter. [redacted] statements about Sr90, if not removed, can be dealt with in their scientific aspect by quoting the figures given in [redacted]' remarks attached to my letter of 28th May. Although we are not afraid of any technical argument on the facts, no good can come of publicising the matter and so I hope you are successful in getting the alarmist passages removed.

There is a minor point in [redacted]' remarks (my letter of 28th May) which needs correction. In the penultimate paragraph the figure 10^{-3} micro curies per metre ^{3} should be 10^{-2}. This is only a slip in the actual figure. The factor quoted is correct, and so are the figures which precede it.

[redacted] will by now have brought you the latest results of bone analysis. I am not sure whether you have seen the earlier figures, which were as follows:-

Sample No.	Locality	S.U.	Age of Animal	Date killed
B.36	Ingomar	4.4	3 yr. old	w/e 16th Feb.1954
B.37	Mt. Willoughby	4.6	1½-2 yr. & 2-4 yr.	No date given Note (1)
B.38	Mable Creek	6.0	3 yr. old	20th Feb.57
B.29	Headland	1.9) 1.2)		
B.30	Rollestone	8.0) Note (2) 9.8)		

Note (1) A number of bones were supplied and two were taken at random from each locality.

Note (2) These results were previously reported and are merely included for completeness.

The 'tolerance dose' figure of 5 μc of I 131 daily which you quote for sheep was based on continuous feeding. The figure used by [redacted] is taken from AERE ARC/RBC 5 by [redacted] and [redacted]. This paper takes account of the grazing cycle and rate of regeneration of herbage. The most pessimistic figure deduced is 24 μc/day corresponding with 3.8 μc/m^2 of iodine at day 1 or 0.38 mc/m^2 fission products (Table 2 p.8).

The very stringent standards taken in this analysis are indicated by para. 1.5 of [redacted] report which is as follows:-

"The assumption on which the present calculations are based assume the most unfavourable circumstances which can be envisaged over large areas, namely, that animals derive all their food from free grazing; that fission products are soluble; that the density of herbage per unit areas is low. The hazard resulting from contaminated milk has been considered only in relation to infants of high milk consumption. Some of these assumptions will be unduly pessimistic under many circumstances and the mpl can therefore be increased.

"When the calculations are applied to wartime conditions the permissible intake figures for animals may be unrealistic. The levels proposed are considered to place the animals in no significant hazard, and they are known to be considerably below those which would give rise to any hazard to the consumer of animal products other than milk. Hence, for example, if meat production in the period immediately after an emergency is of very high importance, it may be reasonable to place the animals in some risk so that pastures can be exploited more fully than would be possible if more rigid control were insisted upon. No attempt is made here to assess such questions of policy". Since this is an A.E.R.E. report it would be unnecessary to quote A.W.R.E.

We normally keep cloud height as classified information but an exception could be made, as far as our Security is concerned, if it makes a great difference to the effectiveness of your paper. I should prefer the general rule to be observed, and this preference is possibly reinforced by the desirability of avoiding a repetition of the publicity about the relative sizes of G1 and G2. However if, after taking everything into consideration you still want to publish the actual heights, the Security objection could be waived.

Yours sincerely,

[redacted]

Copies to: [redacted]

[redacted]

[redacted] (Both 2-hour samples)	Start sampling 10th September.
Sticky Paper 6-hour sampling	Meteorological Bureau to advise start as soon as burst takes place. Sampling to continue until 9 a.m. on 4th day after burst.
Rain Water	Meteorological Bureau to advise start as soon as burst takes place. To continue for 5 days after burst.
High Volume Pot	To commence on 11th September, [redacted] to be taken up at the end of 7 days after burst. New sample to commence [redacted] and to be taken up 7 days after [redacted] and so on.
Air Samples from Adelaide	Special procedure to be arranged [redacted] for quick return of samples. Possibly two samples of different duration in any 24 hours to fit in with transmission of samples by air express freight.

[redacted]

[redacted]

1. Adelaide 6H + A.S. + R.S. + P.S.
3. Woomera 6H
4. Hall's Creek
6. Port Moresby

8. Broome
9. Kalgoorlie
10. Daly Waters R.S.
11. Oodnadatta 6H + R.S. + P.S.

12. Onslow
13. Thursday Island
14. Wyndham
15. Melbourne A.S. + R.S.

16. Port Hedland
17. Meekathara
18. Geraldton
19. Alice Springs 6H + R.S.

20. Townsville 6H + A.S. + R.S.
21. Sydney 6H + R.S. + P.S.
22. Charleville 6H + R.S. + P.S.
23. Cloncurry 6H + R.S. + P.S.

24. Cairns
25. Brisbane 6H + R.S. + P.S.
26. Perth A.S.
27. Carnarvon

28. Darwin A.S. + R.S.
51. Bundaberg
52. Camooweal
53. Cunnamulla

54. Emerald
55. Goondiwindi
56. Longreach 6H
57. Mackay

58. Normanton
59. Richmond
60. Rockhampton 6H + R.S.
61. Roma

62. Thargomindah
63. Armidale 6H
64. Bourke
65. Canberra

66. Cobar
67. Coff's Harbour 6H

68. Broken Hill 6H
69. Coonabarabran
70. Dubbo
71. Hillston

72. Lismore
73. Tenterfield
74. Walgett
75. Williamtown

76. Wagga 6H
77. Sale
78. Echuca
79. Hamilton

80. Mildura
81. Mhill
82. Swan Hill
83. Warrnambool

84. Currie
85. Hobart A.S.
86. Western Junction
87. Cethana

88. Leigh Creek
89. Maree
90. Mt. Gambier
91. Port Augusta

92. Port Lincoln
93. Tarcoola
94. Watson
95. Albany

96. Esperance
97. Forrest
98. Leonora
99. Southern Cross

100. Giles
251. Boulia
252. Windorah
254. Tambo

255. Winton
256. Forbes
257. Cook
258. Cleve

262. Tibooburra
263. Finke
265. Birdsville

[redacted]

NOTES ON SAMPLING STATIONS.

Continuous 24-hour sticky-paper samples will be taken at the above 85 stations. Additional 6-hourly samples will be taken at the stations marked "6H" from as soon as possible after the burst until 9 a.m. on the third day. This tray will then be used to provide a second 24-hourly sample from that station for the remaining period until the next burst.

Continuous 24-hourly air samples will be taken at stations marked "A.S." (possible exception Adelaide).

Rain samples will be taken at stations marked "R.S." on the five days immediately following each burst.

Pot sampling stations, marked "P.S.", will send in a sample on the seventh day after each test.

Results

Private phone number - [illegible] - [illegible]5440.

31 Latrobe Street - [illegible]3849.

Code word - Submarine.

Sticky paper results will be given as μc/m² at mid collection time, normally [illegible] . . . For 6-hourly samples mid collection time will be quoted.

Air sample results will be given as μμc/m3 at mid collection time.

Rain sample results will be given as μc/ml. at mid collection time. [illegible] will be quoted in [illegible]. Note - 1 μc/ml. gives roughly [illegible] c/min. [illegible] of the same order in a liquid geiger counter.

[redacted]

Exposure starting at time T.	$\mu c/m^2$ at time T to give level A (1.5 r in 10 weeks)
1 hour	1.0×10^5
6 hours	1.3×10^6
1 day	4.2×10^6
2½ days	1.8×10^7
10 days	5×10^7

[redacted]

Exposure starting at time T.	$\mu c/m^2$ at time T to give level A (7.5 r.e.d. in 10 weeks).
1 hour	5.7×10^4
6 hours	1.4×10^6
1 day	6.2×10^6
2½ days	2.6×10^7
10 days	7×10^7

[redacted] Dale's modified values (July 1956) have been used.

[illegible] AIR SAMPLES.

In order to obtain results for Adelaide air samples as quickly as possible after each sample has been taken, it is suggested that a pump be installed at the airport meteorological office and two samples be sent daily by T... . air express on the aircraft leaving Adelaide at [illegible].0 a.m. and 2.50 p.m.

These samples should be removed from the pump at the latest possible time before each flight, e.g. 9.30 a.m. and 1.30 p.m.

[redacted]

[redacted]

[redacted]

Being notes on a meeting held at Maralinga, 27/8/57.

References: (1) Summary Plan, Section J "The Alice Road Plan"
(2) "Explanatory Notes" on above.

A meeting was held in the Conference Room at Maralinga Base Headquarters on Tuesday, 27th August, to discuss the Alice Road Plan with a view to ensuring that all concerned were fully acquainted with the proposed plan and the method of execution.

Present at this meeting were:

[redacted]

A. Communications:

Will be by radio as outlined in the Summary Plan. Signals [redacted] radiological survey will be between [redacted] at Maralinga [redacted] at Mt. Clarence. [redacted] (R.A.F.) to ensure [redacted] are satisfactory.

B. Ground Radiological Survey (Task 1)

Method: (1) [redacted] obtains from Theoretical Predictions Group: the expected position of the fall-out plume across the Alice Road and informs [redacted] of this position. Crews in two vehicles subsequently proceed to and operate from the expected centre of the plume outwards in opposite directions, taking readings every half-mile and proceeding ten miles past the edge of the plume to check the possible existence of local deposition outside the plume.

(2) Results of readings on a 1390A dose-rate meter* are recorded on cards and maps supplied, and reported to the base camp by radio. The following code will be used:

Position (miles North or South of nearest place) and reading of 1390A, but omitting the unit of measurement.

(3) Measurements are to be transmitted to Mt. Clarence at intervals of one hour as far as practicable. A continuous listening watch is to be kept at Mt. Clarence.

* The 1390A instrument is a very sensitive meter of wide range which registers the dose-rate, due to gamma rays, in milliroentgens per hour.

[redacted]he basic map used for the whole operation will be the [redacted]al Map, 1957. The results of the ground radiological [redacted] be correlated with the aerial survey, using the same [redacted]

C. <u>Biological Survey (Tasks 6, 7)</u>

(a) Bones: before round one, skeletons of animals, for preference complete skeleton of rabbits, whether old or new, are to be collected. If rabbits are not available the long leg-bones of kangaroos will be collected instead. Bones of sheep are not required. The necessary containers will be supplied by Department of Supply, Salisbury. No subsequent collection of bones is required.

(b) Soil, Herbage: to be collected before and during trials as outlined in the Summary Plan and Explanatory Notes.

(c) Thyroid programme: there are three phases -

(i) Before round one, one thyroid from each of four stations is to be collected. The stations will probably be Mt. Willoughby, Mabel Creek, Ingomar, Allan Rise.

The question of one or two thyroids will be settled at Maralinga

(ii) After each round, one thyroid will be collected from each of three stations in the vicinity of the fall-out plume.

(iii) After the last burst (D3?), one thyroid is to be collected from each station from which thyroids have previously been obtained: this will be done on D3 + 3, D3 + 5, D3 + 7, D3 + 9, D3 + 14.

(iv) Notes on collection of thyroids:

(1) the time and place of slaughtering and any information on the region over which the sheep have been grazing (locality, time of grazing) will be noted.

(2) Old sheep rather than young will be slaughtered, thus assisting to maintain harmonious relations with station owners.

(3) Sheep being very difficult to catch in open country, it is proposed to shoot them initially. 0.22 rifles are being supplied, with suitable cartridges.

(4) Containers of the thermos-flask type, and ice, will be available.

(5) The thyroids are to be flown to Maralinga as soon as possible after collection.

(d) Method: The crew of one vehicle, additional to those mentioned under B above, will attend to the operation of the cascade impactors and to the biological survey, which is carried on independently of the ground radiological survey.

D. <u>Action if Fall-Out Passes Over Base Camp</u>

The fall-out plume may pass over the base camp at Mt. Clarence, but it is expected that the level of activity will be so low that no special precautions (such as covering food and water) need be taken.

Station Number	Station	24 hour sticky paper start 10th Sept. (All stations)	6 hour sticky paper, start h_1 finish 9 on D_1 + 4 days. etc.	Pot sampling start 11th Sept, complete one D_1 + 7 days immediately start two, complete D_2 + 7 days etc.	Air sampling start 10th Sept. every 24 hours.	Rain sampling start h_1 finish D_1 + 5 days etc.
1	Adelaide	*	*	*	*	*
3	Woomera	*	*			*
4	Hall's Creek	*				
6	Port Moresby	*				
8	Broome	*				
9	Kalgoorlie	*				
10	Daly Waters	*				*
11	Oodnadatta	*	*	*		*
12	Onslow	*				
13	Thursday Island	*				
14	Wyndham	*				
15	Melbourne	*			*	*
16	Port Hedland	*				
17	Meekathawa	*				
18	Geraldton	*				
19	Alice Springs	*	*			*
20	Townsville	*	*		*	*
21	Sydney	*	*	*	*	*
22	Charleville	*	*	*		*
23	Cloncurry	*	*	*		*
24	Cairns	*				
25	Brisbane	*	*	*	*	*
26	Perth	*			*	
27	Carnarvon	*				
28	Darwin	*			*	*
51	Bundaberg	*				
52	Camooweal	*				
54	Emerald	*				
55	Goondiwindi	*				
56	Longreach	*	*			
57	Mackay	*				
58	Normanton	*				
59	Richmond	*				
60	Rockhampton	*	*			*
61	Roma	*				
62	Thargomindah	*				
63	Armidale	*	*			
64	Bourke	*				
65	Canberra	*				
66	Cobar	*				
67	Coff's Harbour	*	*			
53	Cunnamulla	*				

Station Number	Station	24 hour sticky paper start 10th Sept. (all stations)	6 hour sticky paper, start h_1 finish 9 on D_1 + 4 days. etc.	Pot sampling start 11th Sept, complete one D_1 + 7 days immediately start two, complete D_2 + 7 days etc.	Air sampling start 10th Sept. every 24 hours.	Rain sampling start h_1 finish D_1 + 5 days etc.
68	Broken Hill	*	*			
69	Coonabarabran	*				
70	Dubbo	*				
71	Hillston	*				
72	Lismore	*				
73	Tenterfield	*				
74	Walgett	*				
75	Williamtown	*				
76	Wagga	*	*			
77	Sale	*				
78	Echuca	*				
79	Hamilton	*				
80	Mildura	*				
81	Whill	*				
82	Swan Hill	*				
83	Warrnambool	*				
84	Currie	*				
85	Hobart	*			*	
86	Western Junction	*				
87	Ceduna	*				
88	Leigh Creek	*				
89	Maree	*				
90	Mt. Gambier	*				
91	Port Augusta	*				
92	Port Lincoln	*				
93	Tarcoola	*				
94	Watson	*				
95	Albany	*				
96	Esperance	*				
97	Forrest	*				
98	Leonora	*				
99	Southern Cross	*				
100	Giles	*				
251	Boulia	*				
252	Windorah	*				
254	Tambo	*				
255	Winton	*				
256	Forbes	*				
257	Cook	*				
258	Cleve	*				
262	Tibooburra	*				
263	Finke	*				
265	Birdsville	*				

In addition to the above, other types of sampling (bone, herbage, soil, thyroid, and milk) have and are being currently undertaken.

24th Meeting 24th August.

55

MINUTES of 23rd and 24th Meetings of the

SAFETY COMMITTEE

- - - - -

Copy No. 1 Minister, [redacted]

2 File (signed)

3 [redacted]

4

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[redacted]

54

COPY NO ...2.....

MINUTES OF THE TWENTY FOURTH MEETING OF THE ATOMIC WEAPONS TESTS SAFETY COMMITTEE HELD AT 339 SWANSTON STREET, MELBOURNE ON SATURDAY, 24TH AUGUST, 1957

PRESENT

[redacted]	Chairman
[redacted]	Director of Meteorology
[redacted]	Director, C.X.R.L.
[redacted]	Acting Secretary to Committee

IN ATTENDANCE FOR PORTION OF MEETING

[redacted]	Trials Director
[redacted]	Scientific Superintendent

Opening the meeting at 9.30 a.m. the Chairman paid tribute to the late [redacted] for his excellent work on behalf of the Committee. Other members endorsed the Chairman's remarks. The Acting Secretary was requested to convey to [redacted] the deep regret felt by all Committee members at the passing of a well liked and respected colleague, and mentioning that [redacted] and staff at Aldermaston had signalled [redacted] that their condolences be communicated to [redacted].

The Chairman then welcomed the Trials Director, Mr. [redacted], and the [redacted] and said he hoped both would join freely in all discussions.

1. CONFIRMATION OF MINUTES OF TWENTY THIRD MEETING

Because the minutes of the twenty third meeting had not been finalised it was agreed that confirmation be deferred.

2. OPERATION ANTLER - FIRING PROGRAMME

At the Chairman's request [redacted] outlined the firing programme, indicating the estimated minimum and maximum yield of each burst but pointed out that he had not as yet received final details from A.W.R.E. There was a strong possibility that the present estimated yield of the third test could be considerably increased.

Following a general discussion on the programme, the Chairman mentioned the trouble created by [redacted] because of temperature inversion following the third Buffalo test. For this reason he said the Safety Committee could not consent to a firing if there was the slightest chance of the cloud passing anywhere in the vicinity of Adelaide. He wished to make it quite clear that although an inversion created a political and not a safety problem, the Safety Committee could not ignore the political implications.

[redacted]

[redacted]

3. **A.W.R.E. PAPER - THE EFFECTS OF YIELD AND BURST HEIGHT FOR MEDIUM RANGE FALLOUT**

A copy of this paper had been circulated to members prior to the meeting.

[redacted] said it appeared to need careful examination in respect of -

(1) making allowance on the American model for the effects caused by temperature inversions;

(2) the small variation shown for the length of the level A contour.

The evidence of (Mosaic) G2 and Buffalo 3 rounds points to the trapping at inversion level of significant, though small, accumulation in the stem. A preliminary look is being taken at the energy/volume relationship indicated on the Aerological diagram for G2.

Although the inversions represent very low energy interruptions to the development of the cloud, the effect can be expected to recur, particularly with low yield weapons. The effect will be the more pronounced when the height of stabilisation is relatively low as it is with low yield weapons, when the atmosphere is stratified by out-going thermal radiation.

The effect will be least after solar radiation heating has become established, that is, in the late afternoon after the maximum temperature has been attained. It will be worst in the early morning. This would point to the late afternoon or early evening as being the desirable period for firing low yield weapons.

If firing is to occur at other times when inversions exist up to say 15,000 ft., it will be necessary to attempt to forecast the vertical temperature structure at H-12 so that preparations may be made for forecasting trajectories at the levels of any predicted inversions.

The A.W.R.E. paper also raises the likelihood of accumulative contamination at the radial distance of Coober Pedy, and the desirability of seeking occasions when the wind field can be drawn with confidence.

Both the latter point, and the need for considering trajectories at a number of levels, highlights the importance of avoiding times when the streamline pattern is subject to doubt as it will be when points of indraught or outdraught exist in the vicinity of the site. That is it may be necessary to miss an opportunity because the wind field at the time was so indefinite as to make it impracticable to arrive at a reasonably reliable forecast by any practical means or theory.

In another aspect the method of A.W.R.E. paper certainly cannot be applied to ranges greater than 200 miles. At longer distances the mechanism of diffusion is strongly controlled by large scale convectional cells as well as curvature and acceleration in the wind field, so that a completely new approach and a separate theoretical equation is essential.

In this respect the Meteorological Group is setting

[redacted]

[redacted]

out to predict trajectories for every odd numbered layer from 3,000 to 21,000 ft. for the period up to H+ 24, using observed trajectories at the starting point. In addition, the Meteorological Group will forecast rain during the same period.

The prediction of rain occurring after H.+ 24 is subject to latitudinal factors affecting its accuracy. Whereas rain might be confidently forecast in Northern Queensland it may be subject to considerable doubt in Victoria. The degree of confidence in rain forecasts could be assessed only in terms of the general meteorological situation existing at the time of firing and, perhaps negative indications of the manner in which convergences and divergences will develop over the area down stream from the trajectories.

4. PERMISSABLE LEVELS OF RADIATION

The Chairman informed the meeting that permissable levels of radiation are no longer a Safety Committee matter but one for the National Radiation Advisory Committee.

5. OBSERVERS AT SECOND AND THIRD TESTS

[redacted] stated that the following observers were expected:-

Second Test

6 from Australian Service Departments.

7 from Australian Civil Defence.

18 from Commonwealth Countries including the Central African Federation and the Federation of Malaya.

15 from N.A.T.O. including Turkey but excluding Canada.

2 from Bagdad Pact (Iran and Iraq).

2 from remaining members of SEATO (Thailand and Phillipines).

10 from various (Directors invitations).

12 from Weapons Research Establishment, Salisbury.

70

Third Test

5 from United States.

20 from Press Agencies and Broadcasting Stations.

3 from Department of Navy (C.N.S. and 2 officers).

30 Parliamentarians - not yet confirmed.

58

All groups, with the exception of the 6 Australian Service [redacted] representatives and the 5 U.S. observers, who will be accommodated at the site [redacted] must be ready to adjust their activities for [redacted] of the day or night.

[redacted]

transport facilities Adelaide/Maralinga and return will be provided by the R.A.F.

6. PAPERS FOR PUBLICATION

(a) [redacted]

Members were informed that [redacted] had agreed to delete Figures 3 and 4 from his original draft and had sought permission to publish the paper in its revised form. The Chairman said that although there was now no security objection to its publication, political objections remained. He had asked that the paper be again amended pointing out that if this was not agreed, the Safety Committee would cause to be issued in the same journal a statement highlighting [redacted]'s inaccuracies. It was resolved that A.W.R.E. should not become involved in this matter.

(b) Old Safety Committee

The draft paper "Radioactive Fallout in Australia for Operation Mosaic" will be finalised at the next sitting of the Committee on 5th September at which Professor Sir Leslie Martin and [redacted] will be in attendance.

In reply to a question by [redacted] the Chairman said it was the Safety Committee's intention to publish a similar paper for Buffalo, also one on Strontium 90. In all publications the Committee will, within the limits of security, deal in detail with matters of public interest.

(c) [redacted]

[redacted] said [redacted] was willing to prepare an article for publication such as "Why do we continue atomic tests".

The Committee felt that such an article would be exceedingly useful, and all the more so if it could be prepared and published before the commencement of the Antler series.

[redacted] agreed to arrange.

7. SECRETARY TO SAFETY COMMITTEE AND N.R.A.C.

The Chairman said that he, [redacted], and [redacted] had agreed that [redacted] would be a suitable selection to the positions of Secretary to the Safety Committee and Secretary to the National Radiation Advisory Committee.

The Acting Secretary was requested to follow up, as a matter of urgency, the security clearance of [redacted] and his subsequent temporary appointment to the two positions.

[redacted]

../5.

[redacted]

8. [redacted]ND SOUTH COAST SAMPLING

Members were informed that the Under Secretary of the Department of Agriculture and Animal Husbandry and the Director of Veterinary Services, Brisbane, had stated that better coastal samples than those available in Brisbane could perhaps be obtained from the Numinbah Valley area which stretches between Southport and Coolangatta some 80 miles inland. The reasons put forward were:-

(i) The rainfall is 10" annually greater than Brisbane.

(ii) The coastal area concerned provides a considerable source of income to the State and any speculation concerning the area or fresh water supplies being affected by fall-out could cause severe embarrassment.

In view of (ii) above the Committee recommended that the Department of Supply make the necessary arrangements for the collection of samples from the Numinbah Valley area.

9. STRATHOSPHERIC MONITORING

A copy of a cablegram from the Australian Embassy Washington was tabled and discussed at some length.

The Committee felt:-

(a) The proposal was desirable from a scientific point of view.

(b) There would be no objection to the monitoring being carried out in Australia provided:-

(i) that the U.K. confirmed it would have no impact on any U.K. programme.

(ii) flights were restricted during the period of atomic trials.

(iii) the U.S. provided all facilities, equipment, etc. free of cost.

(c) If (b) (i), (ii), and (iii) were approved the programme could probably be handled by the University and tied in with the activities of the Bureau of Meteorology.

10. MEMBERS ATTENDANCE AT ANTLER SERIES

The following roster for attendance of members at the Antler series was agreed as under:-

[redacted]

.../6

[redacted]

1st Test - [redacted].

2nd Test - [redacted].

3rd Test - [redacted].

The meeting closed at 12.45 p.m.

- - - - - - -

NEXT MEETING - Thursday, 5th September, 1957.
at 2 p.m. in Physics Department,
University of Melbourne.

- - - - - - -

[redacted]

Approved [redacted]

[redacted]

[redacted]

43

INWARD CABLEGRAM

I.11416

AS.[redacted]

Dated: 14th August 1957
2040
Rec'd: 15th August 1957
1324

(Transmitted by leased channel).

FROM:

Australian Embassy,
WASHINGTON.

967. [redacted]

Stratospheric Monitoring.

At meeting at the State Department today, we were asked by representatives of the United States Atomic Energy Commission to enquire whether Australia would be interested in co-operating with the United States in instituting a stratospheric monitoring programme in Australia. Since last year the United States has established four monitoring stations (Minneapolis, Texas, Canal Zone and Southern Hemisphere). Primary purpose of programme is to gather, by using balloons reaching between 50,000 and 90,000 feet, information on amount of strontium 90 in the atmosphere. It is hoped ultimately to have stations all around the globe. Australia is regarded as a good site not only because it is in the Southern Hemisphere, but also because the problem of recovering balloons would be easier. (A number of balloons have drifted out to sea and recording mechanisms have been damaged by sea water.)

2. The programme is unclassified and the data gathered would be available to all countries. The estimated cost is between £600,000 and £700,000 a year and the programme would last "several years". Details of the nature and size of individual contributions by Australia and United States could be worked out if you are agreeable in principle to the project. In any event the United States would propose to send a mission to Australia to work out all details, assuming you are interested.

3. Grateful for early indication of your views, which we have been asked to communicate in the first instance to the State Department. The Atomic Energy Commission representatives suggested that the Australian representative on United Nations Scientific Committee might be in position to offer comments on project, but in any event they would be happy to provide any information about the project which you might require.

- - - - - - - - - -

15th August, 1957.

[redacted]

ATOMIC WEAPONS TESTS SAFETY COMMITTEE

TWENTY-FOURTH MEETING 24-8-57

SUMMARY OF CURRENT ACTIVITIES FOR INFORMATION OF CHAIRMAN

1. [redacted] has been security cleared to Top Secret Atomic.

2. An official order for 250 copies of the publication "Search for Fallout in Australia from the Christmas Island Tests" has been placed with the Australian Journal of Science.

3. The Department of Air has confirmed that a Dakota aircraft for the East Coast flight will be available as required after each explosion. [redacted] will send an electronic technician to 86 Transport Wing, Canberra, a few days before the scheduled date of the first test for the purpose of installing a type 1520 instrument in the aircraft.

Information concerning the time of passage of the cloud over the coast and outer limits of latitude will be passed to the Air Operations Room, Victoria Barracks, and relayed to 86 Wing.

The intention is that the battery driven Geiger Counter will be simply observed visually by the aircrews during flight but as the need for the exercise arose, I understand, from the possible accidental interception of some slight amount of radioactivity by civilian aircraft particularly one carrying radiation measuring equipment such as geological survey detectors, would it not be wise to have a scientist in the plane to take the readings? I am not suggesting the air crew could not do the task efficiently, but having a scientist aboard strengthens the Safety Committee's hand should the need arise to counter unfavourable publicity.

4. The present position of the August sampling programme is:-

(a) Bones

(i) Ashed and at Salisbury awaiting space on next courier:-

Brisbane, Ingham, Home Hill, Rockhampton, Cloncurry, Dubbo.

(ii) At D.S.L. being ashed:-

Adelaide, Port Augusta, Sydney, Charleville.

(b) Cabbages

Ashed and at Salisbury awaiting space in next courier:-

Brisbane, [redacted]

[redacted]

(c) [redacted]

At Salisbury awaiting space on next courier:-

Melbourne, Sydney.

(d) Dried Milk

These samples can be obtained in September, 1957 and March, 1958 upon written advice to the respective State Controllers.

(e) Queensland South Coast Sampling

[redacted], the Under Secretary of the Department of Agriculture and Animal Husbandry, and [redacted], Director of Veterinary Services have ventured that better coastal samples than those available in Brisbane could perhaps be obtained from the Numinbah Valley area which stretches between Southport and Coolangatta some 20 miles inland. The reasons put forward were:-

(i) The rainfall is 10" annually greater than Brisbane.

(ii) The coastal area concerned provides a considerable source of income to the State and any speculation concerning the area or fresh water supplies being affected by fall-out could cause severe embarrassment.

It was pointed out that with Canberra, Sydney, Lismore, Brisbane, Rockhampton, and Townsville areas now sampled, considerable coverage had been given the Eastern coastal region. However, in view of the co-operation given by the Queensland authorities it is recommended that serious consideration be given to meeting this request.

(f) Press Statement

It has been suggested that a press statement concerning the sampling exercises would now be appropriate.

Persons contacted for the samples have shown keen interest in the exercise and are appreciative of the fact that the Commonwealth Government is making every endeavour to ensure that Australia is not being detrimentally affected by atomic explosions.

Such a statement could perhaps acknowledge co-operation of State Governments and the men on the land.

5. I wrote to the Range Commander and requested the following items be made available for the Safety Committee room at Maralinga:-

1 safe
1 filing cabinet with bar
5 basket chairs
2 one-kilowatt radiators
1 radio [redacted]

../2

Also inexpensive black curtains on members sleeping quarters, and the provision of the same messing facilities for the Committee's Secretary as enjoyed by its members.

The Range Commander replied in the following terms:-

"The office allotted by A.W.R.E. to the Safety Committee is in Building BL 7 - 8 and will be equipped with all items except the Radio.

There are only 3 Official Radios on the Range and these are allocated to Hospital, Watson etc. It is suggested that a radio be purchased for the purpose and if this is done, please procure the necessary financial authority.

A car is being hired for the Committee's use.

Curtains will be hung as requested.

In regard to the Secretary having the same Messing facilities as the Committee, the following points are mentioned as guidance to the Chairman, should this request be the subject of additional comments.

(a) The Director is the only person who invites attendance in his personal Mess.

(b) All Principal Scientific Officers and Service Officers of the rank of Lieutenant Colonel and below (except the Deputy Range Commander) mess in the Main Officers' Messes.

(c) Unless the Committee Secretary is rated as Senior to a PSO or Lieutenant Colonel it could be very embarassing to the Director.

In view of the previous paragraph, I would be grateful if the matter is discussed by the Chairman, with the Director, should he desire to pursue the subject."

6. A copy of a cablegram from the Australian Embassy, Washington, regarding Strathospheric Monitoring is attached for consideration.

[redacted]

[redacted]

23rd Meeting 6th August.

To distribution see list of 24th Meeting

[redacted]

COPY NO .....2.....

MINUTES OF THE TWENTY-THIRD MEETING OF THE ATOMIC WEAPONS TESTS SAFETY COMMITTEE HELD AT THE PHYSICS DEPARTMENT, UNIVERSITY OF MELBOURNE, ON 6TH AUGUST, 1957.

PRESENT

[redacted]	Australian National University (Chairman)
	Director of Meteorology
	Director, C.X.R.L.
	Secretary to Committee

Present for part of the meeting:-

[redacted]	University of Melbourne
	Department of Supply
	A.W.R.E.
	A.W.R.E.

1. **MINUTES OF THE TWENTY-SECOND MEETING**

These were accepted.

2. **PRIORITY TELEPHONE CALLS FOR SAFETY COMMITTEE DURING ANTLER**

[redacted] had assured the Secretary that Safety Committee calls from Maralinga relevant to the Antler tests will receive the necessary high priority.

3. **TRAINING OF R.D.U. MEN AS VETERINARY TECHNICIANS**

[redacted], Veterinary Research Department, University of Melbourne, has agreed to instruct the three R.D.U. volunteers to recognise and extract sheep thyroids.

4. **FALL-OUT DATA DURING THE INTER-TRIAL PERIOD**

The N.R.A.C. at its meeting on 5th August, 1957 had decided that the information on fall-out required by the International Geophysical Year Committee should be transmitted to the I.G.Y. Convenor, [redacted], through the Secretary, Department of Supply.

The Safety Committee resolved that [redacted] should be asked through the Secretary, Department of Supply, to whom he proposed to communicate the fall-out information. [redacted] is to be asked between what dates does the I.G.Y. want the information, the presumption being that the information is required between 1st July, 1957 and 31st December, 1958 (the period during which the I.G.Y. is effective). He may be informed

[redacted]

however, that data is available over the period 22nd November, 1956, to 30th June, 1957.

5. FALL-OUT DATA DURING GRAPPLE

The paper on the fall-out observations during and after the period of Grapple was finalised, and is being communicated to the "Australian Journal of Science" by [redacted], and [redacted] all approve of this paper on the Grapple fall-out data.

The Minister for Supply is to be given a press statement by the Safety Committee timed to coincide with the publication date of this paper.

The Safety Committee suggests that 250 reprints of this paper should be obtained for distribution to those concerned. It was thought that the Department of Supply might reasonably be asked to meet the (small) cost of these reprints.

6. INTER-TRIAL HEALTH RESPONSIBILITY AT MARALINGA

[redacted] stated that the United Kingdom Authorities have asked the Commonwealth to undertake, on their behalf, the duty of supervising Health Physics aspects during the inter-trials periods.

The Secretary is to ascertain from the Board of Management what the Board requires of the Safety Committee so far as inter-trial Health Physics at Maralinga is concerned.

7. EAST COAST RADIATION SURVEY BY DAKOTA

The Secretary is to ask [redacted] to make arrangements with the R.A.A.F. for a Dakota aircraft to fly up the East coast and return (at 500'). [redacted] informed the Committee that the monitoring equipment to be installed in the aircraft was now at Maralinga.

8. C.S.I.R.O.'S REQUEST FOR PERMISSION TO PUBLISH MR. MARSTON'S PAPER ON RADIOACTIVE IODINE TAKE-UP BY SHEEP AND CATTLE

The Chairman had circulated the rewritten version of [redacted] paper and stated that he had sent a copy to [redacted]. The Chairman said that in his view the paper could not be released for publication in its present form. A number of statements in it were completely wrong; it was written unscientifically and mischievously as possible. Moreover figures 3 and 4 taken together and interpreted properly revealed one weapon component. (In a letter to the Chairman a few days later [redacted] stated that unless Figures 3 and 4 and the accompanying text on the Adelaide air sampling were removed the report would have to remain "Atomic-Confidential". This decision was nothing to do with fallout but entirely to ensure the security of weapon information. The Chairman conveyed this decision to [redacted] (CSIRO) for transmission to [redacted].

[redacted]

[redacted]

The meeting agreed with this assessment and, a detailed discussion of the paper was made. It was agreed that a copy be sent to [redacted] for an independent assessment and that [redacted] should acquaint [redacted] (CSIRO) with the Committee's objections to the paper.

The Committee agreed that the paper could not be released for publication until these matters were cleared up.

9. AUSTRALIAN FALL-OUT FROM GRAPPLE

[redacted] reported that the Australian Journal of Science had accepted the paper describing the Committee's measurements of fallout occurring in Australia from Grapple.

10. PREPARATION OF PAPER DESCRIBING FALLOUT FROM MOSAIC

The Chairman tabled a draft version of a paper written by [redacted] and himself. It was considered essential to publish this quickly in order to avoid the implication that the Committee was compelled to release the data by [redacted] paper. There was some discussion on the advisability of finalising the air pump data obtained at the fall-out stations but, since any scientist who wished to do so could carry out such an experiment during a test series, it was finally decided that it would be best to do so.

[redacted] agreed to produce a final draft for the next meeting and pointed out that [redacted] agreement would be required before publication. It was felt that the paper should be discussed with [redacted] (A.W.R.E.) after his arrival before being finalised.

11. DATE OF NEXT MEETING

The next meeting was set down for August 22, 23, or 24, whichever proved to be most convenient for [redacted] after his arrival in Australia.

[redacted]

Approved [redacted]

[redacted]

22nd Meeting 1st August.

DISTRIBUTION OF MINUTES OF THE 22ND MEETING OF THE SAFETY COMMITTEE

- - - - -

Copy No.	1	Chairman
	2	[redacted]
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	7	Spare

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COPY NO 5

MINUTES OF THE TWENTY-SECOND MEETING OF
THE ATOMIC WEAPONS TESTS SAFETY COMMITTEE
HELD AT THE DEPARTMENT OF SUPPLY
339 SWANSTON STREET, MELBOURNE, ON 1ST AUGUST, 1957

- - - - - - - - - - - - -

PRESENT:

[redacted] Australian National University (Chairman)

[redacted] Director of Meteorology

[redacted] Director, C.X.R.L.

[redacted] Secretary to Committee

1. MINUTES OF TWENTY-FIRST MEETING.

These were accepted.

2. VISIT OF NEWSPAPER EDITORS TO MARALINGA.

[redacted] stated that this visit was a good idea; the editors were impressed. The Safety Committee considered such visits useful.

3. SECRETARY'S VISIT TO MARALINGA AND SALISBURY.

The Secretary made the following comments:

(a) A new room has been allocated to the Safety Committee at Maralinga, but, apart from certain maps the Secretary had been unable to locate items of equipment and furniture previously used by the Safety Committee.

The Secretary is to ask that certain specified items of equipment and furniture be provided for the Committee.

(b) Whilst at Maralinga the question of any responsibility of the Safety Committee for Health (radiation) matters at Maralinga in the inter-trial period was raised in after dinner conversation.

The Safety Committee accepts no responsibility at the present, nor does it desire to do so. The matter should be discussed with [redacted], and with [redacted] and [redacted] when they arrive.

(c) The pre-Antler (August) collection of sheep bones in South and Central Australia will be facilitated as a result of discussions with [redacted]

[redacted]

(d) Arrangements had also been made with [redacted] and [redacted] in regard to approaching station owners at Wintinna, Evelyn Downs and Mabel Creek regarding the collection of sheep thyroids during Antler. It was also agreed that some preliminary approach should be made to de Rose Hill and Victory Downs; collection of thyroids at these stations might also be necessary if the radioactive cloud from any test was borne in a northerly direction. The Safety Committee approved this action, and suggested further that in case the cloud from any test went in an easterly or south easterly direction a similar tentative approach should be made at two or three stations south of Mabel Creek.

(e) Conversation with [redacted] established the fact that the issue of equipment for the Antler air sampling programme was well in hand.

4. HIGH WALLED POTS.

[redacted] suggestion (Appendix A) was considered. It was resolved that high walled pots should be used at Adelaide, Oodnadatta, Charleville, Cloncurry, Brisbane, and Sydney. [redacted] will buy the pots, but the Department of Supply should be asked to recoup the expenditure (£70).

5. EXTRACTION OF SHEEP THYROIDS BY R.D.U. PERSONNEL.

Three men had volunteered for this task. The Secretary is to implement the arrangement, previously agreed, of approaching [redacted] through [redacted] to gain his co-operation in training these men as Veterinary technicians.

6. TOURISTS ON THE ALICE ROAD.

[redacted] had enquired about an appropriate statement which could be made to curious travellers on the Alice Springs road who observed R.D.U. sampling activities.

The Safety Committee considered an honest statement in the following form desirable:

"Measurements are being taken at various locations all over the Commonwealth of Australia as a precautionary measure against radioactive fall-out from the current atomic weapon tests. As this route is geographically near to the testing site it is being carefully monitored, but the activity you see here is no different to that which you would observe in various places from Perth to Cape York."

7. REPORT FROM THE BUREAU OF MINERAL RESOURCES ON "THE GAMMA SPECTRUM AND DECAY RATE OF FALL-OUT MATERIAL FROM NUCLEAR WEAPON TESTS AT MARALINGA, 1956".

A letter of thanks, expressing the interest of the Safety Committee in this matter, is to be sent to the Bureau of Mineral Resources. At the same time this

8. BLOOD COUNTING, CHEST X-RAYS AND MEDICAL EXAMINATION OF OFFICIALS AND OBSERVERS GOING TO MARALINGA.

The Safety Committee sees no necessity for these requirements; it is "not interested". [redacted] is to be informed accordingly.

The views of the Safety Committee on blood counting and film badge monitoring are recorded in the minutes of the twenty-first meeting. The Safety Committee suggests that film badge monitoring be made fully effective during Antler. [redacted] informed the Secretary that only a proportion of the film badges had been processed during the Buffalo operation).

9. INTER-TRIAL FALL-OUT DATA FOR THE N.R.A.C.

The form of the submission to the N.R.A.C. on fall-out data between November 22, 1956 and June 30, 1957 was finally agreed, (Appendix B).

The N.R.A.C. is to be informed that the Safety Committee have no objection to this data being released to [redacted], Convenor of the International Geophysical Year Committee for I.G.Y. purposes, but he is to be asked to inform the I.G.Y. to what bodies and places the data goes.

10. FALL-OUT LEVELS - SUBMISSION FOR N.R.A.C.

The final form of this document was approved. (Appendix C).

11. INTER-TRIAL FALL-OUT DATA FOR PUBLICATION - PAPER ON MOSAIC.

[redacted] revised the draft copies of papers on the inter-trial data and on Mosaic.

[redacted]
Secretary
Atomic Weapons Tests Safety Committee

Approved [redacted]
Chairman.

[redacted]

SUGGESTED HIGH WALLED POT STATIONS FOR OPERATION ANTLER

Six stations:-

Adelaide
Oodnadatta
Charleville
Cloncurry
Brisbane
Sydney.

Each to send a sample (say 2 only ½ gallon plastic bottles) on morning of 7th day after each test.

Approximately ½ inch of water to be placed in pot at start of sampling and level not allowed to fall much below this.

Must supply each station with:-

(1) Stainless steel pot 14" diameter 12" high (approximate cost £22 each).

(2) Stand such that top of pot is at same level as fall-out tray.

(3) Twelve only ½ gallon plastic bottles for sending of samples. Cardboard containers to hold two bottles.

(4) Wash bottle to wash down sides of pot.

(5) Funnel for filling bottles.

(6) Measuring container to measure volume of sample not sent.

(7) Record sheets to show rainfall, added water, total volume collected, etc.

Four of the stations suggested - Oodnadatta, Charleville Brisbane, Sydney - are on the list of rain sampling stations. May be useful if the rain gauge used for rain samples was in the same area as the high walled pot and the fall-out tray.

[redacted]

31/7/57.

REPORT ON MEASUREMENT OF FALL-OUT SAMPLES

COLLECTED BETWEEN 22ND NOVEMBER 1956 AND 30TH JUNE 1957

The Safety Committee instituted a network of fall-out stations suitably placed throughout Australia for the measurement of radioactive fall-out. These operated throughout the Mosaic and Buffalo series, the network finally involving 86 stations.

On November 5th, 1956, instructions were issued to all but 18 stations to discontinue sampling. Early in December, 1956 the Atomic Weapons Tests Safety Committee confirmed that gummed film sampling should continue at about 20 stations agreed between the Acting Director of the Commonwealth X-Ray and Radium Laboratory and the Director of Meteorology. During the latter months of 1956, the Australian Atomic Energy Commission had expressed its interest in fall-out data as it required radioactivity background over a long period throughout the country.

In fact, since the end of November, 14 stations have continued sampling, each taking three 24-hour samples per week. Three other stations (Onslow, Townsville and Cloncurry) have also continued on this basis except for the period 20th February - 20th May, when no samples were taken. One other station (Australian Atomic Energy Commission, Sydney) ceased forwarding samples on 25th February. The siting of the 18 "inter-trial" stations which include the seven State capitals was designed to permit an assessment of "fall-out" during the inter-trial period on an Australian wide basis.

Methods and Location of Sampling

Sampling was carried out by exposing a 12 inch x 6 inch piece of gummed film on a horizontal stand three feet above the ground for 24-hours beginning 9 a.m. on each Monday, Wednesday and Friday. At the end of each exposure, the gummed film was folded to make a 6 inch square sample, placed in an envelope together with a card giving meteorological data (e.g. precipitation) for the sampling period, and sent by air mail to the Commonwealth X-ray and Radium Laboratory for counting.

The 17 sampling stations currently operating are situated at the following places :-

Adelaide	Melbourne	Cloncurry	Hobart
Port Moresby	Alice Springs	Brisbane	Forrest
Broome	Townsville	Perth	
Oodnadatta	Sydney	Darwin	
Onslow	Charleville	Rockhampton	

Method of Counting

One methane flow proportional and three scintillation counters were available for counting the samples. Due to its lower background and higher efficiency, the sensitivity of the proportional counter was 2½ times that of the scintillation counters. However, as the proportional

2/...

counter was comparatively slow in operation, the three scintillation counters were used for routine counting of the samples. As from the beginning of June, samples which showed any detectable activity were recounted in the proportional counter.

In using the proportional counter, the sample was placed inside the cylindrical chamber which was about 7 inches long and 3 inches in diameter. Geometrical efficiency was approximately 50% and on making allowance for absorption in the gummed film and for back-scattering, the overall efficiency for fall-out samples was 35%. This figure varies slightly with the changing energy of ageing fission products. A 6 inch square Tl^{204} source was used every 4 to 5 hours during counting to check the stability of the equipment. Samples were counted for at least three 5-minute periods with a background count after each five samples. Under these conditions of counting, for samples whose activity is of the same order as the background count (150 counts per minute) the standard deviation is about 5 c.p.m. (i.e. 15 disintegrations per minute).

The scintillation counters have a 6 inch square thin aluminium window covering an anthracene crystal mosaic which is viewed by a 2 inch diameter type 6097 EMI photo-multiplier. Samples were counted for 20 minutes with background and Tl^{204} standard counts as for the proportional counter. Under these conditions the standard deviation for very low activity samples was about 6 c.p.m. (i.e. 40 d.p.m.). The background count for these equipments was approximately 300 c.p.m.

Results

Experience has shown that when using the scintillation counter under the above conditions, statistical and instrumental fluctuations resulted in an uncertainty as to the validity of nett counts below about 5 times the standard deviation, i.e. 30 c.p.m., which is equivalent to 200 d.p.m. Table I shows how the gamma dose to 50 years in millirontgen (mr) for fall-out producing a sample whose activity is 200 d.p.m. varies with the age of the fission products.

Age of Fission Products	Activity of sample in d.p.m.	Whole body gamma dose to 50 years in millirontgens (1)
10 days	200	0.01
30 days	200	0.02
100 days	200	0.04
1 year	200	0.10
3 years	200	0.25

3/...

It is seen that the gamma dose to 50 years even from 3-year fission products is insignificant. Consequently only results greater than 200 d.p.m. are reported in Table II for samples collected in the period from 22/11/56 to 30/6/57. As no decay measurements were practicable on these samples, the origin of the activity is uncertain and the activity is expressed as mc/km^2 on the day of counting.

TABLE II

Station	Date of Sampling	Date of Counting	Activity on date of counting in d.p.m.	Activity on date of counting in mc/km^2
Broome	22/11/56	27/11/56	310	3.1
Port Moresby	21/12/56	2/ 1/57	240	2.4
Darwin	2/ 1/57	7/ 1/57	230	2.3
Forrest	4/ 2/57	12/ 2/57	200	2.0
Onslow	4/ 6/57	18/ 6/57	930	9.3
Sydney	7/ 6/57	18/ 6/57	1850	18.5
Perth	14/ 6/57	19/ 6/57	230	2.3
Darwin	14/ 6/57	25/ 6/57	220	2.2
Melbourne	17/ 6/57	20/ 6/57	340	3.4
Cloncurry	17/ 6/57	24/ 6/57	370	3.9
Perth	21/ 6/57	25/ 6/57	390	3.9

Internal Radiation

The body may be irradiated from active material which has gained access to the body by inhalation, ingestion or injection. The maximum permissible levels for internal radiation from radioactive materials in intimate contact with an organ is given by the I.C.R.P. as 0.3 rep. per week with a safety factor of 5 if the material is not uniformly distributed. As in the case of external radiation, ten times this dose can be taken safely in ten weeks, especially when the body is not likely to be exposed again for a considerable period. This would imply a dose level of 3 rep. However, as in the case of external emitters the Safety Committee has applied a factor of safety of 6 and has accepted a level of 0.5 rep. as being appropriate to the experiments.

Summary

The maximum radiation doses per series to which the Safety Committee has been working can therefore be summarised as follows. External total gamma radiation dose = 0.5 R. External beta ray dose = 2.5 rep. Integrated internal radiation dose from all sources = 0.5 rep. It may be stated at this point that the highest integrated dose recorded in any inhabited area was a factor of 10 down on these limits and the doses generally recorded were many orders of magnitude below them.

30th July 1957

[redacted]

[redacted]

21st Meeting 19th July.

MINUTES OF 21ST MEETING

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MINUTES OF THE TWENTY-FIRST MEETING OF
THE ATOMIC WEAPONS TESTS SAFETY COMMITTEE
HELD AT THE DEPARTMENT OF SUPPLY,
339 SWANSTON STREET, MELBOURNE, on 19TH JULY, 1957.

- - - - - - - - - -

Present

[redacted] — Australian National University (Chairman)

Director of Meteorology

Director, C.X.L.C.

Secretary to Committee

1. MINUTES OF TWENTIETH MEETING

The Secretary reported action taken in regard to items 4, 5, 7 and 8. The action taken is reported under the appropriate heading below.

2. REPORT TO [redacted]

The Safety Committee approved the report to be sent to [redacted] Sulphates Ltd. (Appendix "A"). [redacted] is to be thanked for his assistance and he is to be informed that he can pass the information contained in the report confidentially to those who assisted him. He is also to be informed that, in view of the satisfactory result of the previous testing with which he was associated, there is no requirement at present for further water and mud sampling.

3. REPLY FOR SECRETARY, ABORIGINES BOARD, ADELAIDE

The Secretary, Aborigines Board, Adelaide has asked whether the assistance of the native patrol officer Coomera was required in connection with the forthcoming trials at Maralinga. The Secretary was instructed to reply that the Safety Committee will welcome the assistance of the native patrol officers at Coomera and Giles during the forthcoming tests. Similar facilities for moving aborigines are required for the Antler tests as were available during the Buffalo tests.

4. MEDICAL PERSONNEL - BLOOD COUNTING AT MARALINGA

Australian Army, Navy, and Air Force personnel and civilians at Maralinga had been subjected to blood examinations prior to the Buffalo tests. Blood examinations will be carried out again prior to the Antler series.

It had been suggested that the N.H. & M.R.C. might be interested in the information which could be extracted from the records provided that the initial blood count, radiation exposure, and subsequent blood counts were recorded adequately.

to be subjected to subsequent blood examinations even though

[redacted]

they might no longer be in the Maralinga area.

The Safety Committee resolved that this matter be referred to the N.H.&M.R.C., at the same time expressing doubts about the value of blood counting. It was pointed out that the most sensitive detector of low level radiation was the Film Badge.

5. MAPS AND OVERLAYS

The Safety Committee requirement is for 200 maps of Maralinga and environs and 12 overlays.

6. STICKY PAPER AND AIR SAMPLERS

The Secretary reported that he had been in touch with [redacted] who is organising distribution of sticky paper supplies and air sampling units. [redacted] C.X.R.L., has advised on serial numbering of cards. The C.X.R.L. and the Meteorological Bureau are to co-operate in issuing the necessary operational instruction to stations. [redacted] has been advised regarding stations at which the additional six-hour sampling should be carried out.

The list of stations concerned with air sampling (both 6 and 24 hour) and rain water sampling prepared by [redacted] (Appendix "B") is to be given to [redacted], U.K.A.E.A. (A) for information of those interested in the U.K.

[redacted] suggested that additionally open pots with sticky paper at the bottom should be installed at Melbourne and Perth. These pots must be immediately adjacent to the sticky paper sampling trays if a worthwhile comparison of results is to be achieved. [redacted] is to consider the value of this suggestion.

7. ^{90}Sr SURVEY

The Secretary reported as follows:-

(i) Soil Sampling

A draft copy of the instruction to be issued by the Meteorological Bureau was approved by the Committee (Appendix "C").

(ii) Sheep Bones

It has been agreed that [redacted] will tour the areas from which the bones are required, starting on Sunday 28th July. This covers the Eastern States.

[redacted] of the C.S.I.R.O. Animal Health and Production Division has agreed to provide leg bones from a sheep born in the Sydney area last September.

(iii) Cabbages

[redacted] will collect the required samples during his tour in August.

[redacted]

(iv) Dried Milk

[redacted] are co-operating so far as this requirement is concerned. [redacted] recent remarks in N.Z. are not very helpful, so far as this collection is concerned.

(v) Ashing

D.S.L. have a suitable furnace and will cope. Further technical particulars required by D.S.L. have been obtained through U.K.M.O.S.S.(A).

The U.K. had indicated that each sheep bone sample should consist of one long leg bone from each of four sheep. The Committee felt that the requirement for four sheep was generous; the Secretary pointed out that in certain localities only one sheep born within the specified period might be available. It was resolved that a maximum of three sheep should be required at any one location, and the Secretary's suggestion that the requirement should read:

(a) If 3 sheep available - collect two long leg bones from each,

(b) If 2 sheep available - collect two long leg bones from each, or

(c) If 1 sheep only available - collect all four leg bones,

was accepted.

In connection with the collection of cabbages, dried milk and bones the Secretary was instructed to enquire whether the services of [redacted] could be made available to facilitate this collection in Perth and Adelaide. It was considered inexpedient to obtain bones from the Waite Institute in Adelaide.

[redacted] had indicated that future collections of bones would be facilitated if he could make some statement to station owners and others who had assisted him regarding results obtained from previous samples. The Safety Committee authorised him to impart the following information at his discretion for the private information of those concerned:

"Examination of sheep bones obtained in Australia during recent months has shown that the ^{90}Sr content is no higher than that found anywhere else in the world; in fact it is considerably lower than the amount found in England in similar bones. No atomic tests are, of course, carried out in England."

8. ALICE ROAD SURVEY

The Secretary reported that he had acquainted [redacted], U.K.M.O.S.S.(A) with the Committee's views [redacted] wish [redacted] al

[redacted] advised the Secretary that [redacted]

the maximum number of R.D.U. personnel was likely to be 13. Possibly the number finally available might only be 11 or 12. [redacted] is to be asked if he can let the Safety Committee know by August 1st whether any of the R.D.U. men will be suitable as Veterinary Technicians.

9. INTER-TRIAL AIR SAMPLING

The Committee discussed a draft report prepared by the C.X.L. on the inter-trial data from November 1956. The Secretary was instructed to collaborate with [redacted] in preparing by August 1st a version of the report suitable for tabling at the next meeting of the National Radiation Advisory Committee.

The Safety Committee wishes to place on record its view that this information is its own property to be passed on as it considers appropriate. In fact, this information is to be tabled at the next meeting of the N.R.A.C., and the N.H.A.C. will be advised about the Safety Committee's views on its further dissemination.

10. REPORT ON SAMPLING DURING AND SUBSEQUENT TO GRAPPLE

[redacted] and the Secretary are to prepare from the draft report referred to in item 9 above a report on air sampling observations during and immediately subsequent to the recent Grapple tests. This will also be considered at the Committee meeting on August 1st.

11. REPORT ON MOSAIC

The remainder of the time was devoted to a discussion of the form which the report on Mosaic is to take. [redacted] and [redacted] are to prepare this paper for further consideration by the Committee. Professor [redacted] and [redacted] are to be asked to meet the Committee on August 6th to discuss this report.

12. VISIT OF THE SECRETARY TO MARALINGA

The Secretary is to visit Maralinga on July 29-30. Various matters were referred to the Secretary for discussion with the relevant authorities at Maralinga. The Secretary was also asked to visit W.R. . on his way back from Maralinga on July 31 to discuss with [redacted], [redacted] and others sampling arrangements.

13. NEXT MEETING

Thursday, August 1st, 9.30 a.m. in the Conference Room, Department of Supply, 6th Floor, 339 Swanston Street, Melbourne.

[redacted]
Secretary
Atomic Weapons Tests Safety Committee

Approved

[redacted]

[redacted]

REPORT ON THE MEASUREMENT OF THE ARTIFICIAL RADIOACTIVITY OF [redacted]

WATER AND MUD SAMPLES COLLECTED BY AN AREA SURVEY TEAM

[redacted] SULPHATES LTD.

25

During the period March, 1956, to November, 1956, water samples, both filtered and unfiltered, from reservoirs at Mt. Isa, Rockhampton, Boyer (Tasmania), Inverell, Wagga, Orange, Maryvale, Darnie and Port Moresby were measured for gross radio-activity. Known volumes (1 litre) of the water samples were evaporated to dryness in a sample tray by a continuous drip method, and then counted using a mica window (end-window) geiger counter.

Water Samples

The water samples submitted in March, April and early May were used to establish a level of activity due to natural radio-active elements in the water from the various reservoirs. Nuclear weapon tests were held on Australian territory in May-June and September-October, 1956. An analysis of the results of the measurements carried out shows that in no case was there a detectable rise in activity in water samples over the period of test.

Sludge Samples

The collection of mud and sludge samples from the same reservoirs commenced in early June, 1956. The mud and sludge were evaporated to dryness in a sample tray and a known weight (to give an infinitely thick sample for beta ray counting) was counted under the same end-window counter as that used for the water samples. Very small but detectable rises in activity occurred in samples from three locations even though the water from these locations showed no activity. This is confirmation of a well known physical fact that sludges and sediments are scavengers of very low radioactivity in water. It was for this reason that the Safety Committee asked for sludge samples. In each case the rise in activity was so small as to be of no significance from the view-point of the health and well-being of humans or livestock or of any industrial application of the water.

[redacted]

ATOMIC WEAPONS TESTS SAFETY COMMITTEE

PROPOSED SAMPLING ARRANGEMENTS FOR OPERATION ANTLER

[redacted] Goodman [redacted] the following sa[redacted] were agreed upon, subject to the approval of the Safety Committee.

(1) 6-Hourly Gummed-Film Sampling Stations.

The setting up of facilities for taking 6-hour gummed film samples as well as the normal 24-hour samples are being proceeded with at the following 15 places.

- Alice Springs
- Oodnadatta
- Woomera
- Adelaide
- Cloncurry
- Longreach
- Charleville
- Broken Hill
- Wagga
- Townsville
- Rockhampton
- Brisbane
- Coff's Harbour
- Armidale
- Sydney

It is suggested that 6-hour sampling at each of these places commence only at the time of each test and cease at normal sampling time on the third day after the test.

After cessation of 6-hour sampling, this tray should be used for 24-hour sampling until the next test takes place, thus giving duplicate 24-hour samples over this period.

24-Hourly Gummed Film Sampling Stations.

It is proposed to set up 24-hour sampling stations at the following 71 places.

- Hall's Creek
- Onslow
- Meekathowra
- Darwin
- Emerald
- Roma
- Coonabarabran
- Walgett
- Mildura
- Hobart
- Mt. Gambier
- Albany
- Giles
- Forbes
- Birdsville
- Port Moresby
- Thursday Island
- Geraldton
- Sydney (A.P.C.)
- Goondiwindi
- Thargomindah
- Dubbo
- Williamstown
- Emily
- Ceduna
- Port Augusta
- Esperance
- Boulia
- Cook
- Broome
- Wyndham
- Cairns
- Bundaberg
- Mackay
- Bourke
- Hillston
- Sale
- Swan Hill
- Maree
- Tarcoola
- Forrest
- Windorah
- Cleve
- Kalgoorlie
- Melbourne
- Perth
- Camooweal
- Normanton
- Canberra
- Lismore
- Cobdogla
- Warrnambool
- Leigh Creek
- Watson
- Leonora
- Tambo
- Tibooburra
- Daly Waters
- Port Hedland
- Carnarvon
- Cunnamulla
- Richmond
- Cobar
- Tenterfield
- Hamilton
- Currie
- Western Junction
- Port Lincoln
- Southern Cross
- Winton
- Finke

Rain Sampling Stations

Following places are to take rain samples on the five days immediately following each test.

- Adelaide
- Melbourne
- Sydney
- Brisbane
- Daly Waters
- Alice Springs
- Charleville
- Darwin
- Oodnadatta
- Townsville
- Cloncurry
- Rockhampton

Air Sampling Stations

Following stations are to take 24-hour air samples.

- Melbourne
- Hobart
- Darwin
- Townsville
- Perth
- Adelaide.

ANNEXURE "B" 23

DRAFT OF INSTRUCTION TO BE ISSUED TO METEOROLOGICAL STATIONS REGARDING SOIL SAMPLING.

- - - - - - -

The samples should be obtained during the first week in August.

Each sample should consist of a rectangular slab of earth measuring some 8" x 8" on the surface (approximately a spade width each way), and of depth 4". It is immaterial whether or not the soil breaks up during excavation, but it is important to record the area over which the sample is taken, (e.g. 9" x 7½"), and to ensure that the depth is about 4". The sample should retain any grass growing in it. The spade should be clean, and the sample should be obtained on open ground reasonably clear of buildings.

The sample should be packed securely in a stout cardboard box or other suitable container and sent air freight, preferably T.A.A., [redacted], Department of Supply, 339 Swanston Street, Melbourne, C.1.

The attached form should be completed and returned either with the sample or under separate cover as convenient.

20th Meeting 21st June

R57/6/1.

Distribution of Minutes for the 20th Meeting of the A.M.I.C.C. :-

Copy No. 1 Minister through [redacted] (by hand)

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2nd July, 1957

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PRESENT:

[redacted]	Australian National University (Chairman)
	Director of Meteorology
	Director, C.X.R.L.
	Secretary to Committee

1. REPORT BY [redacted]

[redacted] reported that [redacted] (C.S.I.R.O.) had written to [redacted] in terms similar to [redacted] letter (see Item 1, Minutes of Nineteenth Meeting).

2. PUBLICATIONS

[redacted] reported that the U.K. acquiesced in the writing up of a scientific account of the safety problems dealt with during operation "Mosaic". It would be desirable to have a suitable account published before operation "Antler". It was suggested that an agreed version should be prepared for tabling at the next meeting of the Safety Committee (July 19th).

3. GRAPPLE

[redacted] reported that there had been a slight increase in fall-out at two stations after the first Christmas Island test on 15th May - at Onslow on D + 20 and Sydney on D + 23. A similar slight increase in fall-out had been evident at three stations after the second test on 1st June - at Forrest on D + 11, Perth on D + 13 and Melbourne on D + 16.

It was agreed that a letter on these results should be prepared for publication in the "Australian Journal of Science" under the authorship of the Safety Committee members and [redacted]. [redacted] is responsible for assessment of the sticky papers.

4. ^{90}Sr SURVEY

The sampling required by the U.K. authorities ([redacted] A.W.R.E., [redacted]) was discussed at some length:

Soil Sampling

Requirement: One sample per year is to be taken (in August) from permanent pasture regions in the vicinity of each of five capital cities.

[redacted]

.../2

[redacted]

Action: [redacted] pointed out that these samples were required to establish the total fall-out and might therefore be sited logically adjoining sticky paper stations. [redacted] agreed to request the appropriate meteorological stations, (Brisbane, Sydney, Melbourne, Adelaide, Perth) to obtain the samples and forward them, preferably by T.A.A. air freight to the Secretary of the Safety Committee. The Secretary is to prepare an appropriate instruction for [redacted] to distribute as required.

Vegetation - Cabbages

Requirement: One sample per year is to be taken (in August) from each of the areas from which the soil samples are taken.

Action: The Secretary is to investigate the best method of obtaining cabbages grown in the vicinity of Brisbane, Sydney, Melbourne, Adelaide and Perth. [redacted] said that officers of the Bureau of Meteorology in these cities may be able to assist in the procurement of locally grown cabbages.

Dried Milk

Requirement: Two samples per year (one in September and one in March) are to be obtained from each of the cities Perth, Sydney, Brisbane, Melbourne and Adelaide.

Action: The Secretary is to investigate how best these samples can be obtained.

Sheep Bones

Requirement: One sample is to be obtained per year (in August) from each of 12 stations 200-300 miles from Maralinga lying on the arc which the active clouds from the range will cross and also from each of 4 stations on the East coast of Australia.

Action: Sheep bones are to be obtained once per year (in August) in the vicinity of:

Sydney, Brisbane, Townsville, Rockhampton, on the East Coast, and
Perth, Adelaide, Coober Pedy, Finke, Maree, Oodnadata, Alice Springs, Port Augusta, Charleville, Cloncurry, Dubbo, and Echuca.

[redacted] services are to be sought in connection with the collection of these samples.

Babies' Bones

Requirement: As many samples as possible are to be obtained.

Action: This is to be arranged by [redacted] when he returns from the U.K. This requirement is to be raised at the next meeting of the N.R.A.C.

.../3

[redacted]

[redacted]

The cabbages and bones are to be ashed. The Secretary is to enquire whether the Department of Supply will provide the necessary furnace and the part-time assistance required, possibly at D.S.L.

[redacted] is to write to [redacted] A.W.R.E. outlining the programme as agreed to by the Safety Committee.

5. OPERATION ANTLER - SURVEY ALONG THE ADELAIDE-ALICE SPRINGS ROAD

Two extracts from the "Operation Antler - Summary Plan" were considered:-

(i) "Section J - The Alice Road Plan"

(ii) "Section D - Measurement Groups".

The discussion centered on the following features:-

R.D.U. Personnel

[redacted] (C.X.R.L.) was called in to comment on this item.

The U.K. indicated a requirement for 26 R.D.U. personnel; the Committee expressed the view that the original requirement for 15 men sufficed. [redacted] is to be informed accordingly.

Sheep Thyroid Counting

Two men from the Australian R.D.U. group should be trained as Veterinary Technicians; Dr. H.E. Albiston of Melbourne University could help with the necessary basic training. [redacted], or some other suitable officer, should be put in charge of the R.D.U. men trained as Veterinary Technicians, and undertake the necessary liaison with station owners (possibly a delicate matter in some cases).

It was suggested that [redacted] should do the thyroid counting at Maralinga, the results to be made available to the Safety Committee as well as to the U.K.

Rain Samples

The Safety Committee considered that collection of rain samples from about 12 stations should be added to the requirements.

Information Required by the Safety Committee

Besides interim results on the thyroid counting, the Safety Committee considers that it should receive the final report on the thyroid counting. It must see a copy of everything [redacted] sends to the U.K. Also the Safety Committee must have up to date and complete information on fall-out patterns.

[redacted] .../4

[redacted] is to effect the necessary liaison with the U.K. authorities to ensure that the Safety Committee is fully informed on these matters. Paragraph 15 of the Memorandum of Arrangements between the United Kingdom and Australian Governments relating to the Atomic Weapons Proving Ground at Maralinga dated 7th March, 1956, is relevant:

> "The United Kingdom Government will provide the Australian Government with all the data compiled as a result of tests on the site about the effects of atomic weapons for both civil defence and military purposes. Such data shall however only be made available to properly authorised persons in accordance with the security arrangement agreed between the two Governments."

Liaison with the U.K.

[redacted] is to write to [redacted] and [redacted] with a view to eliminating conflicting requirements. The Secretary is to acquaint [redacted] with the Safety Committee requirements.

6. STATEMENT ON BALLOONS

A suggested statement on balloons suitable for publication, was tabled by the Chairman (Appendix 1). This statement was approved by the Safety Committee.

7. DISTRIBUTION OF STICKY PAPER AND AIR SAMPLING OUTFITS

[redacted] had enquired about the distribution of sticky paper and air sampling outfits prior to "Antler".

The Secretary was instructed to inform him that so far as sticky paper is concerned the 86 stations operated during "Buffalo" are to be used again without change. Only six stations - Melbourne, Darwin, Perth, Hobart, Townsville and Adelaide - are to be equipped with air-sampling outfits. These six stations should be equipped with two air sampling outfits, either new or satisfactorily reconditioned.

There is a requirement for 24 hour sampling with sticky paper where 6 hour sampling is carried out. This will involve duplications of equipment. [redacted] is to advise locations where this duplication of sampling is considered necessary.

8. WATER SAMPLING BY [redacted]. SULPHATES LTD.

[redacted] has asked for a report which may be communicated to those who helped him.

[redacted] is to prepare a suitable statement for [redacted]; this is to be tabled at the next meeting of the Committee. The Secretary is to write to [redacted] informing him that the Safety Committee proposes to let him have a report. Essentially the report will inform [redacted] that the results of the water sampling were negative.

[redacted]

.../15

[redacted]

In December, 1956 it had been suggested that a payment of 50 guineas be made to [redacted] later he was asked to provide a statement covering his out-of-pocket expenses. No such statement has been received. The Safety Committee considers that further action should be only taken in regard to any payment if [redacted] submits a statement covering expenses incurred.

9. NEXT MEETING OF SAFETY COMMITTEE

It was agreed that the Safety Committee should meet at 11.30 a.m. on Friday, July 19th, 1957.

[redacted]

Secretary
Atomic Weapons Tests Safety Committee

Approved [redacted]

[redacted]

SUGGESTED STATEMENT ON BALLOONS

It has long been known, as was demonstrated clearly during the Christmas Island tests, that radio active fall-out from nuclear explosions can be reduced considerably if the explosion is made high above the ground. This is because, under such conditions, the amount of material sucked up from the earth's surface into the fire-ball which is subsequently distributed locally, is kept to a minimum. This is one reason why weapons, in the past, have frequently been exploded from towers.

Another way of achieving a similar result is to support the bomb from a captive balloon.

For many years the Armed Services of the United Kingdom have used balloons for one purpose or another and a great body of experience has been built up, especially during the second world war when barrage balloons were used on a vast scale. As a result the decision has now been taken to employ balloons in some of the forthcoming Maralinga tests in order to carry the weapons to considerably higher altitudes than would be possible using towers.

Detailed experiments have demonstrated the practicabilit of using captive balloons singly or in groups to lift to adequate heights some sizes of atomic devices complete with their instrumentation and cabling.

From the operational point of view balloons have advantage of reducing civil engineering effort needed to erect towers. Their use in place of towers will result in less contamination of the ground so that same test site may be used for several rounds obviating need to move recording and measuring devices. But they do not position the device with such precision as do towers and in some trials this is a disadvantage.

To enable the means of supporting atomic device best suited to a particular trial to be used both towers and balloons will be used in forthcoming series of trials at Maralinga.

The Australian Government's Safety Committee has been aware of these developments since their inception and have considered safety precautions appropriate to the new firing techniques. The Committee welcomes the proposal to employ balloons in some tests and has reported to the Australian Government that their requirements have been fully met to ensure the safety of all life and property in Australia.

The balloons and their equipment to be used at the forthcoming Maralinga trials have been developed at the Royal Aircraft Establishment's out-station at Cardington, Bedfordshire, in collaboration with industry.

It will be recalled that the United States authorities have already used balloons for trials this year at their continental Nevada Proving Ground.

The following are answers we would propose to make about direct questions of safety measures in connection with the use of balloons:-

The balloon system includes exhaustively tested safety devices to bring balloons and atomic device safely to the ground should there be any risk of them breaking loose. This system elimates any possibility of balloon drifting from its moorings carrying with it atomic device.

19th Meeting 11th June.

MINUTES OF NINETEENTH MEETING OF SAFETY COMMITTEE

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[redacted] WEAPONS TESTS SAFETY COMMITTEE

MINUTES OF THE NINETEENTH MEETING (FIRST MEETING OF THE RECONSTITUTED SAFETY COMMITTEE) HELD AT THE COMMONWEALTH X-RAY AND RADIUM LABORATORY, SURRY PLACE, MELBOURNE, ON THE 11TH JUNE, 1957.

PRESENT:

[redacted]

1. REPORT BY [redacted]

The reply received from [redacted] and a report from his Health Physics Superintendent ([redacted]) were considered. At the invitation of the Chairman, [redacted], C.S.I.R.O., was present at a later stage of the meeting. He was given a copy of [redacted] letter and a suitably edited version of [redacted] report (attached), and he was informed that the U.K. authorities and the Australian Safety Committee had no objection to publication of [redacted] paper, provided that:-

(i) The material be presented as a scientific paper with the personal attacks and unsubstantiated opinions removed from the present version.

(ii) Acknowledgement be made that the programme was initiated by the U.K. authorities.

(iii) Acknowledgement be made that the equipment was provided by the A.W.R.E.

(iv) The final version of the paper be sent to the Chairman before publication for the information of the Safety Committee. The Committee may wish to publish similar material in a parallel paper in the same journal.

The Chairman undertook to write to [redacted] in these terms. It was suggested that [redacted] should use his discretion as to how much information he passed on to [redacted]; but it was agreed that [redacted] opinion that figures 3 and 4 of the report should be classified was not to be communicated to [redacted].

[redacted] ../2.

[redacted]

2. [redacted]

[redacted] is to write to [redacted], New York Operations Office, United States Atomic Energy Commission, for copies of Health and Safety Laboratory Reports. A list of all such reports received is to be circulated to members of the Safety Committee.

3. PUBLICATIONS

The view was expressed that in future British White Paper reports concerned with the hazards arising from atomic explosions should include Australian data; this seemed relevant in view of the fact that Australian territory was used for the U.K. tests.

The publication of data from Mosaic in a scientific periodical, possibly "The Australian Journal of Science" was discussed.

4. GRAPPLE

[redacted] reported that eighteen stations operated during the inter-trials period showed no evidence of fall-out attributable to the recent British Christmas Island tests.

5. SAMPLES REQUIRED IN CONNECTION WITH FORTHCOMING TESTS

The Chairman outlined the agreement with the U.K. on the samples required.

6. INTER-TRIAL CONTINENTAL SAMPLING ARRANGEMENTS

The Australian Atomic Energy Commission were pressing the Commonwealth X-Ray and Radium Laboratory for results of the sampling. It is now clear that the eighteen stations which function during inter-trials periods are to be operated by the Safety Committee. The National Radiation Advisory Committee has requested [redacted] to make available information from these stations in appropriate form. This data will be available to [redacted], Chairman of the A.A.E.C., as he is a member of the N.R.A.C.

It was resolved that the Chairman of the N.R.A.C., [redacted] should be approached to give a directive to [redacted] that information from fall-out stations operated during inter-trial periods should be passed directly to the N.R.A.C. via its Secretary. The N.R.A.C. will determine to whom the information should be made available. [redacted] drew attention to the fact that negotiations regarding fall-out data were in progress between [redacted], Convenor of the I.G.Y. Committee and [redacted] had undertaken to provide the required data, hence the pressure on [redacted] to release relevant information as the Safety Committee data is in fact the only relevant information. The Safety Committee resolved that the Convenor of the I.G.Y. Committee should be informed that the N.R.A.C. was the competent authority to approach for this information.

[redacted]

.../3.

[redacted]

It was suggested that air sampling should be resumed at a few (4 or 5) stations and that rain filters for ^{90}Sr determinations should be installed say at Melbourne, Darwin, Perth, Hobart and Townsville. These stations, as well as the location of inter-trials stations, should be considered at the next meeting of the N.R.A.C. [redacted] agreed to write to the New York Operations Office of the United States Atomic Energy Commission ([redacted] or [redacted] asking for information on various methods for ^{90}Sr analyses, this information to be sent to the Secretary to the N.R.A.C.

Some months ago [redacted] had asked for information on ^{90}Sr analyses. [redacted] had sent him an interim reply: it was agreed that [redacted] should now inform the New York Operations Office of the United States Atomic Energy Commission that this matter will be handled by the N.R.A.C. and future correspondence should therefore be addressed to the Secretary to the N.R.A.C.

In connection with the request of the United Nations Scientific Committee on the Effects of Atomic Radiation for information on fall-out expressed as:

(a) The measured fall-out of artificial beta activity given in millicuries per square kilometre. At the end of each calendar year the reports should include an estimate of the beta activity at the time of the total accumulated deposition;

(b) Individual nuclides, such as Sr-90 and Cs-137, in millicuries per square kilometre;

(c) The monthly average airborne concentration in micromicrocuries per cubic metre of air;

the Secretary was instructed to inform the Secretary, Department of External Affairs (through whom the request was received) and the Director-General of Health that this request will now be handled by the N.R.A.C.

7. NEXT MEETINGS OF SAFETY COMMITTEE

It was agreed that the Safety Committee should meet at 1.45 p.m. on Friday, 21st June, 1957.

Another meeting of the Safety Committee should take place on August 6th, the day following the next meeting of the N.R.A.C.

[redacted])
Secretary
Atomic Weapons Tests Safety Committee

Approved [redacted]

Chairman.

[redacted]

SOME COMMENTS BY [redacted] SUPERINTENDENT, HEALTH PHYSICS, A.W.R.E., OF REPORT BY [redacted] F.R.S., OF ABSORPTION OF RADIOACTIVE IODINE IN THE THYROIDS OF GRAZING ANIMALS SUBSEQUENT TO THE MONTE BELLO AND MARALINGA TESTS (1956).

The data on amounts of I^{131} found in the thyroids of grazing animals after the Mosaic and Buffalo trials are extremely interesting and it is clear that a great amount of very careful scientific work has been done to obtain them.

This iodine survey was proposed and equipped by the U.K. as a monitoring device because iodine is picked up and concentrated rapidly and therefore makes a highly sensitive fall-out detector.

The results are consequently particularly valuable as indicating that the precautions taken at these two trials were entirely successful in ensuring that the levels of activity in inhabited and stock rearing areas were well below the safe values. For example, the highest level found in an animal thyroid is given as 70 muc/g (if the period between cessation of grazing and slaughter had been long the true thyroid burden might be greater by a factor of not more than four). The safety level suggested by [redacted] and [redacted] is an intake of 24 uc/day from 0.5 to 14 days, [redacted] giving with a 20% uptake factor, a permissible burden of about 10 uc/g. Thus the highest level found is about one-hundredth of the safe level for the animal. The highest value found by the iodine survey group during Buffalo was from Ingomar and was about the same level. All the other thyroids assayed by this group were lower by a factor of ten or more.

[redacted] also shows that the safe level of deposition of fission products for infants drinking milk is the same as regards I^{131} as that for sheep so that here again we have only one-hundredth of the safe level.

The author makes a number of statements regarding the strontium hazard but gives no data. Clearly no firm assessment of strontium can be made until a representative series of bone samples have been assayed. For your private information we may add that bone sampling data in Australia indicates a maximum level in animal bones of 9.8 S.U. which may be compared with an average level in the U.K. of about 15 S.U.

The air-sampling figures for the Adelaide region also show very satisfactory conditions since the maximum concentration shown of 95,000 counts per 100 sec. on a $20m^3$ sample is equal of 10^{-3} uc/m^3.

In view of the overall pattern presented by these results it is very difficult to understand the alarmist picture drawn by the author in his discussion through the paper.

17th + 18th. Hearings.

I understand there is no record of the proceedings of the Seventeenth and Eighteenth Meetings of the Safety Committee.

[redacted]

23-6-57.

14th, 15th + 16th Meetings

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[redacted] TOMIC WEAPONS TESTS SAFETY COMMITTEE

Minutes of Sixteenth Meeting held at the Physics Department, University of Melbourne on 4th January 1957

PRESENT:

[redacted]

- - - - - -

Reconstitution of the Committee:

The Chairman opened the meeting by outlining his discussions with the Minister for Supply concerning his proposal to replace the present Safety Committee by a smaller Committee responsible for the safety aspects of atomic weapons trials and a larger one concerned with radiological effects generally.

He reported that the Minister readily agreed to the proposals and would seek an early opportunity of discussing them with the Prime Minister. This opportunity had not so far presented itself and no firm action could therefore be taken until further advice from the Minister.

The Chairman went on to say that he had approached [redacted] on the matter of the National Committee on radiological effects. [redacted] welcomed the proposition that such a committee be formed and expressed his willingness to serve on it, if invited to do so.

On the matter of the Executive Officer and Secretary, the Chairman suggested that if a suitable person could be found he might well perform the dual function in both the Maralinga Committee and also in the National Committee, and such an arrangement would provide a useful administrative link between the two.

This would be a full time task and a position would have to be created in either the Department of Health or the Department of Supply to provide for this function.

Long Range Air Sampling:

The Chairman stated that he had touched on this matter briefly in his discussion with the Minister for Supply, and it was agreed that the decision as to what authority would have executive responsibility for the collection and measurement of radio-active samples throughout the Australian Commonwealth might well be left until after the Prime Minister had considered the proposals for the new Committees.

[redacted]

[redacted] stated that his Department was [redacted] ccept this responsibility if it were so agreed [redacted] rial level.

Strontium 90 Sampling:

Reference was made to a letter from [redacted] of U.S. A.E.C. to [redacted] requesting information on the ratio of Sr^{89} and Sr^{90} to total beta activity, from monthly samples taken in Australia, or alternatively to supply the U.S. A.E.C. with regular samples taken in accordance with a prescribed method.

After some discussion it was agreed that it was a matter for the proposed National Committee to consider. The Secretary was instructed to assist [redacted] in drafting a suitable interim reply, mentioning in particular the present Committee's concern that results for Australia were being published by the U.S. A.E.C. without prior consultation with Australian authorities, and requesting that Australia be advised in advance of any future proposals to publish.

The Secretary reported that arrangements had been made through the Controller, W.R.E., for soil herbage and bone samples to be obtained this month from Ingomar, Mabel Creek and Mt. Willoughby stations for the estimation of Sr^{90} by the U.K. authorities. This was in compliance with a request by [redacted]

Report on Buffalo Trials:

A draft report for the Prime Minister, tabled at a meeting was discussed in detail, and the Secretary was requested to circulate an amended draft to members for their consideration, and for finalisation before the next meeting.

Next Meeting:

Friday 8th February 1957, at 2 p.m. in [redacted].

(sgd) [redacted] [redacted]

[redacted]

[redacted]

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ATOMIC WEAPONS TESTS SAFETY COMMITTEE

Minutes of Fifteenth Meeting held at the Physics Department, University of Melbourne on 7th December, 1956

PRESENT

[redacted]

The Chairman opened the meeting by outlining his views on the re-constitution of the Safety Committee and re-consideration of its functions and responsibilities.

He proposed that a new Committee, called the "Maralinga Safety Committee", be formed, consisting of [redacted] and [redacted] and [redacted] together with a permanent executive officer who should be an experienced radiological scientist and who would also act as Secretary of the Committee. This Committee would be responsible for all matters concerning the conduct of atomic weapons tests at Maralinga from the point of view of public safety.

It was [redacted] view that an additional Committee would also be required which would be a national authority on radiological effects, and which would act in an advisory capacity to the Government, reporting directly to the Prime Minister. This Committee should include eminent scientists in human, animal and plant biology, nuclear physicists, and medical scientists. The following names were suggested in these fields:-

[redacted]

The Committee should also include [redacted] representing Defence, and [redacted] representing the Department of Supply, and a representative of the A.A.E.C.

[redacted]

[redacted]

In the ensuing discussion it was generally agreed that these two committees would be the best way of coping with the various problems arising from the weapons tests and in connection with the estimation of radiological hazards generally.

It was therefore agreed to propose to the Minister that a Maralinga Safety Committee, consisting of [redacted], plus an executive scientific officer, should be formed. This would be responsible for deciding what conditions were favourable and safe for weapons tests; for collecting data on the results; and for reporting to the Prime Minister through the Minister for Supply.

It was agreed further to propose that a national advisory committee on radiological effects should be formed on the lines outlined above, which would advise on Commonwealth wide radiological surveys and measurements; would arrange for the supply of information to international organisations concerned with radioactivity; and for the collection of samples when appropriate; and would report directly to the Prime Minister's Department.

The Chairman undertook to discuss these proposals with the Minister for Supply, and to arrange with him for the proposals to be put forward for Government approval.

LONG RANGE AIR SAMPLING.

The Secretary informed the Committee of the discussions which had been held between the Department of Supply, the A.A.E.C. and C.X.R.L. on arrangements for the continuation of air sampling. It was noted that the Minister for Supply had indicated his desire that the A.A.E.C. should undertake the general organisation of this work and the coordination of requests and enquiries for radiological data and samples, received from overseas. The Secretary pointed out that in the discussions with the A.A.E.C. and Department of Supply, it had been made clear that the actual estimation of the radioactive content of any samples taken in the Australian Commonwealth would remain the responsibility of C.X.R.L. and that, particularly during weapon tests, this information might not be immediately available to the A.A.E.C.

The Chairman was strongly of the view that, not only the responsibility for the estimation of the radioactivity of the samples, but also the general organisation of the sampling should be the responsibility of the Department of Health through the C.X.R.L.

The Committee unanimously concurred in this view. It was felt that radioactivity is a health problem primarily, and should therefore be the responsibility of the Department of Health. It was resolved that the whole of the executive responsibility for the collection and measurement of radioactive samples throughout the Australian Commonwealth should rest with the Department of Health.

The above resolution would require a modification of the arrangements already tentatively agreed on with the A.A.E.C., and it was left for the Chairman to discuss the situation with the Minister for Supply and to convey to him the Committee's views.

On the matter of the nature and extent of the continental air sampling it was agreed that, for the time being, pump sampling should cease immediately and that sticky paper sampling should continue at about 20 stations agreed between [redacted] and [redacted] 3 one day periods per week.

.../2

[redacted] AT MARALINGA

The Secretary outlined the discussions which had taken place between the Department of Supply, C.S.I.R.O. and A.A.E.C. on health control at Maralinga, and indicated that the Department of Health had been invited to take responsibility for this task. [redacted] stated that he was generally in accord with this proposal and that his Department would agree.

LETTER FROM [redacted]

The Chairman read a personal letter which he had received from [redacted] before the latter left for the U.K. After some discussion of the various points raised in the letter, it was agreed that it should be circulated to all members, together with notes on action which had been taken in anticipation of it. (Attached).

WATER SAMPLING

The Secretary asked for a decision regarding the sampling of the town water supplies, and it was agreed that this could cease immediately.

The Secretary raised the question as to what should be done to express appreciation to Sulphates Limited for their very helpful cooperation in supplying raw and filtered water and sludge samples continuously for many months.

It was agreed that [redacted] of Sulphates should be informed in general terms of the results obtained from these samples and that arrangements should be made through the Department of Supply for an ex gratia payment of 50 guineas to be paid to him.

REPORT ON BUFFALO TRIALS FOR PRIME MINISTER

There was some discussion on the form that the report to the Prime Minister on the Buffalo Trials should take. [redacted] undertook to produce condensed "fallout" data, "fallout" trajectories and maps showing trajectories of the centre of each cloud, for discussion at the next meeting.

NEXT MEETING

Friday, 4th January, 1957 at 2 p.m. in [redacted] rooms.

[redacted]

CHAIRMAN

[redacted]

SECRETARY

[redacted]

[redacted]

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ATOMIC WEAPONS TESTS SAFETY COMMITTEE

Minutes of Fourteenth Meeting held at the Physics Department, University of Melbourne on 30th August, 1956

Present

[redacted]

In Attendance

[redacted]

Absent

[redacted]

- - - - - - - -

1. Confirmation of Minutes

The minutes of the Thirteenth Meeting were taken as read, and confirmed.

2. [redacted]

[redacted] was invited by the Chairman to discuss the general purpose of the pump air sampling units and any other matters he thought might be of interest to the Committee.

[redacted] mentioned firstly two errors that had occurred in Report C-41/55, and discussed their effect on the table of "Dose Received" (page 3) and on the dose from the ingestion of contaminated food (page 6). These errors had been corrected in Appendix "A" to the Report, dated 3/4/56 which had been circulated.

In the discussion which followed the Committee agreed with the general basis of Report C-41/55 and accepted the levels of contamination discussed therein as satisfactory for the protection of human beings and live stock.

[redacted] drew attention to section [redacted]

least 100 times the amount stated in the report.

[redacted]

3. Purpose of Pump Air Samplers

[redacted] explained that these devices were intended to simulate human breathing, and the intake was about 15 litres per minute corresponding to a man walking slowly.

The results from the air pumps and the sticky paper samplers at the same sites would provide a basis for estimating the relation between breathing hazard and ground contamination. The results of the particle size measurements would also be of value in this connection.

Very little reliable data was available on these matters and he was sure that the Safety Committee would agree that it was of the utmost importance to obtain factual information as quickly as possible.

4. Operation of Pump Sampling Units

It was agreed that the pump sampling units should be operated continuously from the time of burst until the station goes down to background some three or four days after the cloud has passed.

Thence once per week for about eight weeks after the last test of the series, and then cease until the next series.

[redacted]

This general arrangement might be modified in the case of certain stations to meet local communications.

5. Radiation Measurements following each Test

[redacted] outlined the procedure that was to be followed after each test to check the extent and intensity of the radio activity in the fallout sector.

The main features are:-

(1) Ionisation chambers are located along 5th, 10th and 25th Avenues of the Grid and telemeter their results back to Forward Control.

(2) Three hours after the explosion Varsity aircraft equipped with very sensitive instruments capable of recording radiation as low as 50 micro-r per hour, will survey the Grid and the area immediately beyond at 500 ft. altitude.

(3) The centre line of the fallout will be estimated at H + 25 hours.

(4) On succeeding days Varsities will fly out 500 miles or more to determine fallout pattern and contours.

(5) About four days after the burst a helicopter will survey the Grid and check points beyond if necessary.

(6) Cloud sampling and tracking aircraft will intercept the cloud at about H + 10 minutes, at H + 3 hours and again at H + 9 hours and will track the cloud.

In the subsequent discussion it was indicated to

[redacted]

6. Sticky Paper Stations

It was agreed that sticky paper samples would not be taken specifically at the stations from which thyroid samples were drawn. The situation was deemed to be adequately covered by the stations already in operation in the Continental sampling scheme.

ction [redacted]

Of the additional sticky paper sampling stations proposed b[redacted] Mr. [redacted] it was agreed that ten should be set up.

7. Brief of the Minister for Supply

[redacted] reported to the Committee his discussion with the Minister concerning the possibilities of :-

(a) radioactive rain falling on the Australian Continent.

(b) the need to divert or ground civil aircraft over certain areas after a major test.

(c) an explanation of what level "A" meant in relation to medical X-Ray dosages.

8. Next Meeting

At the call of the Chairman.

[redacted]

[redacted]

[redacted]

Classified US Document
Declassification in train