Form AEC-374
(9-55)

U. S. ATOMIC ENERGY COMMISSION THIS COPY IS FOR YOUR FILES

PRODUCT MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Part 30, Licensing of Byproduct Material, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, own, possess, transfer and import byproduct material listed below; and to use such byproduct material for the purpose (s) and at the place (s) designated below. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission now or hereafter in effect and to any conditions specified below.

Licensee

1. Name: Curtiss Wright Corporation
Research Division

2. Address: Department of Chemistry
Clifton, New Jersey

Attn: William Wolkowitz

3. License number: 29-460-4

4. Expiration date: July 31, 1958

5. Reference No.

6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioactivity which licensee may possess at any one time
Mercury 203	Any	3 millicuries
Promethium 147	Any	2 millicuries

9. Authorized use

Hg 203: Gamma spectrometer energy calibration.

Pm 147: Film thickness source studies.

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.
Byproduct material to be used only at Building 59, Wright Areo Division, Curtiss Wright Corporation, Woodridge, New Jersey.

11. Byproduct materials are to be used by, or under the supervision of, the individual named above.

12. Except as hereinafter provided the licensee shall comply with provisions of the Atomic Energy Commission's proposed standards for protection against radiation as published in the Federal Register, July 16, 1955 (10-CFR-20), until such time as said proposed regulations or revisions thereof become effective regulations of the Commission. Notwithstanding, Section 20.24(f) of said standards, labeling shall not be required for laboratory containers such as beakers, flasks and test tubes, used transiently in laboratory procedures during presence of the user.

Superseded

For the U. S. Atomic Energy Commission

Date July 26, 1956

by Peter R. Roger

for: Director, Isotopes Extension
Division of Civilian Application
Oak Ridge, Tennessee

B-21

Form AEC-374
(9-55)

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

THIS COPY IS FOR YOUR FILES

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Part 30, Licensing of Byproduct Material, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, own, possess, transfer and import byproduct material listed below; and to use such byproduct material for the purpose (s) and at the place (s) designated below. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Name: Curtiss-Wright Corporation Research Division	3. License number: 29-460-5
2. Address: Nuclear Power Department Clifton, New Jersey	4. Expiration date: August 31, 1958
Attn: Carlyle J. Roberts	5. Reference No.

6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioactivity which licensee may possess at any one time
Silver 110	Metal	10 millicuries

9. Authorized use

Feasability study for method of measuring speed of rotation of turbojet engine.

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above. Byproduct material may also be used at Curtiss-Wright Corp., Research Division, Quehanna, Pennsylvania.

11. Byproduct material is to be used by, or under the supervision of, the individual named above.

12. Except as hereinafter provided the licensee shall comply with provisions of the Atomic Energy Commission's proposed standards for protection against radiation as published in the Federal Register, July 16, 1955 (10-CFR-20), until such time as said proposed regulations or revisions thereof become effective regulations of the Commission. Notwithstanding, Section 20.24(f) of said standards, labeling shall not be required for laboratory containers such as beakers, flasks and test tubes, used transiently in laboratory procedures during presence of the user.

Superseded

For the U. S. Atomic Energy Commission

Date August 2, 1956

by Lester R. Moore

for: Director, Isotopes Extension
Division of Civilian Application
Oak Ridge, Tennessee

Form AEC-374
(9-55)

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Part 30, Licensing of Byproduct Material, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, own, possess, transfer and import byproduct material listed below; and to use such byproduct material for the purpose (s) and at the place (s) designated below. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Name **Curtiss-Wright Corporation Research Division**	3. License number **29-460-5**
2. Address **Battelle Power Department Clifton, New Jersey**	4. Expiration date **August 31, 1958**
Attn: **Carlyle J. Roberts**	5. Reference No.

6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioactivity which licensee may possess at any one time
Silver 110	**Metal**	**10 millicuries**

9. Authorized use

Feasibility study for method of measuring speed of rotation of turbojet engine.

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.

Byproduct material may also be used at Curtiss-Wright Corp., Research Division, Quehanna, Pennsylvania.

11. Byproduct material is to be used by, or under the supervision of, the individual named above.

12. Except as hereinafter provided the licensee shall comply with provisions of the Atomic Energy Commission's proposed standards for protection against radiation as published in the Federal Register, July 16, 1955 (10-CFR-20), until such time as said proposed regulations or revisions thereof become effective regulations of the Commission. Notwithstanding, Section 20.2(f) of said standards, labeling shall not be required for laboratory containers such as beakers, flasks and test tubes, used transiently in laboratory procedures during presence of the user.

Superseded

For the U. S. Atomic Energy Commission

Date **August 2, 1956**

by *Clinton R. Rogers*

for: Director, Isotopes Extension
Division of Civilian Application
Oak Ridge, Tennessee

BYPRODUCT MATERIAL LICENSE

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Supplementary Sheet

License Number 29-460-5

AMENDMENT NO. 1

Curtiss-Wright Corporation
Research Division
Nuclear Power Department
Clifton, New Jersey

Attn: Carlyle J. Roberts

In accordance with application, dated October 29, 1956, License No. 29-460-5, is amended to include the name of Gilbert W. Smith as individual user and to add the following:

6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioactivity which licensee may possess at any one time
Cobalt 60	5 ml. solution as NBS std. source (Cat. #4915)	0.1 millicuries

9. Authorized use

Instrument standardization in radiochemical techniques.

Superseded

For the U. S. Atomic Energy Commission

Date November 2, 1956

by

Director, Isotopes Extension
Division of Civilian Application
Oak Ridge, Tennessee

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

THIS COPY IS FOR YOUR FILES

License Number 29-460-5

AMENDMENT NO. 2

Curtiss-Wright Corporation
Research Division
Nuclear Power Department
Clifton, New Jersey

Attn: Carlyle J. Roberts
Gilbert W. Smith

In accordance with application dated January 23, 1957, License No. 29-460-5 is amended to add the following:

6. Byproduct material	7. Chemical and/or physical form	8. Maximum amount of radioactivity licensee may possess at any one time
Phosphorus 32	Any	10 millicuries
Calcium 45	Any	10 millicuries
Promethium 147	Any	10 millicuries
Carbon 14	Any	10 millicuries
Thallium 204	Any	10 millicuries

9. Authorized use

Laboratory studies.

Superseded

For the U. S. Atomic Energy Commission

by [redacted]

Director, Isotopes Extension
Division of Civilian Application
Oak Ridge, Tennessee

Date February 14, 1957

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

THIS COPY IS FOR YOUR FILES

License Number 29-460-5

AMENDMENT NO. 3

Curtiss-Wright Corporation
Research Division
Nuclear Power Department
Clifton, New Jersey

Attn: Carlyle J. Roberts
Gilbert W. Smith

In accordance with application dated February 22, 1957, License No. 29-460-5 is amended to add the following:

6. Byproduct material	7. Chemical and/or physical form	8. Maximum amount of radioactivity licensee may possess at any one time
Cerium 141	Any	10 millicuries
Cesium-Barium 137	Any	10 millicuries
Iodine 131	Any	10 millicuries
Mercury 203	Any	10 millicuries
Scandium 46	Any	10 millicuries
Cerium-Praseodymium 144	Any	10 millicuries
Europium 152,154	Any	10 millicuries
Fission Products	Any	10 millicuries
Iron 59	Any	10 millicuries
Nickel 63	Any	1 millicurie
Ruthenium-Rhodium 106	Any	10 millicuries
Tantalum 182	Any	10 millicuries
Tungsten 185	Any	10 millicuries
Zinc 65	Any	10 millicuries
Zirconium-Niobium 95	Any	10 millicuries

9. Authorized use

Laboratory studies.

Superseded

For the U. S. Atomic Energy Commission

by

Director, Isotopes Extension
Division of Civilian Application
Oak Ridge, Tennessee

Date March 6, 1957

Form AEC-374a (2-58)

U. S. ATOMIC ENERGY COMMISSION

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

THIS COPY IS FOR YOUR FILES

License Number 29-460-5

AMENDMENT NO. 4

Curtiss-Wright Corporation
Research Division
Nuclear Power Department
Clifton, New Jersey

Attn: Carlyle J. Roberts
Gilbert W. Smith

In accordance with application dated January 23, 1957, License No. 29-460-5 is amended to add the following:

6. Byproduct material	7. Chemical and/or physical form	8. Maximum amount of radioactivity licensee may possess at any one time
	Service irradiation of magnesia, alumina, alumel, chromel, and ceramic insulators	300 millicuries

9. Authorized use

Radiation damage studies.

Superseded

For the U. S. Atomic Energy Commission

Date March 12, 1957

by

Director, Isotopes Extension
Division of Civilian Application
Oak Ridge, Tennessee

Form AEC-361 (2-56)

U. S. ATOMIC ENERGY COMMISSION

Page 1 of 1 Pages

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number [redacted]

Amendment No. 5

Curtiss-Wright Corporation
Research Division
Nuclear Power Department
Clifton, New Jersey

Attn: Carlyle J. Roberts
Gilbert E. Roth

In accordance with application dated January 23, 1957, License No. [redacted] is amended to add the following:

6. Byproduct material	7. Chemical and/or physical form	8. Maximum amount of byproduct material licensee may possess at any one time
Cobalt-60	Source irradiation of magnesia, alumina, alumel, chromel, and ceramic insulators	300 millicuries

9. Authorized use

Radiation damage studies.

suspended

For the U. S. Atomic Energy Commission

Date March 12, 1957

by [redacted]

Director, Isotopes Extension
Division of Civilian Application
Oak Ridge, Tennessee