



# Fax Cover Sheet

Headquarters, United States Air Force  
Office of the Air Force Surgeon General

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<b>TO</b>	Date: <i>26 May 94</i>	Time: <i>1630</i>
	Commercial Fax #: <i>(703) 602-0046</i>	Autovon Fax #:
Organization/Office Symbol: <i>RECC</i>		
Person to Contact: <i>Ms. Kim Randall</i>		
Phone Number to Call for Pickup: <i>0390</i>		
Subject: <i>Data Sheets</i>		
Comments: <i>Kim.</i> <i>This is what I have from Brooks on the studies you requested. They are still getting info on #31. As you can see, some studies had no subjects, so should we delete these from the database? → <del>insert</del> Dan Swan</i>		

# FROM

## HQ AFMOA/SGPT

Grade/Name of Sender: <i>LT Col Dan Swan</i>
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Total Number of Pages Including Cover Sheet: *13*

*Sorry, these are not on your data disk - we did not send one to Brooks.*

308 M3 93 30 98 92 '60

#32

1. Title: Radiobiologic Experiments in Discoverer Satellite XVIII
2. Where: School of Aerospace Medicine, Brooks AFB; Vandenberg AFB  
When: done 1960, reported 1962
3. Researchers: Crawford GW, Davis I, Hekhuis GL, Dexter CR, Pizzuto JS, Kohr CM, Roberts TL, Lassiter S, Katzberg AA, Prince JE, Hewitt JE, Campbell MM, Flume JL
4. Organizations: School of Aerospace Medicine, Radiobiology Branch and Microbiology-Cellular Biology Branch
5. Number of Subjects: none
6. Summary: dosimeters, nuclear emulsion plates, tissue cultures (human cells and chick embryo brain cells), and spores were analyzed from Discoverer Satellite XVII and XVIII flights. These reports focus on the XVIII flight in particular, launched 7 Dec. 60. It orbited for 75 hours and then ejected a 300 capsule that was caught by a C-119.  
  
radiation: space
7. Records: SAM 62-39 to 62-46
8. N/A, no humans exposed

003 MB 90 00 PB 90 90

:33

1. Title: Technic and Applications of Fluorescence Angiography in Aerospace Ophthalmology

2. Where: School of Aerospace Medicine  
When: 1968

3. Researchers: Newsom WA, Tredici TJ

4. Organizations: School of Aerospace Medicine, Ophthalmology Branch

5. Number of Subjects: none

6. Summary: This discusses the applications of florescence angiography in aerospace medicine.

radiation: none

7. Records: SAM 68-21

8. N/A, no humans exposed

P04 N1 02:30 98 92 90

#38

1. Title: The Effects of Thermal and Ionizing Radiation on Aircrews
2. Where: AF Weapons Lab, Analysis Division, Kirtland AFB  
When: 1976
3. Researchers: Mobley TS, Phillips JH, Daily PL
4. Organizations: AF Weapons Lab, Analysis Division, Kirtland AFB  
(School of Aerospace Medicine, Radiobiology Div. was only involved in helping prepare and reviewing report)
5. Number of Subjects: none
6. Summary: This report uses data from existing reports and extrapolates it to various air crew scenarios. It cites 61 references. This is not original research, but a review of current literature.  
  
radiation: none
7. Records: AFWL-TR-76-141
8. N/A, no subjects used

904 W4 92-20 86 90 60

#39

1. Title: Radiation Dose to Humans from 99m Technetium Labelled Dihydrothiotic Acid

2. Where: ?

When: 1976

3. Researchers: Vanek, KN

4. Organizations: AFIT, Wright-Patterson AFB

5. Number of Subjects: 19

6. Summary: testing of new liver/gallbladder imaging agent. (only had access to DETIC on-line documentation, doesn't seem to be associated with Brooks AFB)

radiation: 99mTc

7. Records: DETIC search:JD-AO44 624; AFIT-CI-77-14

8. no subject names or consents found

#40

1. Title: Operation Snapper: Flash Blindness
2. Where: unmentioned nuclear detonation site (probably in southwest USA)  
When: 1952 ?, report March 1953
3. Researchers: Byrnes VA
4. Organizations: School of Aviation Medicine and Army Medical Center
5. Number of Subjects: 24 from Luke and Nellis AFB
6. Summary: Subjects were exposed to nuclear detonations on 22 Apr and 1 May (1952 ?). They looked through their left eye at a nuclear blast in a trailer for 2 seconds. Then they were tested immediately afterwards to quantify their ability to adapt. Half of them wore red goggles. Two subjects suffered retinal injuries which they both fully recovered from, but the research was stopped after 2 blasts.  
  
radiation: 10 miles from nuclear detonation
7. Records: report of "Operation Snapper"
8. no subject names mentioned but has some initials;  
consents not mentioned

LOG W1 93'00 16 32 '90

#41

1. Title: Intraspecies Biologic and Behavioral Variability
2. Where: contracted to Honeywell, Inc. Research, Systems and Research Div., 2345 Walnut St., St. Paul, MN  
When: 1 Nov 1965 - 31 Jan 1966; report June 1966
3. Researchers: Stackhouse SP
4. Organizations: School of Aerospace Medicine, Radiobiology Branch
5. Number of Subjects: none
6. Summary: Report is review of literature and compares the variability of man and monkey to see what the most appropriate parameters to study for radiation exposure.  
  
radiation: none
7. Records: SAM-TR-66-58; Task #: 775702; contract #: AF 41 (609)-2937
8. N/A

804 N1 03-70 96 92 90

#42

1. Title: Use of Chromosome Aberrations to Estimate X-Ray and Gamma-Ray Dose to Man
2. Where: Dept. of Radiology, UCLA School of Medicine  
When: Sept 1965 - Aug 1966; report Dec 1967
3. Researchers: Norman A, Sasake MS, Ottoman RE, Veomet RC
4. Organizations: School of Aerospace Medicine, Radiobiology Branch
5. Number of Subjects: 5
6. Summary: Case-control study to assess chromosome aberrations as a way of estimating radiation exposure. Four x-ray techs and one patient were the accidental exposures. The techs "accidental" exposures came about from their normal duties. A patient with acute leukemia was chosen for the study. When the patient's chromosomes were studied, there was more damage than expected. "The pattern of damage was consistent with a dose in excess of 100 rads received eight years before." Upon further questioning of the patient, it was revealed that the patient "had been exposed to a large dose of radiation in 1956".  
radiation: x-ray
7. Records: SAM-TR-67-112; Task #: 775702; contract #: AF 41(609)-2944, continuation of AF 41(657)-391 and AF 41(609)-1909
8. no subject names or consents found

611 13 20 00 16 27 30

#43

1. Title: Threshold for Permanent Functional and Morphological Visible Damage in Humans

2. Where: The Eye Research Foundation of Bethesda 8710 Old Georgetown Rd. Bethesda MD 20014

When: 6 Jan 1969 - 31 Dec 1970; report 1971

3. Researchers: Elgin S, Robbins DO, Cavonius CR

4. Organizations: School of Aerospace Medicine

5. Number of Subjects: 6 Caucasians and seventh subject.

6. Summary: Patients who were to undergo surgery (enucleation) for intraocular tumors volunteered to be exposed to Xenon arc lamp to assess degree of damage from retinal burns.

radiation: Xenon arc lamp, 0.25 to 1.5 sec

7. Records: SAM-CR-71-2; DETIC AD735802; task #: 630103; contract # F41609-69-C-0027

8. report states, "All subjects were informed of the purpose of the study and signed consent form."<sup>2</sup>; no consents or names seen.

013 W3 90'00 98 90'00

#75

1. Title: Cardiac Fluoroscopy Work Unit 7755-27-12
2. Where: School of Aerospace Medicine  
When: 1982 - present
3. Researchers: Loecker TH, Schwartz RS, Cotta CW, Hickman JR
4. Organizations: School of Aerospace Medicine, Clinical Sciences Div.
5. Number of Subjects: 2948+
6. Summary: Cardiac fluoroscopy was done for aeromedical cardiac work-ups at the Clinical Sciences Div. who were 30 years of age or older.  
radiation: x-ray
7. Records: Clinical Sciences Div.
8. subject names are on file at site; consents found

*See also 4 Feb 94 ltr: AH/AOCER*

016 W1 90 00 06 00 90



DEPARTMENT OF THE AIR FORCE  
ARMSTRONG LABORATORY AFMC  
BROOKS AIR FORCE BASE TEXAS

04 FEB 94

MEMORANDUM FOR AL/AOC  
ATTENTION: Col Carpenter

FROM: AL/AO CFR

SUBJECT: Human Ionizing Radiation Review

1. This letter is in response to your tasking to provide a report regarding human ionizing radiation exposure which has occurred in the Radiology Service of the Flight Medicine Branch. In an effort to clarify what ionizing radiation procedures the X-ray service needed to report, I spoke with Major Liu, AL/AOE on this base and to Lt Col Brown at HQ/AFMOA/SGPT. Both Maj Liu and Lt Col Brown recommended reporting only cardiac fluoroscopy. At attachment 1 is the requested report.

2. If you have any questions regarding this report, please contact me at DSN 240-3543.

*Thomas H. Loecker*  
THOMAS H. LOECKER, GM-14  
Chief, Radiology Section

Attachment:

1. Human Ionizing Radiation Report (2)

814 NS 90 01 98 90 90

**PART I OF REPORT**

1. I know of no organization or individual that conducted human radiation experiments at Armstrong Laboratory or the School of Aerospace Medicine. Cardiac fluoroscopy was employed as a recognized medical diagnostic practice for evaluatees referred for cardiac work-up.

**PART II OF REPORT**

1. Identify procedure: Cardiac fluoroscopy work unit 77552712

2. Where and when it took place: X-ray Department, Armstrong Laboratory, (formerly the School of Aerospace Medicine), Brooks AFB, San Antonio, Texas, from 1 Oct 1982 to the present.

3. Primary Researcher: Thomas Loecker, M.D.  
Chief, Radiology Service  
Armstrong Laboratory

4. Organizations and Entities involved: X-ray Service, Flight Medicine Branch, Armstrong Laboratory

5. Number of human subjects: 2,948 evaluatees

6. Summarize the Procedure:

a. Rationale: Link first reported coronary artery calcification on a human chest x-ray in 1927. In 1960, Jorgens and others reported on the use of cinerentgenography in the detection of coronary artery disease. One of the earliest reports on the use of cardiac fluoroscopy to detect coronary artery calcification was made by Oliver in 1964. In the 1970's, there were several reports in the American medical literature recommending the use of cardiac fluoroscopy to detect calcified arteriosclerotic coronary artery lesions in human subjects. Responding to the above, the School of Aerospace Medicine began evaluating cardiac referrals with this diagnostic technique in 1982.

b. Protocol: Cardiac fluoroscopy was done on all evaluatees referred for cardiac work-up who were 30 years of age or older and who had not had a cardiac catheterization. Cardiac fluoroscopy was repeated only at 5 year intervals. The patients were examined in various supine and oblique positions. Cardiac fluoroscopy was

A. L. (1. f2)

considered positive when one or more calcifications were noted over the cardiac silhouette which moved synchronously with the heart. The average fluoroscopy time was 1-2 minutes.

7. Records Location: Cardiac fluoroscopy records are kept in the x-ray department at Armstrong Laboratory. They are also available in the computer data base at Armstrong Laboratory.

8. A log book listing the examinee's name and evaluation diagnosis is kept in the X-ray department. Similar fluoro information is also available in the Armstrong Laboratory computer data base.

9. These records are not classified.

Atch 1 (2 of 2)