Form AEC-313
(5-58)

ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved:
Budget Bureau No. 38-R027.4.

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
Third United States Army Medical Laboratory
and United States Army Hospital
Fort McPherson, Georgia 30330

(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. *(If different from 1 (a).)*

Rooms 20, 21, and 23, Building T-179

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

Medical Nuclear Science Section

3. PREVIOUS LICENSE NUMBER(S). *(If this is an application for renewal of a license, please indicate and give number.)*

Renew and Amend in its entirety 10-3997-3

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.)*

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.)*

See attached sheet.

(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.)*

See attached sheet.

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.)*

See Supplement A, Form AEC 313a.

Hydrogen 3- Radiation Research Corporation Foil for Barber Colman Model A-5120 Detector Cell and Packard Instruments Detector Cells (2), Model 807.
Hydrogen 3- Water for calibration of T-289 with T-329 tritium detector.
Strontium 90- Barber Colman Model A-4145 Detector Cell.
Cesium 137- Calibration of radiation analysis equipment.

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(Continued on reverse side)

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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	Users will be appointed by the Radioisotope Committee.		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

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/cm²)*	USE *(Monitoring, surveying, measuring)*
Unless otherwise noted, all instruments are products of Nuclear Chicago Instruments.					
Portable Survey Meter Model 2612M	1 ea	Beta-Gamma	0-20	N.A.	Survey of work areas
Portable Survey Meter Model 2650A	1 ea	Beta-Gamma	0-20	N. A.	Survey of work areas
Binary Scaler Model 183	1 ea	Beta-Gamma	N.A.	N. A.	Measurement
Model 183B	1 ea	Beta-Gamma	N.A.	N. A.	Measurement

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE.

Survey instruments are calibrated by the US Army Calibration Tean semi-annually. Other instruments as required by procedures.

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED. *(For film badges, specify method of calibrating and processing, or name of supplier.)*

US Army Film Badge Service, Lexington Army Depot.
Bioassay- US Army Environmental Health Agency, Edgewood Arsenal, Md.

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. S.O.P. - Radiological Safety Program inclosed.

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. S.O.P, para 3.

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.

Third US Army Medical Laboratory and US Army Hospital, Ft McPherson, Ga.

Applicant named in item 1

Date 4 November 1966

By: [signature]

CLARKE T. HARDING, JR., LTC, MC
Commanding Officer

Title of certifying official
Third USA Medical Laboratory

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 as to any matter within its jurisdiction.

U.S. GOVERNMENT PRINTING OFFICE : 1961 OF—615965

6. (a) Byproduct Material	(b) Chemical and/or Physical Form	Maximum No. of Millicuries
A. Iodine 131	A. Sodium Iodide	10
B. Iodine 131	B. Iodinated Human Serum Albumin	5
C. Iodine 131	C. Hippuran	2
D. Iodine 131	D. Rose Bengal	2
E. Iodine 131	E. Triolein and/or Oleic Acid	2
F. Iodine 131	F. Cholografin	2
G. Iodine 131	G. Triiodothyronine	1
H. Iodine 125	H. Iodide	1
I. Iodine 125	I. Iodinated Human Serum Albumin	1
J. Iodine 125	J. Hippuran	1
K. Chromium 51	K. Sodium Chromate	3
L. Chromium 51	L. Chromic Chloride	1
M. Cobalt 58	M. Vitamin B-12	10 uc
N. Cobalt 60	N. Vitamin B-12	10 uc
O. Gold 198	O. Colloidal	25
P. Iron 59	P. Ferric Chloride and/or Ferrous Citrate	1
Q. Mercury 203	Q. Chlormerodrin	10
R. Hydrogen 3	R. Water	25
S. Hydrogen 3	S. Radiation Research Corporation Foil	600
T. Hydrogen 3	T. Water for T-289,T-329 calibration	25 uc
U. Strontium 90	U. U. S. Radium Corporation Model LAB369 Sealed Source	20
V. Sodium 24	V. Sodium Chloride	1
W. Cesium 137	W. Sealed Sources	2
X. Any byproduct material Atomic Nos. 3-83, inclusive	X Any form	500 uc

10. Radiation Detection Instruments (Continued):

Fixed Monitor Model 1619A, 0-20 mr/hr, Beta-Gamma, monitor.
Pulse Height Analyzer Model 1810, 2 each, Gamma, analysis of unknowns.
1" Scintillation Probe DS5-2, 2 each, Gamma, measurement of uptake I^{131}.
2" Crystal Well Counter DS5-5, 1 each, Gamma, Analysis, of unknowns.
Nuclear Measurements Corporation Proportional Gas Flow Detector, 1 each, alpha, beta; differentiation between alpha and beta emissions.
T-289 with T-329 attachment, 1 each, Government Issue, Tritium detection.

13. Facilities and Equipment (Contd)

Room 20: Extraction & Planchet Preparation Laboratory.

Photo No.

1. Drying oven, balance and fixed monitor model 1619A.

2. Kewanee Hood with 75-100 cfm air flow at face and fixed monitor model 1619A.

3. Kewanee Hood and refrigerator. This refrigerator not to be used for storage of inflammable materials.

Room 21: Counting and Instruments Room.

4. T-289 with T-329 attachment for tritium detection.

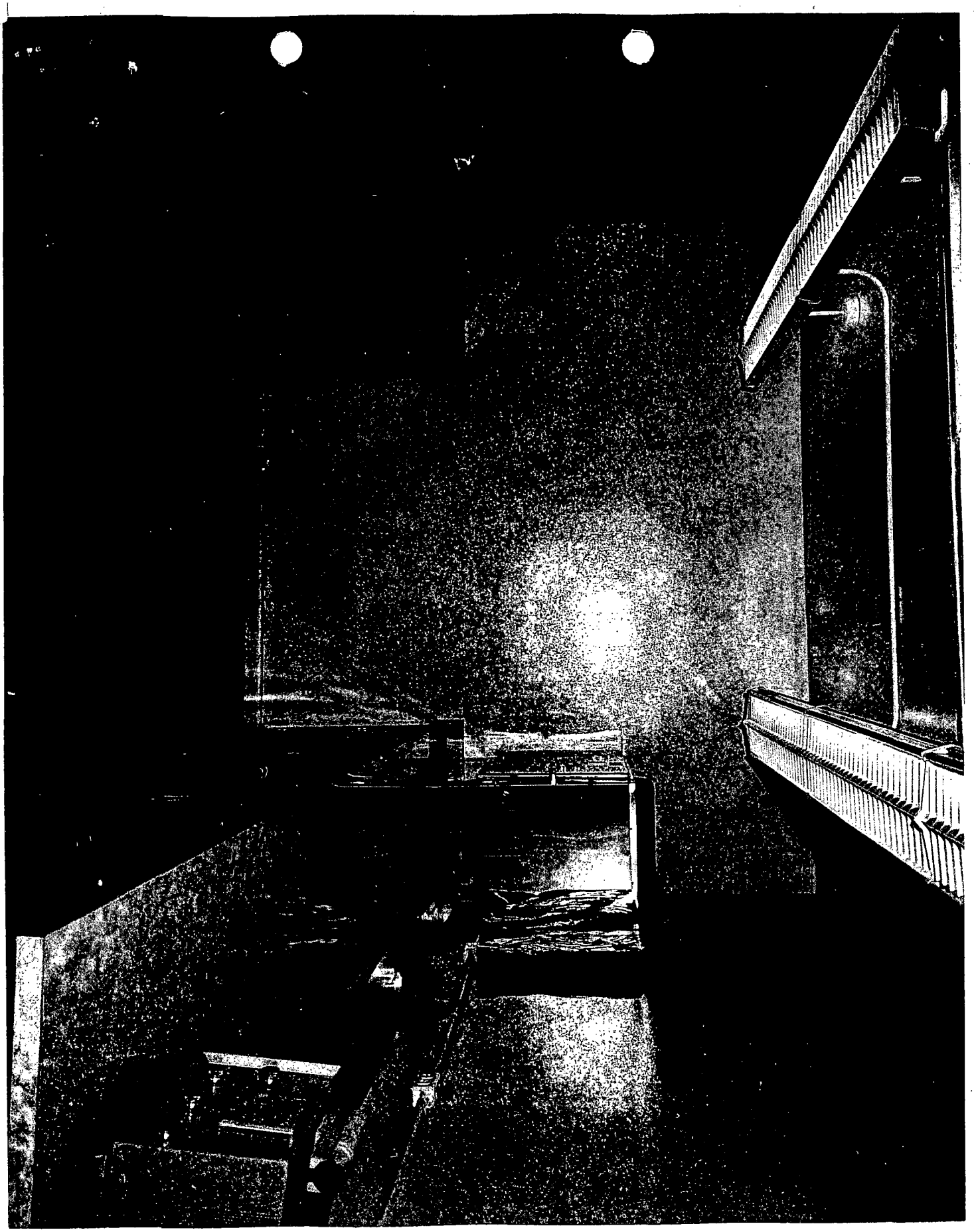
5. Pulse Height Analyzer Model 1810, Nuclear Measurements Corporation Proportional Gas Flow Detector, Binary Scaler Model 183.

Room 23: Radio Iodine Uptake Room.

6. Storage Safe, ¼" Plate steel, locked at all times. All material shielded with lead bricks. 1" DS5-2 Crystal Detector, 2" DS5-5 Well Counter.

7. Pulse Height Analyzer Model 1810 and Binary Scaler Model 183B in double cabinet with DS5-2 Crystal Detector. Patient examining table.

The walls and floors of all rooms have been treated with "Torginol." The table tops are of a non-porous material. This is to facilitate decontamination of a spill.



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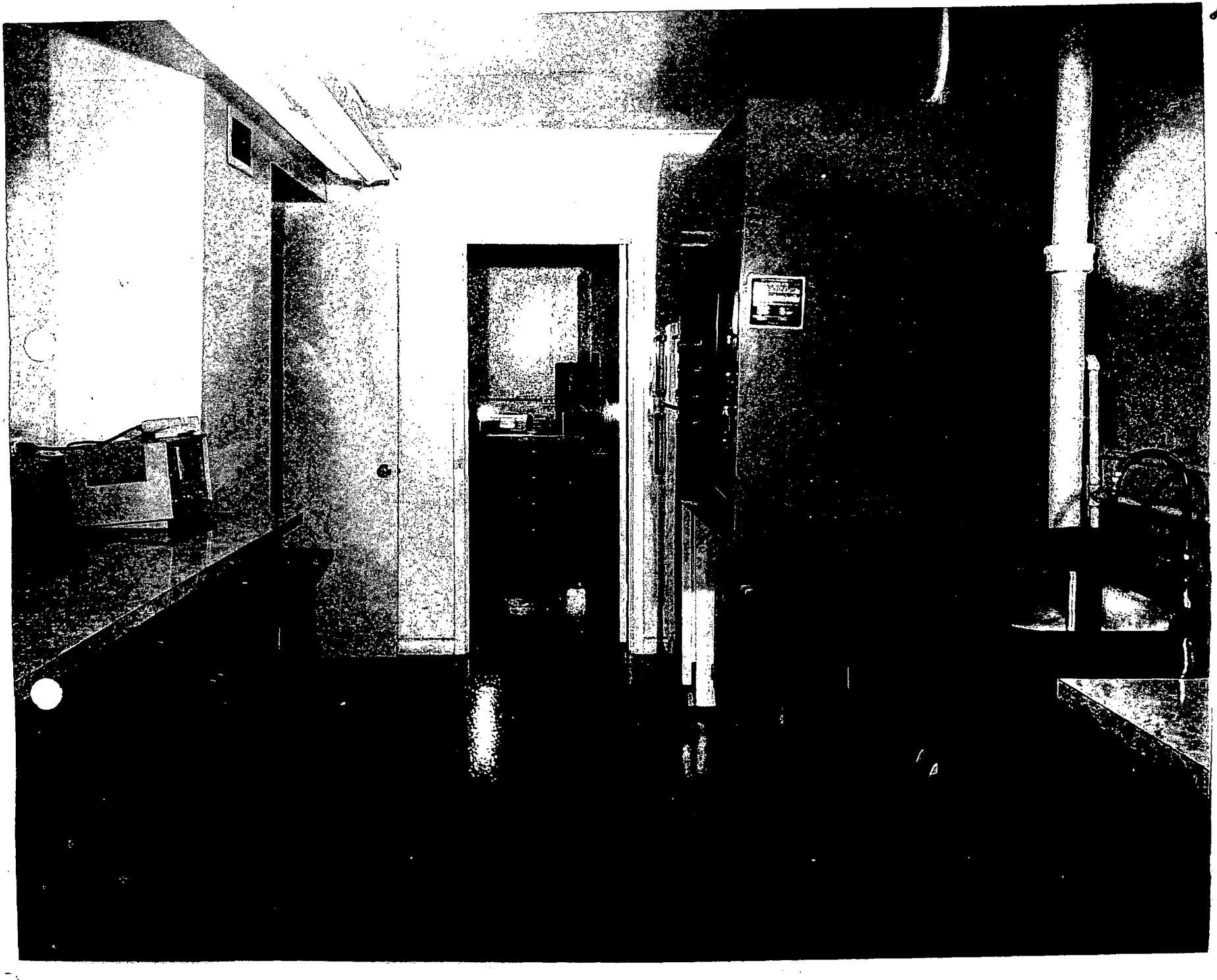

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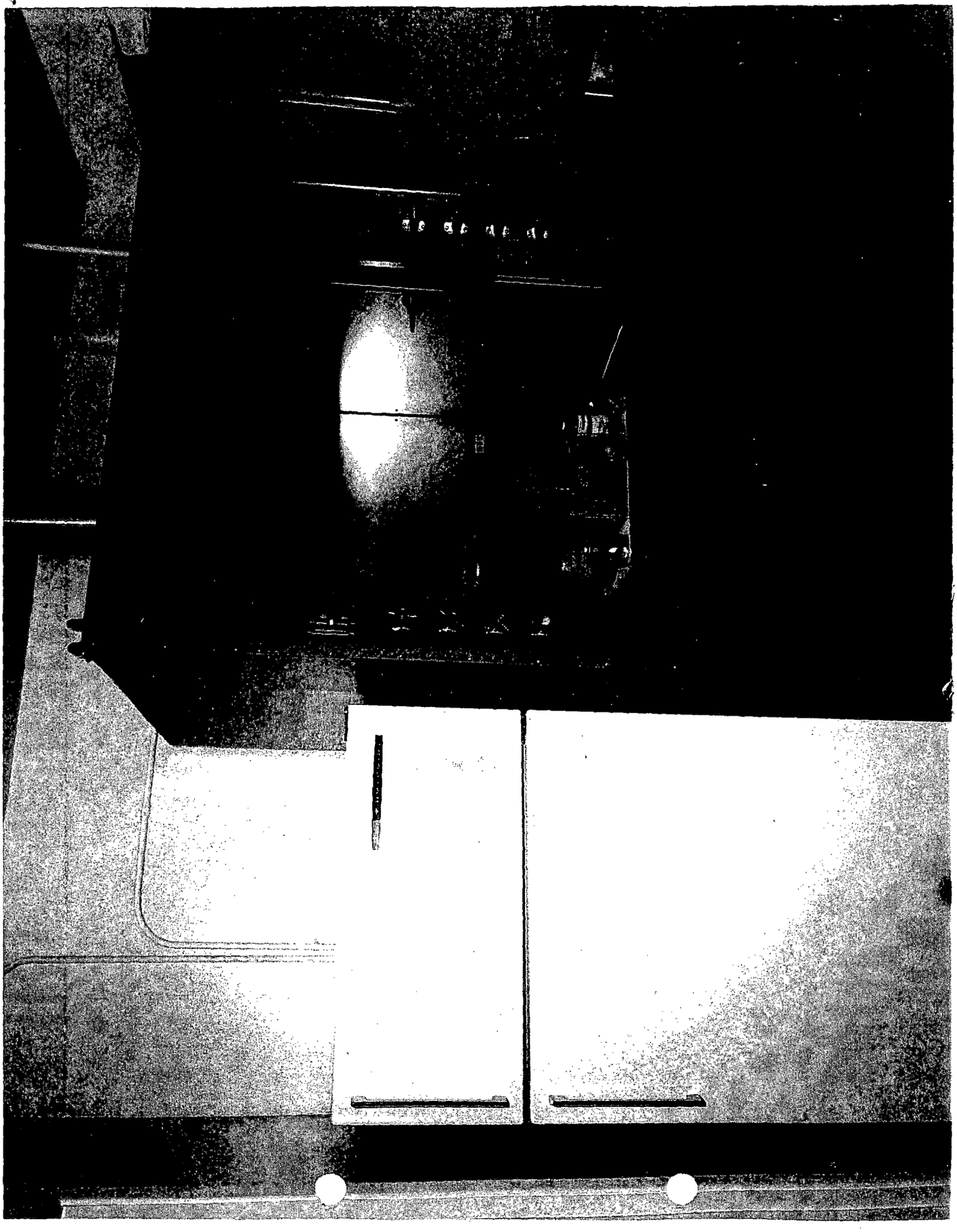

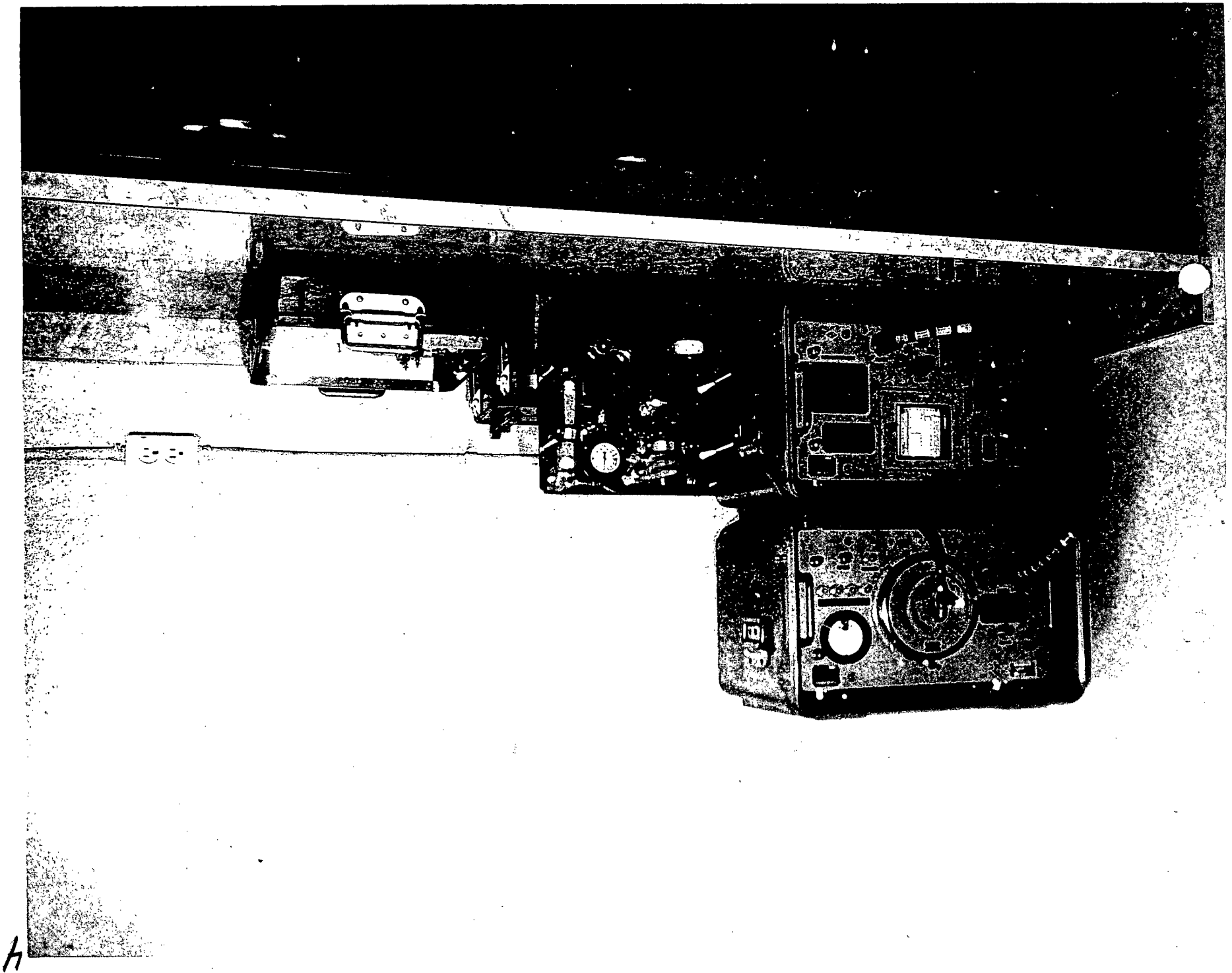

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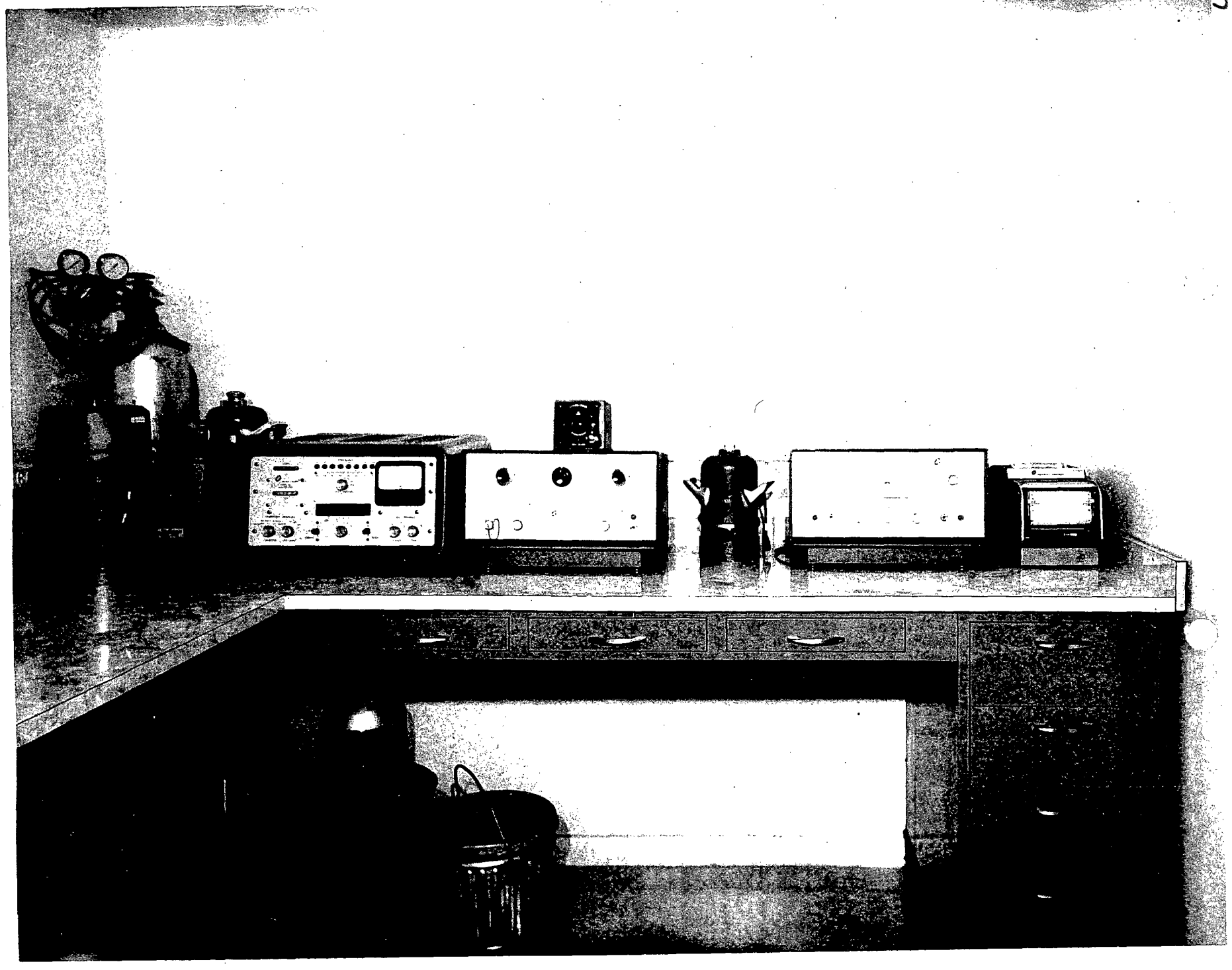

Form AEC-313 a
(10-61)
PAGE 1

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

SUPPLEMENT A—HUMAN USE

Form approved.
Budget Bureau No. 38-R080.1

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
Department of the Army
Third USA Medical Laboratory
& United States Army Hospital

(b) NAME AND ADDRESS OF APPLICANT (If different from 1(a))
Ft McPherson, Ga. 30330

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 — CIRCLE ANSWER: 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 — CIRCLE ANSWER: YES / NO

PROPOSED DIAGNOSIS OR TREATMENT

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): Sodium Iodide (131 and 125) thyroid uptake, thyroid scan, checking for metastases from thyroid carcinoma.
RISA (131 and 125) plasma volume, cardiac output. Localization of brain tumors.

(b) CHEMICAL FORM ADMINISTERED:

(c) DESCRIBE PROCEDURES WHICH WILL BE OBSERVED TO MINIMIZE HAZARD FROM HANDLING, STORAGE, AND DISPOSAL OF THE BYPRODUCT MATERIAL:
Radioactive materials are secured with a locked safe shielded with lead bricks surrounding the material.
Unused material will be held for a sufficient number of half lives and then disposed of according to S.O.P. paragraph 3.

(d) DESCRIPTION AND SKETCHES OF SPECIAL DEVICES TO BE USED FOR ADMINISTERING BYPRODUCT MATERIAL TO HUMAN BEINGS ARE
(1) ATTACHED (LITERATURE REFERENCES WILL SUFFICE): None — CIRCLE ANSWER: YES / NO
(2) ON FILE WITH THE ISOTOPES EXTENSION
REFER TO APPLICATION NO _____ — CIRCLE ANSWER: YES / NO

5. (a) PROPOSED DOSAGE SCHEDULE.—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):
Will be in accordance with Table I Appendix AR 40-37. The radioisotope committee will not approve dosage levels in excess of these published levels without prior approval of the Surgeon General.
I-131 Iodide: Thyroid uptake- 10-15 uc; thyroid scan- 30-100 uc; checking metastases, thyroid cancer- 250-500 uc.
RISA: Plasma volume- 5-10 uc; brain tumor localization- 200-250 uc; cardiac output- 20 uc.
Hippuran: Ranogram- 5-10 uc.

(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.)) — CIRCLE ANSWER: 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:
Material will be obtained precalibrated and sterilized.

7. THE PROPOSED USE OF BYPRODUCT MATERIAL HAS BEEN, OR WILL BE, APPROVED BY THE MEDICAL ISOTOPE COMMITTEE. — CIRCLE ANSWER: (YES) / NO

HOSPITAL FACILITIES FOR INDIVIDUAL PRACTICE USE ONLY Not applicable

8. (a) THE APPLICANT HAS COMPLETED ARRANGEMENTS FOR A HOSPITAL TO ADMIT RADIOACTIVE PATIENTS WHENEVER ADVISABLE. — CIRCLE ANSWER: 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. — CIRCLE ANSWER: YES / NO

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

SUPPLEMENT A—HUMAN USE

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

4. Proposed Diagnosis or Treatment (contd.) (a) and (b).
Hippuran (Iodine 131 and 125) renograms; Rose Bengal (Iodine 131) liver scan, liver function; Triolein and/or Oleic acid (Iodine 131) fat absorption; Cholografin (Iodine 131) gall bladder function; Sodium Chromate (Chromium 51) red cell mass, GI bleeding, red cell survival; Chromic chloride (Chromium 51) plasma volume; Cyanocobalamin (Vitamin B12, Cobalt 58, 60) diagnosis of pernicious anemia; Colloidal Gold (Gold 198) liver scan; Ferric Chloride (Iron 59) iron turnover study; Chlormerodon (Mercury 203) kidney scan. Tritiated Water (Hydrogen 3) total body water. Sodium Chloride (Sodium 24) total exchangeable sodium; Triiodothyronine (Iodine 131) in vitro RBC uptake.

5. Proposed Disage Schedule (Contd.)
Rose Bengal: Liver scan- 350-500 uc; liver function- 10-20 uc.
Oleic Acid: fat absorption- 25 uc.
Triolein: fat absorption- 25 uc.
Cholografin: gall bladder function- 25 uc.

I-125 Iodide: Thyroid uptake- 5-15 uc; thyroid scan- 20-80 uc.
RISA: plasma volume- 5-10 uc.
Hippuran: renogram- 2-4 uc.

Cr-51 Chromate: red cell mass- 25-35 uc; GI bleeding- 50-75 uc; red cell survival- 50-75 uc.
Chloride: plasma volume- 10 uc.

Co-57, 58 or 60 cyanocobalamin (B_{12}): Schilling Test- 0.5 uc.

Au-198 Colloidal- liver scan- 70-100 uc.

Iron-59 Chloride: Iron turnover study- 10-15 uc.
Citrate: iron turnover study- 10-15 uc.

Hg-203 Chlormerodrin: Kidney scan- 100-150 uc.

Na-24 Chloride: total exchangeable sodium- 50-100 uc.

I-131 Triiodothyronine: in vitro RBC uptake: 0.25-0.50 uc.

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UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

SUPPLEMENT A—HUMAN USE

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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	(b) NAME AND ADDRESS OF APPLICANT (If different from 9(a))
Radioisotope Committee Third USA Med Lab and USA Hospital, Ft McPherson, Ga.	Clarke T. Harding, Jr., LTC, MC, Commanding Officer, Third US Army Medical Laboratory Fort McPherson, Georgia 30330

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 B (circle applicable numbers of items in accordance with key set forth below)
I-131	Diagnosis of thyroid function	20	(1) (2) 3 (4)
	Treatment of hyperthyroidism	5	(1) ~~(2)~~ 3 (4)
	Treatment of thyroid cancer	10	(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
	Kidney function		1 2 3 4
	Others:		1 2 3 4
P-32 Soluble	Treatment of polycythemia and leukemia	2	(1) 2 3 (4)
	Brain tumor localization		1 2 3 4
	Treatment of bone metastases		1 2 3 4
	Others:		1 2 3 4
			1 2 3 4
P-32 $CrPO_4$	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
			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	10	(1) (2) 3 (4)
	Others:		1 2 3 4
			1 2 3 4
Cr-51	Blood determinations		1 2 3 4
	Others:		1 2 3 4
			1 2 3 4
Other Isotopes			1 2 3 4
			1 2 3 4
			1 2 3 4

Key to above numbers (column D)

Active Participation and Discussion in the:

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 50 hours

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

(Name of physician (preceptor))	Fitzsimons General Hospital (Institution)	(Signature)

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

SUPPLEMENT A—HUMAN USE

Form approved.
Budget Bureau No. 38-R080.1

This page may be used for providing additional information.

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