Form AEC-313
(8-64)
10 CFR 30

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved
Budget Bureau No. 38-R027

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.)

Institute of Arctic Biology
University of Alaska
Fairbanks, Alaska 99701

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

Institute of Arctic Biology AND
Arctic Health Research Center
University of Alaska
Fairbanks, Alaska 99701

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

Institute of Arctic Biology AND
Arctic Health Research Center

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

50-02430-07 (present license)

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.)

Type B Specific License of Broad Scope

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.)

Dan F. Holleman, Ph.D.

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

Title 10, part 30.100,
Schedule A, Column I

(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.)

Title 10, part 30.11

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.)

In F & M Scientific Corp. Model 810 gas chromatograph. Tracer studies in laboratory animal. Nutrition and metabolism studies of reindeer and caribou in Alaska. Analytical technique development and instrument calibration.

(see present A.E.C. Radioisotope License 50-02430-07)

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(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	See supplemental		Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments	Sheet for items		Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity	8 and 9		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

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)
Nuclear Chicago, G.M. Survey Model 2650	1	γ, β, α	0-100	1.2	Survey
Nuclear Chicago Model 2588	1	γ, β, α	0-2500	1.0	Survey, monitor
Thyac II Model 489	1	γ, β, α	0-20	2.0	Survey

Continued on supplemental sheet

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

ICN 10.6 mCi ± 5%, ^{60}Co calibration source -- survey instruments are calibrated a minimum of once each six months.

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

See supplemental sheet.

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.

RECEIVED
1972 JUN 2 AM 11 27

Date: May 30, 1972

Institute of Arctic Biology
Applicant named in item 1

By: Dan F. Hallenan

Radiobiologist
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.

Item 15. Waste Disposal

Radioactive waste disposal will be by (1) release into the sanitary sewage system and (2) burial in the soil. Waste disposal will be in compliance with Title 10, Code of Federal Regulations, Part 20.

Estimates for quantities of radioisotopes to be disposed of by release into sewage system and burial in the soil for a one year period are as follows:

carbon-14	50 millicuries
hydrogen-3	100 millicuries
cesium-134	2 millicuries
barium-133	0.5 millicuries
others	1 millicuries

Short-lived radioisotopes will be stored until physical decay to a low level, then disposed of in the same matter as the long-lived radioisotopes.