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Amendment No. 46

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93–438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	In accordance with application received August 20, 1984
1. Department of the Air Force USAF Medical Center, Keesler Keesler AFB, Mississippi 39534 2.	3. License number 23-01002-02 is amended in its entirety to read as follows:
	4. Expiration date July 31, 1990
	5. Docket or Reference No. 030-02260

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material listed in Groups I and II of Schedule A, Section 35.100 of 10 CFR 35	A. Any radio-pharmaceutical listed in Groups I and II of Schedule A, Section 35.100 of 10 CFR 35	A. As necessary for uses authorized in Subitem 9.A.
B. Any byproduct material listed in Group III of Schedule A, Section 35.100 of 10 CFR 35	B. Any form listed in Group III of Schedule A, Section 35.100 of 10 CFR 35	B. 2 curies of each byproduct material authorized in Subitem 6.B.
C. Any byproduct material listed in Group IV of Schedule A, Section 35.100 of 10 CFR 35	C. Any radio-pharmaceutical listed in Group IV of Schedule A, Section 35.100 of 10 CFR 35	C. As necessary for uses authorized in Subitem 9.C.

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6. BYPRODUCT, SOURCE, AND/OR SPECIAL NUCLEAR MATERIAL	7. CHEMICAL AND/OR PHYSICAL FORM	8. MAXIMUM AMOUNT THAT LICENSEE MAY POSSESS AT ANY ONE TIME UNDER THIS LICENSE
D. Any byproduct material listed in Group V of Schedule A, Section 35.100 of 10 CFR 35	D. Any radiopharmaceutical listed in Group V of Schedule A, Section 35.100 of 10 CFR 35	D. As necessary for uses authorized in Subitem 9.D.
E. Any byproduct material listed in Group VI of Schedule A, Section 35.100 of 10 CFR 31	E. Any sealed source listed in Group VI of Schedule A, Section 35.100	E. 1.5 curies total for all sources authorized in Subitem 6.E.
F. Any byproduct material listed in Section 31.11(a) of 10 CFR 31	F. Any	F. 3 millicuries of each byproduct material authorized in Subitem 6.F.
G. Cesium 137	G. Sealed source (New England Nuclear Corp. Model No. NER-402)	G. 100 millicuries
H. Nickel 63	H. Foil contained in Hewlett-Packard Model No. 18713A electron capture detector cell	H. 16 millicuries
I. Chromium 51	I. Any	I. 15 millicuries
J. Cerium 141	J. Any	J. 15 millicuries
K. Hydrogen 3	K. Any	K. 50 millicuries
L. Carbon 14	L. Any	L. 50 millicuries
M. Iodine 125	M. Any	M. 12 millicuries
N. Iodine 131	N. Any	N. 12 millicuries
O. Phosphorus 32	O. Any	O. 10 millicuries
P. Iron 59	P. Any	P. 10 millicuries
Q. Technetium 99m	Q. Any	Q. 100 millicuries

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6. BYPRODUCT, SOURCE, AND/OR SPECIAL NUCLEAR MATERIAL	7. CHEMICAL AND/OR PHYSICAL FORM	8. MAXIMUM AMOUNT THAT LICENSE MAY POSSESS AT ANY ONE TIME UNDER THIS LICENSE
R. Xenon 133	R. Gas or gas in solution that is the subject of an active (i.e., not withdrawn or terminated "New Drug Application" (NDA) approved by FDA or an active (i.e., not withdrawn terminated or on "clinical hold") "Notice of Claimed Investigational Exemption for a New Drug" (IND) that has been accepted by FDA	R. 400 millicuries
S. Strontium 90	S. Nuclear Associates, Inc. Ion Chamber Check Source (PTW-09)	S. 900 microcuries

9. Authorized use

A. Any diagnostic procedure listed in Group I and II of Schedule A, Section 35.100 of Title 10, Code of Federal Regulations.
B. Preparation and use of radiopharmaceuticals for any diagnostic procedure listed in Group III of Schedule A, Section 35.100 of Title 10, Code of Federal Regulations.
C. Any therapeutic procedure listed in Group IV of Schedule A, Section 35.100 of Title 10, Code of Federal Regulations.
D. Any therapeutic procedure listed in Group V of Schedule A, Section 35.100 of Title 10, Code of Federal Regulations.
E. Any procedure listed in Group VI of Schedule A, Section 35.100 of Title 10, Code of Federal Regulations.
F. *In vitro* studies.
G. Standard for instrument calibration.
H. For use in Hewlett-Packard Model No. 5730 gas chromatograph.
I. through Q. *In vitro* studies, research studies in laboratory animals.
R. Blood flow and pulmonary function studies.
S. Calibration of Ion Chambers.

CONDITIONS

10. Licensed material shall be used only at the USAF Medical Center and the Clinical Research Laboratory Building, Keesler Air Force Base.

11. The licensee shall comply with the provisions of Title 10, Chapter 1, Code of Federal Regulations, Part 19, "Notices, Instructions and Reports to Workers; Inspections" and Part 20, "Standards for Protection Against Radiation".

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CONDITIONS

12 A. Licensed material shall be used by, or under the supervision of, individuals designated by the USAF Medical Center Keesler Radiation Safety Committee.

B. The use of licensed material in or on humans shall be by a physician.

13. Sealed sources containing licensed material shall not be opened.

14. Patients containing iodine 131 for the treatment of thyroid carcinoma or patients containing therapeutic quantities of gold 198) shall remain hospitalized until the residual activity is 30 millicuries or less.

15. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), Title 10, Code of Federal Regulations, Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

16. Pursuant to Sections 20.106(b) and 20.302, 10 CFR 20, the licensee is authorized to dispose of Cerium 141 and Chromium 51 by incineration provided the gaseous effluent from incineration does not exceed the limits specified for air in Appendix B, Table II, 10 CFR 20. Ash residues may be disposed of as ordinary waste provided appropriate surveys pursuant to Section 20.201 are made to determine that concentrations of licensed material appearing in the ash residues do not exceed the concentrations (in terms of microcuries per gram) specified for water in Appendix B, Table II, 10 CFR 20.

17. A. Each sealed source containing licensed 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 within six months prior to the transfer, a sealed source received from another person shall not be put into use until tested.

CONDITIONS

17. continued

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.

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 (5) days of the test with the U. S. Nuclear Regulatory Commission, Region II, 101 Marietta Street, Suite 2900, Atlanta, Georgia 30323, describing the equipment involved, the test results, and the corrective action taken.

D. Tests for leakage and/or contamination shall be performed by licensee or by other persons specifically authorized by the Commission or an Agreement State to perform such services.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:

A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of ten (10) half-lives.

B. Prior to disposal as normal waste, radioactive waste shall be monitored to determine that its radioactivity cannot be distinguished from background with typical low-level laboratory survey instruments. All radiation labels will be removed or obliterated.

C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

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CONDITIONS

19. Except as specifically provided otherwise by this license, the licensee shall possess and use licensed material described in Items 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in ALARA Program included in letter dated May 27, 1981; and letters dated July 24, 1984, March 6, 1985 and July 5, 1985. The Nuclear Regulatory Commission's regulations shall govern the licensee's statements in applications or letters, unless the statements are more restrictive than the regulations.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

DATE July 26, 1985

BY Francis

Material Licensing Branch
Division of Fuel Cycle and
Material Safety
Washington, D. C. 20555

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