

## MATERIALS LICENSE

Amendment No. 14

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.

301659

## Licensee

1. University of Wisconsin-Whitewater

2. 800 West Main Street  
Whitewater, WI 53190In accordance with letters dated  
July 23, 1996 and September 12, 19963. License Number 48-12642-01 is amended in  
its entirety to read as follows:

4. Expiration Date August 31, 2004

5. Docket or  
Reference No. 030-011686. Byproduct, Source, and/or  
Special Nuclear Material7. Chemical and/or Physical  
Form8. Maximum Amount that Licensee  
May Possess at Any One Time  
Under This LicenseA. Any byproduct  
material with Atomic  
Nos. 3-83, inclusive

B. Americium-241

C. Cobalt-60

D. Cesium-137

E. Plutonium-239

A. Any

B. Sealed sources

C. Sealed source

D. Any

E. Encapsulated as a  
Pu-Be neutron sourceA. No nuclide to  
exceed 1 millicurieB. 5 sources not  
to exceed 1.0  
microcurie per  
source

C. 10 millicuries

D. 2 millicuries

E. 5 curies

9. Authorized Use:

A. through E. To be used as described in application dated March 18, 1994, including use  
for teaching and training of students.CONDITIONS10. Licensed material shall be used only at the licensee's facilities located at Upham  
Hall, University of Wisconsin-Whitewater, Whitewater, Wisconsin.11. A. Licensed material shall be used by, or under the supervision of, Russell D.  
Helwig, Hugo C. Tscharnack, Daryle Anne Waechter-Brulla, Vay Allen Rodman,  
Steven J. Albrechtsen or Elizabeth George.

B. Radiation Safety Officer: Russell D. Helwig.

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**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

48-12642-01

Docket or Reference Number

030-01168

Amendment No. 14

12. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.
- B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.
- C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- D. 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.
- E. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Nuclear Materials Safety Branch, 801 Warrenville Road, Lisle, Illinois 60532-4351. The report shall specify the source involved, the test results, and corrective action taken.
- F. 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.
13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

COPY

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

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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 activity is released except as provided otherwise by specific condition of this license.
16. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:
  - A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
  - B. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate survey meter 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.
  - C. A record of each 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.
17. Except for plutonium contained in a medical device designed for individual human application, no plutonium, regardless of form, shall be delivered to a carrier for shipment by air transport or transported in an aircraft by the licensee except in packages the design of which the NRC has specifically approved for transport of plutonium by air.
18. 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. Applications dated March 18, 1994; and
  - B. Letters dated July 20, 1994, July 27, 1994, July 11, 1996, July 23, 1996 and September 12, 1996.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date

September 19, 1996

By

Colleen C. Casey  
Nuclear Materials Licensing Branch, Region IV

**COPY**

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM  
AND  
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)  
INFORMATION FROM LTS

PROGRAM CODE: 03620  
STATUS CODE: 0  
FEE CATEGORY: EX 3M 1D  
EXP. DATE: 20040831  
FEE COMMENTS: 170.11(A)(4)  
DECOM FIN ASSUR REQD: Y

Sb

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED  
APPLICANT/LICENSEE: WISCONSIN-WHITewater, UNIVERSITY OF  
RECEIVED DATE: 960729  
DOCKET NO: 3001168  
CONTROL NO.: 301659  
LICENSE NO.: 48-12642-01  
ACTION TYPE: AMENDMENT

Additional INFO  
# 399799

796 AUG - 2 AM 11:26

2. FEE ATTACHED

AMOUNT: 0

CHECK NO.: 0

3. COMMENTS

SIGNED  
DATE

7/20/96

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED 1-7)

1. FEE CATEGORY AND AMOUNT: EX 3M EX 10.11(A)(4)

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:

AMENDMENT

RENEWAL

LICENSE

3. OTHER

SIGNED  
DATE

AC 8/2/96

AUG 07 1996

Log	<u>Aug 1 THU</u>
Remitter	
Check No.	
Amount	
Fee Category	<u>EX 3M 1D</u>
Type of Fee	<u>AMD</u>
Date Check Rec'd	
Date Completed	<u>8/2/96</u>
By:	<u>SC</u>





# UNIVERSITY OF WISCONSIN-WHITewater

800 West Main Street, Whitewater, Wisconsin 53190-1790

July 23, 1996

Attn.: Colleen Casey  
Nuclear Materials Licensing Branch  
U.S. Nuclear Regulatory Commission  
Region III  
801 Warrenville Road  
Lisle, IL 60532-4351

Dear Ms. Casey:

This is in response to your letter of July 1, 1996 to our Radiation Safety Officer, Russell Helwig, covering the amendment to our license and the approval of Dr. Elizabeth George for use of licensed material as one of the individuals responsible for the radiation safety program (License number 48-12642-01, control number 399799).

A. Enclosed is the detail requested for the approval of Elizabeth George for use of licensed material. I would like to point out that Dr. George has a Ph.D. in Physics from the University of Wisconsin - Madison and does research in the areas of Nuclear Physics and Instrumentation.

B. 1. No individual is likely to exceed 10% of the regulatory limits specified in 10 CFR 20.1201 and 20.1502. The materials that our license allows possession of more than one millicurie are used infrequently and those that are currently in possession are in samples of less than one millicurie each, with the exception of the Pu-Be neutron source. Other materials, such as C-14, P-32, and S-35 will be used in microcurie amounts. The possession limit for each of these isotopes is one millicurie for all users combined. Dosimeters or film badges are not required for handling less than one millicurie.

a. The procedures and frequency for calibration for pocket dosimeters is given on the top of page 14 of our license application: "Pocket dosimeters will be checked annually. The dosimeters are 200 mr/hr rating. The surface dosage on the top of the Pu-Be neutron source howitzer is 8.5 mr per hour. Annually, the dosimeters will be charged and placed in the top of the howitzer for five or six hours and readings checked accordingly."

b. Dosimeters are read after each use. Individual monitoring records are recorded in a bound notebook after the use of licensed material has been concluded.

170.11(A)(4)  
**FREE EXEMPTED**

**RECEIVED**

**JUL 29 1996**

**REGION III**

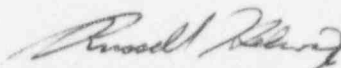
**JUL 29 1996**

pm 7/24/96

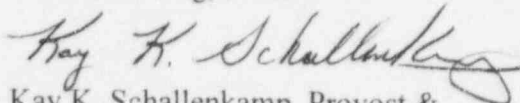
34659

2. In the past, our inventory records have been kept in a bound notebook. Currently, the records are being transferred to a Microsoft Excel spreadsheet where isotopes can be sorted and total amounts readily accessible. Data is backed up after each entry. All purchases and disposal of radioisotopes must be approved by the radiation safety officer who monitors the quantities. Individual users responsible for the radiation program using liquid sources will keep records of their use of these radioisotopes. These records will be periodically scrutinized by the radiation safety officer.

Sincerely,



Russell Helwig, R.S.O.



Kay K. Schallenkamp, Provost &  
Vice Chancellor/Academic Affairs

Additional information to Control No. 399799:  
in reference to Elizabeth A. George, Ph.D., University of Wisconsin-Whitewater

Intended uses of radioactive materials:

Radioactive materials will be used for instrument and detector calibration and testing, and for student instruction in certain physics experiments (for example, scattering and absorption of radiation by different materials, and measurements of radioactive decay). All proposed uses of radiation involve sealed or solid sources, except that some exempt amounts of liquids may be used (for example, minigenerators). None of the proposed uses will generate significant amounts of radioactive waste.

Specifically, materials proposed for use are:

- microcurie amounts of sealed sources ( $\alpha$ ,  $\beta$ ,  $\gamma$ ) for student instruction and instrument/detector calibration and testing
- neutron (PuBe) source for neutron activation of materials, such as copper, indium, and sodium; only small quantities (microcurie levels) of radioactive nuclides will be produced, and nuclides produced will have half lives no longer than about 1 month.
- Cs-137 (about 1 millicurie) for student instruction.

Please note that Dr. George is NOT proposing any of the following uses:

- radiochemical labeling procedures involving materials such as H-3, I-125, C-14, or P-32
- any use of radioactive material *in vivo*.

EXHIBIT 2  
SUPPLEMENT A

SUPPLEMENT		U.S. NUCLEAR REGULATORY COMMISSION		
TRAINING AND EXPERIENCE AUTHORIZED USER OR RADIATION SAFETY OFFICER				
1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER <i>Elizabeth A. George</i>		2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED —		
3. CERTIFICATION				
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C		
—	—	—		
4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES				
FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING		
		CLOCK HOURS IN LECTURE OR LABORATORY	CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE	
a. RADIATION PHYSICS AND INSTRUMENTATION	<i>University of Missouri Research Reactor, Columbia, MO. May 1982</i>	$\frac{1}{2}$		
b. RADIATION PROTECTION	"	$\frac{1}{2}$		
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	—			
d. RADIATION BIOLOGY	"	$\frac{1}{2}$		
e. RADIOPHARMACEUTICAL CHEMISTRY	—			
5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	ECI USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE

*see additional information*



EXHIBIT 2  
SUPPLEMENT A

SUPPLEMENT		U.S. NUCLEAR REGULATORY COMMISSION		
TRAINING AND EXPERIENCE AUTHORIZED USER OR RADIATION SAFETY OFFICER				
1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER <i>Elizabeth A. George</i>		2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED —		
3. CERTIFICATION				
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C		
—	—	—		
4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES				
FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING		
		CLOCK HOURS IN LECTURE OR LABORATORY	CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE	
a. RADIATION PHYSICS AND INSTRUMENTATION	<i>University of Colorado Health Sciences Center, Denver, CO fall 1984 - 1985</i>	<i>14</i>		
b. RADIATION PROTECTION	<i>"</i>	<i>10</i>		
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	<i>"</i>	<i>6</i>		
d. RADIATION BIOLOGY	<i>"</i>	<i>11</i>		
e. RADIOPHARMACEUTICAL CHEMISTRY	<i>"</i>	<i>6</i>		
5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	QCT USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
<i>Tc-99m</i>	<i>10</i>	<i>Univ. Col. Health Sci. Center</i>	<i>10</i>	<i>nuclear medicine; detector testing</i>
<i>Cs-137</i>	<i>1</i>	<i>"</i>	<i>10</i>	
<i>Co-57</i>	<i>1</i>	<i>"</i>	<i>5</i>	
<i>Mo-99</i>	<i>2700</i>	<i>"</i>	<i>5</i>	
<i>I-131</i>	<i>1</i>	<i>"</i>	<i>2</i>	

*see additional information, enclosed*

EXHIBIT 2  
SUPPLEMENT A

SUPPLEMENT		U.S. NUC. REGULATORY COMMISSION		
TRAINING AND EXPERIENCE AUTHORIZED USER OR RADIATION SAFETY OFFICER				
1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER <i>Elizabeth A. George</i>		2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED —		
3. CERTIFICATION				
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C		
—	—	—		
4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES				
FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING		
		CLOCK HOURS IN LECTURE OR LABORATORY	CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE	
a. RADIATION PHYSICS AND INSTRUMENTATION	<i>University of Wisconsin - Madison May 1987</i>	$\frac{1}{2}$		
b. RADIATION PROTECTION	"	$\frac{1}{2}$		
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	—			
d. RADIATION BIOLOGY	"	$\frac{1}{2}$		
e. RADIOPHARMACEUTICAL CHEMISTRY	—			
5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	NO. USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
<i>Sr-90</i>	<i>1</i>	<i>Univ. of Wisconsin, Physics Department</i>	<i>1</i>	<i>detector testing and calibration</i>

*see additional information*

Elizabeth A. George, pertinent training and experience:

See enclosed "supplement A" forms. Additional information is supplied below.

1. Training and experience at University of Missouri Research Reactor, Columbia, MO:  
No use of radioisotopes, but training in radiation physics, instrumentation, radiation protection, and radiation biology pertaining to neutron radiation; worked in radiation area for 3 months in each of 1982, 1983, and 1984.

2. Training and experience at University of Colorado Health Sciences Center, Denver, CO:  
Took place over a period of two years (1984-1986) as part of a Master's degree program in Radiology (Medical Physics). The training and experience occurred in several different departments of the University of Colorado Health Sciences Center (Nuclear Medicine, Radiation Oncology, Health Physics) and in the UCHSC Graduate School, and was supervised by a large number of people. Principal instructors and supervisors included Raymond Schmeltzer, Ph.D., E. Russell Ritenour, Ph.D., Harry Cullings, M.S., Kedar Prasad, Ph.D., and Geoffrey Ibbott, M.S.. Here is a summary of pertinent coursework and training, organized by field of training as on supplement A forms:

a. Radiation physics and instrumentation:

Courses: Basic Radiation Physics (Rad. 613, 614, 615; Fall 84, Winter 84, Spring 85);  
Introduction to Clinical Radiology (Rad. 608, 609, 610; Fall 84, Winter 84, Spring 85)  
Topics covered: nuclear decay processes; theory and use of radiation detectors and survey instruments (ionization chambers, Geiger-Muller counters, solid and liquid scintillation counters)

Hours in lecture and lab: 14

b. Radiation protection:

Courses: Health Physics (Rad. 625, Winter 1985); Introduction to Clinical Radiology (see a. above); Radiopharmacy (Rad. 623, Summer 1985)

Topics covered: *in vivo* uses of radionuclides (Cs-137, I-131, H-3, P-32); low-level radioactive waste disposal; radiation shielding calculations; dose calculations for internally deposited radionuclides; sealed source leak tests and wipe tests

Hours in lecture and lab: 10

c. Mathematics pertaining to the use and measurement of radioactivity:

Course: Basic Radiation Physics (see a. above)

Topics covered: exponential decay law; calculations of activity; Roentgen, rad, and rem units; nuclear counting statistics

Hours in lecture: 6

d. Radiation biology:

Courses: Radiopharmacy (see b. above); Radiation Biology (Rad. 624, Fall 1984); Health Physics (see b. above)

Topics covered: models for low-level radiation effects; mechanisms of radiation damage and repair; effects of high-LET and low-LET radiation; radiosensitivity of various organs; radiation syndromes and treatment; radiation genetics, carcinogenesis, teratogenics, immunology

Hours in lecture: 11

e. Radiopharmaceutical chemistry:

Course: Radiopharmacy (see c. above)

Topics covered: basic radiopharmacy; labeling methods

Hours in lecture: 6

Experience: Radioisotopes listed were used for preparation of doses for clinical radioisotope studies, for quality control procedures in nuclear medicine, and for calibrating and testing detectors, medical gamma cameras, and survey instruments. Use took place primarily during the period December 1984-January 1985.

3. Training and experience at University of Wisconsin-Madison:

Self-paced training and written examination. Topics covered: basic radiation physics; radiation detectors (Geiger-Muller counters, scintillators, film badges); biological effects of radiation; radiation protection (shielding; use of unsealed sources; disposal of waste); radiation safety procedures (surveys, handling shipments of radioactive materials). Training and experience took place under the supervision of several faculty members, including Lynn Knutson, Ph.D., and Paul Quin, Ph.D. For information about records from this period, please contact Sharon Johnston, UW Safety Department, 30 N. Murray St., Madison, WI 53706.

Additional experience at UW-Madison: worked with particle accelerator which produces X-radiation, neutrons, protons, and energetic charged nuclei (approximately 500 hours during the period May 1987-August 1993); used survey instruments including neutron survey meters and H-3 monitor.

4. Additional experience, Stockton State College, Pomona, NJ:

Dr. George was an authorized user on NRC Materials License 29-15222-02, issued to Stockton State College, Pomona, NJ 08240, from 12/3/93 until 6/30/95, when she ended her term of employment at Stockton State College. While at Stockton State College, she used microcurie amounts of sealed sources and a Cs-137/Ba-137 liquid minigenerator (about 10 microcuries) for teaching and training students. The Radiation Safety Officer at Stockton State College was Maria C. Moyer, Ph.D.



SEP 27 1996

Russell Helwig  
Radiation Safety Officer  
University of Wisconsin-Whitewater  
800 West main Street  
Whitewater, WI 53190

Dear Dr. Helwig:

Enclosed is Amendment No. 14 to your NRC Material License No. 48-12642-01 in accordance with your request.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations: 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Notify NRC, in writing, within 30 days:
  - a. When the Radiation Safety Officer permanently discontinues performance of duties under the license or has a name change; or
  - b. When the licensee's mailing address changes (no fee is required if the location of byproduct material remains the same).
3. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license when you decide to terminate all activities involving materials authorized under the license.
4. Request and obtain a license amendment before you:
  - a. Change Radiation Safety Officers;

301659

- b. Order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;
  - c. Add or change the areas of use or address or addresses of use identified in the license application or on the license; or
  - d. Change ownership of your organization.
5. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or imposition of a civil penalty, or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions. Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Sincerely,

Original Signed By  
Colleen C. Casey  
Nuclear Materials Licensing Branch

License No.: 48-12642-01

Docket No.: 030-01168

Enclosure: Amendment No. 14

DOCUMENT NAME: M:\03001168.CL6

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	DNMS/RIII <i>CC</i>								
NAME	CCASEY:jaw								
DATE	09/19/96								

OFFICIAL RECORD COPY



# UNIVERSITY OF WISCONSIN-WHITEWATER

800 West Main Street, Whitewater, Wisconsin 53190-1790

Department of Physics  
September 12, 1996

Attn.: Colleen Casey  
Nuclear Materials Licensing Branch  
U.S. Nuclear Regulatory Commission  
Region III  
801 Warrenville Road  
Lisle, IL 60532-4351

Dear Ms. Casey:

This is concerning control number 301659.

Please change the possession limits and related items in our license (48-12642-01) as indicated in the attached copy of the first two pages.

Sincerely,

A handwritten signature in cursive script, appearing to read "Russell Helwig".

Russell Helwig, R.S.O.

A handwritten signature in cursive script, appearing to read "Kay K. Schallenkamp, U.D.". The "U.D." is written in a smaller, more formal script.

Kay K. Schallenkamp, Provost &  
Vice Chancellor/Academic Affairs

RECEIVED  
SEP 17 1996  
REGION III

pm: 7-13-96

SEP 17 1996

## MATERIALS LICENSE

Amendment No. 13

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.

## Licensee

1. University of Wisconsin-Whitewater
2. 800 West Main Street  
Whitewater, WI 53190

In accordance with letter dated  
January 11, 19963. License Number 48-12642-01 is amended in  
its entirety to read as follows:

4. Expiration Date August 31, 2004

5. Docket or  
Reference No. 030-011686. Byproduct, Source, and/or  
Special Nuclear Material7. Chemical and/or Physical  
Form8. Maximum Amount that Licensee  
May Possess at Any One Time  
Under This License

A. Any byproduct material with Atomic Nos. 3-83 inclusive	A. Any	A. No nuclide to exceed 1 millicurie except as noted below
<del>B. Americium-241</del>	<del>B. Up to 5 sources</del>	<del>B. each source not exceeding 1 microcurie</del>
<del>B. Lutetium-177</del>	<del>B. Any</del>	<del>B. 20 millicuries</del>
<del>C. Gold 198</del>	<del>C. Any</del>	<del>C. 20 millicuries</del>
<del>D. Bismuth 207</del>	<del>D. Any</del>	<del>D. 20 millicuries</del>
<del>E. Sodium 24</del>	<del>E. Any</del>	<del>E. 20 millicuries</del>
<del>C.F. Cobalt-60</del>	<del>C.F. Sealed Source</del>	<del>C.F. 10 millicuries</del>
<del>G. Strontium 85</del>	<del>G. Any</del>	<del>G. 10 millicuries</del>
<del>H. Yttrium 91</del>	<del>H. Any</del>	<del>H. 10 millicuries</del>
<del>I. Cadmium 109</del>	<del>I. Any</del>	<del>I. 10 millicuries</del>
<del>J. Tin 113</del>	<del>J. Any</del>	<del>J. 10 millicuries</del>
<del>K. Indium 114</del>	<del>K. Any</del>	<del>K. 10 millicuries</del>
<del>D.t. Cesium-137</del>	<del>D.t. Any</del>	<del>D.t. 200 millicuries</del>
<del>M. Lanthanum-140</del>	<del>M. Any</del>	<del>M. 40 millicuries</del>
<del>N. Holmium-166</del>	<del>N. Any</del>	<del>N. 20 millicuries</del>
<del>O. Holmium-166m</del>	<del>O. Any</del>	<del>O. 20 millicuries</del>
<del>P. Thulium 166</del>	<del>P. Any</del>	<del>P. 60 millicuries</del>
<del>Q. Thulium 172</del>	<del>Q. Any</del>	<del>Q. 20 millicuries</del>
<del>R. Hafnium 172</del>	<del>R. Any</del>	<del>R. 10 millicuries</del>



**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License number

48-12642-01

Docket or Reference number

030-01168

Amendment No. 13

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

~~S.~~ Lutetium-172

~~S.~~ Any

~~S.~~ 10 millicuries

~~E.T.~~ Plutonium-239

~~E.T.~~ Encapsulated as a Pu-Be neutron source

~~E.T.~~ 5 curies

9. Authorized Use:

A. through ~~S.~~ <sup>E.</sup> To be used as described in application dated March 18, 1994, ~~and~~ including  
~~T.~~ ~~To be used~~ for teaching and training of students.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at Upham Hall, University of Wisconsin-Whitewater, Whitewater, Wisconsin.

11. A. Licensed material shall be used by, or under the supervision of, Russell D. Helwig, Hugo C. Tscharnack, Daryle Anne Waechter-Brulla, Vay Allen Rodman, Steven J. Albrechtsen, *Elizabeth George*.

B. Radiation Safety Officer: Russell D. Helwig

12. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

## CONVERSATION RECORD

TIME

10:30am

DATE

9-11-96

TYPE

☐ VISIT☐ CONFERENCE☒ TELEPHONE☐ INCOMING☒ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

ORGANIZATION (Office, dept., bureau, etc.)

TELEPHONE NO.

Dr. Russell Helwig, R50

University of Wisconsin-Whitewater

44-472-5115

SUBJECT

C/N 301659 4/N 48-12642-81

Def. Call

ROUTING

NAME/SYMBOL

INT

SUMMARY

We cannot accept your refusal to provide monitoring badges in favor of direct reading <sup>(DRD)</sup> dosimeters because:

- ① HPBOS-186 explains that DRD measurements are unacceptable if used for monitoring purposes w/o individual badges for primary measurement.
- ② Need for dosimetry badges is based on authorization or license, not actual use.  
? Decrease possession limits to 1-2 mCi or less + badging would be needed?
- ③ Justify via worst case scenario calculations + exposure estimates why badges not needed (if poss. limits not decreased).

- Dr. Helwig prefers to delete most of the unused radionuclides from the license now. He will send me a letter to this effect. He expects to retain the Pu-239 source, the Co-60 source + the Cs-137 (will drop to ~2mCi) + probably most of the rest. Then badging would be needed.

Approval for Dr. E. George is forthcoming and their inventory commitment appeared acceptable (per <sup>letter</sup> m. Lafrance).

15 day response or sooner

SIGNATURE

Colleen C. Casey

TITLE

Reviewer

DATE

9-11-96

CONVERSATION RECORD



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

July 31, 1996

Russell D. Helwig  
Radiation Safety Officer  
University of Wisconsin-Whitewater  
800 West Main Street  
Whitewater, WI 53190

SUBJECT: ACKNOWLEDGEMENT OF CORRESPONDENCE  
(☒ Letter Dated July 23, 1996)

Dear Licensee:

In response to your request, we have completed the initial processing, which is an administrative review of your application for a(n):

☐ New License                      ☒ Amendment                      ☐ Renewal  
☐ Termination                      ☐ Auth User (Amendment not required)                      ☐ QMP Revision  
☐ Other \_\_\_\_\_

No administrative deficiencies were identified during this initial review. However, it should be noted that a technical review may identify omissions in the submitted information, technical issues that require additional information, or policy/technical issues that require coordination with headquarters or other NRC regional offices.

It appears that your request is routine (see 1-3 below, as applicable) and complete.

1. New and amendment actions are normally processed within 90 days, unless we find major deficiencies, or policy issues requiring central program office assistance.
2. Renewal actions are normally processed within 180 days, however, under timely filing (before expiration), you may continue to operate under your existing license.
3. Termination actions are normally processed within 90 days, unless confirmatory surveys following decontamination/decommissioning activities are involved.

A copy of your correspondence has been forwarded to our Licensing Fee and Debt Collection Branch (301/415-6097) for approval of the fee category and amount.

If you have a compelling safety or business-related reason for requesting expedited review, please contact the Materials Licensing Branch at (708) 829-9887. We will try to complete your request as soon as practicable. Any correspondence about this request should reference the control number.

Nuclear Materials Support Branch

Mail Control No. 301659  
License No. 48-12642-01