

APPLICATION FOR MATERIAL LICENSE

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.

FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIAL SECTION B
831 PARK AVENUE
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
MATERIAL RADIATION PROTECTION SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
MATERIAL RADIATION PROTECTION SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

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 JURISDICTION.

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

- ☐ A. NEW LICENSE
☐ B. AMENDMENT TO LICENSE NUMBER _____
☒ C. RENEWAL OF LICENSE NUMBER SNM-164

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)

THE CATHOLIC UNIVERSITY OF AMERICA
620 MICHIGAN AVENUE, NE
WASHINGTON, DC 20064

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Same as Item 2

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Warren E. Keene, Radiological Safety Officer

TELEPHONE NUMBER

202-635-5206

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 No Change
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.
No Change

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE See Attachment

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.
No Change

9. FACILITIES AND EQUIPMENT.
No Change

10. RADIATION SAFETY PROGRAM.
No Change

11. WASTE MANAGEMENT.
No Change

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)
FEE CATEGORY Exempt 170.11(a)(4) AMOUNT ENCLOSED \$

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, 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.

SIGNATURE—CERTIFYING OFFICER

TYPED/PRINTED NAME

TITLE

DATE

John Joseph Murphy

John Joseph Murphy

Executive Vice President

FEB. 22 1985

14. VOLUNTARY ECONOMIC DATA

a. ANNUAL RECEIPTS
\$250K
\$250K-500K
\$500K-750K
\$750K-1M

b. NUMBER OF EMPLOYEES (Total for entire facility excluding outside contractors)

c. NUMBER OF BEDS

d. WOULD YOU BE WILLING TO FURNISH COST INFORMATION (Dollar and/or staff hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? (NRC regulations permit it to protect confidential commercial or financial—proprietary—information furnished to the agency in confidence)

☐ YES

☐ NO

FOR NRC USE ONLY

TYPE OF FEE Renewal FEE LOG March 31 FEE CATEGORY EX, IK COMMENTS
AMOUNT RECEIVED ML10 CHECK NUMBER 03461

"OFFICIAL RECORD COPY"
ML10 03461

APPROVED BY Francis Brown
DATE 3/4/85

PF 8512230103 851125
REG1 LIC70
SNM-0164 PDR

FEE EXEMPT
FEB 25 1985
170.11(a)(4)

ITEM 7 INDIVIDUALS RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE

The university Radiation Safety Committee is responsible for the radiation safety program. The present membership is indicated below. Members whose names are preceded by an asterisk are qualified to accept responsibility in matters of radiation safety. Separate pages summarizing their training and experience are appended. The remaining members have been appointed to the committee for administrative convenience.

RADIATION SAFETY COMMITTEE MEMBERSHIP

* Roland M. Nardone, Ph.D., Professor of Biology and Chairman of the Committee

Clay W. Goldston, Director of Public Safety

Janice C. Hallal, Ph.D., Assistant Professor of Nursing

* Edward D. Jordan, Ph.D., Professor of Mechanical Engineering

* Warren E. Keene, M.Sc., Radiological Safety Officer

Thomas A. Lillis, Assistant Vice President for Facilities Management

* John M. Schwab, Ph.D., Associate Professor of Chemistry

* Daniel I. Sober, Ph.D. Professor of Physics

QUALIFICATIONS OF INDIVIDUAL RADIONUCLIDE USERS

NAME <u>Roland M. Nardone</u>		DATE <u>1 February 1985</u>		
JOB TITLE <u>Professor</u>		DEPARTMENT <u>Biology</u>		
TYPE OF TRAINING	WHERE TRAINED	TRAINING DURATION	ON THE JOB	FORMAL CCURSE
PRINCIPLES AND PRACTICES OF RADIATION PROTECTION	Catholic University	5 y	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
BASIC RADIOLOGICAL PHYSICS	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
INSTRUMENTATION, MATHEMATICS AND CALCULATIONS BASIC TO THE USE AND MEASUREMENT OF RADIATION	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
BIOLOGICAL EFFECTS OF RADIATION	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
TYPE OF DEGREE	NAME OF INSTITUTION			
Ph.D Biology	Fordham University, 1951			
M.S., Biology	" " 1949			
B.S., Biology	Fordham College, 1947			
PROFESSIONAL CERTIFICATIONS: Director, Center for Advanced Training in Cell and Molecular Biology, CUA				
EXPERIENCE WITH RADIATION (ACTUAL USE OF ISOTOPES)				
ISOTOPE	MAX AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
I-3	5 mCi	Catholic University	1960-1985	Tracer work with Cells
C-14	5 mCi	"	"	"
Co-60	10 Ci	"	1963-	Cell irradiator
P-32	1 mCi	"	1983-	Tracer work with cells
I-125	0.5 mCi	"	1983-	"

Use additional sheet if necessary

QUALIFICATIONS OF INDIVIDUAL RADIONUCLIDE USERS

NAME <u>Edward D. Jordan</u>		DATE <u>1 Feb 85</u>		
JOB TITLE <u>Professor</u>		DEPARMTENT <u>Mechanical Engineering</u>		
TYPE OF TRAINING	WHERE TRAINED	TRAINING DURATION	ON THE JOB	FORMAL CCURSE
PRINCIPLES AND PRACTICES OF RADIATION PROTECTION	NYU, BNL CUA	6 m, 6m 14 yr	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
BASIC RADIOLOGICAL PHYSICS	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
INSTRUMENTATION, MATHEMATICS AND CALCULATIONS BASIC TO THE USE AND MEASUREMENT OF RADIATION			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
BIOLOGICAL EFFECTS OF RADIATION			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
TYPE OF DEGREE	NAME OF INSTITUTION			
Ph.D.	University of Maryland, 1965			
M.S.	New York University, 1955			
B.S.	Fairfield University, 1953			
PROFESSIONAL CERTIFICATIONS: Past SRO, AGN-201 Reactor, Past Chairman CUA Radiation safety Committee				
EXPERIENCE WITH RADIATION (ACTUAL USE OF ISOTOPES)				
ISOTOPE	MAX AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Pu	10 Ci	CUA	5 y	Laboratory
U-nat	2 Tons	CUA Sub-critical Assembly	13 y	"
20% U-235	700 g	CUA AGN-201 Reactor	13 y	"
Misc	mCi	CUA	13 y	"

Use additional sheet if necessary

QUALIFICATIONS OF INDIVIDUAL RADIONUCLIDE USERS

NAME <u>Warren E. Keene</u>		DATE <u>February 1985</u>		
JOB TITLE <u>Radiological Safety Officer</u>		DEPARTMENT <u>Radiation Safety</u>		
TYPE OF TRAINING	WHERE TRAINED	TRAINING DURATION	ON THE JOB	FORMAL COURSE
PRINCIPLES AND PRACTICES OF RADIATION PROTECTION	CUA	4 yr	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
BASIC RADIOLOGICAL PHYSICS	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
INSTRUMENTATION, MATHEMATICS AND CALCULATIONS BASIC TO THE USE AND MEASUREMENT OF RADIATION	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
BIOLOGICAL EFFECTS OF RADIATION	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
TYPE OF DEGREE	NAME OF INSTITUTION			
M.S. (Nuc. Engr.)	The Catholic University of America, 1966			
B.S. (Engr)	The George Washington University, 1957			
PROFESSIONAL CERTIFICATIONS: Fallout Shelter Analyst, OCD Graduate Balt-Wash Chapter, HPS Certification Prep Course				
EXPERIENCE WITH RADIATION (ACTUAL USE OF ISOTOPES)				
ISOTOPE	MAX AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
See attached sheet		Catholic University	20 y	Laboratory & AGN-201 reactor
Cs-137	10 Ci	Georgia Institute of Technology	2 mo	Hot Cell work on high level
Sr/Y-90	10 Ci	"	"	radwaste fixation in glass
Co-60	1 Ci	"	"	"

Use additional sheet if necessary

Attachment to Form RSO-5, QUALIFICATIONS OF INDIVIDUAL RADIONUCLIDE USERS
Experience at The Catholic University of America with radionuclides

<u>ISOTOPE</u>	<u>SOURCE DESCRIPTION AND COMMENTS</u>
Am-241	Sealed sources up to 300 mCi
Cesium-137	5400 Ci Irradiation Facility 10 mCi sealed Calibration Source 1 mCi aqueous solutions, LLW simulation
Cobalt-60	10 Ci Irradiation Facility 20 mCi sealed calibration source 1 mCi aqueous solutions, LLW simulation
Iodine-131	5 mCi aqueous solutions, LLW simulation
Iron-55	1 mCi aqueous solutions, LLW simulation
Mo-99/Tc-99m	200 mCi generators
Nickel-63	225 mCi plated bare source used in xray generation and dosimetry studies
Manganese-54	100 uCi aqueous solutions, LLW simulation
Polonium-210	10 Ci Sealed source
Plutonium-Beryllium	4 Ci Sealed source
Sr/Y-90	1 mCi aqueous solutions, LLW simulation
Tritium	10 Ci accelerator targets
Miscellaneous	microcurie to millicurie sources of various types used for calibration, research and instructional purposes
U-nat	100 mg as powder and aqueous suspension, LLW simulation

QUALIFICATIONS OF INDIVIDUAL RADIONUCLIDE USERS

NAME <u>John M. Schwab</u>		DATE <u>5 October 1984</u>		
JOB TITLE <u>Associate Professor</u>		DEPARTMENT <u>Chemistry</u>		
TYPE OF TRAINING	WHERE TRAINED	TRAINING DURATION	ON THE JOB	FORMAL COURSE
PRINCIPLES AND PRACTICES OF RADIATION PROTECTION	New England Nuclear	1 week	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
BASIC RADIOLOGICAL PHYSICS	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
INSTRUMENTATION, MATHEMATICS AND CALCULATIONS BASIC TO THE USE AND MEASUREMENT OF RADIATION	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
BIOLOGICAL EFFECTS OF RADIATION	"	"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
TYPE OF DEGREE	NAME OF INSTITUTION			
Ph.D	Brandeis University, 1976			
B.S.	University of Michigan, 1969			
PROFESSIONAL CERTIFICATIONS:				
EXPERIENCE WITH RADIATION (ACTUAL USE OF ISOTOPES)				
ISOTOPE	MAX AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
H-3	2 Ci	New England Nuclear Corp.	10 mo	synthesis & purification of organic products
H-3	1 Ci	Brandeis University	5 y	"
C-14	200 mCi	New England Nuclear Corp.	10 mo	"
C-14	25 mCi	Brandeis University	5 y	"

Use additional sheet if necessary

QUALIFICATIONS OF INDIVIDUAL RADIONUCLIDE USERS

NAME <u>Daniel I Sober</u>		DATE <u>1 February 1985</u>		
JOB TITLE <u>Professor</u>		DEPARTMENT <u>Physics</u>		
TYPE OF TRAINING	WHERE TRAINED	TRAINING DURATION	ON THE JOB	FORMAL CCURSE
PRINCIPLES AND PRACTICES OF RADIATION PROTECTION Accellerator Tritium Target Safety	Various National Labs		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
BASIC RADIOLOGICAL PHYSICS			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
INSTRUMENTATION, MATHEMATICS AND CALCULATIONS BASIC TO THE USE AND MEASUREMENT OF RADIATION			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
BIOLOGICAL EFFECTS OF RADIATION			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
TYPE OF DEGREE	NAME OF INSTITUTION			
Ph.D., Physics	Cornell University, 1969			
B.A., Physics	Swarthmore College, 1963			
PROFESSIONAL CERTIFICATIONS:				
EXPERIENCE WITH RADIATION (ACTUAL USE OF ISOTOPES)				
ISOTOPE	MAX AMCUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
H-3	10 Ci	Various National Labs	Intermittant over 10 years	Accellerator Targets

Use additional sheet if necessary

BETWEEN: William O. Miller, Chief
License Fee Management Branch
Office of Administration

John E. Glenn, Chief
Nuclear Materials Section B
Division of Engineering and
Technical Programs

Slight Address Change

Fee Exempt

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED

Applicant/Licensee: The Catholic University of America

Application Dated: 2/22/85

Control No.: 03461

License No.: SNM-164

2. FEE ATTACHED

Amount: 0

Check No.: 0

3. COMMENTS

Signed Brandon P. Latchek

Date 2/26/85

B. LICENSE FEE MANAGEMENT BRANCH

1. Fee Category and Amount: No fee due - Exempt

2. Correct Fee Paid. Application may be processed for:

Amendment ✓

Renewal _____

License _____

Signed Frances Brown

Date 3/4/85

908
3/6/85