Amend 11 37-2416

Form AEC-313 (5-58)

ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved. Budget Bureau No. 38-R027.3.

INSTRUCTIONS.—Complete items 1 through 16 if this is an initial application. If application is for renewal of a license, complete only items 1 through 7 and indicate new information or changes in the program as requested in items 8 through 15. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail three copies to: U. S. Atomic Energy Commission, Washington 25, D. C. Attention: Isotopes Branch, Division of Licensing and Regulation. 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.)*

Curtiss-Wright Corporation
Research Division
Nuclear Sciences & Engineering Dept.
Quehanna, Penna.

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

SAME

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

Nuclear Sciences & Engineering Dept.

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

37-2416-2 (F61)

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.)*

Individuals designated by Nuclear Hazards Committee, N. R. Wheelock, Chairman

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.)*

M. T. Beam

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

$Hydrogen^3$

(Tritium)

(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.)*

Tritium Gas (H_2^3)

Maximum possession at any one time is 10 millicuries

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.)*

Tritium as a radioactive contaminant of Helium-3 and that generated by neutron irradiation of an experimental neutron detecting device for reactor flux measurements. The gas is in a sealed quartz containers, wall thickness: 2 MM

(SEE ATTACHED SHEET)

DUPLICATED
FOR DIV. OF INSP.

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(Continued on reverse side)

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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	See previous applications		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	" " "		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
		SEE PREVIOUS APPLICATIONS		

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)*
SEE PREVIOUS APPLICATIONS and ATTACHED SHEET					

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

SEE PREVIOUS APPLICATIONS

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

SEE PREVIOUS APPLICATIONS

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS

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) See previous applications

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.

See previous applications

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. See attached sheet

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 AUG 25 1959 U.S.A.E.C. Isotopes Branch Div. of L & R

Curtiss-Wright Corporation
Applicant named in Item 1

Date August 24, 1959 By: M. T. Beam

Source Custodian
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. GOVERNMENT PRINTING OFFICE : 1959 O—491408

Addendum Sheet

7. The tritium will be produced by neutron irradiation of helium-3 contained in 3 quartz capsules of 300 c.c. each at a pressure of 2.5 cm, 12.5 cm, and 62.5 cm of Hg. The capsules are rectangular in cross section 3/4" x 1-3/4" and 2-1/2" long. They will be irradiated in outer aluminum waveguides 1" x 2" x .06" wall, 3' long. The capsules have been previously leak tested at Oak Ridge where they were fabricated and filled. The aluminum waveguides will be evacuated to 1" Hg and the integrity of the seals will be tested by observing pressure stability over an eight (8) hour period. The quartz capsules will not be opened, but the waveguides will be opened under conditions of continuous tritium monitoring.

10. A tritium air monitor, will be obtained and used during the irradiation and subsequent use of the waveguide. Model number is not known but it is marketed by the Sandia Corporationand Curtiss-Wright Corporation.

15. Details of disposal have not yet been worked out. Waveguides and quartz capsules will be stored in a fumehood awaiting disposal arrangements.