

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		12. Contractor and/or Laboratory University of Chicago- USAF Radiation Labora- tory	7a. Tech. Obj. AW-6 (169/41)
9. Directing Agency USAF School of Aviation Medicine Office Symbol Tp		13. Related Projects R-21-47-001 R-21-47-002 R-21-47-003	Contract/W.O. No. Not Available
10. Requesting Agency Surgeon General, USAF		14. Date Approved	17. Est. Compl. Dates Res. Indefinite Dev. Test Op. Eval.
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)		15. Priority 1-A	16. (169/33)
19.		18. FY   Fiscal Est's (M\$) 51   250M 52   250M 53   250M T   1750M	

CASE # 95-11-0053  
DATE 15 JUL 1996

DECLASSIFIED BY AUTHORITY OF  
DOE USAF MEMO dtd 4 MAY 95  
11 MSS/IMS/L CMDR

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.

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 326 U.S. ATOMIC ENERGY  
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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

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: 4522  
 5. CLASSIFICATION CANCELLED  
 6. CLASSIFIED INFO BRACKETED  
 7. OTHER (SPECIFY):

SINGLE REVIEW AUTHORIZED BY:  
AA Straviger 1/2/94

REVIEWER (ADD):  
ML Kozlowski

NAME: ML Kozlowski  
 DATE: 11/14/94

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

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 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

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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