

EC-74  
1955

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		3. License number
1. Name	<b>Curtiss-Wright Corporation Research Division</b>	<b>37-2416-1</b>
2. Address	<b>Nuclear Power Department Quehanna, Pennsylvania</b>	4. Expiration date
		<b>May 31, 1959</b>
		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
<i>v.l.</i> <i>fin.</i> *1 Iridium 192 2 Mercury 203 3 Promethium 147 (See Page 2)	<b>Sealed source</b> Any Any (See Page 2)	<b>7 curies</b> <b>13 millicuries</b> <b>12 millicuries</b> (See Page 2)

9. Authorized use  
**Laboratory research involving radiation damage studies, instrument calibration and standardization, activation studies and material development.**

CONDITIONS

- 10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.
- 11. Byproduct material to be used by, or under the supervision of: **C. J. Roberts; W. J. Wolkowitz; G. W. Smith; W. F. Sjoborg; P. R. Idler.**
- 12. Except as hereinafter provided the licensee shall comply with provisions of the Atomic Energy Commission's Standards for Protection Against Radiation as published in the Federal Register, January 29, 1957 (10-CFR-20).
- 13. Sealed sources licensed above shall not be opened or combined.
- 14. Leak testing of the sources licensed above shall be carried out at intervals of six months and records of the leak test results shall be furnished the Atomic Energy Commission upon request.
- 15. Written administrative instructions covering appropriate radiological protection phases of operational procedures and establishing responsibility for radiological protection, control, and security of the byproduct material shall be supplied individuals using or having responsibility for use of such material.

(See page 2)

For the U. S. Atomic Energy Commission

*Amend # 1*      *5/20/57/wom*  
*PCA/ [Signature]*  
 Date May 13, 1957  
*WMP/wom*  
*amend # 2*      *5/22/57/wom*

by 5-15-57 *PCA/ [Signature]*  
 Director, Isotopes Extension  
 Division of Civilian Application  
 Oak Ridge, Tennessee

*Supervised by 37-2416-2*

*B-7*

continued

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
4 Silver 110 <i>ag</i>	Any	10 millicuries
5 Cobalt 60	Any	0.1 millicurie
6 Phosphorus 32	Any	10 millicuries
7 Calcium 45	Any	0.1 millicurie
8 Carbon 14	Any	10 millicuries
9 Thallium 204 - <i>ll</i>	Any	10 millicuries
10 Cerium 141 <i>ce</i>	Any	10 millicuries
11 Cesium 137 - Barium 137	Any	10 millicuries
12 Iodine 131	Any	10 millicuries
13 Scandium 46 <i>sc</i>	Any	10 millicuries
14 Cerium 144 - Praseodymium 144 <i>pr</i>	Any	10 millicuries
15 Europium 152, 154 <i>eu</i>	Any	10 millicuries
16 Iron 59 <i>fe</i>	Any	10 millicuries
17 Nickel 63 <i>ni</i>	Any	1 millicurie
18 Ruthenium 106 - Rhodium 106 <i>rh.</i>	Any	10 millicuries
19 Tantalum 182 <i>ta.</i>	Any	10 millicuries
20 Tungsten 185 <i>w.</i>	Any	10 millicuries
21 Zinc 65	Any	10 millicuries
22 Zirconium 95 - Niobium 95 <i>ni.</i>	Any	10 millicuries
23 Fission Products	Any	10 millicuries
24 Cobalt 60	Tracerlab sealed source CR-3.	300 millicuries
25 Ruthenium 106 - Rhodium 106	U.S. Radium Corp. sealed source.	0.5 millicurie
26 Thulium 170 <i>tm</i>	Sealed ampule.	2 millicuries
27 Cesium 137 - Barium 137	Sealed ampule.	0.1 millicurie
28 Silver 110	Metallic wire.	100 millicuries
29 Strontium 90	U.S. Radium Corp. disc sources.	Three sources Total 12 millicuries
30 Strontium 90	Isotope Specialties sealed source Model No. EB-1010.	2 microcuries
31 Any byproduct material between Atomic No. 3-83, inclusive.	Irradiated compounds.	A total of 3.5 curies of byproduct material between Atomic No. 3-83, inclusive.

(See Page 3)

For the U. S. Atomic Energy Commission

Date May 13, 1957

by \_\_\_\_\_

*W.H.K.*

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

## Supplementary Sheet

continued

License Number 37-2116-1

## CONDITIONS

16. Licensee shall report to the Commission immediately upon discovery thereof any incident which has resulted or could have resulted in an exposure to any individual in excess of a dose of 3 rem within a 24 hour period of any incident involving loss of the licensed material.
17. Each sealed source container (capsule) of licensed material to be used outside of a shielded exposure device shall have permanently attached to it a durable, legible and visible tag. The tag shall be attached directly to the container (capsule), or by the use of a durable chain or leader. The tag shall be at least one inch square and shall bear a radiation caution symbol in conventional colors, magenta or purple on a yellow background, and a minimum of the following instructions: "Danger - Radioactive Material - Do Not Handle - Notify Civil Authorities IF Found".
- \*18. A curie of Iridium 192 is defined as that quantity of activity which presents a radiation intensity of 0.55 roentgens per hour at a distance of one meter.
19. Leak testing of sealed sources containing beta and/or gamma emitting byproduct material (except those containing Iridium 192, Tantalum 182, Gold 198, and plated Cobalt 60 in solid metallic form) shall be carried out at intervals of not more than six months and records of leak test results shall be furnished the Atomic Energy Commission upon request.
20. Leak testing of sealed sources containing alpha-emitting byproduct material shall be carried out at intervals of three months and records of leak test results shall be furnished the Atomic Energy Commission upon request.

For the U. S. Atomic Energy Commission

Date May 13, 1957

by \_\_\_\_\_

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

W.W.C. / W.W.M.

Supplementary Sheet

License Number 37-2416-1

AMENDMENT NO. 1

Curtiss-Wright Corporation  
Research Division  
Nuclear Power Department  
Quehanna, Pennsylvania

Attn: C. J. Roberts, W. J. Wolkowits, G. W. Smith,  
W. F. Sjoborg, P. R. Liller

In accordance with application dated April 5, 1957, License No. 37-2416-1 is hereby amended 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
Polonium 210	U.S. Radium Corp. or Mound Laboratory sealed neutron source	20 curies

## 9. Authorized use

Po 210 - Calibration of reactor instrumentation and reactor start-up.

This license is further amended to change Condition No. 12 to read as follows:

Except as hereinafter provided the licensee shall comply with provisions of the Atomic Energy Commission's Standards for Protection Against Radiation (10-CFR-20) as published in the Federal Register, January 29, 1957; and the Amendment to said Standards as published in the Federal Register, May 14, 1957.

This amendment also deletes Condition Nos. 14 and 16 of License No. 37-2416-1.

For the U. S. Atomic Energy Commission

Date May 20, 1957by 5-20-57 PCA/JS

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

WVP:STM