



DEPARTMENT OF THE ARMY  
WALTER REED ARMY MEDICAL CENTER  
8900 GEORGIA AVE NW  
WASHINGTON DC 20307-6001

REPLY TO  
ATTENTION OF:

Office of the Deputy Commander  
for Clinical Services

L-5

U.S. Nuclear Regulatory Commission  
Region I  
ATTN: Nuclear Materials Safety Branch  
475 Allendale Road  
King of Prussia, PA 19406-1415

03001317  
X (RENEW)

Dear Sir or Madam:

Enclosed is the Walter Reed Army Medical Center NRC broad scope license 10-year renewal application (Form 313 with attachments). Our current license, No. 08-01738-02, is set to expire on 30 June 2004. Hence, this application is hereby rendered within the 30-day timeliness rule.

Please note that the renewal application for the broad scope license includes provisions to absorb our irradiator license, No. 08-01738-03. Our intent is to consolidate both licenses. 08-01738-02  
135048 (TEAM) 03006895 [ (AMEND) 03001317 ] 135458

Your point of contact for this Command is Lieutenant Colonel John Mercier, Ph.D., (202) 356-0058.

Sincerely,

Thomas M. Fitzpatrick  
Colonel, Medical Corps  
Deputy Commander for Clinical Services

Enclosure

Copy Furnished:

Headquarters, US Army Medical Command, ATTN: POPM-SA, Fort Sam Houston, TX 78234.

Information in this record was deleted  
in accordance with the Freedom of Information  
Act, exemptions 2 & 6  
FOIA 2006-0228

135458 mmbao

NUSS/RONI MATERIALS-002  
SEPARATED OUT OF 135047 8/10/2004

(4-2004)  
10 CFR 30, 32, 33,  
34, 35, 36, 39, and 40

## APPLICATION FOR MATERIAL LICENSE

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 and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects@nrc.gov](mailto: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.

## APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY  
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

## ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

## IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, MISSISSIPPI, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM  
DIVISION OF NUCLEAR MATERIALS SAFETY  
U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

## IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

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:

NUCLEAR MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TX 76011-4005

03001317  
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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.

## 1. THIS IS AN APPLICATION FOR (Check appropriate item)

- ☐ A. NEW LICENSE  
☐ B. AMENDMENT TO LICENSE NUMBER \_\_\_\_\_  
☒ C. RENEWAL OF LICENSE NUMBER 08-01738-02

## 2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)

Department of The Army  
Walter Reed Army Medical Center  
Attn: Commanding Officer  
6900 Georgia Ave., NW  
Washington, DC 20307-5001

## 3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

SEE ITEM #3 ATTACHMENT

## 4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

LTC John Mercier, Ph.D., RSO

## TELEPHONE NUMBER

(202) 356-0058

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 which will be possessed at any one time.

## 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) 10 CFR 170(a)(5)  
FEE CATEGORY 7B AMOUNT ENCLOSURE : EXEMPT

## 13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

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 ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

## CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE

Thomas M. Fitzpatrick, M.D., DEPUTY CDR FOR CLIN. SVCS.

## SIGNATURE

*Thomas M. Fitzpatrick*

## DATE

21 May 04

## FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
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## APPROVED BY

## DATE

135047

**ITEM #3 ATTACHMENT**  
**ADDRESSES WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED**

**Walter Reed Army Medical Center (WRAMC), Washington, D.C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland; and The Gillette Building, 1413 Research Boulevard, Rockville, Maryland.**

**ITEMS #5 and #6 ATTACHMENT  
RADIOACTIVE MATERIAL and  
PURPOSES FOR WHICH LICENSED MATERIAL WILL BE USED**

<u>CHEMICAL AND MASS NUMBER</u>	<u>CHEMICAL AND PHYSICAL FORM</u>	<u>MAXIMUM ACTIVITY</u>	<u>AUTHORIZED USE</u>
A. Any byproduct Material with atomic numbers 3-83	A. Any	A. 400 mCi of each radionuclide with a total possession limit of 26 curies	A. Through R. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4; instrument calibration; teaching and training
B. Any byproduct Material with atomic numbers 84-96	B. Any	B. 100 mCi of each radionuclide with a total possession limit of 1 curie	
C. Iodine 131	C. Any	C. 2 curies	
D. Xenon 133	D. Any	D. 2 curies	
E. Krypton 85	E. Any	E. 1 curie	
F. Phosphorus 32	F. Any	F. 2 curies	
G. Carbon 14	G. Any	G. 2 curies	
H. Iodine 125	H. Any	H. 1 curie	
I. Iridium 192	I. Any	I.	
J. Chromium 51	J. Any	J. 1 curie	
K. Sulfur 35	K. Any	K. 1 curie	
L. Hydrogen 3	L. Any	L. 5 curies	
M. Molybdenum 99	M. Molybdenum 99/Technetium 99m Generators	M. 23 curies	
N. Technetium 99m	N. Any	N. 23 curies	
O. Strontium 90	O. Sealed sources	O.	
P. Cesium 137	P. Sealed sources	P.	
Q. Gadolinium 153	Q. Sealed sources	Q.	
R. Iodine 125	R. Sealed sources	R. 500 mCi	

Ex 2 portions

<u>CHEMICAL AND MASS NUMBER</u>	<u>CHEMICAL AND PHYSICAL FORM</u>	<u>MAXIMUM ACTIVITY</u>	<u>AUTHORIZED USE</u>
S. Cesium 137	S. Sealed sources	S. [ ]	S. through V. Research and development as defined in 10 CFR 30.4; instrument calibration; teaching and training
U. Thorium V. Uranium	U. Any V. Any	U. 5 kgms V. 50 kgms	
W. Uranium depleted in Uranium 235	W. Plated metal	W. 900 kgms	W. Shielding; instrument calibration; teaching and training
X. Americium 241	X. Sealed source	X. [ ]	X. Standard and reference source; instrument calibration; teaching and training
Y. Cesium 137	Y. Sealed sources [ ]	Y. [ ]	Y. Instrument calibration; teaching and training
Z. Cesium 137	Z. Sealed sources	Z. [ ] per source with a total possession limit of	Z. through BB. Self-shielded irradiators for use as described in respective SSD registration certificates
AA. Cesium 137	AA. Sealed sources	AA. [ ] per source with a total possession limit of	
BB. Cobalt 60	BB. Sealed sources	BB. [ ] per source with a total possession limit of	

The NRC recently completed a satisfactory review of our Financial Assurance Submittal with Statement of Intent and Decommissioning Funding Plan [Refer to NRC letter dated April 13, 2004, signed by the Chief of the Region I Nuclear Materials Safety Branch, NRC Control Nos. 132079 and 132080].

Ex 2 portions

**ITEM #7 ATTACHMENT**  
**INDIVIDUALS RESPONSIBLE FOR RADIATION SAFETY PROGRAM**




1. A NRC Form 313A, curriculum vitae and copy of board certification for the Radiation Safety Officer (RSO), LTC John R. Mercier, Ph.D., is attached.
2. For human use (e.g., diagnosis, therapy and human studies), licensed material shall be used by or under the supervision of individuals designated by the Walter Reed Army Medical Center (WRAMC) Radiation Safety Committee (RSC). The training and experience of authorized users, authorized nuclear pharmacists, and authorized medical physicists will be evaluated using the criteria in 10 CFR 35. The RSC, with RSO approval, may grant case-by-case exceptions.
3. For non-human use (e.g., research and development), Principle Investigators and Co-Investigators who meet training and experience criteria expressed in NUREG 1556, Volume 7, Section 8.7.2 (December 1999), may be designated as authorized users by the RSO. The RSC, with RSO approval, may grant case-by-case exceptions.
4. For self-shielded irradiators, personnel who meet training and experience criteria expressed in NUREG 1556, Volume 5, Appendix G (October 1998), will be designated as authorized users by the RSO. The RSC, with RSO approval, may grant case-by-case exceptions.
5. 10CFR35.24(c) Waiver. To meet military operational contingencies, support homeland security missions, or support national security objectives, the RSO may be sent on extended deployments (60 to 180 days) without warning. The RSO need not be present as long as communications between the RSO and WRAMC management can be maintained (e.g., phone, email, video teleconferencing, etc.). In such cases, the RSC will designate an acting RSO who meets the training and experience criteria in 10CFR35. Since WRAMC has sufficient depth in authorized users and professional health physics staff, the RSO can ensure that one or more authorized users or staff health physicists are fully qualified to serve as acting RSO via a signed preceptor statement (NRC 313A). In the event communications cannot be maintained, 10CFR35.24(c) will apply starting from the time that communications fail.
6. Except for appointment of a permanent RSO, the RSC maintains authority for designating the responsible radioactive material users (i.e., authorized users, authorized medical physicists, and authorized nuclear pharmacists). The criterion used by the RSC in approving users is taken from the appropriate NUREG 1556 series. As well, RSO approval is required.
7. The RSC also controls its own membership to allow for personnel turnover, as well as, gains and losses in functional use of radioactive material. The majority of members are trained and experienced in the safe use of radioactive material. The minimum voting membership of the RSC tends to be the Deputy Commander for Clinical Services (DCCS, Chair and Management Rep), the RSO, a staff health physicist, a staff radiation therapy physicist, a nuclear pharmacy representative, a nuclear medicine representative, a nursing representative, a Walter Reed Army Institute of Research (WRAIR) representative and an Armed Forces Institute of Pathology (AFIP) representative. A quorum requires at least half the voting members, of which, the RSO, the nursing representative and the DCCS (or his management substitute) must attend.

**ITEM #8 ATTACHMENT**  
**TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS**

The radiation safety training program is managed by the WRAMC Health Physics Office and is designed to ensure compliance with 10CFR 19, 20, 30 and 35. Workers likely to receive an annual occupational dose in excess of 1 mSv (100 mrem) receive initial and refresher training commensurate with their duties. To ensure the training is tailored for different audiences and/or targeted for site-specific functions, the Health Physics staff often refines radiation safety lectures and training materials. However, research staffs receive training that generally follows NUREG 1556, Volume 7, Appendix J (December 1999) and medical staffs receive training that generally follows NUREG 1556, Volume 9, Appendix J (October 2002). The RSO maintains authority to approve changes to the radiation safety training program. The radiation safety training program may be examined in detail during routine NRC inspections.

**ITEM #9 ATTACHMENT  
FACILITIES AND EQUIPMENT**

1. Irradiators. WRAMC will ensure that each area where a self-shielded irradiator is located corresponds to the 'Conditions of Normal Use' and 'Limitations and/or Other Considerations of Use' on the respective irradiator Sealed Source and Device (SSD) Registration Certificate; the floor beneath each self-shield irradiator is adequate to support the weight of the irradiator; each self-shielded irradiator is secured to prevent unauthorized access or removal; and each area where a self-shielded irradiator is located is equipped with an automatically operated fire detection and control system (sprinkler, chemical, or gas) or the location of the area and other controls ensure a low-level radiation risk attributable to fires. Currently, the self-shielded irradiators are located as follows:

- |  |   |
|--|---|
| A.  | WRAMC Building 2, 6900<br>Georgia Ave., Washington, D.C.        |
| B.  | Building 503 (WRAIR),<br>Forrest Glen Annex, Silver Spring, MD. |
| C.  | Building 503 (WRAIR), Forrest<br>Glen Annex, Silver Spring, MD. |

Procedures for routine maintenance of the self-shielded irradiators that follow manufacturer's written instructions are implemented and maintained. Non-routine maintenance is only performed by the irradiator manufacturer or by other persons authorized by the NRC or an Agreement State.

2. Facilities. The Radiation Safety Committee (RSC) maintains authority for approving radioactive material use, storage and waste facilities. Facilities are evaluated on their adequacy to protect health and minimize danger to life and property IAW 10CFR 30.33(a)(2) and 35.18(a)(3). As appropriate, the RSC considers factors such as ALARA design, planned use of facility, type and quantity of radioactive material, protective equipment, access control, contamination control, ventilation, filtration, shielding, alarms and radiation monitoring instruments when evaluating a facility for licensed activities. Isotope laboratories and use areas tend to have impervious floors, walls and countertops. Facility diagrams are attached for the Radiopharmacy Hot Lab, and the Radiation Therapy Sealed Source Storage Room, Building 2, WRAMC. Additional laboratory and facility diagrams may be examined during routine NRC inspections.

3. Instruments. To ensure compliance with 10CFR 20 and 35 requirements, WRAMC maintains a variety of radiation monitoring and survey instruments, as well as, gamma well counters and liquid scintillation counters. Radiation monitoring instruments will be calibrated by the manufacturer or other appropriately qualified person, business or agency. Additionally, WRAMC reserves the right to develop and implement survey meter calibration procedures compliant with 10CFR 20.1501 and 35.61. The RSO maintains authority for amending instrument specifications and the calibration program.

4. Dose Calibrators. Equipment used to measure dosages will be calibrated IAW nationally recognized standards or the manufacturer's instructions.

Ex 2



**ITEM #10 ATTACHMENT  
RADIATION SAFETY PROGRAM**

- 1. Audit Program.** In accordance with 10CFR 20.1101, the RSO evaluates, or arranges for guest auditors to evaluate, the radiation safety program at least once a year. Executive management and the RSC are briefed on the results of each audit. Audit findings are addressed and tracked to resolution by the RSO and/or the RSC. The RSO maintains authority for amending the audit program.
- 2. Material Receipt and Accountability.** In accordance with 10CFR 20, 30 and 33, WRAMC has established cradle-to-grave tracking of radioactive materials. For non-exempt sealed sources, physical inventories are conducted at least every six months.
- 3. Occupational Dose.** Occupational doses at WRAMC have been tracked for many years and are well known for the various occupational groups. Unmonitored workers are not likely to exceed 10% the allowable annual limits specified in 10CFR 20. Externally dosed workers specified by 10CFR 20.1502(a) will enter the dosimetry program and receive an extremity and/or whole body dosimeter. Internally dosed workers specified by 10CFR 20.1502(b) will enter the dosimetry program and be assessed for internal uptake via bioassay. Dosimetry services, currently provided by the Army, are NVLAP accredited.
- 4. Area Surveys.** WRAMC has developed and implemented written procedures for area surveys IAW 10CFR 20.1101 that meets the requirements of 10CFR 20.1501 and 35.70.
- 5. Safe Use of Unsealed Radioactive Material.** WRAMC has developed and implemented written procedures for safe use of unsealed licensed material that meets the requirements of 10CFR 20.1101 and 20.1301.
- 6. Spill Procedures.** WRAMC has developed and implemented written procedures for safe response to spills of licensed material that meets the requirements of 10CFR 20.1101
- 7. Leak Tests.** WRAMC has developed and implemented written procedures for leak tests that meet the requirements of 10CFR 20 and 35.67.

**ITEM #11 ATTACHMENT  
WASTE MANAGEMENT**

**1. Procedures.** WRAMC has developed and implemented written waste disposal procedures for licensed material IAW 10CFR 20.1101, that also meet to applicable section of Subpart K to 10CFR 20 and 10CFR 35.92. Disposal of the licensed material in the irradiators will be by transfer of the irradiators to the supplier or to a licensee authorized to accept the irradiators.

**2. Facility.** Attached is a diagram of the Radioactive Waste Facility, Building <sup>EXD</sup> Forrest Glen Annex. Solid waste is shipped from this facility, liquid waste is sampled for release to the sewer from this facility, and short-lived waste is decayed and released at this facility. The building was originally designed, built and operated as a research reactor facility (decommissioned in 1979) with low vulnerability to hazards. The brick and concrete building is secured with locked metal doors, perimeter fence and locked gate. It has a forced circulation air system, heating and cooling system, alarm system, walk-in freezer, fire hydrant, and fire extinguisher.

**ITEMS #7 THROUGH #11  
RADIATION SAFETY COMMITTEE BROAD SCOPE FLEXIBILITY**

**1. Except for NRC approval of the RSO, the Radiation Safety Committee (RSC) intends to continue to assume full decision and approval authority for all aspects of the broad scope license and radiation safety program. WRAMC has a long history of NRC compliance excellence and this, in part, is a result of the RSC having the authority to promptly address reach closure on issues that would otherwise enter a license amendment process. Under this renewal of the broad scope license, the WRAMC RSC requests continued flexibility by remaining exempt from submitting a multitude of license amendments related to Items #7 through #11. The criteria the RSC will use to approve new users, new procedures, new facilities and so forth, is the following:**

**A. The RSC decision must not be a detriment to safety, health, or the environment.**

**B. The criteria provided in the NUREG 1556 Series (e.g., Volumes 5, 7, 9 & 11), 10CFR20 through 10CFR35, NRC Information Notices, ANSI standards, or other appropriate references will serve a basis for the RSC's approval or disapproval decisions.**

**C. For all RSC decisions that directly affect the Radiation Safety Program, to include approval of radioactive material users, the RSO must be in agreement.**

**2. The RSC may also defer full decision authority for selected topics to the RSO. These are topics or programs that are exclusively, or nearly exclusively, the management purview of the RSO. For example, the RSO will maintain authority to approve changes to the radiation safety training program, for amending instrument specifications, and for amending the audit program.**

## TRAINING AND EXPERIENCE

**Note:** Descriptions of training and experience must contain sufficient detail to match the training and experience criteria in the application regulations.

1. Name of Individual, Proposed Authorization (e.g. Radiation Safety Officer), and Applicable Training Requirements (e.g., 10CFR 35.50)

**LTC JOHN R. MERCIER, PH.D., PE, DABR, SRO**

2. For Physicians, State or Territory Where Licensed

## 3. CERTIFICATION

Specialty Board	Category	Month and Year Certified
American Board of Radiology	Diagnostic Radiological and Medical Nuclear Physics	June, 1995
Professional Engineer (Texas)	Nuclear Engineering License	March, 1995

## 4. DIDACTIC TRAINING

Description of Training	Location	Clock Hours	Dates of Training
Radiation Physics and Instrumentation	University of Texas at Austin	300	Sep 81 – Dec 84
	Cornell University, NY	300	Aug 89 – May 91
	Univ. of Texas Health Science Center	550	Aug 96 – Aug 99
Radiation Protection	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	100	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99
Mathematics Pertaining to the Use and Measurement of Radioactivity	University of Texas at Austin	200	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	100	Aug 96 – Aug 99
Radiation Biology	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99
Chemistry of Byproduct Material for Medical Use	Univ. of Texas Health Science Center	100	Aug 96 – Aug 99
Radiation Dosimetry	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99

**5. PRACTICAL EXPERIENCE WITH RADITION (Actual use of radionuclides or equivalent experience)**

Description of Experience	Name of Supervising Individual	Location and Corresponding Material License Number	Dates and Clock Hours of Experience	Related Radiation Safety Exam Score
<p>Nuclear Medical Science Officer, U.S. Army Environmental Hygiene Agency. Radiation protection, dosimetry and calibration duties for:</p> <p>Any byproduct material with atomic no.'s 1 – 84, any form, not to exceed 800 mCi each or 10 Ci total.</p> <p>Any byproduct material with atomic no.'s 1 – 100, any form, not to exceed 15 uCi each or 500 uCi total.</p> <p>J.L Shepard Cs-137 sealed 130 mCi calibration source.</p> <p>Various plutonium and uranium sources.</p>	LTC Eugene Potter, CHP	Aberdeen Proving Ground, MD USNRC Licenses: #19-09880-01, #SMB-707and #SNM-860	Jan 85 – Dec 85 (900 hours)	N/A
<p>Radiation Safety Officer, Darnall Army Community Hospital. Radiation protection, dosimetry radioactive waste management, health physics program management and calibration duties for:</p> <p>Any byproduct material with atomic no.'s 1 – 83 for use as radiopharmaceuticals in diagnosis and therapy.</p> <p>Various calibration sources.</p>	MAJ Jerome Karwacki, M.D.	Fort Hood, TX USNRC License #42-19113-01	Jan 86 – Dec 88 (6000 hours)	N/A
<p>Graduate Student, Cornell University.</p> <p>Senior reactor operator for TRIGA reactor, with <math>10^{14}</math> neutron flux in core and <math>10^{12}</math> neutron flux at beam ports.</p> <p>Gamma cell operator with 10 MCi Co-60 irradiation source.</p>	Dr. K. Bingham Cady, Sc.D.	Ithaca, NY USNRC License #SOP-10973	Aug 89 - May 91 (1000 hours)	N/A
<p>Project Engineer, Defense Nuclear Agency Plutonium Mining Project. Spectroscopy, calibration and respiratory protection duties for a unique environmental restoration project.</p> <p>Various plutonium and americium samples and sources.</p>	Dr. Ed Bramlitt, Ph.D.	Johnston Island, Pacific Ocean	Jun 91 – Jun 92 (1000 hours)	N/A
<p>Radiation Safety Officer (Broad Scope), Tripler Army Medical Center. Radiation protection, dosimetry radioactive waste management, health physics program management and calibration duties for:</p> <p>Any byproduct material with atomic no.'s 1 – 83 for use as radiopharmaceuticals in diagnosis and therapy.</p> <p>J.L Shepard Cs-137 sealed 2200 Ci irradiation source.</p> <p>Various calibration sources.</p>	COL Tom Cashman, M.D.	Honolulu, HI USNRC License #53-00458-04	Jun 92 – Jun 96 (8000 hours)	N/A
<p>Doctoral Candidate, University of Texas Health Science Center.</p> <p>Various research and calibration sources.</p>	Dr. Dave Kopp, Ph.D.		Aug 96 – Aug 99 (100 hours)	N/A
<p>Nuclear Scientist, U.S. Army Nuclear and Chemical Agency.</p> <p>Scientific editor and contributing author to a North Atlantic Treaty Organization allied engineering publication on sampling and identification of radiological agents.</p>	Dr. Chuck Davidson, Ph.D.		Aug 99 – Aug 02 (500 hours)	N/A

Radiation Safety Officer (Broad Scope), Walter Reed Army Medical Center. Manages one of the largest health physics programs in both breadth and depth in the United States. Program oversight for medical diagnostic and therapeutic uses; Cs-137 and Co-60 irradiators; equipment calibration; human and animal research; pharmaceutical research and development; and related biomedical applications. Other institutions operating under the WRAMC NRC licenses include the Walter Reed Army Institute of Research, the Naval Medical Research Command and the Armed Forces Institute of Pathology.

COL Dallas Hack, M.D.

Washington D.C.  
USNRC Licenses  
#08-01738-02  
#08-01738-03

Sep 02 – present  
(3000 hours)

N/A

## 6. FORMAL TRAINING

Degree, Area of Study	Name of Program and Location with Corresponding Materials License Number	Dates	Name of Organization that Approved the Program (e.g., Accreditation Council for Graduate Medical Education) and the Applicable Regulation (e.g., 10 CFR 35.294)
B.E.S., Nuclear Engineering	University of Texas at Austin	Ex 4	ABET Accredited
M.Eng., Nuclear Engineering	Cornell University, NY		ABET Accredited
Ph.D., Radiological Physics	Univ. of Texas Health Science Center		CAMPEP Accredited

# The American Board of Radiology

*Organized through the cooperation of the  
American College of Radiology, the American Roentgen Ray Society,  
the American Radium Society, the Radiological Society of North America,  
the Section on Radiology of the American Medical Association,  
the American Society for Therapeutic Radiology and Oncology, the Association of  
University Radiologists, and American Association of Physicists in Medicine*

*Hereby certifies that*

**John Rene Mercier, M.E.**

*Has pursued an accepted course of graduate study  
and clinical work, has met certain standards and qualifications and  
has passed the examinations conducted under the authority of*

*The American Board of Radiology*

*On this seventh day of June, 1995*

*Thereby demonstrating to the satisfaction of the Board  
that he is qualified to practice the specialty of*

**Diagnostic Radiological and Medical Nuclear Physics**



*Douglas Maynard MD*  
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**LIEUTENANT COLONEL JOHN R. MERCIER, Ph.D., PE, DABR, SRO**  
Leader, U.S. Army Radiological Advisory Medical Team  
Chief, Health Physics, Walter Reed Army Medical Center  
Radiation Safety Officer, Walter Reed Army Medical Center  
Radiation Safety Officer, North Atlantic Regional Medical Command  
Chair, DoD Weapons of Mass Destruction Human Response Panel  
Senior NATO Umpire, Operational and Forensic Sampling of Radiological Agents

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## FORMAL EDUCATION

Doctor of Philosophy (Radiological Physics), The University of Texas Health Science Center,  
San Antonio, Texas  
Master of Engineering (Nuclear), Cornell University, Ithaca, New York  
Bachelor of Engineering Science (Nuclear), The University of Texas, Austin, Texas

## PROFESSIONAL CREDENTIALS

Diplomate, American Board of Radiology, Dual Certified in Diagnostic Radiological Physics and  
Medical Nuclear Physics, DABR Physicist # P1779, 1995  
Licensed Medical Physicist, Texas, # MP0402, 1995  
Licensed Professional Nuclear Engineer, Texas PE Registration # 80363, 1995  
Licensed Nuclear Plant Senior Reactor Operator, TRIGA Reactor, NRC License #SOP-10973, 1990  
Certified Hazard Control Manager, International Board of Hazard Control Management,  
Master Certification # 2490, 1993  
"A" Proficiency Designator – Professional credential awarded to recognized experts by the Surgeon  
General of the United States Army, 2003

## AFFILIATIONS AND PROFESSIONAL MEMBERSHIPS

Member, Sigma Xi – The Scientific Research Society  
Member, Tau Beta Pi – The National Engineering Honor Society  
Member, American Nuclear Society  
Member, Health Physics Society  
Past President for Hawaii Chapter  
Member, American Association of Physicists in Medicine  
North Atlantic Treaty Organization (NATO):  
Senior NATO Umpire, Land Group 7 Expert Subgroup on Sampling and Identification  
of Biological, Chemical and Radiological Agents  
Past Head of U.S. Delegation, Expert Subgroup on Sampling and Identification of  
Radiological Agents  
Past Member, Land Group 7 on Joint Nuclear, Biological and Chemical (NBC) Defense  
Past Member, Land Group 7, Expert Working Group on Low-Level Radiation  
Past Member, Operational NBC Working Group  
Past Member, Medical NBC Working Party  
Past Member, Task Group on Radiation Treatments and Countermeasures  
The Technical Cooperation Program (TTCP) of the American, British, Canadian, and  
Australian (ABCA) Alliance:  
Member, Technical Panel 13 on Radiation Hazards



Department of Defense:

Leader, U.S. Army Radiological Advisory Medical Team  
Chair, DoD Weapons of Mass Destruction Human Response Panel  
Lead Scientist, Special Weapons Operational Reconnaissance Detachment  
Past Member, Nuclear Warfare Casualty Panel of Experts, Joint Readiness Clinical  
Advisory Board  
Standing Member, DoD RADIAC Working Group  
Member, Joint DoD/DOE Nuclear Weapon Accident Response Steering Group  
(NWARSG) and the NWARSG Technical Working Group

**PUBLICATIONS**

**Mercier, J. R.**, *Mission and Capabilities of the U.S. Army Radiological Assistance Medical Team*, Proceedings of the 11<sup>th</sup> International Radiation Protection Association (IRPA), Madrid, Spain, May, 2004 (in print).

**Haslip, D. S.**, and **Mercier, J. R.**, *A NATO Exercise on Radiological Sampling*, submitted to Health Physics in March, 2004.

**Groeber, E.**, and **Mercier, J. R.**, *Development of Low-Cost Aerial Survey and Spectroscopy Systems*, Proceedings of the 37<sup>th</sup> Health Physics Society Midyear Topical Meeting: Radiological Air Monitoring and Dosimetry, Augusta, GA, February 8-11, 2004, p. 220-230.

**Mercier, J. R.** (Ed.), *Senior Umpire Report: 2003 NATO Field Trials for Sampling and Identification of Radiological Agents (SIRA)*, North Atlantic Treaty Organization (NATO) Document Number PFP(NAAG-LG/7-SIBCRA)D(2003)2, December, 2003.

**Anno, G.**, **R. Bloom**, **J. R. Mercier**, **R. W. Young**, *Dose Response Relationships for Acute Ionizing Radiation Lethality*, Health Physics, 84(5), 2003, p. 565-575.

**Mercier, J. R.**, and **Moss, S. C.**, *The U.S. Army Radiological Advisory Medical Team*, Proceedings of the 36<sup>th</sup> Health Physics Society Midyear Topical Meeting: Radiation Safety Aspects of Homeland Security and Emergency Response, San Antonio, TX, January 26-29, 2003, p. 158-163.

**Lankipalli, B. R.**, **W. D. McDavid**, **S. B. Dove**, **E. Wieckowska**, **R. G. Waggener**, and **J. R. Mercier**, *Comparison of Five Methods for the Derivation of Spectra for a Constant Potential Dental X-Ray Unit*, Dentomaxillofacial Radiology, 30, 2001, p. 264-269.

**Mercier, J. R.**, *Commander's Guide on Low-Level Radiation (LLR) Exposure in Military Operations*, Edition 2, Standardization Agreement 2473, North Atlantic Treaty Organization, 2002.

**Mercier, J. R.**, *Commander's Guide on Nuclear Radiation Exposure of Groups During War*, Edition 6, NATO Standardization Agreement 2083, North Atlantic Treaty Organization, 2001.

**Mercier, J. R.**, **D. T. Kopp**, **W. D. McDavid**, **S. B. Dove**, **J. L. Lancaster**, and **D. M. Tucker**, *Modification and Benchmarking of MCNP for Low-Energy Tungsten Spectra*, Medical Physics, 27(12), 2000, p. 2680-2687.

**Mercier, J. R.**, **D. T. Kopp**, **W. D. McDavid**, **S. B. Dove**, **J. L. Lancaster**, and **D. M. Tucker**, *Measurement and Validation of Benchmark-Quality Thick-Target Tungsten X-Ray Spectra below 150 kVp*, Radiation Research, 154, 2000, p. 564-581.

**Mercier, J. R.**, **D. T. Kopp**, **W. D. McDavid**, **S. B. Dove**, **J. L. Lancaster**, and **D. M. Tucker**, *Using Measured 30-150 kVp Polychromatic Tungsten X-Ray Spectra to Determine Ion Chamber Calibration Factors*, Health Physics, 79(4), 2000, p. 402-406.

**Mercier, J. R. (Ed.),** *NATO Handbook for Sampling and Identification of Radiological Agents, Volume 1 (Operational)*, Allied Engineering Publication 49, North Atlantic Treaty Organization, 2000.

**Mercier, J. R.,** Medical Aspects of Nuclear Weapons and Radiation Effects, Chapter 3 of the FY 01/02 Army Specific Military Requirements for Nuclear and Radiation Effects Information, published by the U.S. Army Deputy Chief of Staff for Operations and Plans (DCSOPS), August 2000.

**Mercier, J. R.,** *Measurement and Monte Carlo Prediction of Diagnostic Tungsten X-Ray Spectra*, Ph.D. Dissertation, Graduate School of Biomedical Sciences, The University of Texas Health Science Center, San Antonio, TX, 1999. Available from UMI Dissertation Services, Ann Arbor, MI, 1999, UMI No. 9938769.

Seibert, J. A. (Chair), T. Bogucki, T. Ciona, J. Dugan, W. Huda, A. Karellas, **J. Mercier**, E. Samai, J. Sheppard, B. Stewart, O. Suleiman, D. Tucker, R. Uzenoff, J. Weiser, and C. Willis, *Acceptance Testing and Quality Control of Photostimulable Storage Phosphor Imaging Systems, Report of Task Group #10*, American Association of Physicists in Medicine, 1998.

Willis, C. E., **J. Mercier**, M. Patel, *Modification of Conventional Quality Assurance Procedures to Accommodate Computed Radiography*, Proceedings of the 13<sup>th</sup> Conference of Computer Applications in Radiology, Society for Computer Applications in Radiology, Denver, CO, 1996.

**Mercier, J. R.,** and Bramlitt, E. T., *A Soil Cleanup on Johnston Atoll*, Proceedings of the First Symposium on Soil Cleanup in the Pacific Islands, American Society of Civil Engineers, Honolulu, HI, 1993.

Moroney, J. D., Johnson, N. R., Moroney, K. S., **Mercier, J. R.,** *An Improved Method for Removing Transuranics from Coral Soil at Johnston Atoll*, Proceedings of the 1992 Federal Environmental Restoration Conference, Hazardous Materials Control Resources Institute, Vienna, VA, 1992.

## ABSTRACTS AND POSTERS

**Mercier, J. R.,** The U.S. Army Radiological Advisory Medical Team, 6<sup>th</sup> Annual Force Health Protection Conference, Albuquerque, NM, August 11-17, 2003.

Liu, H. L., Y. Pu, T. Andrews, **J. Mercier**, P. T. Fox, and J.-H. Gao, Cerebral Blood Flow Measurement Using Adaptive Threshold for Singular Value Decomposition Technique on Dynamic Contrast Agent MR Perfusion Imaging, 7<sup>th</sup> Meeting of the International Society for Magnetic Resonance in Medicine, Philadelphia, PA, 1999.

**Mercier, J. R.,** D. T. Kopp, D. M. Tucker, C. E. Willis and J. L. Lancaster, X-Ray Spectra Resolution Requirements for Characterization of Image Receptors, 84<sup>th</sup> Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, 1998.

**Mercier, J.** and D. Kopp, Preliminary Evaluation of the Monte Carlo Code MCNP4b for Diagnostic X-Ray Spectra, 40<sup>th</sup> Annual Meeting of the American Association of Physicists in Medicine, Medical Physics, 1998, 25(7), p. A105.

Willis, C. E., **J. R. Mercier**, M. G. Patel, Unresolved Issues in Computed Radiography, 38<sup>th</sup> Annual Meeting of the American Association of Physicists in Medicine, Medical Physics, 1996, 23(6), p.1076.

## PROFESSIONAL AND LEADERSHIP EXPERIENCE

**Chief, Health Physics** 8/02 – present  
Walter Reed Army Medical Center, Washington, D.C.

Lead the U.S. Army Radiological Advisory Medical Team (RAMT) in rapid response missions to save lives anywhere in the world. Chair the DoD Weapons of Mass Destruction Human Response Panel which is responsible for defining casualty criteria and developing casualty prediction models. Serve as executive agent and Radiation Safety Officer for broad-scope USNRC radioactive material and irradiator licenses (#'s 08-01738-02 and 08-01738-02). Direct comprehensive health physics services for world-renowned medical and research centers to include Walter Reed Army Institute of Research, the Armed Forces Institute of Pathology and Walter Reed Army Medical Center. Serve as regional Radiation and Laser Safety Officer and provide oversight and mission support services to Army medical facilities within the 21-state North Atlantic Regional Medical Command's umbrella of responsibility. Identify and train military scientists, as well as, develop test plans, techniques and procedures for the DoD Special Weapons Operational Reconnaissance Detachment (SWORD) in support of Combatant Commanders. Manage ~\$500K annually and supervise 20 health physics professionals.

**Nuclear Scientist** 8/99 – 8/02  
U.S. Army Nuclear and Chemical Agency, Springfield, VA

Served as primary consulting subject matter expert (SME) to Army Staff and other DoD/NATO/U.S. Government agencies on the medical effects of nuclear weapons and radiation. Set policy on friendly troop safety risk criteria and enemy personnel casualty criteria for nuclear weapons effects. Developed casualty estimation models for nuclear, biological and chemical (NBC) weapons. Served on numerous DoD and NATO SME panels for NBC research, operational doctrine and equipment development. Developed Army R&D requirements for radiobiology, biomedical technology and NBC operations. Served as Alternate Army Reactor Officer for the Army Reactor Office that maintains oversight of WSMR and APG fast burst reactors. Served on the Nuclear Employment Augmentation Team in support of Combatant Commanders.

**Doctoral Student** ExL  
The University of Texas Health Science Center, San Antonio, TX

Research focused on diagnostic imaging, the use of Monte Carlo codes to simulate x-ray beam formation and transport, measurement of x-ray spectra, computed radiography and other digital imaging systems. Teaching duties and course work broadly covered the medical radiological physics profession.

**Chief, Health Physics** 6/92 – 6/96  
Tripler Army Medical Center, Honolulu, HI 96859-5000

Executive agent and Radiation Safety Officer for a broad-scope USNRC radioactive material license (#53-00458-04). Directed comprehensive health physics services for a major teaching and research hospital. Developed or approved nuclear medicine, diagnostic radiology and radiation therapy QC protocols. Performed gamma camera acceptance testing. Evaluated and approved all Pacific region radiological facility designs. Conducted health and medical physics audits. Routinely provided formal and informal radiation safety training and imaging science lectures to nuclear medicine and radiology technologists. Routinely counseled physicians, patients, and hospital staff on radiation effects. Occasionally lectured radiology residents in imaging physics.

**Project Engineer, Johnston Atoll Plutonium Mining Project** 5/91 - 6/92  
Defense Nuclear Agency, Kirtland AFB, NM 87115-5000

Spearheaded the Defense Nuclear Agency's \$15 million Plutonium Mining Project. Led world's first successful remediation of plutonium contaminated soil. Designed several multichannel analyzer radioassay systems using sodium iodide and high-pure germanium spectroscopy detectors. Developed and enforced various radiation safety, bioassay, and respiratory protection programs.

**Graduate Student**  
Cornell University, Ithaca, NY

Ex 6

Research focused on characterizing radiation damage to electronic components using the Cornell gamma irradiation facility. Gained experience as a federally licensed nuclear plant senior reactor operator (License # SOP-10973) that required mastery of all research facilities and radiological monitoring equipment within the reactor building. Developed experimental research protocols for the TRIGA reactor and assisted in training a reactor operator. Course work broadly covered the nuclear engineering profession.

**Radiation Protection Officer** 12/85 - 12/88  
Darnall Army Community Hospital, Ft Hood, TX 76544-5063

Executive agent and Radiation Safety Officer for USNRC limited-scope radioactive material license (#42-19113-01). Hospital consultant for health physics, diagnostic radiology physics, & medical nuclear physics. Developed radiation protection, radiology QA/QC, & nuclear medicine QA/QC programs. Performed health & medical physics audits, calibrations, x-ray system & shielding surveys. Troubleshooted image quality problems. Trained all radiation workers.

**Nuclear Medical Science Officer** 1/85 - 12/85  
US Army Environmental Hygiene Agency, APG, MD 21010-5422

Consulted Army and DoD installations for adequate radiation protection, radiology QA/QC, and nuclear medicine QA/QC programs. Wrote safety and QC procedures and evaluated x-ray system performance. Conducted radiological shielding evaluations and health hazard assessments of equipment and facilities.

**Commander, Detachment 1, A Company** 12/82 - 12/84  
249<sup>th</sup> Supply and Transport Battalion, 49<sup>th</sup> Armored Division,  
Texas Army National Guard, Killeen, TX

Exercised command. Led with honor and respect.

**Platoon Leader, HHQ Company** 8/81 - 11/82  
249<sup>th</sup> Supply and Transport Battalion, 49<sup>th</sup> Armored Division,  
Texas Army National Guard, Austin, TX

Developed leadership skills.

## RECENT PROFESSIONAL SHORT COURSES AND EXERCISES

Radiological Mass Casualty Medical Preparations Course, 17-20 Feb 2004  
Course Director and Lead Instructor, Walter Reed Army Medical Center

Nuclear, Radiation and High-Yield Explosives (NRE) Course, 10 Feb – 4 May 2004  
Invited Lecturer, Uniformed Services University of the Health Sciences

North Atlantic Treaty Organization (NATO) Sampling and Identification of Radiological Agents (SIRA) Field Trials, 21-26 Sep 2003  
Senior NATO Umpire, NATO Land Group 7 (Joint NBC Defense)

Radiological Accident Command, Control, and Coordination Course, 18-21 Aug 2003  
Student, Defense Nuclear Weapons School

Hazard Prediction Assessment Capability (HPAC) Software Basic Course, 15-18 Jul 2003  
Student, Defense Threat Reduction Agency

Medical Effects of Ionizing Radiation Course, 6-7 May 2003  
Student, Uniformed Services University of the Health Sciences

Center for Disease Control (CDC) Radiological Event Tabletop Exercise – Louisville, KY, 11 Feb 03  
Leader, U.S. Army Radiological Advisory Medical Team, DoD

Train the Trainer: Transportation Emergency Preparedness Program, 25 Jan 2003  
Student, Department of Energy -- National Nuclear Security Administration

Operation Diligent Warrior Nuclear Weapon Accident Exercise, 7-25 Oct 2002  
Leader, U.S. Army Radiological Advisory Medical Team, DoD

NATO Staff Officer's NBC Defense Policy Course, 9-13 Jul 2001  
Lecturer and Student, The NATO School – Supreme Headquarters Allied Powers Europe

Joint Nuclear Operations and Targeting Course, 12-16 Jun 2000  
Student, Defense Nuclear Weapons School