

Form AEC-313
(2-73)
10 CFR 30

UNITED STATES ATOMIC ENERGY COMMISSION
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved
Budget Bureau No. 38-80027

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.) Museum of Fine Arts 465 Huntington Ave. Boston, MA 02115 617-267-9300 ext 408	(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1(a). Include ZIP Code.) Same as (a)
2. DEPARTMENT TO USE BYPRODUCT MATERIAL Research Laboratory	3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.) 20-13135-02 (renewal) ⁻³⁸
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.) ✓ Dr. Edward V. Sayre Director of Research ✓ Dr. Lambertus van Zelst Research Chemist	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.) Dr. Lambertus van Zelst

6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.) a) Strontium 90- Yttrium 90 b) Curium 242 c) Curium 242 d) Americium 241 e) Carbon 14	(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.) a) Sealed source 40 millicuries (Radiochemical centre) b) " 5 millicuries c) " 2 millicuries d) " 0.1 millicurie e) Particles dispersed 10 millicuries in a plexiglass sheet
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Date 4/14/78
Time
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7. DESCRIBE THE USE(S) 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.)

Dating pottery by the thermoluminescence process and radiography of art objects on their supports such as prints and drawings.

Applicant.....
Check No. 062014
Amount 150 (15K - Pen)
Date of Check 3/29/78
Date Check Rec'd 4/4/78
Rec'd by Jackson

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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	E.V. Sayre - Manhattan District project and Brookhaven Nt'l lab	30 yrs.	Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments			Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity	L. van Zelst - Institute for Nuclear Physics Research Amsterdam and Brookhaven Nt'l lab	14 yrs.	Yes No	Yes No
d. Biological effects of radiation			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
many	40 milli-curies	Brookhaven Nt'l lab	10-20 years	Predominate analysis

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/cm ²)	USE (Monitoring, surveying, measuring)
a) Geiger counter survey meter-Model E-120 Eberline Instrument Co.	1	gamma & beta rays	-	1.7	Monitoring
b) Silicon Detector Ortec Co.	1	X-rays	-	2.4	Measuring
c) gas propor. counters	3	X-rays	-	-	Measuring

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

Checked for consistency of response to the other sources.

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

Film badges monitored by R.S. Landauer, Jr. and Co.
Glenwood, Illinois

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.

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.

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 \$ 150

Fee Enclosed \$ 150

Date March 23, 1978

Museum of Fine Arts

Applicant Named in Item 1

By:

Edward V. Sayre

Director of Research

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.

13. Storage is in lead pigs.
The alpha source is used only in a standard chemical fume hood.
14. The laboratory is monitored regularly by Dr. van Zelst and periodically checked throughout by Mr. Murray M. Bolton, Jr. consulting radiochemist, Cambridge, MA.
15. As yet all sources are being held in the laboratory.