

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 1. University of Minnesota 2. 501 23rd Avenue SE Minneapolis, MN 55455		In accordance with application dated November 16, 2021, 3. License No.: 22-00187-46 is amended in its entirety to read as follows:	4. Expiration Date: July 31, 2023 5. Docket No.: 030-00842 Reference No.:
6. Byproduct, source, and/or special nuclear material A. Americium-241/ Beryllium B. Americium-241/ Beryllium C. Hydrogen-3 D. Carbon-14	7. Chemical and/or physical form A. Sealed sources (AEA Technology Model, Model AMN.V997; Isotope Products Labs, Model AM1.NO2) B. Sealed sources (CPN, Model CPN-131) C. Any D. Any	8. Maximum amount that licensee may possess at any one time under this license A. 11 millicuries per source and 11 millicuries total B. 50 millicuries per source and 100 millicuries total C. 10 millicuries total D. 10 millicuries total	9. Authorized use A. For use in Troxler Model 4302 portable gauging devices for measuring physical properties of materials. B. For use in InstroTek Model 503 portable gauging devices for measuring physical properties of materials. C. For research and development as defined in 10 CFR 30.4. D. For research and development as defined in 10 CFR 30.4.

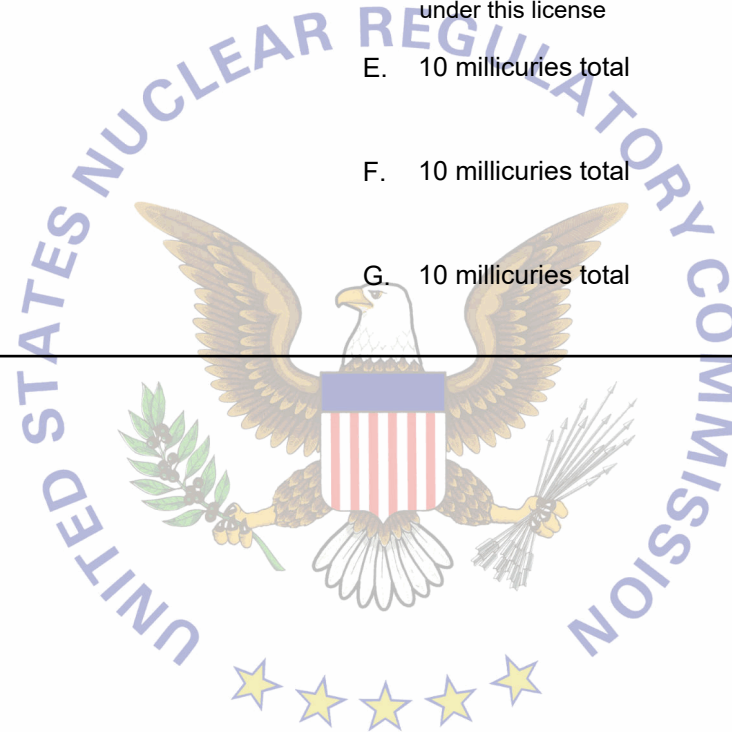
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6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license	9. Authorized use
E. Phosphorus-32	E. Any	E. 10 millicuries total	E. For research and development as defined in 10 CFR 30.4.
F. Phosphorus-33	F. Any	F. 10 millicuries total	F. For research and development as defined in 10 CFR 30.4.
G. Sulfur-35	G. Any	G. 10 millicuries total	G. For research and development as defined in 10 CFR 30.4.



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10. A. Licensed material listed in Items 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 Items 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 July 10, 2013 (ML13218A704)):
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 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 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 the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or by an Agreement State. In the absence of a registration certificate, sealed sources shall be tested for leakage and/or contamination at intervals not to exceed six months, or at such other intervals as specified.
- 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 the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or by an Agreement State, prior to the transfer, a sealed source received from another person shall not be put into use until tested and the test results received.

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- C. Sealed sources need not be tested if they contain only hydrogen-3; or they contain only a radioactive gas; or the half-life of the isotope is 30 days or less; or they contain not more than 100 microcuries of beta- and/or gamma-emitting material or not more than 10 microcuries of alpha-emitting material.
- D. 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.
- E. The leak test shall be capable of detecting the presence of 185 becquerels (0.005 microcuries) of radioactive material on the test sample. If the test reveals the presence of 185 becquerels (0.005 microcuries) 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. Analysis of leak test samples and/or contamination shall be performed by persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services. The licensee is authorized to collect leak test samples but not perform the analysis.
- G. Records of leak test results shall be kept in units of becquerels (microcuries) and shall be maintained for three 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 sealed 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.

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16. Except for maintaining labeling as required by 10 CFR Part 20, or Part 71, the licensee shall obtain authorization from the U.S. Nuclear Regulatory Commission 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 certificate of registration issued either by the U.S. Nuclear Regulatory 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 or storage, or when not under the direct surveillance of an authorized user.
18. Any cleaning, maintenance, or repair of the gauge(s) that requires detaching the source or source rod from the gauge shall be performed only by the manufacturer or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
19. 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, 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 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.

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20. Experimental animals, or the products from experimental animals, that have been administered licensed material shall not be used for human or animal consumption.
21. Notwithstanding the requirements of License Condition 24, the licensee is authorized to make program changes and changes to procedures specifically identified in the applications and letters listed in Condition 24, which were previously approved by the U.S. Nuclear Regulatory 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.
22. The licensee will adopt procedures for safe use of radionuclides and emergencies as published in accordance with NUREG 1556, Volume 11, Revision 1, Appendix K.
23. As provided for in 10 CFR 30.36(f), the licensee may extend the initiation of decommissioning required in 10 CFR 30.36(d) for lack of conducting principal activities, from February 9, 2022, through July 31, 2023 (expiration of this license), unless principal activities are resumed during that time, as described in letter dated November 16, 2021 (ML21321A034).

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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. This license condition applies only to those statements, representations, and 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 impose on the licensee requirements that are more restrictive than or in addition to the regulations.
- A. Application dated January 24, 2013 (ML13218B443)
 - B. Letter dated July 10, 2013 (ML13218A704)
 - C. Letter dated July 16, 2013 (ML13218A779)
 - D. November 16, 2021 re: extension of timeliness for decommissioning (ML21321A034)



FOR THE U. S. NUCLEAR REGULATORY COMMISSION

Date: February 9, 2022By: _____
Bryan A. Parker
Region III