Form AEC-313 (2-73) 10 CFR 30	UNITED STATES ATOMIC ENERGY COMMISSION **APPLICATION FOR BYPRODUCT MATERIAL LICENSE**	Form approved Budget Bureau No. 38-R0027

INSTRUCTIONS.—Complete Items 1 through 16 if this is an initial application or an application for renewal of a license. Information contained in previous applications filed with the Commission with respect to Items 8 through 15 may be incorporated by reference provided *references are clear and specific*. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to: U.S. Atomic Energy Commission, Washington, D.C., 20545, Attention: Materials Branch, Directorate of Licensing. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Part 20, and the license fee provisions of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 16 and the appropriate fee enclosed. (See Note in Instruction Sheet).

1. (a) NAME AND STREET ADDRESS OF APPLICANT. *(Institution, firm, hospital person, etc. Include ZIP Code and telephone number.)*

Tufts University
Medford, Massachusetts 02155

(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. *(If different from 1(a). Include ZIP Code.)*

Entire Tufts Medford Campus

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

Departments authorized by Tufts Radiation Hazards Control Group

3. PREVIOUS LICENSE NUMBER(S). *(If this is an application for renewal of a license, please indicate and give number.)*

20-02307-07

4. INDIVIDUAL USER(S). *(Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in Items 8 and 9.)*

Persons designated by Tufts Radiation Hazards Control Group

5. RADIATION PROTECTION OFFICER. *(Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Items 8 and 9.)*

Francis X. Masse (Resume attached)
Eugene Beaupre (Resume attached)

6. (a) BYPRODUCT MATERIAL. *(Elements and mass number of each.)*

Radionuclides listed in CFR 33.100 Schedule A

(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME. *(If sealed source(s), also state name of manufacturer, model number, number of sources and maximum activity per source.)*

Any form, quantities limited to those listed in Column I, With respect to the total possession limit, the sum of the ratios of radionuclides possessed to the applicable limit in 33.100 Schedule A Column I shall not exceed unity.

RECEIVED BY LFMB
Date DEC 12 1978
Log
By
Orig. To
Action Compl

Applicant
Check No. 93837
Amount/Fee Category 4150
Type of Fee Rev
Date Check Rec'd DEC 12 1978
Received By

Ck returned

7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. *(If byproduct material is for "human use," supplement A (Form AEC-313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.)*

1. Instructional material for Graduate and Undergraduate laboratory experiments
2. In vivo and in vitro biochemical experiments on laboratory organisms
3. Sealed sources for laboratory demonstration and instruction and instrument calibration.

FEE EXEMPT

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97650

ML10 "OFFICIAL RECORD COPY"

(Continued on reverse side)

TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4 (Use supplemental sheets if necessary)

8. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
a. Principles and practices of radiation protection	Permitted uses will vary with		Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments	applicable training of prospective user. Committee review will determine adequacy of training		Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity	(See rules and Mode of Functioning) Supervisors will generally be		Yes No	Yes No
d. Biological effects of radiation	faculty members with extensive previous experience.		Yes No	Yes No

9. EXPERIENCE WITH RADIATION (Actual use of radioisotopes or equivalent experience.)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE

10. RADIATION DETECTION INSTRUMENTS (Use supplemental sheets if necessary.)

TYPE OF INSTRUMENTS (Include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm²)	USE (Monitoring, surveying, measuring)
Various classroom and laboratory equipment such as single and multi-channel analyzers, scintillation detectors, proportional counters, G. M. counters and liquid scintillation counting systems. Portable G. M. and ionization chamber type survey meters. Departments will be required to provide survey and monitoring equipment as necessary.					

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE

Health Physics instruments will be calibrated at 6-month intervals under the supervision of F. Masse utilizing standards at NEMCH Health Physics Lab. Measuring instruments are calibrated against commercial standards on each day of use.

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED (For film badges, specify method of calibrating and processing, or name of supplier.)

Film badges as necessary to be supplied by R. S. Landauer Jr. & Co.

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS IN DUPLICATE

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. (Circle answer) Yes (No)

14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source. Manual of proposed program attached. Leak testing where applicable will be performed under supervision of F. Masse in a manner comparable to that in use at NEMCH.

15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved. Nuclear Container, Worcester, MA

CERTIFICATE (This item must be completed by applicant)

16. THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PART 30, AND THAT ALL INFORMATION CONTAINED HEREIN, INCLUDING ANY SUPPLEMENTS ATTACHED HERETO, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

License Fee Category $ 3K

Fee Enclosed $ 150

Kathryn A. McCarthy
Applicant named in item 1

By: Kathryn A. McCarthy

Date 12/1/78

Provost
Title of certifying official

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.

☆ U.S. GPO: 1973—543-126/515