

**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.

<p style="text-align: center;">Licensee</p> <p>1. University of Minnesota</p> <p>2. W-166 Boynton Health Service                  410 Church St. SE                  Minneapolis, MN 55455</p>	<p>In accordance with application dated  <b>January 24, 2013,</b></p> <hr/> <p>3. License number 22-00187-46 is <b>renewed</b> in its entirety to read as follows:</p> <hr/> <p>4. Expiration date <b>July 31, 2023</b></p> <hr/> <p>5. Docket No. 030-00842                  Reference No.</p>
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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
A. Americium-241	A. Sealed sources registered either with NRC under 10 CFR 32.210 or with an Agreement State and incorporated in a compatible gauging device as specified in Item 9 of this license	A. 11 millicuries
B. Hydrogen-3	B. Any	B. 10 millicuries
C. Carbon-14	C. Any	C. 10 millicuries
D. Phosphorus-32	D. Any	D. 10 millicuries
E. Phosphorus-33	E. Any	E. 10 millicuries
F. Sulfur-35	F. Any	F. 10 millicuries

9. Authorized Use:
- A. To be used in a Troxler Model No. 4302 portable gauging device for measuring properties of materials.
  - B. through F. Research and development as defined in 10 CFR 30.4.

CONDITIONS

- 10. A. Licensed material listed in Subitem 6.A. may be used at temporary job sites of the licensee anywhere in the United States where the U. S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License Number  
22-00187-46Docket or Reference Number  
030-00842**Amendment No. 60**

- B. Licensed material listed in Subitems 6.B. through 6.F. may be used for temporary use protocols on the following ships anywhere in the United States where the U. S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material in accordance with "Procedures for Radioisotope Use on Ships" (attachment to the letter dated July 10, 2013):
1. Research Vessel Lake Guardian
  2. Research Vessel Lake Explorer II
  3. Research Vessel Laurentian
  4. Research Vessel Blue Herron
11. The Radiation Safety Officer (RSO) for this license is Brian J. Vetter.
12. Licensed material shall be used by, or under the supervision of, individuals designated by the All-University Radiation Protection Committee.
13. A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed the intervals specified in the certificate of registration issued by NRC under 10 CFR 32.210 or by an Agreement State.
- B. In the absence of a certificate from a transferor indicating that a leak test has been made within the intervals specified in the certificate of registration issued by NRC under 10 CFR 32.210 or by an Agreement State prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- C. Sealed sources need not be tested if they 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 shall be stored for a period of more than ten years without being tested for leakage and/or contamination.
- D. 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.
- E. Tests for leakage and/or contamination shall be performed by persons specifically licensed by the Commission or an Agreement State to perform such services. In addition, the licensee is authorized to collect leak test samples but not perform the analysis: analysis of leak samples must be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.
- F. Records of leak tests results shall be kept in units of microcuries and shall be maintained for three years.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License Number  
22-00187-46Docket or Reference Number  
030-00842**Amendment No. 60**

14. The licensee shall conduct a physical inventory every six months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all sources and/or devices received and possessed under the license
15. Sealed sources or source rods containing licensed material shall not be opened or sources removed from source holders or sources detached from source rods or gauges by the licensee, except as specifically authorized.
16. Except for maintaining labeling as required by 10 CFR Part 20 or 71, the licensee shall obtain authorization from NRC before making any changes in the sealed source, device, or source-device combination that would alter the description or specifications as indicated in the respective Certificates of Registration issued either by the Commission pursuant to 10 CFR 32.210 or by an Agreement State.
17. Each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport. A minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal whenever the portable gauge is not under the control and constant surveillance of the licensee are required.
18. Any cleaning, maintenance, or repair of the gauges that requires detaching the source or source rod from the gauge shall be performed only by the manufacturer or other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
19. For radioactive material held for decay-in-storage other than that held in accordance with 10 CFR 35.92, 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:
  - 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.
  - 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, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
20. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
21. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

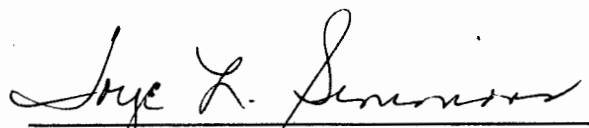
**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License Number  
22-00187-46Docket or Reference Number  
030-00842**Amendment No. 60**

22. Notwithstanding the requirements of License Condition 24, the licensee is authorized to make program changes and changes to procedures specifically identified in the application and letters referenced in Condition 24, which were previously approved by the Commission and incorporated into the license without prior Commission approval as long as:
- A. The proposed revision is documented, reviewed and approved by the licensee's All-University Radiation Protection Advisory Committee in accordance with established procedures prior to implementation;
  - B. The revised program is in accordance with regulatory requirements, will not change the license conditions, and will not decrease the effectiveness of the radiation safety program;
  - C. The licensee's staff is trained in the revised procedures prior to implementation; and
  - D. The licensee's audit program evaluates the effectiveness of the change and its implementation.
23. The licensee will adopt procedures for safe use of radionuclides and emergencies as published in accordance with NUREG 1556, Volume 11, Appendix R.
24. 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 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 January 24, 2013; and
  - B. Letters dated July 10, 2013, and July 16, 2013.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date JUL 22 2013

By



Toye L. Simmons  
Materials Licensing Branch  
Region III