

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
631 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 OAD
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-356

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

Princeton University
Occupational Health & Safety -
Forrestal Campus
Princeton, NJ 08544

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

Princeton University - Main Campus & James Forrestal
Research Campus

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Mr. Jack C. Faust

TELEPHONE NUMBER

(609) 452-5294

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 AND EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES

8512100260 851023
REG1 LIC70

10. RADIATION SAFETY PROGRAM

11. WASTE MA

SNM-0356 PDR

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

n/a per 170.11(a)(4) AMOUNT ENCLOSED \$ none

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

Jack C. Faust

TYPED/PRINTED NAME

Jack C. Faust

TITLE

Director, Office of
Occupational Health & Safety

DATE 12/27/84

a. ANNUAL RECEIPTS

<\$250K	\$1M-3.5M
\$250K-500K	\$3.5M-7M
\$500K-750K	\$7M-10M
\$750K-1M	>\$10M

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

FEE LOG

FEE CATEGORY

COMMENTS

APPROVED BY

AMOUNT RECEIVED

CHECK NUMBER

DATE

PRIVATE ACT STATEMENT ON THE REVERSE

"OFFICIAL RECORD COPY"

03276

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY:** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).
2. **PRINCIPAL PURPOSE(S):** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30, 32, 33, 34, 35 and 40 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.
3. **ROUTINE USES:** The information may be (a) provided to State health departments for their information and use; and (b) provided to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for an NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed. A request that information be held from public inspection must be in accordance with the provisions of 10 CFR 2.790. Withholding from public inspection shall not affect the right, if any, of persons properly and directly concerned need to inspect the document.
5. **SYSTEM MANAGER(S) AND ADDRESS:** U.S. Nuclear Regulatory Commission
Director, Division of Fuel Cycle and Material Safety
Office of Nuclear Material Safety and Safeguards
Washington, D.C. 20555

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

FIRST CLASS MAIL POSTAGE & FEES PAID USNRC WASH D C PERMIT NO. 682

SUPPLEMENT TO NRC LICENSE RENEWAL APPLICATION

Item 5. Radioactive Materials

5(a) Element and Mass Number	5(b) Chemical and/or Physical Form	5(c) Amount	
1. Pu-239	Encapsulated Pu-Be Neutron Sources Monsanto Research Corp.	Curie	Nominal Grams
	Mfgr's No. M-381	0.1	1.6
	M-741	1.0	16.0
	M-742	1.0	16.0
	M-743	1.0	16.0
	M-941	1.0	16.0
	See Note 1 below.		
2. Pu-239	See Note 2 below.	2.0	32.0
3. Pu-239	As plated alpha counting source standards	-	0.016
4. U-235	Any	-	100.00

Note 1. All the Pu-Be neutron sources listed are presently in Princeton's possession. All sources are right cylinders consisting of a Pu-Be alloy encapsulated in an inner tantalum container and an outer stainless steel welded container.

Note 2. The additional two (2) Curies authorization is requested to permit acquisition of other sources up to two (2) Curies in total amount without the necessity of filing for a license amendment. If obtained, these sources will be of similar construction and design as the others listed.

Item 6 Purpose for which licensed materials will be used
Education, training, and education-related research.

Item 7 The Office of Occupational Health and Safety is directed by Mr. Jack C. Faust, who holds a Masters Degree in Health Physics (A.E.C. Fellow) from the University of Rochester (1959). Mr. Faust was employed by Brookhaven National Laboratory as a Health Physicist from August, 1959, until he was appointed University Health Physicist at Princeton University in July of 1963. He was appointed Director of the Health Physics Group in July of 1967. Since September 30, 1971, he has been the Director of the Office of Occupational Health and Safety, with broadened safety responsibilities including, in addition to radiation safety, industrial hygiene, sanitation, and general safety.

Primary responsibility for the radiation safety program lies with the University Health Physicist whose name and qualifications follow:

Mr. Robert R. Milwicz, the University Health Physicist, holds a B.A. degree in Physical Sciences from Montclair State College (1968). Mr. Milwicz was employed on a part-time basis, totaling about 18 months, during the period 1964 to 1968, as a Health Physics Technician. After obtaining his degree in 1968, he rejoined the Group as a full-time professional member and has functioned in that capacity since that date. While working full-time at Princeton University, he studied part-time at Rutgers University, earning his M.S. degree in Radiological Science in 1976. Mr. Milwicz is assisted by Mr. David DiCello, Assistant University Health Physicist.

Mr. David C. DiCello received a B.S. in Biology (1981) from the University of Pittsburgh and completed the requirements for a M.S. degree in Radiation Health (1983) from the University of Pittsburgh Graduate School of Public Health. He worked previously for the Monsanto Research Corporation monitoring uranium milling sites in Canonsburg, Pennsylvania.

Other Health Physics staff include two Health Physics Technical Specialists: Mr. Kent Lambert who received a B.S. degree from Texas A & M University (1978) in Radiation Protection Engineering, and Mr. Charles Mansfield who received a B.S. degree from Texas A & M University (1983) in Radiological Health Engineering; and a Health Physics Technician, Mr. Joseph Sundra, who has been with the University for 20 years and is a Certified Radiation Protection Technologist.

Item 8 Training for individuals is as explained in Section 6.2 Item I of the University Radiation Safety Guide which you have in your possession.

Item 9 The Office of Occupational Health and Safety has a number of portable ionization chamber survey meters with sensitivity ranges from 3 mR/hr to 1000 R/hr full scale; portable survey meters with geiger instruments (thick and thin walled), large area alpha and/or beta contamination survey probes, scintillation probes; low energy beta/gamma survey meters; x-ray dosimeters and dose rate meters; two low level counters for smear and leak test analyses; multi-channel analyzer spectrometers with sodium iodide crystals (solid and well types); neutron survey meters; several portable bonnersphere neutron detector systems; a thermoluminescent dosimetry system; two precision long counters; a thyroid counting system; high and low volume air sampling equipment; two hot wire anemometers for checking fume hood and other air flow rates; and the necessary electronic test bench equipment for maintenance and repair.

All dose and exposure measuring radiation safety instrumentation is calibrated on an approximate three month schedule. Ionization chamber instrumentation is calibrated using radium-226 or cobalt-60 sources previously calibrated by the National Bureau of Standards. All neutron detecting equipment is calibrated using plutonium-beryllium neutron sources calibrated by Monsanto Laboratory. Radiation counting systems are calibrated periodically using check sources calibrated by the National Bureau of Standards or bearing certificates traceable to the Bureau of Standards.

Item 10 The radiation safety program is described in the University Radiation Safety Guide, Fourth Edition as amended, which includes both laboratory and administrative procedures. A brief summary follows:

1) Responsibilities and Authority

The University Radiation Safety Committee, a subcommittee of the Committee on Occupational Safety and Health, is charged with the responsibility and has the authority to review all proposed usage of radioactive materials. The Committee is empowered to authorize the usage of radioactive materials, including the materials under this license, upon the recommendation of the Office of Occupational Health and Safety. The Chairman of the University Radiation Safety Committee is an ex-officio member of the Committee on Occupational Safety and Health.

Item 10
(cont'd)

The University Committee on Occupational Safety and Health is the policy-making body and is appointed by the President of the University. Policies of this Committee are implemented by the Office of Occupational Health and Safety with regard to radiation safety as well as other occupational hazards. Members of the University Radiation Safety Committee and the Committee on Occupational Safety and Health are identified in Appendix A of the University Radiation Safety Guide.

2) Meetings

The Committee on Occupational Safety and Health meets on a nominal monthly schedule during the academic year and during the summer months when appropriate and necessary. Normally, the Committee has met on the average of five times per year. Minutes of all meetings are prepared, distributed, and retained on file.

The Radiation Safety Committee is a working group which reviews applications, on a continuing and regular basis, for the use of sources of radiation. Because of this and because at least two and usually more members of the Radiation Safety Committee also serve on the Committee on Occupational Safety and Health, the Radiation Safety Committee meets only on an as-needed basis. Routine matters relating to radiation safety are reviewed at the meetings of the Committee on Occupational Safety and Health.

3) Authorization to Use Radioactive Materials

All persons desiring to use radioactive materials must apply for internal authorization through the Office of Occupational Health and Safety. Application is made by completing the appropriate Occupational Health and Safety forms as follows: #1 (personnel data and exposure history), #4 (statement of training and experience), #20 (application for isotope authorization number), #20a (supplemental information), and when appropriate #30 (irradiation). See attachments. Form #20 calls for basic information regarding the intended use of the isotope(s) and must be signed by the Departmental Health and Safety Coordinator signifying departmental acknowledgment and/or approval for such usage.

The application and supporting information is forwarded to the Office of Occupational Health and Safety for review. The applicant is interviewed by a professional Health Physicist during which the proposed usage is discussed and evaluated. The investigator is also acquainted with the University Radiation Safety Guide, appropriate parts of 10 CFR, the New Jersey

Item 10
(cont'd)

Radiation Protection Code if appropriate, and informed of internal procedures. The laboratory space is inspected for adequacy of facilities such as fume hoods, impermeable bench tops, washable floors, disposal facilities, availability of adequate equipment to survey working areas, etc. When the application is approved by the Health Physics Officer*, copies of the application, supporting information, and a recommendation regarding approval are mailed to all available members of the Radiation Safety Committee for their review and approval. If all available members of the Committee unanimously approve the application, an authorization number is issued to the applicant for the specific isotope(s) in the possession limit requested. In the event a Committee member objects to the application, effort is then made to remove the objectionable situation in order to obtain unanimous approval. If this fails, this request is denied. The applicant may then request an extraordinary meeting of the Radiation Safety Committee to discuss the application and usage. Authorizations are issued on a conditional basis when appropriate.

The Radiation Safety Committee has authorized the Health Physics Officer* to approve applications for use of small amounts of radioactive material. See the Limited Possession Number Procedure in the Radiation Safety Guide for details.

- 4) All purchases and acquisitions of radioactive materials must be approved by the Office of Occupational Health and Safety. The Purchasing Department will not process any order without prior Occupational Health and Safety Office approval. The individual users are responsible for insuring that they stay within their authorized possession limits.
- 5) The leak testing of sealed sources, smear testing of laboratory and work areas, personnel radiation history and exposure records program, isotope inventories, the administration of the authorization number procedure, radiation surveys and related Health Physics are line responsibilities of and are performed by the Office of Occupational Health and Safety under the direction of Mr. Jack C. Faust. Additional and more detailed information regarding the entire program may be found in the Radiation Safety Guide.
- 6) Film, TLD, and Track Etch badge service is supplied by a commercial service, presently R. S. Landauer, Jr. & Company, Glenwood Science Park, Glenwood, IL 60425. Bioassays are contracted by Teledyne Isotopes, Inc., 50 Van Buren Avenue, Westwood, NJ 07675.

*the University Health Physicist is the Health Physics Officer

Item 11 Waste disposal service is supplied by a duly licensed commercial organization, at present Teledyne Isotopes, Inc., Radiological Service Department, 50 Van Buren Avenue, Westwood, NJ 07675, N.R.C. License No. 29-00055-14.

The University is considering alternate means of radioactive waste disposal. These are under study and if necessary will be addressed in an amendment application.

Attachments to Supplement

OHS Form #1
OHS Form #4
OHS Form #20
OHS Form #20a
OHS Form #30

PRINCETON UNIVERSITY
OFFICE OF OCCUPATIONAL HEALTH & SAFETY
PERSONNEL DATA AND EXPOSURE HISTORY

PLEASE PRINT

DATE _____

FULL NAME _____ BIRTH DATE _____
(last) (first) (middle) (month, day, year)

SOCIAL SECURITY NO. _____ SEX _____ AGE IN FULL YEARS _____

DEPARTMENT _____ EXTENSION _____

POSITION OR TITLE _____ DATE EMPLOYED _____

UNIVERSITY MAILING ADDRESS _____

IMMEDIATE SUPERVISOR OR ADVISOR _____ EXTENSION _____

PRINCETON UNIVERSITY STATUS: FACULTY MEMBER ☐ STUDENT - GRADUATE ☐
EMPLOYEE ☐ UNDERGRAD ☐
OTHER _____

IF YOU ARE EMPLOYED BY ANOTHER ORGANIZATION, PLEASE INDICATE YOUR AFFILIATION: _____

1. HAVE YOU PREVIOUSLY HAD REGULAR FILM BADGE SERVICE AT PRINCETON? YES ☐ NO ☐
APPROXIMATE DATES _____

2. HAVE YOU EVER WORN A PRINCETON VISITOR BADGE (YELLOW HOLDER)? YES ☐ NO ☐
APPROXIMATE DATES _____

3. HAVE YOU EVER RECEIVED ANY HIGH OR UNUSUAL RADIATION EXPOSURE? YES ☐ NO ☐

4. HAVE YOU EVER INHALED, INGESTED, OR BEEN INJECTED WITH ANY RADIO-ACTIVE MATERIAL? YES ☐ NO ☐

5. HAVE YOU EVER BEEN TESTED FOR INTERNALLY DEPOSITED RADIOISOTOPES BY URINE OR FECAL ANALYSIS OR BY WHOLE BODY COUNTING? YES ☐ NO ☐

IF "YES" TO QUESTIONS #3, #4, AND/OR #5, PLEASE EXPLAIN: _____

6. HAVE YOU RECEIVED ANY OCCUPATIONAL RADIATION DOSE DURING THE CURRENT CALENDAR QUARTER* FROM SOURCES NOT UNDER PRINCETON'S CONTROL? YES ☐ NO ☐

IF YES, PLEASE INDICATE AMOUNT AND NATURE OF ANY DOSE RECEIVED DURING PERIOD _____
TO _____ (FILL IN DATES*): _____

*DATES OF CALENDAR QUARTERS ARE: 1/1-3/31, 4/1-6/30, 7/1-9/30, OR 10/1-12/31.

PLEASE TURN OVER AND COMPLETE

7. HAVE YOU PREVIOUSLY WORKED WITH RADIOISOTOPES?

YES ☐ NO ☐

IF YES, PLEASE INDICATE WHEN, WHERE, AND IDENTIFY THE ISOTOPES AND TYPICAL AMOUNTS USED:

8. HAVE YOU PREVIOUSLY WORKED WITH A RADIATION-PRODUCING MACHINE?

YES ☐ NO ☐

IF YES, PLEASE INDICATE WHEN, WHERE, AND DESCRIBE TYPE OF EQUIPMENT:

9. HAVE YOU EVER BEEN MONITORED FOR AN OCCUPATIONAL RADIATION EXPOSURE?

YES ☐ NO ☐

IF "YES" TO QUESTIONS #6, #7, #8, AND/OR #9, PLEASE PROVIDE THE FOLLOWING ADDITIONAL INFORMATION:

PREVIOUS EMPLOYER'S NAME AND ADDRESS	IMMEDIATE SUPERVISOR AND DEPARTMENT	DATES OF EMPLOYMENT (FROM--TO)	PERIODS OF EXPOSURE (FROM--TO)

IF EXPOSURE WAS RECEIVED IN THE MILITARY, PLEASE PROVIDE THE REQUESTED ADDITIONAL INFORMATION:

DISCHARGE DATE	RANK AT TIME OF DISCHARGE	SERVICE NUMBER	RESERVE STATUS

CERTIFICATION: I CERTIFY THAT THE EXPOSURE HISTORY GIVEN ABOVE IS CORRECT AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

(signature)

DATE _____

PRINCETON UNIVERSITY
OFFICE OF OCCUPATIONAL HEALTH & SAFETY

Name _____ Date _____

Highest Academic Degree _____ Title or position _____

An individual who is planning to work with radioactive materials or radiation producing equipment, must satisfy the University Radiation Safety Committee that he is qualified by virtue of training and experience to handle such materials and equipment safely. The information requested below is reviewed by the Committee when considering your application.

TRAINING & EXPERIENCE

Type of Training	Where Trained	Duration of Training	Formal Courses	On the Job
A. Principles and practices of radiation protection			yes no	yes no
B. Radioactivity measurements, standardization, monitoring, and instrumental techniques			yes no	yes no
C. Mathematics & Calculations basic to the use & measurement of radioactivity & radiation			yes no	yes no

EXPERIENCE WITH RADIATION
(actual use of radionuclides or equipment)

Isotopes and Amounts or Equipment Used	Where Used	Duration of Experience	Type of Use

cc: P.E.R. folder

Signature

PRINCETON UNIVERSITY
OFFICE OF OCCUPATIONAL HEALTH & SAFETY
Radioisotope Application

Applicant _____ Position or Title _____
(Print or type)
Department _____ Building _____ Room # _____ Phone _____

Isotope	Possession ⁽¹⁾ Limit (mCi)	Type of ⁽²⁾ Source	Physical Form	Buildings(s) & Room(s) Where Used and/or Stored

(1) Amount requested should be large enough to cover the maximum inventory which will be in your possession at any one time, including wastes and stores.

(2) Indicate open or sealed.

Do you presently hold valid Authorization Number(s)? ☐ yes ☐ no

Do you presently hold valid Limited Possession Number(s)? ☐ yes ☐ no

On the back of this form or on a separate sheet, if necessary, provide answers for the following questions. Identify your answers by indicating the question number.

NOTE: It is necessary to explicitly answer each of the following questions for each isotope requested above. If the answers to the questions are the same for each isotope, requested, then please explicitly indicate this. If not, answer the questions for each isotope on a separate sheet, clearly referencing the relevant isotope.

1) In any case where this application is a request for an increase in the Possession Limit for an isotope already authorized, please identify that isotope and indicate your present possession limit.

2) Briefly describe your experiment. Indicate typical amounts (mCi) of radioactive materials to be used, and frequency of use. Describe physical or chemical manipulations intended.

3) Explain briefly your intended use.

4) Will this material be used by persons other than you? ☐ yes ☐ no
If yes, provide information to identify these persons, their qualifications, and indicate how you intend to insure that they receive adequate supervision.

5) Will animals be used in this work? ☐ yes ☐ no. If yes, indicate the number and types of animals and describe how they will be used. If this work involves *in vivo* use of radioisotopes, indicate the special precautions you plan with respect to the instruction of animal caretakers, ventilation, the control of contaminated cages and other equipment, and the disposal of the excreta wastes and carcasses.

ANSWERS:

DOCUMENTATION REQUIRED IN ADDITION TO THIS FORM:

- 1) If this is your first application for either type of radioisotope authorization, complete and submit O. H. & S. Forms #1, #1a, #2a, #4, and #20a.
- 2) If this is your first application for an Authorization Number, complete and submit O. H. & S. Forms #4 and #20a, even though you hold a Limited Possession Number.
- 3) If you hold a valid Authorization Number, no additional information is required.

Forms are available from the Office of Occupational Health & Safety (ext. 2-5294) or from your Departmental Safety Coordinator.

CERTIFICATION: I certify that the work performed with the materials requested in this application will be done in accordance with the rules and regulations contained in the Radiation Safety Guide.

Applicant's Signature _____ Date _____

Acknowledgement and/or
Approval by: _____ Date _____
(Departmental Safety Coordinator)

Approval by: _____ Date _____
(Health Physics Officer)

Approval by: _____ Date _____
(Radiation Safety Committee Member)

REMARKS:

PRINCETON UNIVERSITY
OFFICE OF OCCUPATIONAL HEALTH & SAFETY

Applicant _____ Phone _____
(typed or printed)

Department _____ Building _____ Room _____

Application for: Isotope _____ Amount _____ mCi
Irradiation to produce _____ Amount _____ mCi

In the spaces provided below, please answer the following questions and provide a reasonable amount of detail.

1. Do you have in your possession and are you familiar with the provisions and regulations in the: University Radiation Safety Guide, Federal Regulations 10 CFR Parts 20 and 30, University's NRC and/or State Licenses and the New Jersey Radiation Protection Code?
2. What survey and monitoring equipment do you have? Itemize specific items owned or those which you plan to order if this application is approved. A monitoring device is generally required if millicurie amounts are requested.
3. What are your specific plans for the disposal of radioactive waste and for the keeping of receipt, use, and disposal records?
4. What arrangements have you made with the Office of Occupational Health & Safety with respect to personnel monitoring requirements?

5. What plans do you have for the orientation of assistants, staff, students, janitors or visitors in relation to Items 1 and 3 above and with respect to radiological safety in general?
6. What storage facilities do you plan to use and how do you plan to secure your isotope(s) to prevent use or possession by unauthorized personnel or to prevent accidental loss?
7. What facilities and protective equipment are available to you? (Hoods, absorbent paper, labels, tags, shielding, etc.)
8. What precautions will be taken to test for leakage and/or contamination upon receipt of these materials?
9. What measures will be taken to prevent, detect, and handle a "spill"?
10. Please provide any other relevant information.

Applicant's signature _____ Date _____

Application for (check one):

☐ Limited Possession No.

☐ Authorization No.

PRINCETON UNIVERSITY
OFFICE OF OCCUPATIONAL HEALTH & SAFETY

Irradiation

Applicant _____ Position or title _____
(print or type)

Department _____ Building _____ Room _____ Phone _____

Building and Room(s) where isotopes will be stored and/or used: _____

This material will be used as a: ☐ sealed source ☐ an open source

Target: Isotope or Compound _____

Dimensions _____ Amount _____

Physical Form & Description _____

Irradiation: Particles _____ Energy (MeV) _____

Current or Flux _____ (μa or _____ sec-cm^2) duration of irradiation _____
(hr.)

Facility at which irradiation is to be done _____

Principal isotope of interest _____

Other isotopes produced _____

This request is for a: ☐ Single irradiation or about _____, or
☐ A series of _____ irradiations over the period of _____
at intervals of _____

EXPECTED ACTIVITY AND DOSE RATES FROM TOTAL SAMPLE	Principal Isotope						Vessels & Wrappers
Isotopes							
At end of irradiation (mCi)							
Upon Arrival at Princeton U. (mCi) or at a time of initial handling							
Gamma Dose (R/hr @ 30 cm)							
Beta Dose (Rad/hr @ 10 cm)							

On a separate sheet please provide the following information. Identify your answers by indicating the question number.

1) Explain briefly your intended use.

(OVER)

- 2) Briefly describe your experiment. Indicate typical amounts (mCi) of radioactive materials to be used and frequency of use. Describe physical or chemical manipulations intended.
- 3) Will this material be used by persons other than you? ☐ Yes ☐ No. If yes, provide sufficient information to identify these persons, their qualifications, and how you intend to insure that they receive adequate supervision.
- 4) Will animals be used in this work? ☐ Yes ☐ No. If yes, indicate the number and types of animals and their location and describe how they will be used. If this work involves *in vivo* use of radioisotopes, indicate the special precautions you plan with respect to the instruction of animal caretakers, ventilation, the control of contaminated cages and other equipment and the disposal of the excreta wastes and carcasses.
- 5) How is sample to be handled and transported from site of irradiation to or from your laboratory? (Specify handling equipment, shipping container, means of transportation and route in some detail).
- 6) If you intend doing multiple irradiations, what is the maximum amount (mCi) of these isotopes you will have on hand at one time?

Other valid Authorization of Limited Possession Numbers you hold:

Number	Isotope	Amount	Number	Isotope	Amount	Number	Isotope	Amount

DOCUMENTATION REQUIRED IN ADDITION TO THIS FORM:

- 1) If this is your first application for either type of a radioisotope authorization, complete and submit OHS Forms #1, #1a, #2, #4 and #20a.
- 2) If this is your first application for an "Authorization Number", complete and submit OHS Forms #4 and #20a, even though you hold a "Limited Possession Number".
- 3) If you hold a valid "Authorization Number", no additional information is required.

Forms are available from the Office of Occupational Health & Safety (ext. 2-5294) or from your Departmental Safety Coordinator.

CERTIFICATION: I certify that the work performed with the materials requested in this application will be done in accordance with the rules and regulations contained in the Radiation Safety Guide.

Applicant's Signature _____ Date _____

Approved by: _____ Date _____
(Departmental Safety Coordinator)

Approved by: _____ Date _____
(Health Physics Officer)

Approved by: _____ Date _____
(Radiation Safety Committee Member)

REMARKS: