

**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, 36, 37, 39, 40, 70 and 71, 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 letter dated March 30, 2017	4. Expiration Date: October 31, 2022
1. The American University		3. License number: 08-08371-06 is amended in its entirety to read as follows:	5. Docket No.: 030-38560 Reference No.:
2. 4400 Massachusetts Avenue. NW Washington, DC 20016-8151			
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	9. Authorized use
A. Hydrogen-3	A. Any	A. 10 millicuries total	A. For research and development as defined in 10 CFR 30.4 and teaching and training of students
B. Carbon-14	B. Any	B. 10 millicuries total	B. For research and development as defined in 10 CFR 30.4 and teaching and training of students
C. Phosphorus-32	C. Any	C. 3 millicuries total	C. For research and development as defined in 10 CFR 30.4 and teaching and training of students
D. Phosphorus-33	D. Any	D. 3 millicuries total	D. For research and development as defined in 10 CFR 30.4 and teaching and training of students
E. Sulfur-35	E. Any	E. 3 millicuries total	E. For research and development as defined in 10 CFR 30.4 and teaching and training of students

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SUPPLEMENTARY SHEET**

License Number  
08-08371-06

Docket or Reference Number  
030-38560

Amendment No. 4

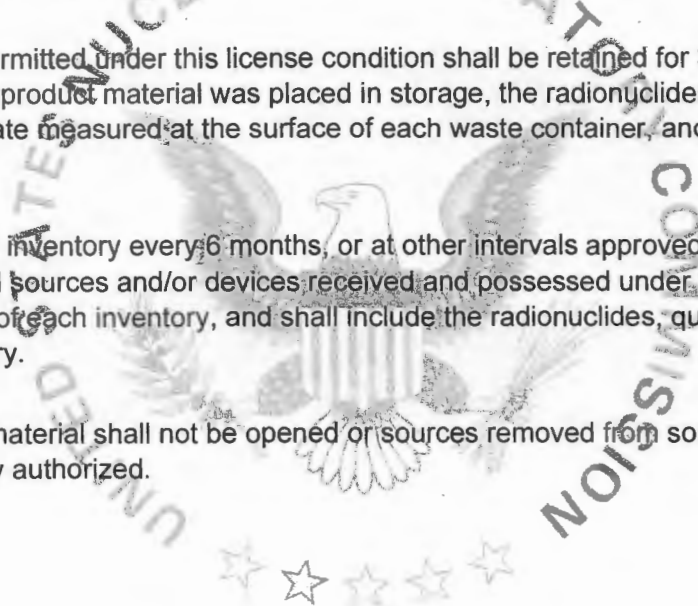
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|---|----------------------------------|--|---|
| 6. Byproduct, source, and/or special nuclear material | 7. Chemical and/or physical form | 8. Maximum amount that licensee may possess at any one time under this license | 9. Authorized use   |
| F. Iodine-125   | F. Non-volatile                  | F. 10 millicuries total  | F. For research and development as defined in 10 CFR 30.4 and teaching and training of students |
| G. Thorium-230  | G. Plated Sources                | G. 0.05 microcuries per source and 2 microcuries total                         | G. For calibration and checking of the licensee's instruments.                                  |

**CONDITIONS**

10. Licensed material may be used or stored at the licensee's facilities located at 4400 Massachusetts Avenue NW, Washington, D.C.
11. Licensed material shall only be used by, or under the supervision of Colin J. Saldanha, Ph.D., and John R. Bracht, Ph.D.
12. The Radiation Safety Officer (RSO) for this license is Leanne M. Wright.
13. The licensee shall not use the licensed material in or on humans.
14. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.
15. The licensee is authorized to hold radioactive material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash provided:

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- A. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated, except for radiation labels on materials that are within containers and that will be managed as biomedical waste after they have been released from the licensee.
- B. A record of each such disposal permitted under this license condition shall be retained for 3 years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
16. The licensee shall conduct a physical inventory every 6 months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all sealed sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 3 years from the date of each inventory, and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.
17. Sealed sources containing licensed material shall not be opened or sources removed from source holders or detached from source rods by the licensee, except as specifically authorized.
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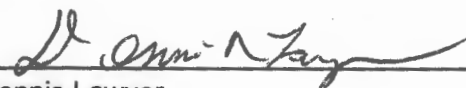
Amendment No. 4

18. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. This license condition applies only to those procedures that are required to be submitted in accordance with the regulations. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

- A. Application dated July 2, 2012, except Appendix D (ML12194A168)
- B. Letter dated August 31, 2012 (ML12262A047)
- C. Letter dated May 27, 2015, except enclosures (ML15177A118)



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: April 19, 2017By:   
Dennis Lawyer  
Region 1