Form AEC-313
8-64
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: Isotopes Branch, Division of Materials 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.

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

Cambridge Nuclear Radiopharmaceutical Corp.
575 Middlesex Turnpike
Billerica, Massachusetts 01821

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

575 Middlesex Turnpike
Billerica, Massachusetts 01821

2 DEPARTMENT TO USE BYPRODUCT MATERIAL

Production and Research

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

Renewal of License No. 20-6799-02

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.)

See Attachment 1

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.)

Robert C. Ferris

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

(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.)

See Attachment 2

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.)

(a) Items A through H, inclusively, will be used for production, research and development as defined in paragraph 30.4 (K), Part 30, Title 10, Code of Federal Regulations, "Licensing of Byproduct Material".

(b) Items A through H, inclusively, will be used for processing for redistribution to authorized recipients.

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(Continued on reverse side)

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ATTACHMENT 1

NAME	FUNCTION
Robert C. Ferris	Vice President, Laboratory Manager
Rosalind Hyland	Radiobiological Quality Control Supervisor
Arthur E. Freedlender, [illegible].D.	Consultant
Marcia E. Stein (Young)	Radiochemistry Research
Meral Ercan, Ph.D.	Radiopharmaceutical Research & Development
James Moran	Radiopharmaceutical Production Supervisor
Arthur Provencal	Radiopharmaceutical Product Control
Alfred Fantegrossi	Radiopharmaceutical Production Technician
Edward Shisko	Radiopharmaceutical Production Technician
Philip Gilman	Radiopharmaceutical Production Technician
George Richardson	Radiopharmaceutical Production Technician
Henry Seay	Radioanalytical Supervisor
Maurice Marchand	Radioanalytical Technician

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ATTACHMENT 2

6 (a) Byproduct Material	6 (b) Form	Amount At Any One Time
(A) Atomic numbers from 3 - 83, inclusive, except as specified below.	(A) Any	(A) 1,000 mCi of each not to exceed 12,000 mCi total at any one time.
(B) H-3	(B) Any	(B) 1,000 mCi
(C) I-131	(C) Any	(C) 5,000 mCi
(D) P-32	(D) Any	(D) 2,000 mCi
(E) Mo-99	(E) Any	(E) 50,000 mCi
(F) Tc-99m	(F) Any	(F) 50,000 mCi
(G) Hg-197	(G) Any	(G) 5,000 mCi
(H) Cr-51	(H) Any	(H) 1,000 mCi
(I) I-125	(I) Any	(I) 4,000 mCi
(J) Tm-170	(J) Solid Tm_2O_3 wafers	(J) 6,000,000 mCi

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ATTACHMENT 3

ROBERT C. FERRIS

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Cambridge Nuclear	4 yrs.	Yes	No
b.	Ditto	4 yrs.	Yes	No
c.	Ditto	4 yrs.	Yes	No
d.	Ditto	4 yrs.	Yes	No

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
3 thru 83	Millicuries	Cambridge Nuclear	4 years	Research & Medical Production

ARTHUR E. FREEDLENDER

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Harvard, USPHS,	9 yrs.	Yes	Yes
b.	Cambridge Nuclear	9 yrs.	Yes	Yes
c.		9 yrs.	Yes	Yes
d.		9 yrs.	Yes	Yes

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
I-131, I-125, C-14, H-3, Co-57	Millicuries	Harvard, USPHS, Cambridge Nuclear	9 yrs.	Medical research

JAMES M. MORAN

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Cambridge Nuclear	2 years	Yes	No
b.	Ditto	2 "	Yes	No
c.	Ditto	2 "	Yes	No
d.	Ditto	2 "	Yes	No

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
3 thru 83	Millicuries	Cambridge Nuclear	2 yrs.	Research and Medical application production.

ARTHUR G. PROVENCAL

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	U. S. Navy	1.5 years	Yes	Yes
b.	Cambridge Nuclear	4 yrs.	Yes	Yes
c.	"	4 yrs.	Yes	Yes
d.	"	4 yrs.	Yes	Yes

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
3 thru 83	Millicuries	Chelsea Naval Hospital	1.5 yrs.	Medical Diagnostic

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ATTACHMENT 3 continued

MARCIA STEIN (YOUNG)

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Harbor General Hosp. Torrance, Calif.	15 mos.	Yes	No
b.	1st Medical Clinic	9 mos.	Yes	No
c.	Munich			
d.	Cambridge Nuclear	3 yrs.	Yes	No

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
K-42, Na-22, H-3, Rb-86, Cs-137	Millicuries	Harbor Gen Hosp. Torrance, Calif.	15 mos.	Medical Research
Cr-51	Millicuries	First Medical Clinic, Univ. of Munich	9 mos.	Medical Research
I-131, I-125	Millicuries	Cambridge Nuclear	3 yrs.	Research

ROSALIND HYLAND

8. Type of Training	where Trained	Duration of Training	On the Job	Formal Course
a.	Cambridge Nuclear	8 mos.	Yes	No
b.	"	8 mos.	Yes	No
c.	"	8 mos.	Yes	No
d.	"	8 mos.	Yes	No

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
Neutron Activated	Millicuries	Cambridge Nuclear	8 mos.	Biological testing

ALFRED FANTEGROSSI

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Cambridge Nuclear	9 mos.	Yes	No
b.	"	9 mos.	Yes	No
c.	"	9 mos.	Yes	No
d.	"	9 mos.	Yes	No

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
I-131, Ca-47, all dispensing*	Millicuries	Cambridge Nuclear	9 mos.	Medical application production

EDWARD SHISKO

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Cambridge Nuclear	1 yr.	Yes	No
b.	"	1 yr.	Yes	No
c.	"	1 yr.	Yes	No
d.	"	1 yr.	Yes	No

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ATTACHMENT 3 continued

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
I-131, all dispensing*	Millicurie	Cambridge Nuclear	1 yr.	Medical application production

MAURICE MARCHAND

8.

Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Cambridge Nuclear	1 yr.	Yes	No
b.	"	1 yr.	Yes	No
c.	"	1 yr.	Yes	No
d.	"	1 yr.	Yes	No

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
Hg-197, I-125, Cr-51, Sr-90, Cs-137, S-35, Ca-45	Microcurie	Cambridge Nuclear	1 yr.	Calibration

GEORGE RICHARDSON

8.

Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Cambridge Nuclear	6 mos.	Yes	
b.	English High Sch.	6 mos.	Yes	Yes
c.	Northeastern Univ.	6 mos.	Yes	Yes
d.	Northeastern Univ.	6 mos.	Yes	Yes

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
I-131, Cr-51, Na-22, Hg-197, Br-82, I-125, Na-24, Ks-42, Sr-85, Tc-99	Millicurie	Cambridge Nuclear	6 mos.	Medical application production

MERAL ERCAN

8.

Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	University of	1 yr.	Yes	Yes
b.	New Hampshire	1 yr.	Yes	Yes
c.		1 yr.	Yes	Yes
d.		1 yr.	No	No

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
P-32, Si-32, Na-24, K-42, Cs-139m, I	Millicuries	Univ. of New Hampshire	3 yrs.	Research

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ATTACHMENT 3 continued

HENRY R. SEAY

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Northeastern U.	4 yrs.	Yes	Yes
b.	"	4 yrs.	Yes	Yes
c.	"	4 yrs.	Yes	Yes
d.	"	4 yrs.	Yes	Yes

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
3 thru 83	Millicuries	Cambridge Nuclear	7 yrs.	Calibration, processing, dispensing

PHILIP GILMAN

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
a.	Cambridge Nuclear	2 mos.	Yes	No
b.	"	2 mos.	Yes	No
c.	Franklin Inst.	6 mos.	Yes	Yes
d.	Cambridge Nuclear		Yes	No

9. Experience with Radiation

Isotope	Max. Amt.	Where	Duration	Type of Use
I-131, I-125, Tc-99m	Millicuries	Cambridge Nuclear	6 wks	Research & Medical Products

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