



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

May 31, 2005

Docket No. 03001128  
Control No. 136646

License No. 45-13147-01

Christopher T. Hill, Ph.D.  
Vice Provost for Research  
George Mason University  
4400 University Drive  
Fairfax, VA 22030

SUBJECT: GEORGE MASON UNIVERSITY, LICENSE AMENDMENT, CONTROL NO.  
136646

Dear Dr. Hill:

This refers to your license amendment request. Enclosed with this letter is the amended license.

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.

An environmental assessment for this action is not required, since this action is categorically excluded under 10 CFR 51.22(c)(14).

Current NRC regulations and guidance are available at the NRC web site at <http://www.nrc.gov/materials/miau/mat-toolkits.html> and <http://www.nrc.gov/who-we-are/governing-laws.html> or by contacting the Government Printing Office (GPO) toll-free at 1-888-293-6498. The GPO is open from 7:00 a.m. to 9:00 p.m. EST, Monday through Friday (except Federal holidays).

C. Hill  
George Mason University

2

Thank you for your cooperation.

Sincerely,

***Original signed by Elizabeth Ullrich***

Elizabeth Ullrich  
Senior Health Physicist  
Commercial and R&D Branch  
Division of Nuclear Materials Safety

Enclosure:  
Amendment No. 38

cc:  
Diann Stedman, Radiation Safety Officer

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NAME	SHammann/STH2		EUlrich/EXU					
DATE	5/3/2005							

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**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. George Mason University Office of Vice Provost for Research</p> <p>2. 4400 University Drive Fairfax, Virginia 22030</p>	<p>In accordance with the letter dated March 2, 2005,</p> <p>3. License number 45-13147-01 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date January 31, 2006</p> <hr/> <p>5. Docket No. 030-01128 Reference No.</p>
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<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. As specified in Section 33.100, Schedule A of 10 CFR 33 any materials which have a half life equal to or less than 120 days (Type B Broad License)</p> <p>B. Carbon 14</p> <p>C. Hydrogen 3</p> <p>D. Iron 55</p> <p>E. Cesium 137</p> <p>F. 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>F. Sealed Source (New England Nuclear Model NES 356)</p> <p>H. Sealed Source (AEA Model Custom Plated, New England Nuclear Model Custom Plated)</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. See Condition 12</p> <p>B. 75 millicuries</p> <p>C. 75 millicuries</p> <p>D. 16 millicuries</p> <p>F. 2 millicuries per source and 8 millicuries total</p> <p>H. 15 millicuries per source and 90 millicuries total</p>
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9. Authorized use:

A. through E. Research and development as defined in 10 CFR 30.4.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License Number  
45-13147-01Docket or Reference Number  
030-01128

Amendment No. 38

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

**CONDITIONS**

10. Licensed material may be used or stored only at the licensee's facilities located at:
- A. George Mason University, 4400 University Drive, Fairfax, Virginia; and,
  - B. George Mason University, 10900 University Boulevard, Manassas, Virginia
11. A. Licensed material shall be used by or under the supervision of individuals designated, in writing, by the Radiation Safety Officer. The licensee shall maintain records of individuals designated as users for 3 years following the last use of licensed material by the individual.
- B. The Radiation Safety Officer for this license is Diann Stedman.
12. If only one radionuclide is possessed, the possession limit is the quantity specified for that radionuclide in 10 CFR 33.100, Schedule A, Column I. If two or more radionuclides are possessed, the possession limit is determined as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in 10 CFR 33.100, Schedule A, Column I, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.
13. The licensee shall not use licensed material in or on human beings except as provided otherwise by specific condition of this license.
14. The licensee shall not use licensed material in field applications where it is released except as provided otherwise by specific condition of this license.
15. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
16. 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 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.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License Number  
45-13147-01Docket or Reference Number  
030-01128

Amendment No. 38

- C. 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.
- D. 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.
- E. 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.
- F. 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.
- G. Tests for leakage and/or contamination, including leak test sample collection and analysis, 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.
- H. Records of leak test results shall be kept in units of microcuries and shall be maintained for 5 years.
17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
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 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.
19. 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 U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License Number  
45-13147-01Docket or Reference Number  
030-01128

Amendment No. 38

20. A. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.
- B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.
21. The licensee is authorized to hold byproduct material with a physical half-life of less than 120 days for decay-in-storage before disposal without regard to its radioactivity if it:
- A. Monitors byproduct material at the surface before disposal and determines that its radioactivity cannot be distinguished from the background radiation level with an appropriate radiation detection survey meter set on its most sensitive scale and with no interposed shielding; and
- B. Removes or obliterates all radiation labels, 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; and
- C. Maintains records of the disposal of licensed materials for 3 years. The record must include the date of disposal, the survey instrument used, the background radiation level, the radiation level measured at the surface of each waste container, and the name of the individual who performed the disposal.
22. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License Number  
45-13147-01Docket or Reference Number  
030-01128

Amendment No. 38

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. 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. Renewal application(revised) dated December 1, 1995
- B. Letter dated June 15, 2001 [ML01176538]
- C. Letter dated September 7, 2001 [ML012550163]



For the U.S. Nuclear Regulatory Commission

Date May 31, 2005By ***Original signed by Elizabeth Ullrich***

Elizabeth Ullrich  
Commercial and R&D Branch  
Division of Nuclear Materials Safety  
Region I  
King of Prussia, Pennsylvania 19406