

## APPLICATION FOR BYPRODUCT MATERIAL LICENSE

INSTRUCTIONS.—Complete Items 1 through 16 if this is an initial application. If application is for renewal of a license, complete only Items 1 through 7 and indicate new information or changes in the program as requested in Items 8 through 15. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail three copies to: U. S. Atomic Energy Commission, Washington 25, D. C. Attention: Isotopes Branch, Division of Licensing and Regulation. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30 and the Licensee is subject to Title 10, Code of Federal Regulations, Part 20.

1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital, person, etc.)  Department of the Army Fitzsimons General Hospital Denver 40, Colorado	(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1 (a).)  Department of the Army Fitzsimons General Hospital Denver 40, Colorado
2. DEPARTMENT TO USE BYPRODUCT MATERIAL  Radioisotope Section Radiology Service	3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.) Change specific licenses 5-46-9 (D-63) and 5-46-10 (I63) to <del>general</del> license.
4. INDIVIDUAL USER(S). (Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in Items 8 and 9.)  <del>General License.</del> Users will be approved by the Radioisotope Committee.	5. RADIATION PROTECTION OFFICER (Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Items 8 and 9.)  This officer will be appointed by the Radioisotope Committee.
6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.)  <del>Any byproduct material between Atomic Nos. 1 to 83 inclusive.</del>	(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME. (If sealed source(s), also state name of manufacturer, model number, number of sources and maximum activity per source.)  <del>Any chemical and/or physical form, which has been established by adequate medical research and can be supplied by a reputable radioisotope or drug firm.</del>  <del>500 millicuries each; 5000 millicuries total.</del>  (See attached forms) <i>MY</i>
7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for "human use," supplement A (Form AEC-313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.)  Human Use.	

52563

(Continued on reverse side)

# TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4 (Use supplemental sheets if necessary)

8. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
a. Principles and practices of radiation protection	Individuals using radioisotopes will have appropriate training and experience prior to approval by Radioisotope Committee, Fitzsimons General Hospital.		Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments			Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity			Yes No	Yes No
d. Biological effects of radiation			Yes No	Yes No

## 9. EXPERIENCE WITH RADIATION. (Actual use of radioisotopes or equivalent experience.)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
As above				

## 10. RADIATION DETECTION INSTRUMENTS. (Use supplemental sheets if necessary.)

TYPE OF INSTRUMENTS (Include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm <sup>2</sup> )	USE (Monitoring, surveying, measuring)
Refer to appended information.					

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE.  
Instruments calibrated at six month intervals (or after repairs) by Sacramento Army Depot Field Radiac Calibration Service. Last calibrated 23 April 1963.

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED. (For film badges, specify method of calibrating and processing, or name of supplier.)  
All personnel wear film badge and pocket dosimeter. Film badge processed at four week intervals by Lexington Signal Depot. Pocket Dosimeters read and charged at one week intervals by Radiology Service, Fitzsimons General Hospital.

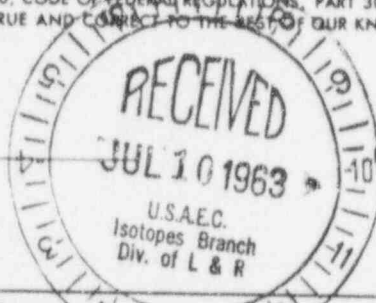
## INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. (Circle answer) ☒ Yes ☐ No
14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source. Refer to appended information.
15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved. Refer to appended information.

## CERTIFICATE (This item must be completed by applicant)

16. THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PART 30, AND THAT ALL INFORMATION CONTAINED HEREIN, INCLUDING ANY SUPPLEMENTS ATTACHED HERETO, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

Date 29 April 1963



Department of the Army  
Fitzsimons General Hospital  
Denver, Colorado  
Application named in item  
CLINTON S. LYTER, MAJ. GEN., M. C.

Commanding General  
Title of certifying official  
Fitzsimons General Hospital

WARNING.—18 U. S. C., Section 1001; Act of June 25, 1948, 62 Stat. 749, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States or to any matter within its jurisdiction.

		Dosage Range	Authorized on hand
I-131	NaI - Sodium Iodide (Thyroid uptake) (Thyroid scan) (Checking metastases, thyroid cancer)	10-15 uc 30-100 uc 1000 uc	10 mc
I-131	RISA-Radio Iodinated Serum Albumin (Plasma Volume) (Brain tumor localization)  (Cardiac output) (Heart Scan)	5-10 uc 10 mc/Kg Max. 600 uc 20 uc 10 mc/Kg Max 600 uc	5 mc
	Hippuran (Renogram)	5-10 uc	2 mc
	Rose Bengal (Liver scan) (Liver function)	350-500 uc 10-20 uc	2 mc
	Oleic Acid (Fat absorption)	25 uc	1 mc
	Triolein (Fat absorption)	25 uc	1 mc
	Cholegrafen (Iodipamide Sodium) (Gallbladder function)	25 uc	2 mc
I-125	NaI - Sodium Iodide (Thyroid uptake) (Thyroid scan)	5-15 uc 20-80 uc	1 mc
	RISA - Radio Iodinated Serum Albumin (Plasma Volume)	5-10 uc	1 mc
	Hippuran (Renogram)	2-4 uc	1 mc
Cr-51	Na <sub>2</sub> CrO <sub>4</sub> - Sodium Chromate (Red cell mass) (GI bleeding) (Red cell survival)	25-35 uc 50-75 uc 50-75 uc	3 mc
	Cr Cl <sub>3</sub> - Chromic Chloride (Plasma volume)	10 uc	1 mc
Co-57 or Co-58 or	Co-57 CoCl <sub>2</sub> - Cyanocobalamin (B <sub>12</sub> Co <sup>57</sup> ) (Schilling test)  (Schilling test)	0.5 uc 0.5 uc	10 uc
	CoCl <sub>2</sub> - Cyanocobalamin (B <sub>12</sub> Co <sup>60</sup> ) (Schilling test)	0.5 uc	
Gold 198	AuCl <sub>3</sub> Colloidal Gold (Liver scan)	70-100 uc	25 mc

Iron	Fe Cl <sub>3</sub> - Ferric Chloride		0.5 mc
59	(Iron turnover study)	10-15 uc	
	- Ferrous Citrate		0.5 mc
	(Iron turnover study)	10-15 uc	
Hg 203	Chlormerodrin		
	(Kidney scan)	100-150 uc	
	(Brain Scan)	10 mc/kg	
		Max 600 uc	
H3	H <sub>3</sub> O - Tritiated Water		25 mc
	(Total body water)	1-2 mc	
Na24	NaCl - Sodium Chloride		
Therapy	(Total exchangeable sodium)	50-100 uc	
I-131	NaI - Sodium Iodide		250 mc
	(Hyperthyroid)	5-10 mc	
	(Thyroid carcinoma)	100-150 mc	
	(Cardiac diseases)	5-30 mc	
		(accumulation)	
Au-198	AuCl <sub>3</sub> - Colloidal Gold		250 mc
	(Malignant effusions)	100-150 mc	
	(Prostate cancer)	25-100 mc	
P-32	Na <sub>2</sub> HPO <sub>4</sub> - Sodium Phosphate		25 mc
	(Leukemia)	5-10 mc	
	(Polycythemia Vera)	5-10 mc	
	CrPO <sub>4</sub> - Colloidal Chromic Phosphate		
	(Malignant effusion)	15 mc	
	Triiodothyronine (T-3)		1 mc
	(in vitro RBC uptake)	0.25-0.5 uc	
Sr-90	SrCl <sub>2</sub> - Strontium Chloride		25 mc
	(External therapy, sealed source)		
	Iridium		150 mc
	Tantalum		150 mc

## APPLICATION FOR BYPRODUCT MATERIAL LICENSE

## SUPPLEMENT A—HUMAN USE

If byproduct material is for "human use" (internal administration of byproduct material, or the radiation therefrom to human beings), complete this supplement and attach to the application for byproduct material license.

1. (a) USING PHYSICIAN'S NAME  Fitzsimons General Hospital	(b) NAME AND ADDRESS OF APPLICANT (If different from 1(a))  Denver 40, Colorado		
2. THE USING PHYSICIAN INDICATED ABOVE IS LICENSED TO DISPENSE DRUGS IN THE PRACTICE OF MEDICINE BY A STATE OR TERRITORY OF THE UNITED STATES, THE DISTRICT OF COLUMBIA, OR THE COMMONWEALTH OF PUERTO RICO.  Not applicable		YES	NO
3. A STATEMENT OF USING PHYSICIAN'S CLINICAL RADIOISOTOPE EXPERIENCE (PAGE 3 OF THIS SUPPLEMENT) IS SUBMITTED IN SUPPORT OF THIS APPLICATION. IF ANSWER IS NO, USE PAGE 2 OF THIS SUPPLEMENT TO EXPLAIN OR REFER TO OTHER APPLICATION OR RELATED DOCUMENTS ON WHICH THIS INFORMATION APPEARS.  Not applicable		YES	NO
<b>PROPOSED DIAGNOSIS OR TREATMENT</b>			
4. (a) DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED INCLUDING SPECIFIC CONDITIONS OR DISEASES TO BE DIAGNOSED OR TREATED (Use page 2 if necessary): Established medical diagnosis and therapy. Medical research as approved by Radioisotope Committee, Fitzsimons General Hospital.			
(b) CHEMICAL FORM ADMINISTERED:  —			
(c) DESCRIBE PROCEDURES WHICH WILL BE OBSERVED TO MINIMIZE HAZARD FROM HANDLING, STORAGE, AND DISPOSAL OF THE BYPRODUCT MATERIAL: Refer to appended information.			
(d) DESCRIPTION AND SKETCHES OF SPECIAL DEVICES TO BE USED FOR ADMINISTERING BYPRODUCT MATERIAL TO HUMAN BEINGS ARE		YES	NO
(1) ATTACHED (LITERATURE REFERENCES WILL SUFFICE) Refer to appended information.		YES	NO
(2) ON FILE WITH THE ISOTOPES EXTENSION REFER TO APPLICATION NO License 5-46-9(D-63), 5-46-10(I-63)		YES	NO
5. PROPOSED DOSAGE SCHEDULE			
(a) In millicuries for internally administered byproduct material other than discrete fixed sources; and in roentgens or rads, as appropriate, for internal or external irradiation from discrete fixed sources (gold seeds, cobalt needles, etc.) state separately for each condition or disease (use page 2 if necessary): Refer to license 5-46-9 (D-63), 5-46-10(I-63) with the following additions:  1. Medical diagnosis and therapy with established dosages. See Items 6a and 6b on form 313. 2. Medical research with dosages approved by Radioisotope Committee, Fitzsimons General Hospital, and in general less than those used in medical diagnosis and therapy.			
(b) INVESTIGATIVE PROPOSAL FOR EXPERIMENTAL, NEW OR UNUSUAL HUMAN USES IS ATTACHED. (Attachment should include outline of conditions to be evaluated, including data from animal studies and/or abstract of literature reference if any, number and type of patients (i. e. age group, moribund, etc.))		YES	NO
6. IF BYPRODUCT MATERIAL WILL NOT BE OBTAINED IN PRECALIBRATED FORM FOR ORAL ADMINISTRATION OR IN PRECALIBRATED AND STERILIZED FORM FOR PARENTERAL ADMINISTRATION, DESCRIBE IDENTIFICATION, PROCESSING, AND STANDARDIZATION PROCEDURES:  Not applicable			
7. THE PROPOSED USE OF BYPRODUCT MATERIAL HAS BEEN, OR WILL BE, APPROVED BY THE MEDICAL ISOTOPE COMMITTEE.		YES	NO
<b>HOSPITAL FACILITIES FOR INDIVIDUAL PRACTICE USE ONLY</b>			
(a) THE APPLICANT HAS COMPLETED ARRANGEMENTS FOR A HOSPITAL TO ADMIT RADIOACTIVE PATIENTS WHENEVER ADVISABLE.		YES	NO
(b) A COPY OF INSTRUCTIONS TO BE FURNISHED TO THE HOSPITAL AS TO RADIOLOGICAL SAFETY PRECAUTIONS TO BE TAKEN AND AVAILABLE RADIATION INSTRUMENTATION IS ATTACHED.		YES	NO



**APPLICATION FOR BYPRODUCT MATERIAL LICENSE**  
SUPPLEMENT A—HUMAN USE

This page may be used for providing additional information. Please cross reference to specific items.

FITZSIMONS GENERAL HOSPITAL  
Denver, Colorado

SPECIAL ORDERS  
NUMBER 81

E X T R A C T

23 Apr 1963

9. TC 222. Fol indiv this station having appeared before a PEB is ordered to place dsq to await final orders and disposition as directed by the Secretary of the Army. Member will proceed to place dsq and remain thereat to await further orders in connection with his physical evaluation board proceedings. Leave will be charged against the members accrued leave for each day in awaiting orders status to extent available. BAS, BAQ with dependents auth. TDN PPSIA 2132010 01-1361-1362-1363-1364-1365-1366-1367 P1513 S99-999.

WOLFE, JOSEPH R RA13455237 SP4 E4 133.10 MHC (3412) FGH Denver Colo  
Asg to: Railroad Ave St Marys WVa WP date: 24 Apr 63  
HOR: Railroad Ave St Marys WVa Pd: Until notified by receipt of final orders  
ACLV: 12 days PCS (MDC): C8 Auth: AR 635-40B  
EDCSA: Will be established upon receipt of orders from The Adjutant General.  
Sp instr: NA.

10. TC 220. Fol reassignment directed. WP TDN PPSIA 2132010 01-1331-1332-1333-1334-1335-1336-1337 P1513 S99-999.

SIMON, BENJAMIN J 088205 1ST LT ARMOR 71203 (9666) MHC (3412) this sta  
TDY enr to: Stu Bn USAINTC (2111-03) Ft Holabird Md Rept date (TDY): 1 May 63  
Pd (TDY): Approx 9 wks Crs: Intel Research Off Crs 30-B-9666 (SQN-43-B)  
Cl no: 7 Asg to: 113th Intel Corps Gp Chicago Ill Alloc: Jul-304  
Scty clnc: SECRET Lv data: 15 DDALV upon compl TDY PCS (MDC): C8  
Auth: OPO DA Msg 334338 (OPXR) dtd 10 Apr 63 EDCSA: 28 Apr 63  
Sp instr: WP 24 Apr 63. PBI compl 29 Nov 62-Inves currently open case-Ft Holabird  
Remarks: PBI compl 29 Nov 62-Inves currently open case Ft Holabird Md per Hq CINTC  
Msg 04-1143 (AC SIH-AG-MC) dtd 19 Apr 63.

11. TC 350. Following indiv this station APPOINTED.

LYMAN, HARRY E	038903	COL	AGC 5th USA Spt Elm	President
JAMKOCHIAN, KEHAN	02002457	MAJ	MSC Hq Comp	Member
COLLINS, VIRGIL T	02011892	MAJ	MSC Do.	Do.
WILLIAMS, MARION R	W904029	CWO W4	AGC 5th USA Spt Elm	Recorder

Apt to: Board Eff date: 24 Apr 63 Pd: 1 day  
Purpose: Exam appl for appointment Auth: AR 140-100  
Sp instr: Bd apt for purpose of examining DURAN, ELIPIO D W2211732 .CWO W2  
AGC Hq Comp on 24 Apr 63. Bd stands rel upon compl of this case.

Chief Department of Surgery  
Chief Department of Medicine  
Chief Pathology Service  
Chief Radiology Service  
Chief Radioisotope Section  
Radiation Safety Officer

Apt to: Radioisotope Committee Pd: Indef  
Purpose: Auth & supervise isotope utilization Auth: NA  
Sp instr: Para 5 SO 75 this Hq dtd 14 Apr 60 is rescinded. The senior  
Medical Officer present will act as committee chairman.

Over, SO 81, 23 Apr 63, FGH, Cont

SO 81, 23 Apr 63, FGH, Cont

12. TC 253. Following DUTY ASSIGNMENT/RELIEF announced this sta. NTI.

JOHNSON, HERBERT F 088111 CAPT MC Hq Comp

Dy asg: Add dy Radiation Safety Officer Dy rel fr: NA Eff date: 23 Apr 63

COLLINS, VIRGIL T 02011892 MAJ MSC Hq Comp

Dy asg: Engr Div Pdy Admin Asst (DMOS: 3506)

Dy rel fr: Asst C, Instl Plans & Tng Div Eff date: 22 Apr 63

VOCG date cfm: 22 Apr 63

O'REILLY, GEORGE T 040120 COL MSC Hq Comp

Dy asg: Asst C, Supply & Service Div (DMOS: 4010) Dy rel fr: NA

Eff date: 9 Apr 63 VOGC date cfm: 9 Apr 63

Sp instr: Vice CUMMINGS, CHARLES L 02049881 LT COL MSC Hq Comp rel.

13. TC 333. Fol indiv this sta auth to RATION SEPARATELY. READR. VOGC date cfm & eff date as indic in SNL.

ROGERS, WILLIAM R RA25780158 SP5 E5 MHC

18 Apr 63

BAKER, DAVID W RA13344392 SP5 E5 A Stu Det

15 Apr 63

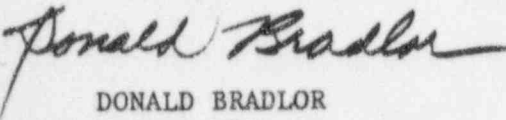
FOR THE COMMANDER:

OFFICIAL:

PAUL A MAXSON

Major, MSC

Adjutant

  
DONALD BRADLOR

Major, MSC

Asst Adjutant

DISTRIBUTION:

1 - Gen Post Clnc	2 - Path Svc
1 - Hsg Ofc	2 - Rad Svc
2 - APO	2 - XO
20 - Sep Sec	2 - Adj
20 - CO MHC	2 - Engr
40 - Mil Pay Sec	2 - Sup & Svc Div
5 - CO A Stu Det	2 - Plans & Tng
10 - Enl 201	
40 - Pers Admin Sec (Mrs Newton)	
20 - Off 201	
1 - Str & Actg	
20 - PEB	
16 - Off (Para 11 & 12) 2 ea	
2 - Safety Br	
2 - Dept of Surgery	
2 - Dept of Medicine	
5 - C, USAINTC (2111-03) Ft Holabird Md (Para 10) (AIRMAIL) MR Purposes	
5 - CO 113th Intel Corps Gp Chicago Ill (Para 10) (AIRMAIL) MR Purposes	



1. A Radioisotope Committee was established at Fitzsimons General Hospital by SO 81, 23 April 1963, Fitzsimons General Hospital.
2. The Radioisotope Committee consists of the following individuals:
  - Chief, Department of Medicine - Internal Medicine
  - Chief, Department of Surgery - Surgery
  - Chief, Pathology Service - Pathology
  - Chief, Radiology Service - Radiology
  - Chief, Radioisotope Section - Internal Medicine
  - Radiation Safety Officer - Radiology
3. Health Physicists are available on a consultation basis from the Office of the Surgeon General, and Colorado Medical School. Their assistance will be requested by the Isotope Committee when appropriate.
4. The Isotope Committee will act in accordance with the conditions and limitations on the General License Provisions of 10CFR 150.20 and 30.32, 30.41, 30.43, 30.44, 30.51, 30.52, 30.61, 40.41, 40.61 - 40.63, 40.71, 40.81, 70.32, 70.51 - 70.56, 70.61, 70.62, 70.71 and Parts 20 and 31, published August 1, 1962 by Division of Licensing and Regulation, U. S. A. E. C., Washington 25, D. C.
5. No radioisotope shall be purchased or used without the prior approval of the Isotope Committee.
6. The Isotope Committee will only authorize the use of radioisotopes by an individual after due consideration of his clinical training and experience, his radioisotope training and experience and the safety of the proposed usage and dosage.
7. It is the purpose of the Isotope Committee to assure the maximum benefit and safety to all individuals participating in the application of radioisotopes to medical diagnosis, therapy and research.
8. The use of radioisotopes in humans shall be by, or under the direct supervision of a physician.
9. Byproduct material shall not be used in humans until its pharmaceutical quality and assay have been established.
10. Byproduct material shall not be used in field applications where activity is released.
11. Byproduct material shall not be used in products distributed to public.

12. Written administrative instructions covering radiological protection, control and security of byproduct material shall be followed and a copy of instructions shall be posted in the radioisotope section, and provided to each individual having responsibility for the use of such material ("Regulations and Rules Pertaining to the use of Radiomaterials in the Radioisotope Section", copy included).

13. Radioisotopes will be purchased and received by the Radiology Service and Radioisotope Section.

14. Radioactive wastes will be held in a shielded area in a locked room until decay to a safe level (10 half lifes). Liquid wastes, may be disposed of through the sanitary sewer according to the requirements of 10 CFR, 150.20.

15. All material employed will be procured in assayed forms, and stored in shipping containers, in lead containers procured for the purpose or behind lead bricks, and in accordance with instructions in 10 CFR 150.20 and U. S. Handbooks 48-51-59-65-69.

16. The laboratory area will be monitored and wipe tested at one week intervals.

17. Personnel will wear radiological detection devices and exposure recorded. *W*

18. Monitoring instruments will be calibrated at six month intervals.

19. The Radiological Safety Officer will conduct a regular program of inspection, and area and personnel monitoring.

20. Strontium 90 applicators will be tested for contamination and/or leakage at intervals not to exceed six months. If this test reveals the presence of 0.005 microcuries or more of removeable contamination, the licensee will immediately withdraw the sealed source from use, decontaminate, repair, or dispose of it in accordance with A. E. C. regulations. The person performing the test will be approved by the Isotope Committee which will assure that he has had experience in checking the sources.

21. In the event of an accident or other unusual occurrence, *W* the A. E. C. will be notified in accordance with A. E. C. regulations. The Preventive Medicine Division of the Surgeon General's Office, Department of the Army, will also be notified.

22. The Isotope Committee will ensure that appropriate instrumentation and dosage is used in human use of radioisotopes.

REGULATIONS AND RULES PERTAINING TO THE USE OF RADIOMATERIALS IN THE  
RADIOISOTOPE SECTION OF THE RADIOLOGY SERVICE,  
FITZSIMONS GENERAL HOSPITAL

I. Regulations.

A. Radiation Hazard Control.

1. The Chief of the Radioisotope Section will be responsible to the Chief, Radiology Service for the observance of radiation safety precautions by all personnel working in the Radioisotope Section, regardless of their individual duty assignments.
2. Permission to handle, administer and/or assist in the administration of radiomaterials in the Radioisotope Section may be denied to or withdrawn from any person who, in the opinion of the Chief of the Radioisotope Section, is either inadequately trained in the handling of radiomaterials or is guilty of any breach of discipline as concerns the handling of radiomaterials so as to incur real or possible hazard to himself or others, pending review of the circumstances by the Chief, Radiology Service.
3. The rules listed hereinafter are to be observed. However, it is emphasized that mere following of the stated rules will not eliminate all possible hazards associated with the handling of radiomaterials. Copies of the following National Bureau of Standards Handbooks are available for additional guidance in order that individuals can better prepare themselves to cope with situations not specifically covered:
  - (a) Handbook #42 - Safe Handling of Radioactive Isotopes.
  - (b) Handbook #51 - Radiological Monitoring Methods and Instruments.
  - (c) Handbook #52 - Maximum Permissible Amounts of Radioisotopes in the Human Body and Maximum Permissible Concentrations in Air and Water.
  - (d) Handbook #49 - Recommendations for Waste Disposal of Phosphorus-32 and Iodine-131 for Medical Users.
  - (e) Handbook #48 - Control and Removal of Radioactive Contamination in Laboratories.
  - (f) Handbook #56 - Safe Handling of Cadavers Containing Radioactive Isotopes.

B. Procurement, Storage and Administration of Radiomaterials.

1. All radiomaterials for use in the Radioisotope Section will be procured through the Supply Officer, Fitzsimons General Hospital.
2. The Supply Officer, Fitzsimons General Hospital, will be responsible for the storage and handling of the contents of each shipment of a radiomaterial procured for the Radioisotope Section until such time as the shipment is delivered to the Chief of the Radioisotope Section or his designated representative, and, will be responsible for the maintenance of records pertaining thereto.

3. The Chief of the Radioisotope Section will be responsible for the storage, handling, and administration to patients of the contents of each shipment of a radiomaterial after it has been delivered to him or his designated representative in the Radioisotope Section, and, will be responsible for the maintenance of records pertaining thereto.
4. The Chief of the Radioisotope Section will be responsible for the handling and disposal of radioisotope-contaminated liquid wastes of the Radioisotope Section in accordance with the recommendations found in the National Bureau of Standards Handbooks concerning such matters. He also will be responsible for the handling and disposal of radioisotope-contaminated solid wastes.

## II. Rules.

### A. Rules for All Personnel.

1. In order to avoid undue exposure to ionizing radiations, unauthorized personnel will not enter the laboratory of the Radioisotope Section except when accompanied by an authorized person.
2. Only persons specifically authorized to do so by the Chief of the Radioisotope Section will handle any shipment of a radiomaterial or any part thereof after it has been delivered to the Radioisotope Section.
3. Only persons specifically authorized to do so by the Chief of the Radioisotope Section will prepare and/or administer a tracer and/or therapeutic dose of any radiomaterial after it has been delivered to the Radioisotope Section.
4. When children are in the Radioisotope Section, the door to the laboratory will be closed except when at least one authorized person is in the laboratory.
5. There will be no smoking, eating or drinking in the laboratory.
6. There will be no application of cosmetics in the laboratory.
7. There will be no storing of food and/or drink in the refrigerator in the laboratory.
8. No water for drinking purposes will be obtained from the laboratory.
9. The sinks in the laboratory will not be used for purposes of performing personal toilets except that the non-contaminated sink may be used for the purpose of hand-washing after the removal of rubber gloves by persons authorized to handle, administer and/or assist in the administration of radioisotopes.

B. Additional Rules for Personnel Authorized to Handle and Administer Radioisotopes

1. Radioisotope Section personnel authorized to handle, administer and/or assist in the administration of radiomaterials will wear film badges at all times, or, will wear other radiation detection devices such as a pocket dosimeter.
2. All personnel will wear laboratory coats while handling, administering and/or assisting in the administration of radiomaterials.
3. All personnel will wear rubber gloves while handling, administering and/or assisting in the administration of radiomaterials, except that the containers of radiomaterials noted in Item No. (6) - (a) and (b) - below may be handled outside the laboratory without gloves.
4. All personnel will wear rubber gloves and laboratory coats when reaching, with their hands or with remote-handling devices, inside the shielded area of the laboratory where radiomaterials are stored.
5. All gloves, protective clothing, instruments and glassware will be checked for radioisotope-contamination with a laboratory monitor after use, and, if contaminated, will be placed in the appropriate receptacle to await decontamination.
6. All radiomaterials will be stored, handled and administered in designated areas of the laboratory except that:
  - (a) Samples containing less than 1.0 microcurie each may be taken into the sample counting room for counting;
  - (b) Standards for uptake studies may be taken into the patient counting rooms for counting;
  - (c) Therapeutic and/or tracer doses of radiomaterials may be administered to patients on the wards or in the operating rooms with the knowledge and consent of the Chief of Radioisotope Section
7. Glass shipping containers of radiomaterials will be stored in lead containers in the shielded area of the laboratory, insofar as is practicable.
8. Long-handled tongs, short-handled tongs, forceps and other remote-handling devices will be used to handle containers of radiomaterials, insofar as is practicable.
9. There will be no mouth pipetting under any circumstances.



10. Before placing radiomaterials in a container, the container will be clearly labelled to show the particular radioisotope, the concentration per unit volume expressed in microcuries or millicuries as of at least one particular time, and, the name or identifying initials of the person preparing the label.
11. Tracer and/or therapeutic doses of radiomaterials and samples for counting will be prepared and stored in the shielded area, insofar as is practicable.
12. An aluminum syringe shield will be used when injecting solutions containing a beta-emitting radioisotope, insofar as is practicable.
13. In the event of spill of a radiomaterial, hazard control is of first importance. In order to accomplish this, the person responsible for the spill should:
  - (a) Be prepared to evaluate the hazard by knowing at all times which radioisotope is being handled and the approximate amount in microcuries or millicuries;
  - (b) See that all personnel in the area are notified and leave the vicinity of the spilled radiomaterial without delay;
  - (c) Determine the extent of personnel contamination by inspection and monitoring of involved personnel, calling for help as needed;
  - (d) Remove contaminated protective and/or other clothing;
  - (e) Rinse contaminated body parts with water (making use of the shower, either of the two laboratory sinks, or, the utility sink in the men's latrine as circumstances seem to warrant) and then wash with soap and water, monitoring after each washing;
  - (f) Notify the Chief of the Radioisotope Section as soon as possible.
14. In the event of spill of a radiomaterial, but only after the personnel contamination problem has been disposed of, decontamination of the area of spill will be carried out under the supervision of the Chief of the Radioisotope Section. As a general rule, the person responsible for the spill will be responsible for performing the work necessary to accomplish decontamination.

RADIOISOTOPE EQUIPMENT

NAME	COMPANY	MODEL NO.	(on hand)
Spinco-Beta-Gamma-Survey Meter (Range 0.2-20mr/hour)	Spinco Company, Phila 55, Pa.	XX-2	1
Labitron	Nuclear-Chicago	1619	1
Block Lead-Protector (Well)	Home Made	- -	1
Berkley Decimal Scaler	Berkley Instruments Inc.	2001	1
Picker-Decade Scaler	Picker X-Ray Corp, Cleveland	C-TW-722	1
Picker-Well Counter	" " " "	(No number)	1
Super Scaler	Tracer Lab	P-20A	2
Dual Probes	Picker X-Ray Corp.	PX-14061	1
Isotope Scanner	Nuclear of Chicago	1700	1
Analyzer, Computer	" " "	132	1
Analyzer	" " "	1700P	1

RADIOISOTOPE SECTION  
FITZSIMONS GENERAL HOSPITAL

ISOLATION PROCEDURE FOR RADIOACTIVE IODINE ( $I^{131}$ ) THERAPY  
PATIENTS

1. Have patient in private room with private bath.
2. Entrance of isolation area must be well marked with appropriate signs indicating isolation hazard. ("Radiation Area" signs delineate 2 m area).
3. Instruct visitors to keep a distance of 6 feet between themselves and the patient. Limit visits to 15 minutes.
4. Safe time for nursing care is approximately 5 hours total per person for the entire period of isolation.
5. Safe distance - no less than 25 inches between personnel and patient.

Instruct personnel to do necessary work quickly and when possible to remain a distance from the patient. Best protection at the nursing level will be found in any additional distance that can be placed between nurse and patient. Personnel may be rotated to reduce exposure to the individual.

6. Vomitus within the first 12 hours is considered as radioactive contamination.
7. All linen used by the patient must be kept in the room until monitored and disposed of by personnel of the radioisotope section.
8. Urine is considered radioactive for the first 72 hours following therapy. All urine is to be saved by patient in a container provided and will be disposed of by the radioisotope section. No specimen is to be sent to the clinical laboratory during this period.
9. Blood will not be withdrawn for diagnostic purpose within 72 hours following therapy.
10. Dishes, glassware, books, radios., etc. can be removed from the room without monitoring.
11. Pregnant personnel should not give direct nursing care to the Patient during the period of isolation.
12. In case of any unusual occurrence contact the Radioisotope Section (Ext. 22133)

RADIOISOTOPE SECTION  
FITZSIMONS GENERAL HOSPITAL

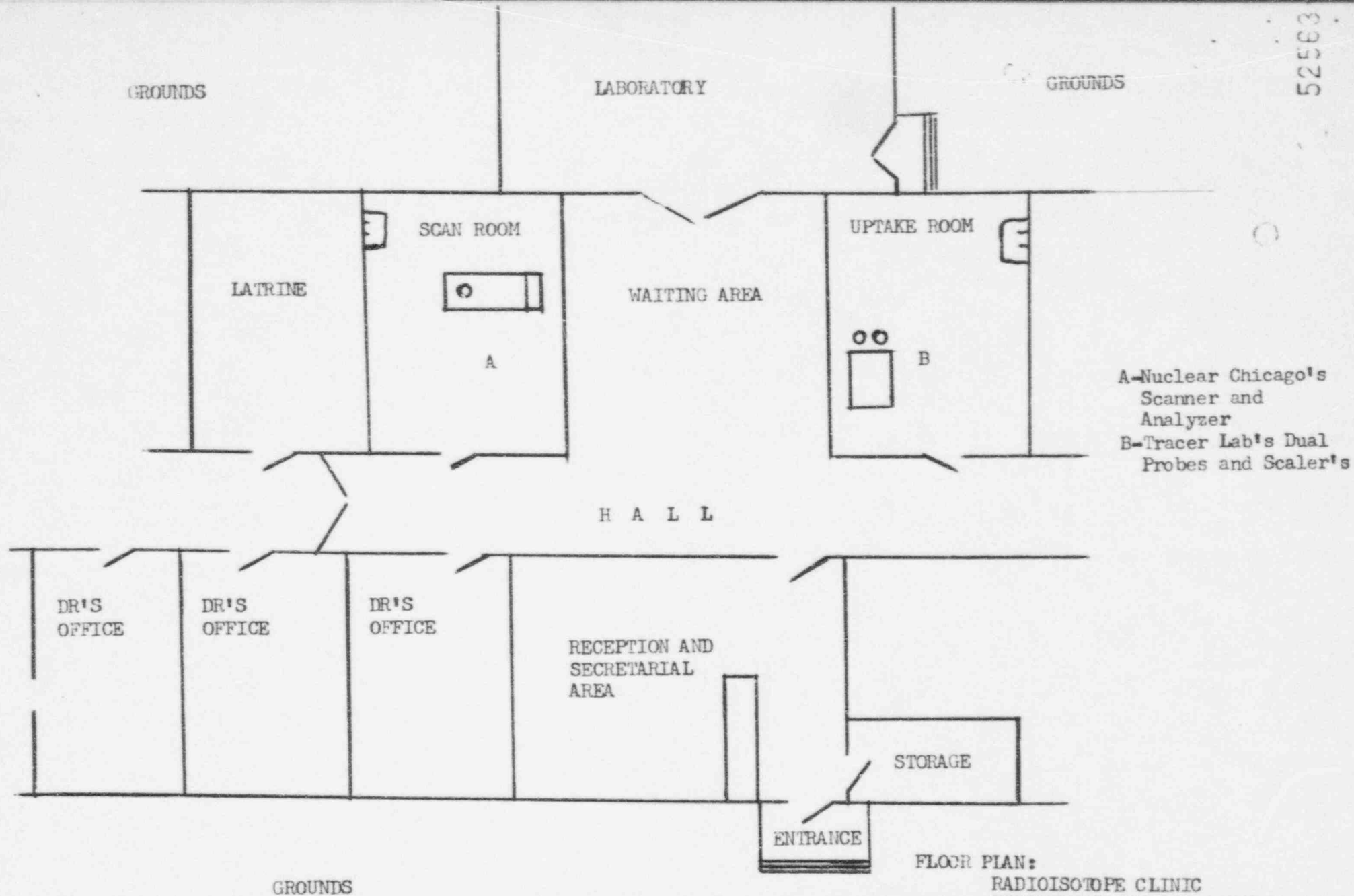
ISOLATION PROCEDURE FOR RADIOGOLD ( $\text{Au}^{198}$ ) PATIENTS

1. Have patient in private room with private bath.
2. Entrance of isolation area must be well marked with appropriate signs indicating radiation hazard. ("Radiation Area" signs delineate 2mr area).
3. Instruct visitors to keep a distance of 6 feet between themselves and the patient. Limit visits to 15 minutes.
4. Safe time for nursing care is approximately 5 hours total per person for entire time of isolation.
5. Safe distance - no less than 25 inches between personnel and patient.

Instruct personnel to do necessary work quickly and when possible to remain a distance from the patient. Best protection at the nursing level will be found in any additional distance that can be placed between nurse and patient. Personnel may be rotated to reduce exposure to the individual.

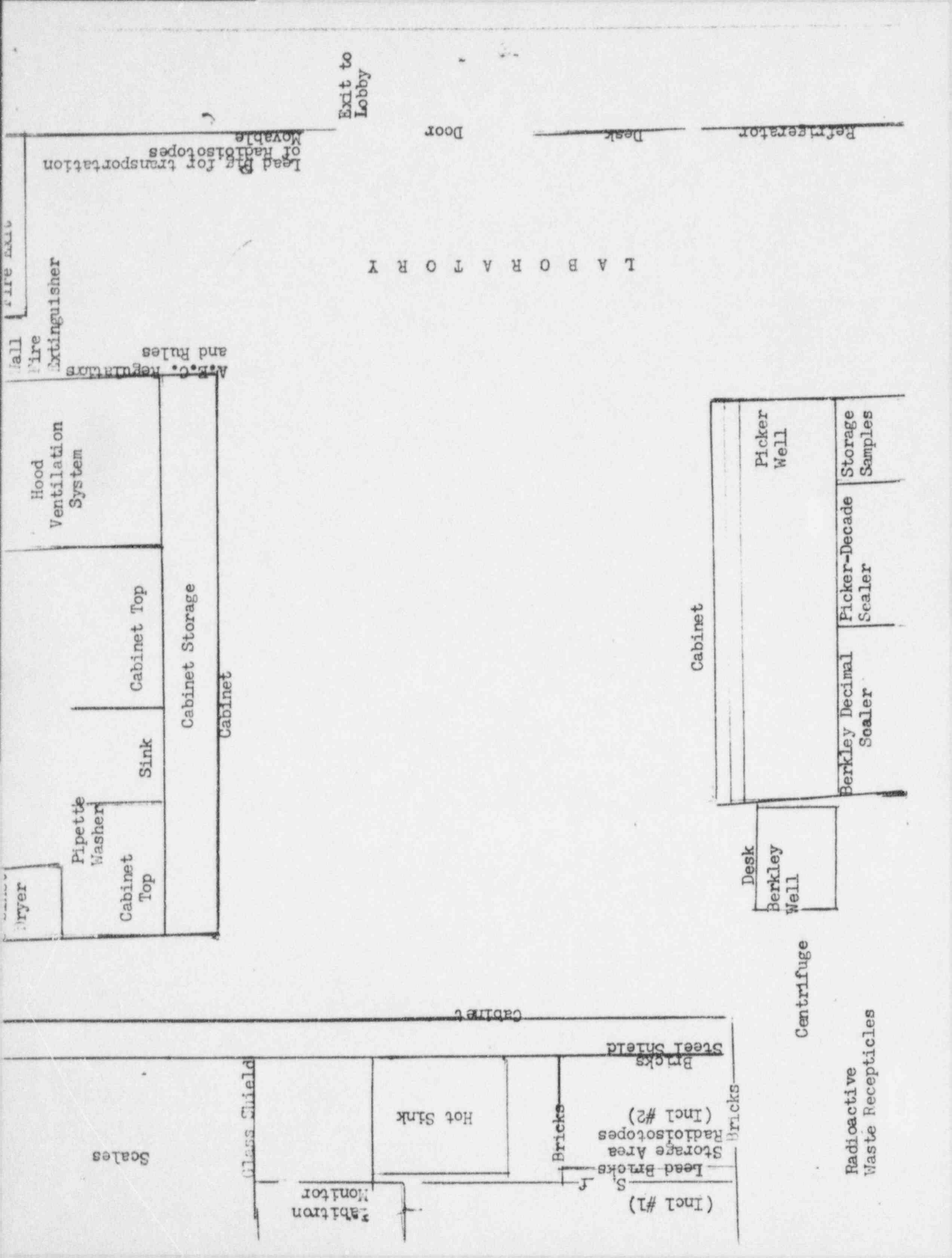
6. Dishes, glassware, books, radios, etc. can be removed from the room without monitoring except where evidence of leakage has occurred in intracavitary therapy cases.
7. No precautions with excreta.
8. Any linen or dressings used by patient must be kept in the room until monitored and disposed of by personnel of the Radioisotope Section.
9. If any leakage occurs, notify the Radioisotope Section (Ext. 22133).
10. It is of utmost importance that patient be moved as instructed by physician.
11. Pregnant personnel should not give direct nursing care to the patient during period of isolation.

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FLOOR PLAN:  
RADIOISOTOPE CLINIC  
FITZSIMONS GENERAL HOSPITAL  
DENVER 40, COLORADO





Inclosure #1.

EQUIPMENT FOR HANDLING RADIOISOTOPES

1. Remote pipetting device (Tracerlab)
2. Two (2) long handle tongs.  
Two (2) long handle mechanical finger tongs.  
Two (2) bottle cap removing devices. (Saf-turn-Abbott).
3. Gloves

Inclosure #2.

DESCRIPTION OF RADIOISOTOPE STORAGE AREA

1. Radioisotopes are stored in a space 12 x 16 inches and 8 inches depth.
2. This area is completely surrounded with two thicknesses of lead bricks. The thickness measures a total of four (4) inches.
3. Outside of this area there is a double thickness of steel shielding which surrounds three sides of the area.
4. A special lead well for storage of high activity isotopes is enclosed in this area.
5. All radioisotopes are stored in lead containers in designated areas of the enclosed storage area.

**APPLICATION FOR BYPRODUCT MATERIAL LICENSE**  
**SUPPLEMENT A—HUMAN USE**

This page may be completed by the physician's preceptor (if any) in the medical use of radioisotopes. When the information is not furnished by the preceptor, the name and present address of the preceptor (if any) should be shown in item 12 below.

9. (a) USING PHYSICIAN'S NAME

PAUL E. SIEBERT, Major MC  
Fitzsimons General Hospital

(b) NAME AND ADDRESS OF APPLICANT (If different from 9(a))

Denver 40, Colorado

10. CLINICAL TRAINING AND EXPERIENCE OF PHYSICIAN WHO WILL USE BYPRODUCT MATERIAL

(A) ISOTOPE	(B) CONDITION(S) DIAGNOSED OR TREATED	(C) NUMBER OF CASES	(D) TYPE OF PARTICIPATION FOR ALL CASES IN COLUMN D (circle applicable num- bers of items in accordance with key set forth below)
I-131	Diagnosis of thyroid function		1 2 3 4
	Treatment of hyperthyroidism		1 2 3 4
	Treatment of thyroid cancer		1 2 3 4
	Treatment of cardiac conditions		1 2 3 4
	Brain tumor localization		1 2 3 4
	Blood determinations		1 2 3 4
	Others:		1 2 3 4
P-32 Soluble	Treatment of polycythemia and leukemia		1 2 3 4
	Brain tumor localization		1 2 3 4
	Treatment of bone metastases		1 2 3 4
	Others:		1 2 3 4
P-32 CrPO <sub>4</sub>	Treatment of prostatic cancer		1 2 3 4
	Treatment of cervical cancer		1 2 3 4
	Treatment of pleural effusions and/or ascites		1 2 3 4
	Others:		1 2 3 4
Au-198 Colloid	Treatment of prostatic cancer		1 2 3 4
	Treatment of cervical cancer		1 2 3 4
	Treatment of pleural effusions and/or ascites		1 2 3 4
	Others:		1 2 3 4
Cr-51	Blood determinations		1 2 3 4
	Others:		1 2 3 4
			1 2 3 4
Other Isotopes	Strontium 90	100	1 2 3 4
			1 2 3 4
			1 2 3 4

Key to above numbers (column D)

Active Participation and Discussion

1. Examination of patients to determine suitability for radioisotope diagnosis and/or treatment and recommendations on dosage to be prescribed.
2. Collaboration in calibration and administration of dosages including related measurements and plotting of data.
3. Active period of training and experience of sufficient duration to permit followup of patients through treatment and posttreatment period including reevaluation as to effectiveness and complications.
4. Study and discussion of case histories to establish most efficacious diagnostic and/or therapeutic techniques for this radioisotope use.

11. TOTAL NUMBER OF HOURS OF PARTICIPATION IN CLINICAL TRAINING 10 hours

12. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OR GUIDANCE OF

Col. John A. Isherwood, MC AT Brooke General Hospital, Fort Sam Houston, Texas

(Name of physician (preceptor))

(Institution)

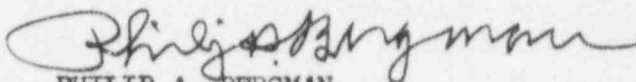
(Signature)

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APPLICATION FOR BYPRODUCT MATERIAL LICENSE  
SUPPLEMENT A—HUMAN USE

This page may be used for providing additional information.

Major Paul E. Siebert's training and experience has been reviewed by the Radioisotope committee and he has been approved as a user of radioisotopes.



PHILIP A. BERGMAN

Colonel MC

Chairman, Radioisotope Committee

**APPLICATION FOR BYPRODUCT MATERIAL LICENSE**  
**SUPPLEMENT A—HUMAN USE**

This page may be completed by the physician's preceptor (if any) in the medical use of radioisotopes. When the information is not furnished by the preceptor, the name and present address of the preceptor (if any) should be shown in item 12 below.

9. (a) USING PHYSICIAN'S NAME

Leon M. Dixon, Major, MC  
Fitzsimons General Hospital

(b) NAME AND ADDRESS OF APPLICANT (if different from 9(a))

Denver 40, Colorado

10. CLINICAL TRAINING AND EXPERIENCE OF PHYSICIAN WHO WILL USE BYPRODUCT MATERIAL

(A) ISOTOPE	(B) CONDITION(S) DIAGNOSED OR TREATED	(C) NUMBER OF CASES	(D) TYPE OF PARTICIPATION FOR ALL CASES IN COLUMN D (circle applicable num- bers of items in accordance with key set forth below)
I-131	Diagnosis of thyroid function	250	(1)(2)(3)(4)
	Treatment of hyperthyroidism	11	(1)(2)(3)(4)
	Treatment of thyroid cancer	3	(1)(2)(3)(4)
	Treatment of cardiac conditions	1	(1)(2)(3)(4)
	Brain tumor localization	0	1 2 3 4
	Blood determinations	6	(1)(2)(3)(4)
	Others: Renograms utilizing Hippuric Acid	8	(1)(2)(3)(4)
	Liver study utilizing Rose Bengal	8	(1)(2)(3)(4)
P-32 Soluble	Treatment of polycythemia and leukemia	2	(1)(2)(3)(4)
	Brain tumor localization	0	1 2 3 4
	Treatment of bone metastases	3	(1)(2)(3)(4)
	Others:	0	1 2 3 4
P-32 CrPO <sub>4</sub>	Treatment of prostatic cancer	2	(1)(2)(3)(4)
	Treatment of cervical cancer	2	(1)(2)(3)(4)
	Treatment of pleural effusions and/or ascites	2	(1)(2)(3)(4)
	Others:	0	1 2 3 4
Au-198 Colloid	Treatment of prostatic cancer	0	1 2 3 4
	Treatment of cervical cancer	3	(1)(2)(3)(4)
	Treatment of pleural effusions and/or ascites	2	(1)(2)(3)(4)
	Others:	0	1 2 3 4
Cr-51	Blood determinations	40	(1)(2)(3)(4)
	Others:	0	1 2 3 4
Other Isotopes	Co 60 Vitamin B 12 - Schilling Test	5	(1)(2)(3)(4)
	Intestinal Absorption - Oleic Acid, Triolein	10	(1)(2)(3)(4)
	Fe 59	3	(1)(2)(3)(4)

Key to above numbers (column D)

Active Participation and Discussion

1. Examination of patients to determine suitability for radioisotope diagnosis and/or treatment and recommendations on dosage to be prescribed.
2. Collaboration in calibration and administration of dosages including related measurements and plotting of data.
3. Active period of training and experience of sufficient duration to permit followup of patients through treatment and posttreatment period including reevaluation as to effectiveness and complications.
4. Study and discussion of case histories to establish most efficacious diagnostic and/or therapeutic techniques for this radioisotope use.

11. TOTAL NUMBER OF HOURS OF PARTICIPATION IN CLINICAL TRAINING 1320 hours

12. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OR GUIDANCE OF

Captain John Nagle, Chief, Radioisotope Section, Fitzsimons General Hospital,  
Denver 40, Colorado

(Name of physician (preceptor))

AT

(Institution)

(Signature)

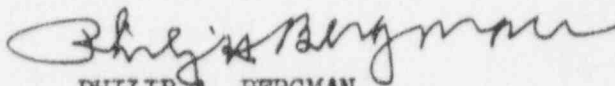


APPLICATION FOR BYPRODUCT MATERIAL LICENSE

SUPPLEMENT A--RENEWAL USE

This page may be used for providing additional information.

Major Leon M. Dixon's training and experience has been reviewed by the Radioisotope committee and he has been approved as a user of radioisotopes.



PHILIP A. BERGMAN

Colonel MC

Chairman, Radioisotope Committee

**APPLICATION FOR BYPRODUCT MATERIAL LICENSE**  
**SUPPLEMENT A—HUMAN USE**

This page may be completed by the physician's preceptor (if any) in the medical use of radioisotopes. When the information is not furnished by the preceptor, the name and present address of the preceptor (if any) should be shown in item 12 below.

9. (a) USING PHYSICIAN'S NAME

Gerald L. DeNardo, Major, MC  
Fitzsimons General Hospital

(b) NAME AND ADDRESS OF APPLICANT (If different from 9(a))

Denver 40, Colorado

10. CLINICAL TRAINING AND EXPERIENCE OF PHYSICIAN WHO WILL USE BYPRODUCT MATERIAL

(A) ISOTOPE	(B) CONDITION(S) DIAGNOSED OR TREATED	(C) NUMBER OF CASES	(D) TYPE OF PARTICIPATION FOR ALL CASES IN COLUMN D (circle applicable numbers of items in accordance with key set forth below)
I-131	Diagnosis of thyroid function	3000	(1) (2) (3) (4)
	Treatment of hyperthyroidism	60	(1) (2) (3) (4)
	Treatment of thyroid cancer	10	(1) (2) (3) (4)
	Treatment of cardiac conditions	4	(1) (2) (3) (4)
	Brain tumor localization	0	1 2 3 4
	Blood determinations	50	(1) (2) (3) (4)
	Others: Renograms (Hippuran)	250	(1) (2) (3) (4)
	Rose Bengal Liver Studies (over)	20	(1) (2) (3) (4)
P-32 Soluble	Treatment of polycythemia and leukemia	8	(1) (2) (3) (4)
	Brain tumor localization	0	1 2 3 4
	Treatment of bone metastases	15	(1) (2) (3) (4)
	Others:	0	1 2 3 4
P-32 CrPO <sub>4</sub>	Treatment of prostatic cancer	0	1 2 3 4
	Treatment of cervical cancer	0	1 2 3 4
	Treatment of pleural effusions and/or ascites	5	(1) (2) (3) (4)
	Others:	0	1 2 3 4
Au-198 Colloid	Treatment of prostatic cancer	0	1 2 3 4
	Treatment of cervical cancer	0	1 2 3 4
	Treatment of pleural effusions and/or ascites	5	(1) (2) (3) (4)
	Others:	100	(1) (2) (3) (4)
Cr-51	Blood determinations	150	(1) (2) (3) (4)
	Others: Placentogram	5	(1) (2) (3) (4)
	Spleen Scan	5	(1) (2) (3) (4)
Other Isotopes	Co 57, 60 B12 Schilling	75	(1) (2) (3) (4)
	Fe 59, Ferrokinetics	50	(1) (2) (3) (4)
	Hg 203 Neohydrin Renal Scan	70	(1) (2) (3) (4)

Key to above numbers (column D)

Active Participation and Discussion

1. Examination of patients to determine suitability for radioisotope diagnosis and/or treatment and recommendations on dosage to be prescribed.
2. Collaboration in calibration and administration of dosages including related measurements and plotting of data.
3. Active period of training and experience of sufficient duration to permit followup of patients through treatment and posttreatment period including reevaluation as to effectiveness and complications.
4. Study and discussion of case histories to establish most efficacious diagnostic and/or therapeutic techniques for this radioisotope use.

11. TOTAL NUMBER OF HOURS OF PARTICIPATION IN CLINICAL TRAINING 5000 hours and experience

12. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OR GUIDANCE OF  
 Captain Robert Abington, William Beaumont General Hospital, El Paso, Texas  
 Lt. Col. Harry Hurd, William Beaumont General Hospital, El Paso, Texas  
 Major Leon Dixon, AT Fitzsimons General Hospital, Denver 40, Colorado

(Name of physician (preceptor))

(Institution)

(Signature)

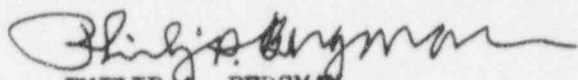
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

SUPPLEMENT A—HUMAN USE

This page may be used for providing additional information

I 131 Other Intestinal Absorption	500	(1)(2)(3)(4)
T3 Uptake	350	(1)(2)(3)(4)
Placentograms (Albumin)	30	(1)(2)(3)(4)
Polyvinylpyrrolidone	5	1 2 3 4

Major Gerald L. De Nardo's training and experience has been reviewed by the radioisotope committee and he has been approved as a user of radioisotopes.



PHILIP A. BERGMAN

Colonel MC

Chairman, Radioisotope Committee

CURRICULUM VITAE

Name and Position: Paul E. Siebert, Major MC  
Assistant Chief, Radiology Service  
Fitzsimons General Hospital  
Denver 40, Colorado

Education: Washington University, St. Louis Mo. AB 1948  
MD 1952

Internship: Valley Forge Army Hospital, Phoenixville Pa., 1952-1953.

Residency: Radiology, Brooke Army Hospital, Ft. Sam Houston, Texas,  
June 1954- 30 June 1957.

Experience: Basic Officers Course 801, MPSS, Ft. Sam Houston, Texas,  
1953-1954.

USCGSC Ass. O. Course, Ft. Leavenworth, Kansas, January -  
May 1961.

Assistant Chief, Radiology, Tripler Army Hospital, APO 438,  
San Francisco, August 1957 - January 1961

Chief, Radiology Service, Martin Army Hospital, Fort Benning,  
Georgia, June 1961 - August 1962.

Assistant Chief, Radiology Service, Fitzsimons General  
Hospital, Denver, Colorado, August 1962 to present.

Professional  
Memberships: Diplomate American Board of Radiology, May 1958  
Member Radiological Society of North America, Inc.  
Treasurer, San Antonio Military Radiological Society,  
1956-1957  
Vice President Radiological Society of Hawaii, 1960  
Member Society of Nuclear Medicine, Honolulu, Hawaii, 1960  
American Medical Association (Service)

Radioisotope  
Experience: Strontium<sup>90</sup> Applications (1956-1960) 100.

MEMBER, RADIOISOTOPE COMMITTEE, FITZSIMONS GENERAL HOSPITAL

Gerald L. DeNardo, Major, M. C., 082537  
Specialty - Internal Medicine  
Position - Chief, Radioisotope Section

University of Santa Clara, Santa Clara, Calif., 1950-1953  
University of California, Berkeley, Calif., 1953 - 1954, A.B. degree  
University of California, San Francisco, Calif., 1954-1957, M.D. degree  
Letterman General Hospital, San Francisco, Calif., 1957-1958, Internship  
William Beaumont General Hospital, El Paso, Texas 1958-1961, Residency,  
Internal Medicine.  
William Beaumont General Hospital, El Paso, Texas, September 1960-Sept.  
1961, Radioisotope Training (4 months full time, 8 months halftime).  
Fitzsimons General Hospital, Denver, Colorado., September 1961-present,  
Chief, Radioisotope Section, full time.

Full member, Society of Nuclear Medicine



CURRICULUM VITAE AND BIBLIOGRAPHY

Name and Position: Phillip A. Bergman, Colonel MC  
Chief, Department of Surgery  
Fitzsimons General Hospital  
Denver 40, Colorado

Education: Baylor University, Waco, Texas, Pre-Medical School  
University of Texas, Medical Branch, Galveston, Texas  
1930-1934, M. D. Degree

Service Schools and Postgraduate Courses:

Medical Field Service School, Carlisle, Pennsylvania,  
1941 (1 month)  
Command and General Staff Course, Educational Equi-  
valent, Fort Leavenworth, Kansas, 1947  
General Surgery Residency, Brooke General Hospital,  
Brooke Army Medical Center, 1946-1949  
Army Medical College, Walter Reed Army Medical Center,  
Washington, D. C. (Basic Science Course) 1948 (4 mos.)  
Walter Reed Army Institute of Research, Walter Reed  
Army Medical Center, Washington, D. C., Management  
of Mass Casualties, 1953  
Brooke Army Medical Center, Fort Sam Houston, Texas,  
Surgery in Acute Trauma, 1957  
Brooke Army Medical Center, Fort Sam Houston, Texas,  
Command and Staff Refresher Course, 1959

Internship: St. Paul's Hospital, Dallas, Texas, 1934-1935

Residency: St. Paul's Hospital, Dallas, Texas, 1935-1936

Experience: Assistant Surgeon, U. S. Public Health Service, Washington,  
DC, 17 Oct 38 to 13 Feb 40  
Surgical Service, Station Hospital, Fort Dix, New Jersey,  
14 Feb 40 to 5 Jun 41  
Adjutant, 64th Med Regt, Camp Bowie, Texas, 6 Jun 41 to Sep 42  
Commanding Officer, 69th Med Regt, Camp Maxey, Texas, 2 Oct 42  
to Sep 43  
Executive Officer, 69th Med Group, Camp Young, California  
and European Theater of Operations, 19 Oct 43 to Sep 44  
Commanding Officer, 69th Med Group, ETO, 26 Oct 44 to Sep 45  
Surgeon, Pers Center, Ft. Bragg, North Carolina, 18 Oct 45  
to Dec 45.  
Resident, General Surgery, Brooke General Hospital, BAMC,  
Ft. Sam Houston, Texas, 17 Jan 46 to Dec 46

Experience (Con't): Resident, General Surgery, Brooke General Hospital,  
 Ft. Sam Houston, Texas, 1 Jan 47 to Dec 47.  
 Trainee, AMC, Washington, D. C., Brooke General Hospital,  
 Ft. Sam Houston, Texas, 1 Jan 48 to Apr 48  
 Chief Resident, General Surgery, Brooke GH, 1 May 48  
 to Jan 49  
 Casual Officer, Enr EUCOM, 7 Feb 49 to Feb 49  
 Chief, Surgical Service, 385th Sta Hosp EUCOM, 3 Mar 49  
 to Jul 49  
 Chief, Surgical Service, 15th Evac Hosp EUCOM, 25 Aug 49  
 to Aug 51  
 Chief, Surgical Service, 16th Fld Hosp USAREUR, 1 Sep 51  
 to Aug 53  
 Casual Officer, Enr, CONUS, 7 Sep 53 to Sep 53  
 Chief, Department of Surgery 9954TU, A&NH Hot Springs,  
 Arkansas, 1 Oct 53 to May 55  
 Chief, Surgical Service, U. S. Army Hosp, Fort Jackson,  
 South Carolina, 24 Jun 55 to Jul 59  
 Chief, Department of Surgery, Fitzsimons General Hospital,  
 Denver 40, Colorado, 2 Sep 59 to present

Professional  
 Memberships:

American Medical Association  
 Alpha Epsilon Delta Pre-Medical Honorary Society  
 Gregg County Texas Medical Society  
 Fellow, American College of Surgeons  
 Diplomate of American Board of Surgery

Publications:

Conservative Management of Perforated Peptic Lesions -  
 U.S. Army Medical Bulletin - 1947  
  
 Vagotomy in the Treatment of Peptic Ulcer - The Military  
 Surgeon - 1948  
  
 Extensive Rectal Carcinoma with Pelvic Evisceration and  
 Ureteroileostomy - U.S. Armed Forces Medical Journal,  
 October 1955

## CURRICULUM VITAE AND BIBLIOGRAPHY

Name and Position: James A. Orbison, Colonel MC  
Chief, Department of Medicine  
Fitzsimons General Hospital  
Denver 40, Colorado

Education: University of Denver, 1932-1933  
University of Michigan, 1933-1940  
A.B. Degree 1937 (Combined Curriculum)  
M.D. Degree 1940

Internship: Harper Hospital, Detroit, Michigan, 1940-1941

Residency: Internal Medicine: Oliver General Hospital,  
Augusta, Georgia, 1947-1949  
Cardiovascular Disease: Walter Reed General Hospital,  
Washington, D. C., 1951-1952

Military Career: 1941-1943: Fitzsimons General Hospital, Medical Service  
1943 : Medical Field Service School, Carlisle, Penn.  
1943-1944; Station Hospital, Carlisle Barracks, Ward  
Officer, Medical Service  
1944-1945: Clearing Company Officer, 6th Infantry Division (Luzon)  
1945-1947: Division Surgeon, 6th Infantry Division (Luzon and Korea)  
1947-1949: Oliver General Hospital Residency, Internal Medicine  
1949-1950: Oliver General Hospital, Chief, Outpatient Svc.  
1950-1951: Walter Reed General Hospital, Asst. Chief, Cardiovascular Service  
1951-1952: Walter Reed General Hospital, Resident in Cardiology  
1952-1954: U. S. Army Hospital, Ft. Belvoir, Va.,  
1954-1957: U. S. Army Hospital, Nurnberg, Germany, Chief, Medical Service  
1957-1960: Madigan General Hospital, Chief, Cardiovascular Service  
1960-1961: Fitzsimons General Hospital, Chief, Department of Medicine  
1961-1962: Fitzsimons General Hospital, Chief, Cardiology Service  
1962-Date: Fitzsimons General Hospital, Chief, Department of Medicine  
1960-Date: Fifth Army Consultant in Cardiology and Internal Medicine

Professional  
Memberships:

Assistant Clinical Professor of Medicine, Medical College  
of Georgia, Augusta Georgia, 1949-1950  
Assistant Clinical Professor of Medicine, University of  
Colorado School of Medicine, 1960-date.

Fellow, American College of Physicians  
Senior Member, American Federation for Clinical Research  
Fellow, American Medical Association  
Fellow, American College of Cardiology  
Fellow, American Heart Association (Member of Council on  
Clinical Cardiology)  
Colorado Heart Association (Program Committee, Western  
Cardiac Conference, 1961-1962)

Publications:

Cardiac Tamponade Associated with the Administration of  
Dicumarol, (Co-Author) Circ. 1:1065, 1950  
Amoebic Brain Abscess, Medicine, 30:247, 1951 (Senior Author)  
An Epidemic of Rheumatic Fever in Japan and South Korea,  
Armed Forces Med. Journal 3:43, 1952 (Co-author)  
Acquired Arteriovenous Fistulas Complicated by Endoarteritis  
and Endocarditis Lenta Due to Streptococcus Fecalis, New  
England Journal Medicine 250:305, 1954 (Co-author)  
Clinical Experience with Sympathetic Blocking Agents in  
Peripheral Vascular Disease, Annals Int. Medicine 38:1245,  
1953 (Co-Author)  
The Use of the Newer Autonomic Blocking Agents in the Study  
and Treatment of Peripheral Vascular Disease, Proc. Am. Fed.  
for Clin. Research, 1952 (Co-Author)  
A Standard Test for Peripheral Vascular Disease Utilizing the  
Oscillometric Response to Exercise, Second World Congress  
of Cardiology, Abs. - Read by Title, P. 534 (Co-Author)  
Heart Disease and Pregnancy, Medical Bulletin of the U. S.  
Army Europe, 12:222, 1955  
Panhypopituitarism Following Epidemic Hemorrhagic Fever,  
Annals Int. Med. 43:1316, 1955.

CURRICULUM VITAE AND BIBLIOGRAPHY

Name and Position: Arthur Steer, Colonel MC  
Chief, Pathology Service  
Fitzsimons General Hospital  
Denver 40, Colorado

Education: Cornell University, Ithaca, N. Y. - A. B. Degree  
Washington University School of Medicine, St. Louis, Missouri,  
M. D. Degree.

Internship: Metropolitan Hospital, New York City, N. Y., 1932-1933.

Residency: Metropolitan Hospital, New York City, N. Y., 1933-1935,  
Obstetrics and Gynecology.

Experience: Private practice, 1935-1941  
Milbank Memorial Fund Research Fellowship, 1935-1938  
USPHS Research Fellowship, 1938-1941  
Served as Chief of Laboratory Service of various hospitals  
in U.S. and China Burma India (CBI) theater overseas from  
1941 to 1946  
Fitzsimons General Hospital, 1946-1950  
Japan, 1950-1953  
Walter Reed Institute of Research, 1953-1958  
Germany, 1958-1961  
Fitzsimons General Hospital, 1961-Present

Professional Memberships: American Medical Association  
Diplomate of the American Board of Pathology

Publications: Mc Dowell, M. E., Wolf, A. V., and Steer, A., Osmotic  
Volumes of Distribution; Idiogenic Changes in Osmotic  
Pressure Associated with Administration of Hypertonic  
Solutions, Am. J. of Physiology, 180:545-558  
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Steer, A., Hurlinghorst, R. L., and Mason, R. P., The  
Blood Program in the Korean War, Mil. Med., 117:415-426,  
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Steer, A., Casualty Estimates in Nuclear Warfare, Mil.  
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Levenson, S. M., Upjohn, H. L., Preston, J. A., and Steer, A.,  
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Steer, A., Lindberg, R. B., Wiener, L. A., and Hunter, D. H.,  
Serologic Diagnosis of Typhoid Fever in Previously Immunized  
Patient, Mil. Med. 125:822-827, Dec 60.



# CURRICULUM VITAE AND BIBLIOGRAPHY

Name and Position: Herbert F. Johnson, Captain MC  
Radiologist  
Fitzsimons General Hospital  
Denver 40, Colorado

Education: Duke University, 1950-1954 - A. B.  
Duke University School of Medicine, 1954-1958 - M.D.

Internship: Womack Army Hospital, Fort Bragg, N. C., 1958-1959

Residency: University of N. C. Memorial Hospital, Chapel Hill,  
N. C., 1959-1962.

Experience: Radiologist, Fitzsimons General Hospital, Denver 40, Colo.,  
1962-Present

Professional Memberships: American Medical Association (Service)

Publications: Radium Therapy Appliance. Journal of Prosthetic Dentistry,  
Nov., Dec., Vol. II, 1961

## Radioisotope Experience:

Test	Observed	Done Personally
I131 Uptake Studies	10	40
Blood Volume	3	6
R.C.M.	3	6
Circulation Times	2	8
Red Cell Survival (CR-54)	1	4
I131 Oleic and Lenoleic Fatty Acid Studies	5	20
Thyroid scan	5	30
Spleen Scan	3	2
Liver scan	3	8
Scan for metastatic thyroid to lungs	2	2
Renal Scan	8	20
Brain Scan	3	2
PBI131 Conversion Radio	2	0
I131, Thyroid disease - benign	5	10
P32, for polycythemia vera	1	2
P32, for control of serous exudates	2	4