

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, 39, 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.

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<p style="text-align: center;">Licensee</p> <p>1. Eastern Michigan University Department of Chemistry</p> <p>2. Jefferson Science Building, Room 225 Ypsilanti, MI 48197</p>	<p>In accordance with letter dated January 20, 2012,</p> <p>3. License number 21-06885-01 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date November 30, 2011</p> <hr/> <p>5. Docket No. 030-00818 Reference No.</p>
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<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. As specified in Section 33.100, Schedule A of 10 CFR 33</p> <p>B. Californium-252</p>	<p>7. Chemical and/or physical form</p> <p>A. Any</p> <p>B. Sealed source (U.S. DOE Model SR-CF-100 Series)</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. As specified in Section 33.11(b) 10 CFR 33 (Type B Broad License)</p> <p>B. 7 micrograms</p>
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9. Authorized Use:

A. and B. To be used for research and development as defined in 10 CFR Part 30, Section 30.4, excluding animal studies.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at the campus of Eastern Michigan University, Ypsilanti, Michigan.
11. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation safety Officer.
- B. Individuals designated to use licensed material for research and development shall, at a minimum, meet the training criteria established in 10 CFR Part 33, Section 33.15(b).
- C. The Radiation Safety Officer for the activities authorized by this license is **Steven Francoeur, Ph.D.**

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12. If only one radionuclide is possessed under Subitem 6.A., the possession limit is the quantity specified for that radionuclide in 10 CFR 33.100, Schedule A, Column 1. If two or more radionuclides are possessed under Subitem 6.A., the possession limit is determined as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in 10 CFR 33.100, Schedule A, Column 1, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.
- 13 A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.
- B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.
- C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- D. Sealed sources need not be leak tested if:
- (i) they contain only hydrogen-3; or
 - (ii) they contain only a radioactive gas; or
 - (iii) the half-life of the isotope is 30 days or less; or
 - (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
 - (v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.
- E. **The leak test shall be capable of detecting the presence of 0.005 microcurie (185 Becquerels) of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie (185 Becquerels) or more of removable contamination, a report shall be filed with the U. S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(c)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations.**
- F. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

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14. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
15. Licensed material shall not be used in or on human beings.
16. **The licensee is authorized to hold byproduct material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash provided:**
 - A. **Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate survey meter 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.**
 - B. **A record of each disposal permitted under this License Condition shall be retained for three 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 measured at the surface of each waste container, and the name of the individual who performed the disposal.**
17. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.
18. The licensee shall not use licensed material in field applications where activity is released.
19. The licensee shall conduct a physical inventory every six months to account for all sealed sources and devices containing licensed material received and possessed under the license.
20. Maintenance, repair, cleaning, replacement, and disposal of foils contained in detector cells shall be performed only by the device manufacturer or other persons specifically authorized by the Commission or an Agreement State to perform such services.
21.
 - A. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.
 - B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

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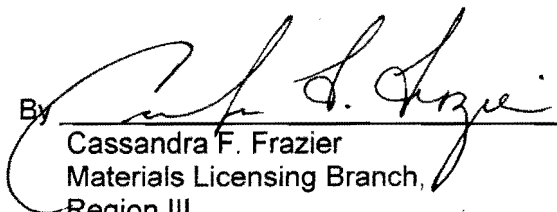
22. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

- A. Application dated September 16, 1996; and
- B. Letter dated May 2, 2012 (with attachments).

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date MAY 18 2012

By


Cassandra F. Frazier
Materials Licensing Branch,
Region III