

SECURITY CLASSIFICATION

~~RESTRICTED~~

408538

Research and Development Project Card (Progress Report) (C)		2. Security Restr	3. Project No. R-21-47-005
1. Project Title BIOLOGICAL AND MEDICAL ASPECTS OF IONIZING RADIATION		4. Index No.	R
6. Basic Field or Subject Aeromedical		7. Sub Field or Subject Sub Group Aviation Medicine, Radiobiology	
8. Cognizant Agency Air University	9. Directing Agency USAF School of Aviation Medicine Office Symbol Tp	12. Contractor and/or Laboratory University of Chicago- USAF Radiation Labora- tory	Contract/W.O. No. Not Available
10. Requesting Agency Surgeon General, USAF	11. Participation, Coordination, Interest Naval Rad Def Lab (1) Naval Research Lab (1) Army Chemical Center (1) Atomic Energy Commission (1) Naval Med Rsch Institute (1) US Public Health Service (1)	13. Related Projects R-21-47-001 R-21-47-002 R-21-47-003	17. Est. Compl. Dates Res. Indefinite Dev. Test Op. Eval.
14. Date Approved	15. Priority 1-A	16. (169/33)	18. FY   Fiscal Est's (M \$) 51   250M 52   250M 53   250M T   1750M
19.	20. Requirement and/or Justification		

This project is required for the evaluation of radiation hazards to aircrews and for the solution of biological and medical problems of especial concern to Air Force personnel.

BEST COPY AVAILABLE

US DOE ARCHIVES  
 326 U.S. ATOMIC ENERGY  
 COMMISSION

Collection ABM  
 Box 3354  
 Folder 14

21. a. Brief

This group of related studies will result in new and better techniques for the evaluation of radiation hazards and will further result in the development of better prophylactic treatment, diagnosis, and prognosis in acute and chronic radiation injury.

b. Approach

(1) Analysis of the ionizing radiation hazards to aircrews

SURGEON GENERAL

*95-M-0053*  
*21 U of Chicago*

22. JRDB | SN | FC | IC & P | X | L | C

DECLASSIFIED BY AUTHORITY OF  
 DOE USAF Memo dtd 4 MAY 95  
 11 MSJ/IMSJ (MDR)  
 15 JUL 1996  
 CASE # 95-M-0053  
 DATE

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW  
 DETERMINATION (CIRCLE NUMBER(S))  
 1. CLASSIFICATION RETAINED  
 2. CLASSIFICATION CHANGED TO:  
 3. CONTAINS NO DOE CLASSIFIED INFO  
 4. COORDINATE WITH: LSA  
 5. CLASSIFICATION CANCELLED  
 6. CLASSIFIED INFO BRACKETED  
 7. OTHER (SPECIFY):  
 SINGLE REVIEW AUTHORIZED BY:  
 AA SMD/ELM 1/2/94  
 REVIEWER (ADD):  
 NAME: ML KOSBY  
 DATE: 11/14/94

SECURITY CLASSIFICATION

~~RESTRICTED~~

1. Project Title **BIOLOGICAL AND MEDICAL ASPECTS**  
 21. (continued) **OF IONIZING RADIATION**

3. Project No. (E.O.) **R-21-47-005**  
 8. Cognizant Agency **AU**

in the operational employment of atomic weapons, to include the external beta-gamma hazard as well as internal emitters. Dosage tables to fit all normal and certain chance operational situations will be required.

(2) Analysis of the ionizing radiation hazards to aircrews in the operation of nuclear energy propelled aircraft.

(3) The pharmacology and toxicology of protective compounds which may be given to aircrews prophylactically as well as following ionizing exposure.

(4) The effects of ionizing radiations upon the biochemistry of cells, cell groups, organs, and organ systems.

(5) The treatment of whole body ionizing radiation sickness.

(6) Physiological aspects of radioactive fission products, etc., as aerosols.

(7) Body shielding against ionizing radiation with a view toward aircrew application.

(8) The effects of ionizing radiation injury combined with and/or followed by stresses of particular importance in Air Force operations such as vibrations, operational fatigue, anxiety, cold, hypoxia, and decompression.

(9) Methods of rapid diagnosis and prognosis in acute and chronic ionizing radiation injury.

(10) Studies on methods of detecting susceptibility to ionizing radiation injury with a view toward a screening procedure.

(11) Possible contra-indications for general anesthesia following ionizing radiation injury.

(12) Evaluation of the cosmic ray biological effects in extremely high-altitude Air Force operations.

c. Subtasks

None

d. Other Information

(1) Background

The project will be accomplished by personnel of the

SECURITY CLASSIFICATION

~~RESTRICTED~~

1. Project Title **BIOLOGICAL AND MEDICAL ASPECTS**  
21. (continued) **OF IONIZING RADIATION**

3. Project No. (E.O.)R-21-47-005  
8. Cognizant Agency **AU**

University of Chicago-USAF Radiation Laboratory, under a contract between the University of Chicago and the U. S. Air Force. Service testing is not required. The duration of the project is indefinite.

The University of Chicago group originally entered the above field of research in April 1948. Their entire support at the time came from the Atomic Energy Commission, with the Chemical War Service, U. S. Army, acting as the contracting agency. In October 1950, the Atomic Energy Commission replaced the Army Chemical Corps as the contracting agency. The Atomic Energy Commission has indicated their willingness to release the present facilities at the University of Chicago to the Air Force for this project.

(2) References

None

DOE ARCHIVES