AEC-374
(7)

U.S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Part 30, Licensing of Byproduct Material, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, own, possess, transfer and import byproduct material listed below; and to use such byproduct material for the purpose(s) and at the place(s) designated below. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Name: Department of the Army 2. Address: Fitzsimons General Hospital and U.S. Army Medical Research and Nutrition Laboratory Denver, Colorado	8. License number 5-46-13 (A66) 4. Expiration date January 31, 1966 5. Reference No.

6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioactivity which licensee may possess at any one time
A. Iodine 131 B. Iodine 131 (See page 2)	A. Iodide B. Iodinated Human Serum Albumin	A. 250 millicuries B. 5 millicuries

9. Authorized use

A. Diagnosis of thyroid function and thyroid scanning. Treatment of hyperthyroidism, cardiac conditions and thyroid carcinoma.

B. Determination of plasma volumes and cardiac output. Cardiac scanning. Localization of brain tumors. Performance of placentograms.

(See page 2)

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.

11. The licensee shall comply with the provisions of Title 10, Part 20, Code of Federal Regulations, Chapter 1, "Standards For Protection Against Radiation."

12. Byproduct material shall be used by, or under the supervision of, individuals designated by the Fitzsimons General Hospital and U.S. Army Medical Research and Nutrition Laboratory Radioisotope Committee.

13. Byproduct material shall not be used in humans until its pharmaceutical quality and assay have been established.

14.A. Each sealed source containing byproduct material, other than Hydrogen 3, with a half-life greater than thirty days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed six months. In the absence of a certificate from a transferor indicating that a test has been made six months prior to the transfer, the sealed source shall not be put into use until tested.

(Continued)

A19

AEC-374
(7-57)

U.S. ATOMIC ENERGY COMMISSION
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1. Name: Department of the Army 2. Address: Fitzsimons General Hospital and U.S. Army Medical Research and Nutrition Laboratory Denver, Colorado	3. License number 5-46-13 (A66) 4. Expiration date January 31, 1966 5. Reference No.

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A. Iodine 131 B. Iodine 131 (See page 2)	A. Iodide B. Iodinated Human Serum Albumin	A. 250 millicuries B. 5 millicuries

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(Continued)

A19

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 5-46-13 (A66)

Continued

6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioactivity which licensee may possess at any one time
C. Iodine 131	C. Hippuran	C. 2 millicuries
D. Iodine 131	D. Rose Bengal	D. 2 millicuries
E. Iodine 131	E. Triolein and/or Oleic Acid	E. 2 millicuries
F. Iodine 131	F. Cholografin	F. 2 millicuries
G. Iodine 131	G. p-Toluidine polyvinylpyrrolidone	G. 2 millicuries
H. Iodine 131	H. Thyroxine	H. 2 millicuries
I. Iodine 125	I. Iodide	I. 1 millicurie
J. Iodine 125	J. Iodinated Human Serum Albumin	J. 1 millicurie
K. Iodine 125	K. Hippuran	K. 1 millicurie
L. Iodine 125	L. Rose Bengal	L. 1 millicurie
M. Iodine 125	M. Trolein and/or Oleic Acid	M. 1 millicurie
N. Iodine 125	N. Cholografin	N. 1 millicurie
O. Iodine 125	O. Thyroxine	O. 1 millicurie
P. Phosphorus 32	P. Soluble Phosphate	P. 25 millicuries
Q. Phosphorus 32	Q. Colloidal Chromic Phosphate	Q. 25 millicuries
R. Gold 198	R. Colloidal	R. 250 millicuries
S. Chromium 51	S. Sodium Chromate and/or Chromic Chloride	S. [illegible] millicuries
T. Cobalt 58	T. Vitamin B12	T. 10 microcuries
U. Cobalt 60	U. Vitamin B12	U. 10 microcuries
V. Iron 59	V. Ferric Chloride and/or Ferrous Citrate	V. 1 millicurie
W. Mercury 197	W. Chlormerodrin	W. 10 millicuries
X. Mercury 203	X. Chlormerodrin	X. 10 millicuries
Y. Hydrogen 3	Y. Water	Y. 25 millicuries
Z. Sodium 24	Z. Sodium Chloride	Z. 1 millicurie
AA. Selenium 75	AA. Selenomethionine	AA. 10 millicuries
BB. Xenon 133	BB. Gas	BB. 2 curies
CC. Strontium 85	CC. Strontium Nitrate	CC. 1 millicurie
DD. Strontium 90	DD. Tracerlab Model RA-1 Sealed Medical Applicator	DD. 25 millicuries
EE. Any Byproduct material with Atomic Nos. 1-83, inclusive	EE. Any	EE. 500 millicuries of each except Hydrogen 3 - 5 curies. Total not to exceed 10 curies

9. Authorized use continued

C. Determination of renal function.
D. Determination of liver function. Liver scanning.
E. Determination of fat absorption.
F. Determination of liver and gallbladder function.
G. Determination of protein loss. Brain scanning.
H. Determination of thyroxine turnover.
I. Diagnosis of thyroid function and thyroid scanning.
J. Determination of plasma volumes.
K. Determination of renal function.
L. Determination of liver function.
M. Determination of fat absorption.
N. Determination of liver and gallbladder function.
O. Determination of thyroxine turnover.
P. Treatment of polycythemia vera, leukemia, and bone metastases.
Q. Intracavitary treatment of malignant effusions.
R. Intracavitary treatment of malignant effusions. Insterstitial treatment of prostate carcinoma. Liver scanning.
S. Determination of red cell mass, red cell survival time, and gastrointestinal bleeding. Spleen scanning.
T. Diagnosis of pernicious anemia.
U. Diagnosis of pernicious anemia.
V. Determination of iron turnover.
W. Kidney and brain scanning.
X. Kidney and brain scanning.
Y. Determination of total body water.
Z. Determination of total exchangeable sodium.
AA. Pancreatic scanning.
BB. Determination of pulmonary function.
CC. Bone scanning.
DD. Treatment of superficial eye conditions.
EE. Laboratory research in vitro and in lower animals.

Condition 14 continued

14.B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.

(See page 4)

Condition 14 continued

14.C. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Commission regulations. A report shall be filed within five days of the test with the Director, Division of Licensing and Regulation, U.S. Atomic Energy Commission, Washington 25, D. C., describing the equipment involved the test results and the corrective action taken. A copy of such report shall also be sent to the Director, Region IV, Division of Compliance, USAEC, P. O. Box 15266, Denver 15, Colorado.

15. Byproduct material designated in Items 6.EE., 7.EE., and 8.EE. shall not be used in humans.

16. Except as specifically provided otherwise by this license, the licensee shall possess and use byproduct material described in Items 6, 7 and 8 of this license in accordance with statements, representations and procedures contained in application dated December 6, 1963.

Date FEB 3 1964

For the U. S. Atomic Energy Commission
Original Signed by
Nathan Bazin
by Isotopes Branch
Division of Licensing and Regulation
Washington 25, D. C.

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