

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, 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. Ferris State University</p> <p>2. Radiation Safety Office 200 Ferris Drive Big Rapids, Michigan 49307-2740</p>	<p>In accordance with application dated March 19, 2015,</p> <p>3. License No. 21-15237-01 is renewed in its entirety to read as follows:</p> <hr/> <p>4. Expiration Date: September 30, 2025</p> <hr/> <p>5. Docket No. 030-08783 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. Barium-133	A. Sealed sources	A. Not to exceed 10 microcuries per source and 1 millicurie total
B. Cadmium-109	B. Sealed sources	B. Not to exceed 10 microcuries per source and 1 millicurie total
C. Manganese-54	C. Sealed sources	C. Not to exceed 10 microcuries per source and 1 millicurie total
D. Cobalt-60	D. Sealed sources	D. Not to exceed 1 microcurie per source and 20 microcuries total
E. Europium-152	E. Sealed sources	E. Not to exceed 1 microcurie per source and 20 microcuries total
F. Iodine-129	F. Sealed sources	F. Not to exceed 0.1 microcurie per source and 10 microcuries total
G. Cesium-137	G. Sealed sources	G. Not to exceed 10 microcuries per source and 1 millicurie total
H. Sodium-22	H. Sealed sources	H. Not to exceed 10 microcuries per source and 1 millicurie total
I. Cobalt-57	I. Sealed sources	I. Not to exceed 10 microcuries per source and 1 millicurie total

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| <p>6. Byproduct, source, and/or special nuclear material</p> <p>J. Molybdenum-99/
Technetium-99m</p> <p>K. Cesium-137</p> <p>L. Americium-241</p> | <p>7. Chemical and/or physical form</p> <p>J. Technetium 99m generators</p> <p>K. Sealed sources (Troxler
Dwg. No. A-102112)</p> <p>L. Sealed sources (Troxler
Dwg. No. A-102451)</p> | <p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>J. 1 curie</p> <p>K. Two sources not to exceed
8 millicuries per source</p> <p>L. Two sources not to exceed
40 millicuries per source</p> |
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9. Authorized Use:

- A. through J. To be used for student instruction and instrument calibration and reference.
- K. and L. To be used in Troxler Model 3440 gauging devices for student instruction in measuring moisture and density of construction materials.

CONDITIONS

10. A. Licensed material shall be used or stored only at the licensee's facilities located at the campus of Ferris State University, 200 Ferris Drive, Big Rapids, Michigan; 220 Ferris Drive, Big Rapids, Michigan; 1020 East Maple Street, Big Rapids, Michigan; and Ferris State University – Grand Rapids, 151 Fountain Street NE, Grand Rapids, Michigan.
- B. Licensed material listed in Subitems 6.K. and 6.L. may be used at temporary job sites of the licensee anywhere in the United States where the U. S. Nuclear Regulatory Commission (NRC) maintains jurisdiction for regulating the use of licensed material.
11. The Radiation Safety Officer (RSO) for this license is Brad McCormick.
12. A. Licensed material listed in Subitems 6.A. through 6.J. shall be used by, or under the supervision of Sheila MacEachron, Timothy Vander Laan, and Tracy L. Glentz.
- B. Licensed material listed in Subitems 6.K. through 6.L. shall be used by, or under the supervision and in the physical presence of Thomas C. Larabel 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 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 received from another person shall not be put into use until tested and the test results received.
- C. 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.
- 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 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 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 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 or detached from source rods or gauges by the licensee, except as specifically authorized.
15. 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.
16. 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."
17. 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.
18. 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.
19. The licensee shall conduct a physical inventory every six months, or at other intervals approved by NRC, to account for all sources and/or devices received and possessed under the license.
20. 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 Commission or an Agreement State to perform such services.
21.
 - 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.
22. 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.

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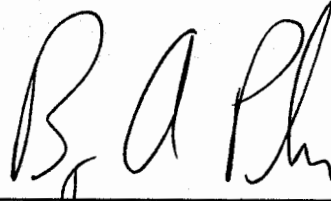
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23. The licensee is authorized to hold radioactive material with physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash provided:
- A. Before disposal as ordinary trash, the waste shall be surveyed 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 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.
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 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 March 19, 2015 (with attached cover letter dated March 26, 2015) (ML15086A533)
 - B. Letter dated January 27, 2009 (ML090440104)
 - C. Letter dated September 1, 2015 (ML15260A773)

FOR THE U. S. NUCLEAR REGULATORY COMMISSION



Date SEP 23 2015

By Bryan A. Parker
Materials Licensing Branch
Region III