

May 12, 1952

To: Listed Distribution

Subject: Summary of Meetings on USAF SAM Primate Laboratory-ORNL Pilot Tolerance Experimental Program.

Folder _____
 Box _____
 Collection _____
 RG _____
 26 U.S. ATOMIC ENERGY COMMISSION
 DOE ARCHIVES
 3362
 11

Meetings were held in the ANP Conference Room on May 8 and 9, 1952, to discuss a cooperative program with the USAF SAM Primate Laboratory at Austin for obtaining information on the effects of radiation in the range of dose levels postulated as likely to be tolerable for the crew compartment of a nuclear propelled aircraft.

Those present at the meetings at various times were:

- Colonel J. M. Talbot, HQ Air Research and Development Command
- Major R. B. Payne, USAF SAM Randolph AFB
- Captain G. E. Thoma, Jr., USAF SAM Randolph AFB
- Captain G. C. Bahn, USAF SAM Randolph AFB
- Captain S. J. Kaplan, USAF SAM Primate Laboratory, Austin
- Colonel Walter L. Carss, USAF Engineering Field Officer, GE-ANP
- Dr. J. P. Quigley, University of Tennessee Medical School
- Dr. W. D. Claus, AEC Division of Biology and Medicine
- Dr. C. L. Dunham, AEC Division of Biology and Medicine
- Dr. C. S. Shoup, Office of Research and Medicine, AEC-Oak Ridge
- Dr. H. J. McAlduff, Office of Research and Medicine, AEC-Oak Ridge
- Dr. A. M. Weinberg, Research Director, ORNL
- Dr. A. Hollaender, Biology Division, ORNL
- Dr. J. Furth, Biology Division, ORNL
- Dr. K. Z. Morgan, Health Physics Division, ORNL
- Dr. J. L. Meem, Physics Division, ORNL
- Dr. A. W. Kimball, Math Panel, ORNL
- Dr. A. J. Miller, ANP Division, ORNL

During the course of the meetings, it appeared that the Austin group expected Air Force support for a primate program, whose magnitude made it infeasible to transport each animal several times between Austin and Oak Ridge and to carry out the entire irradiation in the BSF. It also became apparent that in order to get some information at an early date which could be useful in guiding the ORNL shielding research efforts, a small experiment should be initiated as soon as possible using the BSF. Tentative designs were agreed upon for a large experiment to be carried out entirely at Austin using artificial sources, and for a smaller experiment in which the irradiations would be carried out in the BSF in Oak Ridge.

The design of the large experiment is shown in Table I. Despite the size of the effort, all of the experiments are carried out at a single ratio of rep gamma to rep n. The animals are to be examined after each

WITH ATTACHMENTS/ENCL

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW

SINGLE REVIEW AUTHORIZED BY: AA SWS/AMW 11/23/91

REVIEWER (ADD): M L KUBAN

DATE: 11/23/91

DETERMINATION (CIRCLE NUMBER(S))

1. CLASSIFICATION RETAINED
2. CLASSIFICATION CHANGED TO:
3. CONTAINS NO DOE CLASSIFIED INFO
4. COORDINATE WITH:
5. CLASSIFICATION CANCELLED
6. CLASSIFIED INFO BRACKETED
7. OTHER (SPECIFY):

OPENNET ENTRY

Authorized for Public Release
 By: *AS for Holding* Date: *2/7/95*
 Entered In OpenNet
 By: _____ Date: _____

Not Authorized for Public Release
 By: _____ Date: _____

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

11 50256

[REDACTED]

[REDACTED]

exposure. The examinations include such factors as behavioral characteristics, cataract development, and haematological effects, but a detailed schedule of examination was not worked out. For this large experiment, ORNL would aid the Primate Laboratory in designing facilities, procuring sources, and acquiring and training personnel for work in physics and health physics.

The design of the smaller experiment is shown in Table II. The examinations will consist of cataract, bilobed lymphs, routine hemograms, absolute lymph counts, temperature, and behavioral characteristics. Each animal will make only one round trip between Austin and Oak Ridge. Behavioral characteristics will be studied only after the animals' return to Austin, while some work on the other effects will be done in Oak Ridge by personnel from the Austin group. For the smaller experiment the Laboratory would train additional USAF personnel to operate the BSR and make it available for irradiation of the Austin animals during approximately 16 week ends between September and December, 1952. This is similar to the existing arrangement with the USAF group currently irradiating electronic equipment in the BSR. Provision of animal immersion facilities in the BSR requires only a nominal expenditure by the ORNL. The Austin group would transport the animals, and while in Oak Ridge the animals would be cared for, handled, and examined by Air Force personnel. During their stay in Oak Ridge, the animals would be housed at the UT-AEC facilities with the USAF reimbursing the UT-AEC installation for any costs incurred. Tentative plans for such an arrangement were made by Dr. Kaplan with Dr. Comar by telephone.

The total cost of the Laboratory's participation in both programs would be so small that it appeared no additional funds for the purpose would be needed by the Laboratory.

The Austin group concluded that it would make a proposal for cooperative experimentation with the Laboratory to the Air Force, and through established channels to the Atomic Energy Commission.

The ORNL group was in agreement with the above plans to carry out cooperative work with the Austin group, and concluded that it would recommend that the AEC accept the Austin proposal.

The ORNL committee for establishing an animal experimentation program in the BSR to aid the ANP shielding research was dissolved by Dr. Furth, its chairman, who stated that from here on the final design and carrying out of the program would be the responsibility of the working team composed of personnel from Austin and ORNL. The ORNL part of the work would be carried out by the Physics and Health Physics Divisions. Members of the Biology Division would be available for consultation, and their small program on cataracts and leukemia induction in mice and rabbits to determine the RBE of various types of radiation will continue. Dr. Hollaender

[REDACTED]

and Dr. Furth stated that if additional funds eventually were made available to the Laboratory, the Biology Division might further supplement the primate work by enlarging its program on mice and other small animals in Oak Ridge. In place of the previous committee, a new group will be appointed to report periodically on the progress of biological experimentation throughout the country related to the ANP shielding program.

A. J. Miller
A. J. Miller

AJM:dwh

Distribution: 1. C. E. Larson
2. A. M. Weinberg
3. K. Z. Morgan
4. Alexander Hollaender
5 - 10. C. S. Shoup
11. E. P. Blizard
12. J. L. Meem
13. R. C. Briant
14. J. Furth
15. A. W. Kimball
16. A. J. Miller

Table I

AUSTIN IRRADIATION OF MONKEYS TENTATIVE DESIGN

(1/2 dose in neutrons and 1/2 dose in gammas for all exposures)

Exposure rate (rem/hr)	1.0	1.0	1.0	1.0
Number of exposures	10	10	10	10
Time per exposure (hrs.)	6	6	24	24
Time between exposures (days)	7	21	7	21
Total exposure (rem)	60	60	240	240
Animals used	6	6	6	6
Exposure rate (rem/hr)	1.0	1.0	1.0	1.0
Number of exposures	20	20	20	20
Time per exposure (hrs.)	6	6	24	24
Time between exposures (days)	7	21	7	21
Total exposures (rem)	120	120	480	480
Animals used	6	6	6	6
Exposure rate (rem/hr)	0.25	0.25	0.25	0.25
Number of exposures	10	10	10	10
Time per exposure (hrs.)	6	6	24	24
Time between exposures (days)	7	21	7	21
Total exposure (rem)	15	15	60	60
Animals used	6	6	6	6
Exposure rate (rem/hr)	0.25	0.25	0.25	0.25
Number of exposures	20	20	20	20
Time per exposure (hrs.)	6	6	24	24
Time between exposures (days)	7	21	7	21
Total exposure (rem)	30	30	120	120
Animals used	6	6	6	6

Additional experiments on chimpanzees.

Table II

BSF IRRADIATION OF MONKEYS TENTATIVE DESIGN

(1/2 dose in neutrons and 1/2 dose in gammas)

Exposure rate (rem/hr)	1	0.25
Number of exposures	8	16
Time per exposure (hrs)	16	8
Time between exposures (days)	7	7
Total exposure (rem)	128	32
Animals used	12	12

Additional 12 animals for control immersions in BSF.