



GRAND VALLEY  
STATE UNIVERSITY

College of Liberal Arts and Sciences  
Dean's Office

January 18, 2010

Mr. James Millauer  
US Nuclear Regulatory Commission  
Materials Licensing Branch  
2443 Warrenville Road, Suite 210  
Lisle, IL 60532

**Re: Materials License – Amendment Application  
Grand Valley State University, Allendale, Michigan  
NRC Material License No.: 21-32172-01**

Dear Mr. Millauer:

Grand Valley State University (GVSU) wishes to amend the above-referenced NRC Material License as follows:

1. Add Na-22 to the materials license.
2. Transfer responsibilities of Radiation Safety Officer from David Lutkenkoff to Jim Seufert.
3. Add Dr. Richard Vallery, PhD to the license as the only authorized user of Na-22.

Enclosed are NRC Form 313 and the necessary attachments. If you have any additional questions please do not hesitate to contact me at 616-331-8628 or [seufertj@gvsu.edu](mailto:seufertj@gvsu.edu).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jim Seufert'.

Jim Seufert, R.E.H.S.  
Lab Safety Specialist

Enclosures

RECEIVED JAN 26 2010

## **LIST OF ATTACHMENTS**

- A. NRC Form 313 – Application for Material License**
- B. NRC Form 313 – Additional Information**
- C. Documentation of Radiation Experience – Dr. Richard Vallery**
- D. Certificate of Completion and Agenda – Radiation Safety Officer Training Course**

<b>NRC FORM 313</b> (10-2002) 10 CFR 30, 32, 33, 34, 35, 36, 39, and 40	<b>U.S. NUCLEAR REGULATORY COMMISSION</b>	<b>APPROVED BY OMB: NO. 3150-0120</b>  <b>EXPIRES: 10/31/2005</b>
<h2 style="margin: 0;">APPLICATION FOR MATERIAL LICENSE</h2>		
Estimated burden per response to comply with this mandatory collection request: 7 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.		

**INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.**

<b>APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:</b>  DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20555-0001	<b>IF YOU ARE LOCATED IN:</b>  <b>ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:</b>  MATERIALS LICENSING BRANCH U.S. NUCLEAR REGULATORY COMMISSION, REGION III 801 WARRENVILLE RD. LISLE, IL 60532-4351
<b>ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:</b>  <b>IF YOU ARE LOCATED IN:</b>  <b>CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:</b>  LICENSING ASSISTANT SECTION NUCLEAR MATERIALS SAFETY BRANCH U.S. NUCLEAR REGULATORY COMMISSION, REGION I 475 ALLENDALE ROAD KING OF PRUSSIA, PA 19406-1415	<b>ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:</b>  NUCLEAR MATERIALS LICENSING SECTION U.S. NUCLEAR REGULATORY COMMISSION, REGION IV 611 RYAN PLAZA DRIVE, SUITE 400 ARLINGTON, TX 76011-8064
<b>ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:</b>  SAM NUNN ATLANTA FEDERAL CENTER U. S. NUCLEAR REGULATORY COMMISSION, REGION II 61 FORSYTH STREET, S.W., SUITE 23T85 ATLANTA, GEORGIA 30303-8931	
<b>PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.</b>	

1. THIS IS AN APPLICATION FOR (Check appropriate item) <input type="checkbox"/> A. NEW LICENSE <input checked="" type="checkbox"/> B. AMENDMENT TO LICENSE NUMBER <u>21-32172-01</u> <input type="checkbox"/> C. RENEWAL OF LICENSE NUMBER _____	2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code) <b>Grand Valley State University</b> <b>College of Liberal Arts and Sciences</b> <b>One Campus Drive</b> <b>Allendale, MI 49401</b>
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3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED  <b>Grand Valley State University</b> <b>Padnos Hall of Science</b> <b>One Campus Drive</b> <b>Allendale, MI 49401</b>	4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION  <b>Jim Seufert</b>  TELEPHONE NUMBER <b>616-331-8628 (seufertj@gvsu.edu)</b>
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SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL a. Element and mass number; b. chemical and/or physical form; and c. maximum amount	6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.
7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.	8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.
9. FACILITIES AND EQUIPMENT.	10. RADIATION SAFETY PROGRAM.
11. WASTE MANAGEMENT.	12. LICENSE FEES (See 10 CFR 170 and Section 170.31) FEE CATEGORY <b>EX</b> AMOUNT ENCLOSED <b>\$ \$0.00</b>

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.  
 WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE <b>Frederick J. Antczak, Dean, Col. of Liberal Arts &amp; Sciences</b>	SIGNATURE 	DATE <b>1/18/2010</b>
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FOR NRC USE ONLY					
TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	

**Items 5.1 & 6: Radioactive Material and Purposes for Which They Are Used**

In addition to those already licensed, Grand Valley State University would like to add the following isotopes to our license:

Isotope	Chemical/Physical Form	Maximum Possession Limit	Proposed Use
Na-22	Any	10 mCi	Positron Generator (Positron Beam and Bulk Positron Annihilation Spectroscopy System)

**Item 7: Individuals Responsible for Radiation Safety Program**

**7.1: Radiation Safety Officer**

Grand Valley State University wishes to remove Mr. David Lutkenhoff as Radiation Safety Officer from the license and replace him with Mr. Jim Seufert.

Mr. Seufert joined Grand Valley State University in January, 2009 and is responsible for managing compliance with environmental, health and safety regulations in GVSU's academic and research programs. Mr. Seufert has been given authority by the Dean to ensure that all research activities are conducted safely, including those involving radiation and radioactive materials. In addition, GVSU has committed to providing him with resources to procure necessary equipment, contract consulting services, and attend continuing education to address current and future radiation safety issues. Pertinent experience in radiation safety and EHS program management are provided below.

- BS, Natural Resources and Environmental Science, Purdue University, West Lafayette, IN, May 1994
- Environmental Specialist, Hamilton County Health Department, Noblesville, IN
  - o Registered Environmental Health Specialist, Sept. 1996 – Fulfilled examination and experience requirements for credential through IN Health Professions Bureau/National Environmental Health Association. The radiation component requires knowledge of inspection/investigation of radiation hazards, common types and sources of radiation, protection, risks of exposure, and testing equipment.
  - o EPA Radon Measurement Proficiency Listed Individual, Sept, 1995 – Completed the required Operators Proficiency Training and testing, which included general radiation training as well as specific radon testing procedures.
  - o Coordinated the county-wide radon awareness and testing programs

**US Nuclear Regulatory Commission  
Materials License Amendment Application  
January 18, 2010  
Page 2 of 3**

- Manager of Regulatory Compliance, Universal Forest Products, Inc., Grand Rapids, MI
  - o Developed and maintained an environmental management system for approximately 80 manufacturing facilities nationwide. This included recordkeeping, training, reporting and auditing for occupational health and environmental compliance issues, 1999-2008.
  - o Acted as the “responsible individual” for generally licensed bench-top analytical devices. Ensured day-to-day compliance with appropriate regulations including licensing, transportation, maintenance, training and testing of equipment, 2001-2008.
- Lab Safety Specialist, Grand Valley State University, Allendale, MI
  - o Ongoing work with Principal Investigators, the previous RSO (D. Lutkenhoff), and the Radiation Safety Committee to identify the safety hazards associated with GVSU’s radioactive material and comply with the NRC requirements.
  - o Attended Radiation Safety Officer training, presented by Nevada Technical Associates, November, 2009. Course outline and certificate of completion are attached.

**7.2: Individuals Authorized to Handle Licensed Material**

Richard Vallery, PhD – A summary of radiation experience is attached. Dr. Vallery will be the only Principal Investigator using Na-22 and will not require authorization for any of the radioactive materials currently listed on the material license.

**Item 8: Training for Individuals Working in or Frequenting Restricted Areas**

No change to previous amendment

**Item 9: Facilities and Equipment**

**Padnos Hall of Science**

Na-22 storage and use will occur both in Room 265 and Rad Room K.

Procedures for receipt of materials will not change from the previous amendment.

There have been no modifications to Room 265 or Rad Room K since the previous amendment.

**Item 10: Radiation Safety Program**

**10.1: Audit Program**

No response

**10.2: Radiation Monitoring Instruments**

**US Nuclear Regulatory Commission  
Materials License Amendment Application  
January 18, 2010  
Page 3 of 3**

No changes to previous amendments

10.3: Material Receipt and Accountability

No changes to previous amendments

10.4: Occupational Dose

No changes to previous amendments

10.5: Public Dose

No Response

10.6: Safe Handling of Radionuclides and Emergency Procedures

No changes to previous amendments

10.7: Surveys and Leak Tests

No changes to previous amendments

10.8: Transportation

No response

10.9: Minimization of Contamination

No Response

**Item 11: Waste Management**

No changes since last amendment

**Richard S. Vallery**

Grand Valley State University  
Department of Physics  
151 Padnos Hall  
Allendale, MI 49401  
(616)331-8951      valleryr@gvsu.edu

**EDUCATION**

Ph.D., Physics - University of Michigan – April 2004  
Thesis: *Resolution of the Orthopositronium Lifetime Puzzle*  
Advisor: Prof. David Gidley  
M.S., Physics - University of Michigan - December 1992  
B.A. – Gustavus Adolphus College, St. Peter, MN - May 1990

**PROFESSIONAL EMPLOYMENT**

August 2008 – present: *Assistant Professor*, Dept. of Physics, Grand Valley State University  
Sept. 2007 - July 2008: *Physics Lecturer II*, Dept. of Physics, University of Michigan  
June 2006 - Aug. 2007: *Research Associate*, Dept. of Nuclear Engin., North Carolina State Univ.  
Jan. 2005 - June. 2005: *Physics Discussion Instructor*, Dept. of Physics, Univ. of Michigan  
Jan. 2004 - June 2006: *Postdoctoral Research Fellow*, Dept. of Physics, Univ. of Michigan

**AWARDS, GRANTS, and HONORS**

April 2002: Michigan Teaching Fellow, University of Michigan

**TEACHING EXPERIENCES**

W1999:            Physics for Non-Scientists, Univ. of Michigan  
F1993-W1994: Keller Physics Discussion Instructor, Univ. of Michigan  
F1993-W1994: Senior Laboratory Instructor, Univ. of Michigan  
F1990-W1992: Physics Laboratory Instructor

**RESEARCH ACTIVITIES AND INTERESTS**

**Research Assistant – Dept. of Physics, Univ. of Michigan - May 1991 to Dec. 2003**

Used novel porous materials to perform a unique precision measurement of the vacuum lifetime of orthopositronium. Studied the interactions of positronium in gases. Conducted research to troubleshoot and correct previous measurements of the lifetime. Improved the electrostatic optics and electronics of an existing positron beam for use in these experiments.

RADIATION EXPERIENCE

**Radiation Safety Training Course (1991):** University of Michigan. Trained to handle radioactive material, minimize dosage, and emergency procedures. Also to a general lab safety course in 2002.

**Research at Ford Nuclear Reactor at the University of Michigan (1991 – 1994):** Worked on a project to electroplate Co-58. Procedures involved irradiating nickel in the Ford Nuclear reactor, electro-dissolving the nickel in acid, using chromatography to separate Co-58, disposing of the waste, and electroplating the cobalt. Typical activities were less than 1 mCi. I also worked at Idaho National Engineering Laboratory to extend the procedure to 10 mCi. Extensive experience working around reactors.

**Research at University of Michigan (1994 – 2008):** Worked with many radioactive isotopes at UM but primarily with Na-22. The positron beams used 50 – 60 mCi sealed Na-22 sources. Developed and implemented new handling procedures of these sealed sources. Learned clean-up procedures in the event of the release of radioactivity. Developed expertise in shielding of intense sources to minimize dose. Also worked with 1 mCi Na-22 in solution. Used the solution to deposit material on samples. Developed the depositing technique and procedures to seal the samples for safe handling. I was the contact with UM Radiation Safety for keeping track of and testing sources for leaks. Developed expertise with licensing and disposing of radioactive material.

**Research at North Carolina State University department of Nuclear Engineering:** Worked on developing a reactor based intense positron beam. Collaborated on shielding designs and on methods to handle highly active material from the reactor.

**James R. Seufert**

*Has successfully completed the Technical Short Course entitled*

**Radiation Safety Officer**

*November 16 – 20, 2009*

*This certificate presented in Gaithersburg, Maryland, November 20, 2009*

*By Nevada Technical Associates, Inc.*

Approval codes for C.E. units are: ASRT 30.5 units; NVZ0146001, AAHP 32 units; 2008-00-005, ABIH 4.5 units; 08-1362

*Robert Holloway*

*Robert Holloway, Ph.D.*

*Course Coordinator*

## 1.1 Radiation Safety Officer Training - Course Roadmap

Radiation safety (aka Health Physics) draws from many scientific disciplines in developing principles, procedures and techniques for the protection of personnel, the public, and the environment from the effects of radiation. This course presents theoretical concepts, practical information, and real-life examples to equip you to fulfill essential Radiation Safety Officer (RSO) duties.

Some subjects may be repeated in separate lessons under different contexts. Such repetition is intended, and should help you master certain key concepts. The following table summarizes the contents of each lesson.

### Radiation Safety Officer Training Course RoadMap

<b>Lesson 1</b>	<b><i>Introduction</i></b>	Atomic Structure Chemical Interactions Mass-Energy Equivalence Binding Energy Naturally Occurring Radionuclides Historical Highlights
<b>Lesson 2</b>	<b><i>Radioactive Decay Processes</i></b>	Radioactive Decay Equations Decay Processes Chart of the Nuclides Decay Statistics
<b>Lesson 3</b>	<b><i>Interaction of Radiation with Matter</i></b>	Modes of Interaction and Ranges for: <ul style="list-style-type: none"> <li>✓ alpha particles</li> <li>✓ beta particles</li> <li>✓ gamma &amp; x-ray</li> <li>✓ neutrons</li> </ul>
<b>Lesson 4</b>	<b><i>Radiation Detection &amp; Measurement</i></b>	Operating Principles of Instrumentation Detection Issues Related to Type of Radiation
<b>Lesson 5</b>	<b><i>Biological Effects of Radiation</i></b>	Dose units Mechanisms of Biological Damage Deterministic Effects Stochastic Effects What is Risk?
<b>Lesson 6</b>	<b><i>Shielding</i></b>	Shielding Related to Types of Radiation: <ul style="list-style-type: none"> <li>✓ charged particles</li> <li>✓ gamma rays &amp; x-rays</li> <li>✓ neutrons</li> </ul> General Issues in Facility Shielding

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**Radiation Safety Officer Training Course RoadMap, cont.**

<b>Lesson 7</b>	<b><i>Personnel Dosimetry</i></b>	External Dosimeters External Dose Evaluations Internal Dose Evaluations
<b>Lesson 8</b>	<b><i>Regulations &amp; Guides</i></b>	Chronology Sources Current Regulations NRC Licensing Procedures
<b>Lesson 9</b>	<b><i>Surveys, Records &amp; Documentation</i></b>	Surveys & Inspections Radiological Controls & Work Practices ALARA Record-keeping & Documentation Operating & Emergency Procedures
<b>Lesson 10</b>	<b><i>Transportation &amp; Disposal Regulations</i></b>	Applicable Regulations Packaging for Transport Package Marking and Labels & Vehicle Placards Radioactive Waste Disposal
<b>Lesson 11</b>	<b><i>Radiological Emergencies</i></b>	Emergency Classification Accident Phases Notifications Assistance Teams Emergency Response Accident Causes & Examples
<b>Tab 12</b>	<b><i>Reference Info</i></b>	Mailing Lists & Websites Glossary Abbreviations List of Elements Conversion Factors References
<b>Tab 13</b>	<b><i>Reference Info</i></b>	NRC Publications
<b>Tab 14</b>	<b><i>Reference Info</i></b>	NRC Materials License Application Example
<b>Tab 15</b>	<b><i>Reference Info</i></b>	Safety Videos & Training CDs Available from Nevada Technical Associates



**GRAND VALLEY  
STATE UNIVERSITY**

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**01/22/2010**

Mailed From 49401

**US POSTAGE**

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