U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 45

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. Ferris State University

2. Radiation Safety Office
200 Ferris Dr.
Big Rapids, MI 49307

In accordance with letter dated July 8, 2025,

3. License No.: 21-15237-01
is amended in its entirety to read as follows:

4. Expiration Date: September 30, 2025

5. Docket No.: 030-08783
Reference No.:

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. Barium-133	A. Sealed sources	A. 10 microcuries per source and 1 millicurie total	A. For use in student instruction and instrument calibration and reference.
B. Cadmium-109	B. Sealed sources	B. 10 microcuries per source and 1 millicurie total	B. For use in student instruction and instrument calibration and reference.
C. Manganese-54	C. Sealed sources	C. 10 microcuries per source and 1 millicurie total	C. For use in student instruction and instrument calibration and reference.
D. Cobalt-60	D. Sealed sources	D. 1 microcurie per source and 20 microcuries total	D. For use in student instruction and instrument calibration and reference.
E. Europium-152	E. Sealed sources	E. 1 microcurie per source and 20 microcuries total	E. For use in student instruction and instrument calibration and reference.
F. Iodine-129	F. Sealed sources	F. 0.1 microcuries per source and 10 microcuries total	F. For use in student instruction and instrument calibration and reference.
G. Cesium-137	G. Sealed sources	G. 10 microcuries per source and 1 millicurie total	G. For use in student instruction and instrument calibration and reference.

MATERIALS LICENSE SUPPLEMENTARY SHEET

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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
H. Sodium-22	H. Sealed sources	H. 10 microcuries per source and 1 millicurie total	H. For use in student instruction and instrument calibration and reference.
I. Cobalt-57	I. Sealed sources	I. 10 microcuries per source and 1 millicurie total	I. For use in student instruction and instrument calibration and reference.
J. Molybdenum-99/ Technetium-99m	J. Generators	J. 1 curie total	J. For use in student instruction and instrument calibration and reference.
K. Cesium-137	K. Sealed sources (Troxler Electronic Laboratories, Model Dwg. No. A-102112)	K. Two sources; 8 millicuries per source and 16 millicuries total	K. For use in Troxler Electronic Laboratories Model 3440 portable gauging devices for student instruction in measuring physical properties of materials.
L. Americium-241/ Beryllium	L. Sealed sources (Troxler Electronic Laboratories, Model Dwg. No. A-102451)	L. Two sources; 40 millicuries per source and 80 millicuries total	L. Same as in Item No. 9.K.
M. Cesium-137	M. Sealed sources (AEA Technology QSA, Inc., Model CDC.805; Isotope Product Laboratories, Model HEG-137)	M. 11 millicuries per source and 22 millicuries total	M. For use in InstroTek, Inc. Model 3500 portable gauging devices for student instruction in measuring physical properties of materials.
N. Americium-241/ Beryllium	N. Sealed sources (AEA Technology QSA, Inc., Model AMN.V997; Isotope Product Laboratories, Model AM1.NO2)	N. 44 millicuries per source and 88 millicuries total	N. Same as in Item No. 9.M.

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CONDITIONS

10. Licensed material may be used or stored at the licensee's facilities located at:

A. Ferris State University, 1020 E Maple St., Big Rapids, Michigan, 49307

B. Ferris State University, 151 Fountain St. NE, Grand Rapids, Michigan, 49503

Licensed material listed in Item Nos 6.K. through 6.N. may also be used at temporary job sites anywhere in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material, including areas of exclusive Federal jurisdiction within Agreement States. If the jurisdiction status of a Federal facility within an Agreement State is unknown, the licensee should contact the Federal agency controlling the job site in question to determine whether the proposed job site is an area of exclusive Federal jurisdiction. Authorization for use of radioactive materials at job sites in Agreement States not under exclusive Federal jurisdiction shall be obtained from the appropriate state regulatory agency.

11. The Radiation Safety Officer (RSO) for this license is Timothy Vander Lann, MPA, CNMT.

12. A. Licensed material shall only be used by, or under the supervision of:

Non-Medical Use	Material and Use
Timothy Vander Laan	Item Nos. 6.A. through 6.J. in student instruction and instrument calibration and reference

B. Licensed material listed in Items 6.K. through 6.N. shall be used by, or under the supervision and in the physical presence of David S. Faber or other individuals who have successfully completed one of the training courses described in the section entitled "Training for Individuals Working In or Frequenting Restricted Areas" in NUREG-1556, Vol. 1, Rev. 1, dated November 2001.

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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.

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. 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.

G. Records of leak test results shall be kept in units of becquerels (microcuries) and shall be maintained for three years.

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14. Sealed sources or source rods 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.

15. When performing tests at temporary job sites, the authorized user shall not leave the moisture/density gauge unattended. Upon completion of tests the device shall be locked in the licensee's vehicle or a secure building to prevent unauthorized use, loss, or theft.

16. 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.

17. 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.

18. 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. Records of inventories shall be maintained for three 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.

19. 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 by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

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20. A. If the licensee uses unshielded sealed sources extended more than three feet below the surface, the licensee shall use surface casing that extends from the lowest depth to 12 inches above the surface and other appropriate procedures to reduce the probability of the source or probe becoming lodged below the surface. If it is not feasible to extend the casing 12 inches above the surface, the licensee shall implement procedures to ensure that the cased hole is free of obstruction before making measurements.

    B. If a sealed source or a probe containing sealed sources becomes lodged below the surface and it becomes apparent that efforts to recover the sealed source or probe may not be successful, the licensee shall notify the U. S. Nuclear Regulatory Commission and submit the report required by 10 CFR 30.50(b)(2) and (c). The licensee shall not abandon the sealed source or probe without obtaining the Commission's prior written consent.

21. The licensee shall develop, implement and maintain operating and emergency procedures that meets the criteria in the section entitled "Radiation Safety Program - Operating and Emergency Procedures" in NUREG-1556, Vol. 1, Rev. 1, dated November 2001.

22. 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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23. 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 March 19, 2015 (ML15086A533)
B. Letter dated January 27, 2009 (ML090440104)
C. Letter dated September 1, 2015 (ML15260A773)
D. Letter dated June 26, 2015 (ML18183A328)
E. Letter dated July 8, 2025 (ML25190A556)

FOR THE U. S. NUCLEAR REGULATORY COMMISSION

BRYAN PARKER

Digitally signed by BRYAN PARKER
Date: 2025.08.08 16:06:31 -04'00'

Date: August 8, 2025

By: _____

Bryan A. Parker
Region III