(3 Nov 47)
Supersedes Hq AMC Form 70-13-2, which will be used.

Air Force-WPAFB-L-31 JAN 51 50331

PURCHASE REQUEST

290543

Submitted to:

Date of Initiation:

Section 1.

ITEM	QUANTITY	UNIT	ESTIMATED UNIT PRICE	DESCRIPTION OF SUPPLIES OR SERVICE TO BE PURCHASED	UNIT PRICE	ACTUAL TOTAL PRICE
1		Job		Request funds for a one (1) year extension of Contract AF 33(038)-20493 with M.D. Anderson Hospital for additional work on "A Study of Intellectual, Perceptual, Psychomotor and Biomedical Status of Patients Following Exposures to Moderate Quantities of Ionizing Radiation" 21-3201-0001 ~~Project No. 21-3501-0005 (AH-6)~~		
				Bud Seq # 604		

TOTAL ESTIMATED COST	EXP. ORD. NO.	ITEM NUMBER	PROP. CLASS	TOTAL ACTUAL COST
$ ~~$45,672.00~~	21-3201-0001 PROJECT NO. ~~21-3501-0005~~			$

Section 2.

DELIVER TO:

DESIRED DELIVERY SCHEDULE—MAXIMUM ACCEPTABLE EXTENSION OF DESIRED DELIVERY SCHEDULE ____ MONTHS

JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

195____ 195____

F. O. B POINT Randolph Air Force Base POINT OF INSPECTION

Section 3.

REMARKS: (Reference Subject by number in space below and list all exhibits and attachments)
1. Recommended Source 2. Sole Source 3. Should Serial Number Be Assigned 4. G. F. P. 5. Tools, patterns, etc. to be loaned by Gov't. 6. Authority 7. General Remarks

2. Sole Source
3. No
4. Unknown
5. None
6. April RDB Form 1A, Project No. ~~21-3501-0005~~, dtd ~~28 Dec 53~~.

21-3201-0001 13 JAN 54

AIR1.941130.011s

Section 4.

INITIATION: Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other branch of The Government without transfer of funds, or the immediate need of these supplies or the remoteness of this Station from point of supply precludes their purchase from any other branch of the Government.

INITIATED BY: JOHN E. PICKERING, Lt.Col. USAF
PHONE 2557 SYMBOL SAMRAE

APPROVED BY: (A) SYMBOL DATE

APPROVED BY: (B) SYMBOL DATE

APPROVED BY: (C) SYMBOL SAMRDC DATE 26 January 1954

APPROVED BY: (D) WILLIAM H. CAUDLE, Lt.Col. USAF
SYMBOL SAMRDC DATE 26 January 1954

APPROVAL OF FUNDS: The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in and are chargeable to allotment(s): 97X3600 L66-1670 P670-07 S41-607

The available balance of which is sufficient to cover the cost in an amount not to exceed $ ~~45,672.00~~

Actual cost approved for $ ____

(E) JESSIE WIRE 9 Feb 1954 BUDGET AND FISCAL OFFICER DATE

(F) BUDGET AND FISCAL OFFICER DATE

(G) INITIATING ACTIVITY DATE

Section 5.

VENDOR'S NAME AND ADDRESS

NOT ON UNAPPROVED LIST (initial and date)

CONTRACT NUMBER

PURCHASE ORDER NUMBER

Source: 342 56A-4146 1/1 Dept 1 - Int Administration

Detailed Justification of Source

This is a renewal of a most satisfactory current contract, consequently, facilities, patient flow, and procedures are all worked out for the schedule of this institution.

Concise Statement of Work

This project has two basic parts. One portion of the program is to determine the effects of exposures to moderate quantities of ionizing radiation upon one's ability to perform simple and complex mental and psychomotor tasks. The second part is to evaluate the biomedical effects of such exposures with a view toward developing a biological dosimetry so that true tissue doses of radiation can be quantitated.

Air Force Applicability Statement

This project will give partial answer of biological significance to the aircraft nuclear propulsion program. Low dose chronic radiation exposures must necessarily be evaluated so that one may predict the psychological and biological effects, if any, from the crew members of nuclear propelled aircraft.

John E Pickering 27 Jan 54

(signature) (date)

This is to certify that the M. D. Anderson staff working under Contract AF 18(600)-

does not employ the services of psychologists or social scientists.

The psychological measurements obtained in conjunction with this contract are accomplished by the USAF School of Aviation Medicine military personnel.

Project Officer

Director of Research

SEYMOUR SCHWARTZ
Major, USAF (MSC)
Research Secretary

Note: Above certificate will be submitted with proposal in triplicate.

Ø286

VIII

THE UNIVERSITY OF TEXAS

M. D. ANDERSON HOSPITAL FOR CANCER RESEARCH

PROPOSAL

A Study of Intellectual, Perceptual, Psychomotor and Biomedical Status of Patients following Exposures to Moderate Quantities of Ionizing Radiations.

The following is an outline of our proposal for a research project to investigate the effects of moderate quantities of ionizing radiation upon human mental and psychomotor abilities of interest to the U. S. Air Force. Biomedical effects of the ionizing radiation will also be jointly conducted by members of our medical staff in cooperation with technical personnel of the USAF School of Aviation Medicine, under the joint direction of the project officer, Lt. Col. John E. Pickering, USAF and Gilbert H. Fletcher, M.D., of the University of Texas, M. D. Anderson Hospital.

PROJECT TITLE: "A Study of Intellectual, Perceptual, Psychomotor and Biomedical Status of Patients following Exposures to Moderate Quantities of Ionizing Radiations."

I. TECHNICAL INFORMATION

a. Objectives:

To determine the effects of exposures to moderate quantities of ionizing radiation upon one's ability to perform simple and complex mental and psychomotor tasks in order to predict the effects upon the crew operating nuclear energy propelled aircraft.

To determine the biomedical effects of such exposures.

b. Discussion

It is desired to measure certain mental, psychomotor and biomedical changes in patients who are receiving moderate quantities of exposures to ionizing radiation. These changes can best be observed in patients who are undergoing radiation therapy. Information of the occurrence and nature of these changes would be of value to the U. S. Air Force in connection with the nuclear energy propelled aircraft project. It is clear that before attempting to operate its proposed nuclear powered aircraft, the U. S. Air Force must evaluate the hazards of such exposures to ionizing radiations. There are no scientific data with which to assess these dangers to crew performance and well-being. The most direct approach to this information would be by human experiments in specifically designed radiation studies. Since this approach is not permissible, it would appear mandatory to take advantage of investigation opportunities which exist in certain radiology centers by conducting special examinations and measurements on patients who are undergoing radiation therapy for disease. While the flexibility of experimental design in a radiological clinic will necessarily be limited, the information that may be gained from studies of patients is considered potentially invaluable.

It is known that exposure to therapeutic doses of ionizing radiation produces in some patients symptoms of radiation sickness, which include nausea, vomiting and mental and physical lassitude. These symptoms usually do not occur in the beginning of the course of radiation therapy. Moderately large exposures are necessary to produce these symptoms. These symptoms of radiation sickness obviously

would be incapacitating for fliers and would seriously interfere with the performance of their duties.

Very little is known about the intellectual, psychomotor and biomedical changes which will result from the exposure of the crew to the radiations of the nuclear source in the proposed craft. It is believed that valuable information may be secured from the study of patients who are receiving moderately large integral doses of ionizing radiation of 400 KV X-rays. Dosage ranges of concern to the nuclear energy propelled aircraft program will be approached. Complete or partial answers to the following questions may be anticipated as a result of the proposed studies:

1. Is there any detectable change in one's ability to do simple and complex mental and physical tasks after receiving moderately large integral doses of ionizing radiation?
2. What is the nature of the biomedical changes to be observed after large integral doses of ionizing radiation? When do they occur?
3. If incapacity results, when will occur and how long will it last?
4. How often may one be exposed without suffering incapacity?
5. If incapacity results, how may it be dealt with?

c. Project Plans:

The University of Texas, M. D. Anderson Hospital for Cancer Research, will make available to the School of Aviation Medicine Test Group, selected patients who are scheduled for radiation therapy for various

diseases. Following initial tests of the patients, the Hospital will administer the appropriate radiation treatment and will again submit the patient for testing. Motivation of the patients will be initially accomplished by the hospital staff. The medical evaluation of the patients for purposes of the project will be done by especially employed personnel. The mental and psychomotor testing will be done by the School of Aviation Medicine personnel as will the recording and evaluation of the test data. Biomedical studies will be performed prior to and following the roentgen therapy.

d. Curricula Vitae of principal and primary investigators are attached.

e. The University of Texas, M. D. Anderson Hospital for Cancer Research is singularly equipped for conducting the proposed project. The M. D. Anderson Hospital for Cancer Research has an adequate number of patients required in such a study. The Radiology Department has facilities for treating the patients. A 400 KV Unit will be employed in the project. The clinical laboratories are capable of providing the requisite services and material for performing biomedical studies. Adequate housing for patients is present.

II. BUDGET ESTIMATE

a.

Personnel

1. 1 Coordinating Medical Officer @ $7,500 (½ time) Stella Booth, M.D.	$ 3,500.00	
1 Radiotherapist @ $12,000 (1/12 time) G. H. Fletcher, M.D.	1,000.00	
1 Internist @ $12,000 (1/12 time) C. D. Howe, M.D.	1,000.00	
1 Physicist @ $5,000 (1/5 time) Arthur Cole	1,000.00	
2. 1 Secretary @ $2,700 (full-time) Mrs Mary Nell Floyd	2,700.00	
2 Nurse technician @ $4,000 each (½ time) Miss Mary Walker	2,000.00	
2 Technician - clinical pathology @ $3,000 each (full-time) Miss Pauline McIntire	6,000.00	
1 Machinist @ $5,700 (1/11 time) Mr. Edwin B. Moore	500.00	
1 Bus driver, part-time	500.00	
Total personnel salaries:		$18,300.00

3. No new construction is contemplated.

Supplies

4 & 5. Miscellaneous (drugs, expendable laboratory equipment, stamps, office supplies.	$ 1,000.00	$ 1,000.00

6. The need for additional consultants is not foreseen.
7. Travel and per diem payment will not be needed.

Facilities

8. a. Patient hospital housing (computed at $17.00 per day per patient for 700 patient days).	$ 11,900.00	
b. Outside patient housing (dinner) (computed at $7.00 per day for approximately 980 patient days).	6,860.00	
		$18,760.00
		$39,060.00
9. Overhead (computed at 20% of total costs)		7,612.00
TOTAL BUDGET :		$45,672.00

b. An overhead rate has not been negotiated by the Army, Navy or Air Force.

III. ADDITIONAL INFORMATION:

a. Approximately 418 persons are employed at the M. D. Anderson Hospital for Cancer Research.

b. The M. D. Anderson Hospital for Cancer Research is a branch of the University of Texas

c. The following persons may be contacted concerning details of the project.

Dr. R. Lee Clark, Director	TELEPHONE :	LY-4311
Dr. Roy C. Heflebower, Assistant Director		LY-4311
Dr. Gilbert Fletcher		LY-4311

d. No sub-contracting is contemplated.

e. Bidder represents that he has not employed or retained a company or person (other than a full-time employee) to solicit or secure this contract, and agrees to furnish information thereto as requested by the Contracting Officer.

f. This duration of the project will extend from 1 March 1954 to 1 March 1955.