

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 style="text-align: center;">Licensee</p> <p>1. Michigan Technological University Occupational Safety and Health Services</p> <p>2. 1400 Townsend Drive Houghton, Michigan 49931-1295</p>	<p>In accordance with letters dated May 15 and 21, and June 1, 2012,</p> <p>3. License No. 21-00278-02 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration Date: July 31, 2012</p> <hr/> <p>5. Docket No. 030-00810 Reference No.</p>
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<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Hydrogen-3</p> <p>B. Carbon-14</p> <p>C. Phosphorus-32</p> <p>D. Phosphorus-33</p> <p>E. Sulfur-35</p> <p>F. Cobalt-60</p> <p>G. Cesium-137</p> <p>H. Cesium-134</p> <p>I. Barium-133</p> <p>J. Nickel-63</p>	<p>7. Chemical and/or physical form</p> <p>A. Any</p> <p>B. Any</p> <p>C. Any</p> <p>D. Any</p> <p>E. Any</p> <p>F. Any</p> <p>G. Any</p> <p>H. Any</p> <p>I. Any</p> <p>J. Foils or plated sources registered either with NRC under 10 CFE 32.210 or with an Agreement State and incorporated in a compatible gas chromatograph as specified in Item 9 of this license</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. 30 millicuries</p> <p>B. 30 millicuries</p> <p>C. 25 millicuries</p> <p>D. 20 millicuries</p> <p>E. 15 millicuries</p> <p>F. 0.1 millicurie</p> <p>G. 0.1 millicuries</p> <p>H. 0.1 millicurie</p> <p>I. 1 millicurie</p> <p>J. No single source to exceed the maximum activity specified in the certificate of registration issued by the U. S. Nuclear Regulatory Commission or an Agreement State. Total possession limit of 150 millicuries.</p>
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9. Authorized Used:

A. through I. For laboratory research as defined in Section 30.4 of Title 10 Code of Federal Regulations Part 30.

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- J. To be used for sample analysis in compatible gas chromatography devices that have been registered with NRC either under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with an NRC or Agreement State specific license authorizing distribution to persons specifically authorized by an NRC or Agreement State license to receive, possess, and use the device.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at Michigan Technological University, Houghton, Michigan.
11. The Radiation Safety Officer (RSO) for the activities authorized by this license is Allen Niemi, Ph.D.
12. Licensed material listed in Item 6 above is authorized for use by the following individuals for the materials and uses indicated:

Gary P. Agin, Ph.D.	All
Donald A. Daavettila	All
John H. Adler, Ph.D.	Hydrogen-3, and Carbon-14
Donald R. Lueking, Ph.D.	Phosphorus-32, Hydrogen-3, Carbon-14, and Sulfur-35.
Pushpalatha P. Murthy, Ph.D.	Phosphorus-32, Hydrogen-3, and Carbon-14
David L. Perram	Licensed material listed in Item 7.J. in gas chromatograph
Allen Niemi, Ph.D.	Hydrogen-3 and Carbon-14
Noel R. Urban, Ph.D.	Phosphorus-32, Phosphorus-33, Hydrogen-3, Carbon-14 and Sulfur-35
Martin T. Auer, Ph.D.	Hydrogen-3, Carbon-14, and Phosphorus-33
Chandrashekhar P. Joshi, Ph.D.	Carbon-14, Hydrogen-3, Phosphorus-32, Phosphorus-33, and Sulfur-35
Chung-Jui Tsai, Ph.D.	Phosphorus-32, Phosphorus-33, Hydrogen-3, Carbon-14 and Sulfur-35
Ramakrishna Wusirika, Ph.D.	Phosphorus-32, Phosphorus-33, Hydrogen-3, Carbon-14 and Sulfur-35

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13. Licensed material shall not be used in or on human beings.
14. Detector cells containing licensed material shall not be opened or the sources removed from the detector cell by the licensee.
15. A. (1) The source(s) specified in Item 7.J. shall be tested for leakage and/or contamination at intervals not to exceed six months. Any source received from another person which is not accompanied by a certificate indicating that a test was performed within six months before the transfer shall not be put into use until tested.
- (2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.
- (3) Except for alpha sources, the periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage before any use or transfer to another person unless they have been leak tested within six months before the date of use or transfer.
- B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.
- C. 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 revealed 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.
- D. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
16. Sealed sources containing licensed material shall not be opened.

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17. 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 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.
18. Radioactive waste possessed under this license shall be stored in accordance with the statements, representations, and procedures included with the licensee's waste storage plan described in the licensee's letter dated August 18, 1994.
19. The licensee shall conduct a physical inventory every six months to account for all sources and/or devices received and possessed under the license.
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 35.35(d) for establishing decommissioning financial assurance.
21. 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 January 28, 2002;
 - B. Letters dated April 18, 2005, and July 12, 2005, September 22, 2005, December 20, 2005 (with attachments) and October 7, 2008 (with enclosure); and
 - C. Facsimile letter dated December 17, 2008 (with attached certificates of training).

FOR THE U. S. NUCLEAR REGULATORY COMMISSION

Date JUL 05 2012

By


Bryan A. Parke
Materials Licensing Branch
Region III