

**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, 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><i>03620</i></p> <p>Licensee</p> <p>1. University of Minnesota ATTN: Radiation Safety Officer</p> <p>2. W168 Boynton Health Service 410 Church Street, S.E. Minneapolis, MN 55455</p>	<p><i>316437</i></p> <p>In accordance with the letter dated <b>July 23, 2007,</b></p> <p>3. License number 22-00187-46 is amended in its entirety to read as follows:</p> <p>4. Expiration date January 31, 2013</p> <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. Cesium-137   | D. Sealed source (registered pursuant to 10 CFR 32.210 or equivalent Agreement State regulations) | D. 20 millicuries  |
| B. Americium-241                                      | E. Sealed source (registered pursuant to 10 CFR 32.210 or equivalent Agreement State regulations) | E. 100 millicuries   |
| C. Hydrogen-3   | C. Any  | C. 10 millicuries  |
| D. Carbon-14  | D. Any  | D. 10 millicuries  |
| E. Phosphorus-32                                      | E. Any  | E. 10 millicuries  |
| F. Phosphorus-33                                      | F. Any  | F. 10 millicuries  |
| G. Sulfur-35  | G. Any  | G. 10 millicuries  |

## 9. Authorized Use:

A. and B. To be used in gauging devices which have been registered pursuant to 10 CFR 32.210 or equivalent Agreement State regulations.

C. through G. Research and development as defined in 10 CFR 30.4.

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CONDITIONS

10. A. Licensed material listed in Subitems 6.A. and 6.B. 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.
- B. Licensed material listed in Subitems 6.C. through 6.G. 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 March 22, 1999):
1. Research Vessel Lake Guardian
  2. Research Vessel Lake Explorer
  3. Research Vessel Laurentian
  4. Research Vessel Blue Herron
  5. Research Vessel Noodin
11. The Radiation Safety Officer for this license is **Brian J. Vetter**.
12. A. The use of licensed material in or on humans shall be by an authorized user as defined in 10 CFR 35.2.
- B. Individuals designated to work as authorized users, authorized nuclear pharmacists, or authorized medical physicists, as defined in 10 CFR 35.2, shall meet the training, experience, and recentness of training criteria established in 10 CFR Part 35, and shall be designated, in writing, by the licensee's All-University Radiation Protection Advisory Committee.
- C. Licensed material for other than human use shall be used by, or under the supervision of, individuals designated by the All-University Radiation Protection Advisory 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 10 years without being tested for leakage and/or contamination.

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- 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 3 years.
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 containing licensed material shall not be opened or sources removed from source holders by the licensee.
16. 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 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.
17. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
18. 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."
19. Notwithstanding the requirements of License Condition 27, the licensee is authorized to make program changes and changes to procedures specifically identified in the application and letters referenced in Condition 27, which were previously approved by the Commission and incorporated into the license without prior Commission approval as long as:

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- 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.
20. 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), 40.36 (b) and 70.25 (d) for establishing financial assurance for decommissioning.
20. 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. Additionally, this license condition does not limit the licensee's ability to make changes to the radiation protection program as provided for in 10 CFR 35.26. 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 February 20, 1992 (with attachments except Appendixes A., F., G., J., and K.); and
- B. Letters with attachments dated March 18, 1996, May 10, 1996, May 13, 1996, December 16, 1996, March 22, 1999 (excluding Item 2), May 27, 1999, March 13, 2000, June 21, 2002, December 16, 2002, May 15, 2003, September 11, 2003, November 24, 2004 (excluding Quality Management Program), January 11, 2005, January 10, 2006, February 16, 2006; and
- C. Facsimile dated January 6, 2005.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date OCT 18 2007

By

Toye L. Simmons  
Materials Licensing Branch  
Region III