

ATOMIC ENERGY COMMISSION
APPLICATION FOR BYPRODUCT MATERIAL LICENSEForm approved
Budget Bureau No. 34-R01-1

DUPLICATED

INSTRUCTIONS: Complete Items 1 through 19 if this is a new application. If renewal is requested, complete only Items 1 through 11 provided that with respect to the other items there has been no change in the information previously submitted. Mail two copies to: U. S. Atomic Energy Commission, P. O. Box E, Oak Ridge, Tennessee, Attention: Isotopes Extension, Division of Civilian Application. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. General requirements for issuance of an AEC Byproduct Material License are contained in Title 10, Code of Federal Regulations, Part 30.

1. (a) NAME AND SHIPPING ADDRESS OF APPLICANT
(Institution, firm, hospital, person, etc.)Research Division
Curtiss-Wright Corp.
Quehanna, Pa. Attn: C. J. Roberts(b) ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED
(If different from shipping address)

same as 1. (a)

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

Nuclear Power Department

3. INDIVIDUAL USER (Name and title of individual(s) who will use or directly supervise use of byproduct material)

Gilbert W. Smith - Senior Research Chemist

4. RADIOLOGICAL SAFETY OFFICER (Name of person qualified in radiological safety, if other than individual user)

Carlyle J. Roberts

5. PREVIOUS LICENSE OR AUTHORIZATION NUMBER (If this is an application for renewal of a license for byproduct material obtained under a prior license or authorization for radiisotope procurement)

29-460-

BYPRODUCT MATERIAL OR IRRADIATION SERVICE DESIRED

6. BYPRODUCT MATERIAL (Element and mass number)

Co 60

7. CHEMICAL AND/OR PHYSICAL FORM (Or catalog number)

5 ml. of solution
NBS std. source (Cat.No.4915)

8. MAXIMUM AMOUNT OF RADIOACTIVITY IN MILLI-CURIES THAT YOU WILL POSSESS AT ANY ONE TIME

0.1 mc

9. IF IRRADIATION SERVICE IS DESIRED, STATE PERTINENT DETAILS SUCH AS: CHEMICAL COMPOSITION AND WEIGHT IN GRAMS OF TARGET MATERIAL, RADIOACTIVITY, IRRADIATION TIME IN DAYS, AND NEUTRON FLUX

STATEMENT OF USE

10. (a) DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If material is for "human use" complete Supplement A in lieu of this item. If material is to be used in or manufactured as a "sealed source" complete Supplement B in addition to this item.)

Instrument calibration and standardization of
radiochemical techniques.

(b) DESCRIBE PROCEDURES WHICH WILL BE OBSERVED TO MINIMIZE HAZARD FROM HANDLING, STORAGE, AND DISPOSAL OF THE BYPRODUCT MATERIAL

Material will be handled only by trained scientific personnel in
controlled access laboratory. Operations will be under surveillance of
health physics personnel.

CERTIFICATE

11. 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 do solemnly swear (or affirm) that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

State of PennsylvaniaCounty of Clearfield

Subscribed and sworn to before me this

day of October, 1956

Notary Public

CLEARFIELD, PA.

Curtiss-Wright Corporation

Applicant named in Item 1

By

Carlyle J. RobertsTitle of Certifying Official
Health Physics OfficerDate
October 29, 1956

Date

MY COMMISSION EXPIRES MAY 23, 1960 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.

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

INSTRUCTIONS: Complete Items 12 through 19 if this is a new application. This information may be omitted from subsequent applications provided there is no change in the information previously submitted, and reference is made in Item 5 to the application on which this information appears.

TRAINING AND EXPERIENCE WITH RADIOACTIVITY OF INDIVIDUAL USER NAMED IN ITEM 3

12. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
1. Principles and practices of radiological health safety.	ORNL	9 years	<input checked="" type="radio"/> Yes No	Yes No
2. Radioactivity measurement standardization and monitoring techniques and instruments	"	"	<input checked="" type="radio"/> Yes No	Yes No
3. Mathematics and calculations basic to the use and measurement of radioactivity.	"	4 years	<input checked="" type="radio"/> Yes No	Yes No
4. Biological effects of radiation. . .			Yes No	Yes No
5. Actual use of radioisotopes in the types and quantities for which application is being made, or equivalent experience	ORNL	5 years	<input checked="" type="radio"/> Yes No	Yes No

13. ISOTOPE HANDLING EXPERIENCE

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Co 60	10 mc	ORNL	6 months	Calibration
Pu 239	1 gram	"	4 years	Electrodeposition and misc.
Ga 72	100 mc	"	1 year	Tracer

14. If Radiological Safety Officer named in Item 4 is different from individual user named in Item 3, use supplementary sheet to provide equivalent information on "Training and Experience With Radioactivity of Radiological Safety Officer." Supplementary sheet is attached (Circle answer) Yes No

PHYSICAL FACILITIES, EQUIPMENT, AND RADIATION INSTRUMENTATION

15. RADIATION DETECTION INSTRUMENTS (Use separate sheet 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)

16. FILM BADGES, DOSIMETERS, AND OTHER PERSONNEL MONITORING DEVICES INCLUDING BIO-ASSAY PROCEDURES

17. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE (For film badges specify method of calibration and processing, or name supplier)

18. (a) DESCRIBE BRIEFLY REMOTE HANDLING EQUIPMENT, STORAGE CONTAINERS, SHIELDING, AND LABORATORY FACILITIES (Working areas, fume hoods, etc.)

(b) SKETCHES OF SUCH FACILITIES ARE ATTACHED (Circle answer)

Yes No

19. DESCRIBE BRIEFLY RADIATION SURVEYING PROCEDURES AND METHODS OF DISPOSING OF RADIOACTIVE WASTES

ATOMIC ENERGY COMMISSION
APPLICATION FOR BYPRODUCT MATERIAL LICENSEForm approved.
Budget Bureau No. 38-R027.3.

INSTRUCTIONS: Complete Items 1 through 19 if this is a new application. If renewal is requested, complete only Items 1 through 11 provided that with respect to the other items there has been no change in the information previously submitted. Mail two copies to: U. S. Atomic Energy Commission, P. O. Box 11, Oak Ridge, Tennessee, Attention: Isotopes Extension, Division of Civilian Application. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. General requirements for issuance of an AEC Byproduct Material License are contained in Title 10, Code of Federal Regulations, Part 30.

1. (a) NAME AND SHIPPING ADDRESS OF APPLICANT
(Institution, firm, hospital, person, etc.)Research Division
Curtiss-Wright Corp.
Clifton, N.J.

Attn: C.J. Roberts

(b) ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED
(If different from shipping address)Research Division
Curtiss-Wright Corp.
Quehanna, Pa.

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

Nuclear Power Department

3. INDIVIDUAL USER (Name and title of individual(s) who will use or directly supervise use of byproduct material)

Garlyle J. Roberts

4. RADIOLOGICAL SAFETY OFFICER (Name of person qualified in radiological safety, if other than individual user)

Garlyle J. Roberts

5. PREVIOUS LICENSE OR AUTHORIZATION NUMBER (If this is an application for renewal of a license for byproduct material obtained under a prior license or authorization for radioisotope procurement)

29-460-1

BYPRODUCT MATERIAL OR IRRADIATION SERVICE DESIRED

6. BYPRODUCT MATERIAL (Element and mass number)

Ag¹¹⁰

7. CHEMICAL AND/OR PHYSICAL FORM (Or catalog number)

metallic wire

8. MAXIMUM AMOUNT OF RADIOACTIVITY IN MILLICURIES THAT YOU WILL POSSESS AT ANY ONE TIME

10

9. IF IRRADIATION SERVICE IS DESIRED, STATE PERTINENT DETAILS SUCH AS: CHEMICAL COMPOSITION AND WEIGHT IN GRAMS OF TARGET MATERIAL, RADIOACTIVITY, IRRADIATION TIME IN DAYS, AND NEUTRON FLUX

1 gm of metallic Ag will be irradiated at ENL (3×10^{12} n/sec/cm²) for about 10 days, time will be adjusted so that limit of 10mc of Ag¹¹⁰ is not exceeded.

STATEMENT OF USE

10. (a) DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If material is for "human use" complete Supplement A in lieu of this item. If material is to be used in or manufactured as a "sealed source" complete Supplement B in addition to this item.)

Feasibility study for method of measuring speed of rotation of turbojet engine. Source will be used in engine mock-up to determine minimum activity needed in full scale test.

(b) DESCRIBE PROCEDURES WHICH WILL BE OBSERVED TO MINIMIZE HAZARD FROM HANDLING, STORAGE, AND DISPOSAL OF THE BYPRODUCT MATERIAL

Material will be handled only by trained scientific personnel in controlled access laboratory. Experiment will be under surveillance of health physics personnel.

CERTIFICATE

11. 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 do solemnly swear (or affirm) that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

State of

New Jersey

County of

PASSAIC

Subscribed and sworn to before me this

27th

day of

JULY

, 1956

Applicant named in Item 1

By

Title of Certifying Official

Date

Arthur M. Weiss an Attorney-at-law
State of New Jersey

July 27, 1956

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.

ATOMIC ENERGY COMMISSION
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

INSTRUCTIONS: Complete Items 12 through 19 if this is a new application. This information may be omitted from subsequent applications provided there is no change in the information previously submitted, and reference is made in Item 5 to the application on which this information appears.

TRAINING AND EXPERIENCE WITH RADIOACTIVITY OF INDIVIDUAL USER NAMED IN ITEM 3

12. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
1. Principles and practices of radiological health safety.			Yes No	Yes No
2. Radioactivity measurement standardization and monitoring techniques and instruments			Yes No	Yes No
3. Mathematics and calculations basic to the use and measurement of radioactivity.			Yes No	Yes No
4. Biological effects of radiation. . .			Yes No	Yes No
5. Actual use of radioisotopes in the types and quantities for which application is being made, or equivalent experience			Yes No	Yes No

13. ISOTOPE HANDLING EXPERIENCE

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

14. If Radiological Safety Officer named in Item 4 is different from individual user named in Item 3, use supplementary sheet to provide equivalent information on "Training and Experience With Radioactivity of Radiological Safety Officer." Supplementary sheet is attached (Circle answer) Supple-
Yes No

PHYSICAL FACILITIES, EQUIPMENT, AND RADIATION INSTRUMENTATION

15. RADIATION DETECTION INSTRUMENTS (Use separate sheet 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)

16. FILM BADGES, DOSIMETERS, AND OTHER PERSONNEL MONITORING DEVICES INCLUDING BIO-ASSAY PROCEDURES

17. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE (For film badges specify method of calibration and processing, or name supplier)

18. (a) DESCRIBE BRIEFLY REMOTE HANDLING EQUIPMENT, STORAGE CONTAINERS, SHIELDING, AND LABORATORY FACILITIES (Working areas, fume hoods, etc.)

(b) SKETCHES OF SUCH FACILITIES ARE ATTACHED (Circle answer)

Yes No

19. DESCRIBE BRIEFLY RADIATION SURVEYING PROCEDURES AND METHODS OF DISPOSING OF RADIOACTIVE WASTES

ATOMIC ENERGY COMMISSION
APPLICATION FOR BYPRODUCT MATERIAL LICENSEForm approved.
Budget Bureau No. 38-R0273.

INSTRUCTIONS: Complete Items 1 through 19 if this is a new application. If renewal is requested, complete only Items 1 through 11 provided that with respect to the other items there has been no change in the information previously submitted. Mail two copies to: U. S. Atomic Energy Commission, Box E, Oak Ridge, Tennessee, Attention: Isotopes Extension, Division of Civilian Application. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. General requirements for issuance of an AEC Byproduct Material License are contained in Title 10, Code of Federal Regulations, Part 30.

1. (a) NAME AND SHIPPING ADDRESS OF APPLICANT (Institution, firm, hospital, person, etc.) Research Division Curtiss-Wright Corporation Clifton, New Jersey ATT: W. J. Wolkowitz	(b) ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED (If different from shipping address) Bldg. 59 Wright Area. Div. Curtiss-Wright Corp.--Wood-Ridge, N. J.
2. DEPARTMENT TO USE BYPRODUCT MATERIAL Chemistry	
3. INDIVIDUAL USER (Name and title of individual(s) who will use or directly supervise use of byproduct material) William Wolkowitz	
4. RADIOLOGICAL SAFETY OFFICER (Name of person qualified in radiological safety, if other than individual user) Carlyle J. Roberts	
5. PREVIOUS LICENSE OR AUTHORIZATION NUMBER (If this is an application for renewal of a license for byproduct material obtained under a prior license or authorization for radioisotope procurement) 7938, 34811, 31590	

BYPRODUCT MATERIAL OR IRRADIATION SERVICE DESIRED

6. BYPRODUCT MATERIAL (Element and mass number) -	7. CHEMICAL AND/OR PHYSICAL FORM (Or catalog number) -	8. MAXIMUM AMOUNT OF RADIOACTIVITY IN MILLICURIES THAT YOU WILL POSSESS AT ANY ONE TIME 500
9. IF IRRADIATION SERVICE IS DESIRED, STATE PERTINENT DETAILS SUCH AS: CHEMICAL COMPOSITION AND WEIGHT IN GRAMS OF TARGET MATERIAL, RADIOACTIVITY, IRRADIATION TIME IN DAYS, AND NEUTRON FLUX 50 mg. each BeO, MgO, SiC, ZrO, Si, Al ₂ O ₃ , C (Charcoal); 0.05 mg UO ₂ (natural). Desired radiation is 100 hr at 10 ¹² n/cm ² /sec.		

STATEMENT OF USE

10. (a) DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If material is for "human use" complete Supplement A in lieu of this item. If material is to be used in or manufactured as a "sealed source" complete Supplement B in addition to this item.)

The irradiation is requested to test for (a) purity (by neutron activation) of these materials.

- (b) DESCRIBE PROCEDURES WHICH WILL BE OBSERVED TO MINIMIZE HAZARD FROM HANDLING, STORAGE, AND DISPOSAL OF THE BYPRODUCT MATERIAL

The material irradiated at Brookhaven Nat'l Lab will be kept at the reactor site until the activity does not exceed 500 mc. After study, the materials will be disposed of through the Radiological Service Co. of Jamaica, N. Y.

CERTIFICATE

11. 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 do solemnly swear (or affirm) that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

State of New Jersey
County of Passaic
Subscribed and sworn to before me this 16th
day of May, 1956

William M. Wis an Attorney-at-Law
Notary Public

Applicant named in Item 1:

By W. J. Wolkowitz
Title of Certifying Official
Date May 16, 1956

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.

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

INSTRUCTIONS: Complete Items 12 through 19 if this is a new application. This information may be omitted from subsequent applications provided there is no change in the information previously submitted, and reference is made in Item 5 to the application on which this information appears.

TRAINING AND EXPERIENCE WITH RADIOACTIVITY OF INDIVIDUAL USER NAMED IN ITEM 3

12. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
1. Principles and practices of radiological health safety.	Univ. Chicago O.R.N.L.	8 months 10 years	(Yes) No	Yes No
2. Radioactivity measurement standardization and monitoring techniques and instruments	CCCC K-25 Oak Ridge O.R.N.L.	1 year 10 years	(Yes) No	Yes No
3. Mathematics and calculations basic to the use and measurement of radioactivity.	CCCC K-25 Oak Ridge O.R.N.L.	1 year 10 years	(Yes) No	Yes No
4. Biological effects of radiation.	Univ. of Chicago	8 months	(Yes) No	Yes No
5. Actual use of radioisotopes in the types and quantities for which application is being made, or equivalent experience	O.R.N.L.	10 years	Yes No	Yes No

13. ISOTOPE HANDLING EXPERIENCE

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Neptunium 237		O.R.N.L.	1 year	Anal. Chem
Radium	10 mg	CCCC 10-25	1 year	Survey
Technetium	99	O.R.N.L.	1 year	Anal. Chem.

14. If Radiological Safety Officer named in Item 4 is different from individual user named in Item 3, use supplementary sheet to provide equivalent information on "Training and Experience With Radioactivity of Radiological Safety Officer." Supplementary sheet is attached (Circle answer) Yes No

PHYSICAL FACILITIES, EQUIPMENT, AND RADIATION INSTRUMENTATION

15. RADIATION DETECTION INSTRUMENTS (Use separate sheet 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)
Tracer-Lab. Meter SU1B	1		25-2500	2-3	x x x
" " " SU5A	1		1.02-20		x x x
" " " SU10A	1		0-50,000		x
" " " SU3C	1				x

16. FILM BADGES, DOSIMETERS, AND OTHER PERSONNEL MONITORING DEVICES INCLUDING BIO-ASSAY PROCEDURES

30 Film Badges (Tracer Lab) Model 561 Dosimeter Charger
11 Dosimeters Victoreen Type 541/A (Victoreen)
1 Tracerlab Lab Monitor Su-3C Victoreen Minometer MI
25 Victoreen Pocket Chambers 362-3A

17. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE (For film badges specify method of calibration and processing, or name supplier)

Calibration Standards
0.8 millicurie Co⁶⁰ source) Film badges checked by Tracer Lab.
500 millicurie Co⁶⁰ source) at 2 mo. intervals

18. (a) DESCRIBE BRIEFLY REMOTE HANDLING EQUIPMENT, STORAGE CONTAINERS, SHIELDING, AND LABORATORY FACILITIES (Working areas, fume hoods, etc.)

Radi-arm (atomic center) 3 sections 0-4 ft. 3 ft, 18 inches
2 Pb pigs 6" lead 1 fume hood respirators
2 Pb " 2" lead gloves 100 Pb bricks
smocks shoe covers concrete storage pit

(b) SKETCHES OF SUCH FACILITIES ARE ATTACHED (Circle answer)

Yes () No

19. DESCRIBE BRIEFLY RADIATION SURVEYING PROCEDURES AND METHODS OF DISPOSING OF RADIOACTIVE WASTES

Lab monitor on continuously. All operations under scrutiny of radiological officer.
Disposal by Radiological Service Co. Jamaica, N. Y.