



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

August 10, 2006

Docket No. 03001125
Control No. 138035

License No. 45-10414-01

David F. Brakke, Ph.D.
Dean
James Madison University
College of Science and Mathematics
Harrisonburg, VA 22807

SUBJECT: JAMES MADISON UNIVERSITY, LICENSE AMENDMENT, CONTROL NO.
138035

Dear Dr. Brakke:

This refers to your license amendment request. Enclosed with this letter is the amended license. The facility at Miller Hall may be released for unrestricted use.

The Notice of Availability of Environmental Assessment and Finding of No Significant Impact for this action was published on August 3, 2006 in the Federal Register, Volume 71, Number 149. A copy of the Federal Register Notice is enclosed for your information.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5239, so that we can provide appropriate corrections and answers.

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Nuclear Materials; Medical, Academic, and Industrial Uses of Nuclear Material**; then **Toolkit Index Page**. Or you may obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-888-293-6498. The GPO is open from 7:00 a.m. to 8:00 p.m. EST, Monday through Friday (except Federal holidays).

Thank you for your cooperation.

Sincerely,

Original signed by Thomas K. Thompson

Thomas K. Thompson
Senior Health Physicist
Commercial and R&D Branch
Division of Nuclear Materials Safety

Enclosures:

1. Amendment No. 22

D. Brakke
James Madison University

2

2. Federal Register Notice / Vol. 71, No. 149

cc:
Heather K. Armstrong, Radiation Safety Officer

DOCUMENT NAME: G:\Docs\Mailed\Lic Cvr Letter\I45-10414-01.138035.08102006.wpd

SUNSI Review Complete: TThompson

After declaring this document "An Official Agency Record" it will be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	<input checked="" type="checkbox"/> N	DNMS/RI	<input type="checkbox"/>	DNMS/RI	<input type="checkbox"/>		<input type="checkbox"/>
NAME	TThompson/TKT							
DATE	8/10/2006							

OFFICIAL RECORD COPY

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, 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. James Madison University College of Science and Mathematics</p> <p>2. MSC 4501 Harrisonburg, Virginia 22807</p>	<p>In accordance with the letter dated November 28, 2005,</p> <p>3. License number 45-10414-01 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date July 31, 2012</p> <hr/> <p>5. Docket No. 030-01125 Reference No. SNM-1071(07000874)</p>
---	---

- | | | |
|---|---|--|
| <p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Any byproduct material with atomic numbers 1 through 83</p> <p>B. Any byproduct material with atomic numbers 1 through 83</p> <p>C. Cesium 137</p> <p>D. Americium 241</p> <p>E. Americium 241</p> <p>F. Plutonium 239</p> | <p>7. Chemical and/or physical form</p> <p>A. Any</p> <p>B. Radionuclides produced by thermal neutron activation</p> <p>C. Sealed Source (Monsanto Research Corporation Model 2760)</p> <p>D. Any</p> <p>E. Sealed Neutron Source (Monsanto Research Corporation Model 1286)</p> <p>F. Sealed Neutron Source (Monsanto Research Corporation Model MRCN-SS-W-PUBE-431)</p> | <p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. 20 millicuries per radionuclide and 500 millicuries total (See Condition No. 13)</p> <p>B. 20 millicuries per radionuclide and 500 millicuries total (See Condition No. 13)</p> <p>C. 40 millicuries</p> <p>D. 10 microcuries</p> <p>E. 1 curie</p> <p>F. 3.8 curies</p> |
|---|---|--|

9. Authorized use:

- A. through C. Research and development as defined in 10 CFR 30.4; animal studies; teaching and training of students; and calibration and checking of the licensee's instruments.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
45-10414-01Docket or Reference Number
030-01125

Amendment No. 22

- D. For preparation and testing of sealed sources with activity levels not to exceed 1 microcurie each and for use as fabricated sources to calibrate instruments (Note: these sources are for use only by authorized personnel of James Madison University and may be transferred only to authorized recipients).
- E. To be used in a paraffin filled howitzer; research and development as defined in 10 CFR 30.4; and the teaching and training of students.
- F. For use in a U.S. Nuclear Model NR-2 neutron howitzer for laboratory studies and the teaching and training of students.

CONDITIONS

10. Licensed material identified in Subitems 6.A. through 6.F. may be used or stored only at the licensee's facilities located on the campus of James Madison University, Harrisonburg, Virginia, as described in the application dated April 26, 1991, or the letter dated March 4, 2005.

11. The Radiation Safety Officer for this license is Heather K. Armstrong.

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

Authorized Users

Daniel M. Downey

C. Steven Whisnant, Ph.D.

Judith A. Wubah, Ph.D.

Kevin Giovanetti, Ph.D.

Art G. Fovargue

Kevin Simon, Ph.D.

Material

Subitems 6.A. through 6.C. and 6.E. and 6.F.

Subitems 6.A. through 6.E.

Phosphorus-32 and Phosphorus-33

Subitem 6.D. and 6.F.

Subitems 6.F.

Hydrogen-3

13. 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) and 70.25(d) for establishing decommissioning financial assurance.
14. The licensee shall not use licensed material in or on human beings except as provided otherwise by specific condition of this license.
15. The licensee shall not use licensed material in field applications where it is released except as provided otherwise by specific condition of this license.
16. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
45-10414-01Docket or Reference Number
030-01125

Amendment No. 22

17. When not under the direct surveillance of an authorized user, the licensee's U.S. Nuclear Model NR-2 neutron howitzer (See Subitem 6.F.) shall be secured against unauthorized use or removal.
18. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
19. 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. Records of inventories shall be maintained for 5 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.
20. A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed six months or at the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or under equivalent regulations of an Agreement State.
- B. Notwithstanding Paragraph A of this Condition, sealed sources designed to primarily emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.
- C. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.
- D. 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 under equivalent regulations of 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.
- E. 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.
- F. 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.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
45-10414-01Docket or Reference Number
030-01125

Amendment No. 22

- G. 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.
- H. Tests for leakage and/or contamination, limited to leak test sample collection, shall be performed by the licensee or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services. The licensee is not authorized to perform the analysis; analysis of leak test samples must be performed by persons specifically licensed by U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
- I. Records of leak test results shall be kept in units of microcuries and shall be maintained for 5 years.
21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
22. 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. Letter dated September 26, 1990 (ML021900411 and ML021900421)
B. Application dated April 26, 1991 (ML021900427)
C. Letter dated October 12, 2000 (ML003765656)
D. Application dated January 24, 2002 (ML020310479)
E. Letter dated January 31, 2005 (ML050410277)
F. Letter dated March 4, 2005 (ML051080133)

For the U.S. Nuclear Regulatory Commission

Date August 10, 2006

By

Original signed by Thomas K. ThompsonThomas K. Thompson
Commercial and R&D Branch
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406