

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	United States Radium Corporation	3. License number
2. Address	Bloomsburg, Pennsylvania	37-30-6 (C63)
		4. Expiration date
		March 31, 1963
		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
A. Hydrogen 3	A. Paint	A. 5000 curies

9. Authorized use

A. Application of tritiated self-luminous paint to timepieces, hands, and dials for sale or distribution to persons exempt from the requirements for a license pursuant to Section 30.10(a), Title 10, Code of Federal Regulations, Part 30, "Licensing of Byproduct Material".

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.
11. The licensee shall comply with the provisions of Title 10, Part 20, Code of Federal Regulations, Chapter 1, "Standards for Protection Against Radiation".
12. Byproduct material shall be used by, or under the direct supervision of, individuals approved by the local isotope committee, J. G. MacHutchin, Chairman.
13. Except as otherwise specifically provided for in this license, the licensee shall possess and use byproduct material described in Items 6, 7 and 8 of this license in accordance with statements, representations, and procedures contained in his letters dated January 9, 1961 and January 31, 1961, including the statements, representations, and procedures submitted by the licensee in applications dated February 27, June 6, July 23, August 22 and October 31, 1956; February 15 and June 6, 1957; and June 4, 1958 specifically incorporated by reference in the letters dated January 9, 1961 and January 31, 1961 which constitute application for license.

(See page 2)

DUPLICATED
FOR DIV. OF COMPLIANCE

Supplementary Sheet

License Number 37-30-6
(C63)

CONTINUED:

CONDITIONS

14. Quality control procedures on finished timepieces, hands, and dials shall be as follows

- A. Each batch of paint used under this license shall be tested by applying it to prototype hands and dials or test metallic strips with a backing similar to that which will be in production hands and dials and performing the tests specified in Section 30.24(i)(i)(a)(b) and (c), 10 CFR 30. Not less than three (3) samples each shall be used for the tests specified in Section 30.24(i)(i)(a) and (b).
- B. All production lots of hands and dials shall be sampled according to the schedule below and subjected to the tests specified in Section 30.24(i)(i)(a) and (b), 10 CFR 30. The minimum sample size for a lot not specified below shall be fifteen (15).

<u>LOT SIZE</u>	<u>SAMPLE SIZE</u>	<u>ACCEPTABLE NUMBER OF REJECTS</u>
66 - 110	15	0
111 - 180	25	0
181 - 300	35	0
301 - 500	50	1
501 - 800	75	2
801 - 1300	110	3
1301 - 3200	150	4
3201 - 8000	225	5
8001 - 22000	300	7

- C. Should there be rejects in excess of the number specified in Condition 14B, the entire lot shall be rejected.
- D. If ten (10) consecutive lots of hands and dials have been tested according to the schedule in Condition 14B and found acceptable, the sampling plan designated below may be followed. The minimum sample size for a lot not specified below shall be three (3).

(See page 3)

Supplementary Sheet

License Number 37-30-6
(C63)

CONTINUED:

CONDITIONS

<u>LOT SIZE</u>	<u>SAMPLE SIZE</u>	<u>ACCEPTABLE NUMBER OF REJECTS</u>
111 - 180	5	0
181 - 300	7	1
301 - 500	10	1
501 - 800	15	1
801 - 1300	22	2
1301 - 3200	30	2
3201 - 8000	45	3
8001 - 22000	60	4

- E. Should there be rejects in excess of the number specified in Condition 14D, the lot shall be re-sampled according to the schedule in Condition 14B.
 - F. Should the cumulative number of rejects exceed the number specified in Condition 14B, the entire lot shall be rejected.
 - G. Should it be necessary to change from the testing schedule specified in Condition 14D to the testing schedule specified in Condition 14B, subsequent lots must be tested according to the testing schedule specified in Condition 14B and ten (10) consecutive lots found acceptable prior to testing according to the schedule in Condition 14D.
 - H. There shall be one hundred percent visual inspection of all finished hands and dials to determine that there is no flaking or chipping of the paint.
15. A report shall be furnished to the Director, Division of Licensing and Regulation every six (6) months which shall state the quantity of Hydrogen 3 (tritium) which has been transferred to persons exempt from the requirements for a license. The reports shall be filed not later than July 31 and January 31 and shall include transfers for the six month periods ending June 30 and December 31.
16. A report shall be furnished to the Director, Division of Licensing and Regulation every six (6) months which shall state the name of each person to whom a quantity of Hydrogen 3 (tritium) in excess of five curies has been transferred during the six month period. The reports shall be filed not later than July 31 and January 31 and shall include transfers for the six month periods ending June 30 and December 31.

For the U. S. Atomic Energy Commission

Date APR 24 1961

[Handwritten signature]

by *[Handwritten signature]*
Chief, Isotopes Branch
Division of Licensing and Regulation
Washington 25, D. C.

[Handwritten initials]

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 37-30-6
(C53)

Amendment No. 1

United States Radium Corporation
Bloomsburg, Pennsylvania

Attention: J. G. MacHutchin, Chairman, Isotopes Committee

In accordance with letter dated September 19, 1961, License No. 37-30-6 is amended as follows:

Add the following condition:

- 17. Notwithstanding the provisions of Condition 14B, lot sizes of fifty pieces or less may be tested by taking a sample size of one-third (1/3) of the number of pieces in the lot or a sample size of fifteen pieces, whichever is less, and subjecting them to the tests specified in Section 30.24(1)(1)(a) and (b), 10 CFR 30. The acceptable number of rejects for such lots shall be zero (0).

DUPLICATE
FOR DEPT. OF COMMERCE

For the U. S. Atomic Energy Commission

Date September 27, 1961

by Chief, Isotopes Branch

Division of Licensing and Regulation
Washington 25, D. C.

1. JG / KD 9-27-61

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 37-30-6
(C63)

AMENDMENT NO. 2

United States Radium Corporation
Bloomsburg, Pennsylvania

Attention: Mr. J. G. MacHutchin

In accordance with application dated November 19, 1962, License No. 37-30-6
is amended as follows:

Items 6A, 7A and 8A are amended to read:

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
A. Hydrogen 3	A. U.S. Radium Corporation and/or Radium Chemie Tritiated Paint	A. 5000 curies

For the U. S. Atomic Energy Commission

Date NOV 29 1962

Original Signed by
Cecil R. Buchanan

by Isotopes Branch
Division of Licensing and Regulation
Washington 25, D. C.

BYPRODUCT MATERIAL LICENSE NO. 37-30-6 AMENDMENT NO. 3

(B65)

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		
<p>1. Name United States Radium Corporation 4150 Old Berwick Road</p> <p>2. Address Bloomsburg, Pennsylvania</p>		<p>In accordance with application dated February 7, 1963</p> <p>3. License number 37-30-6 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date February 28, 1965</p> <hr/> <p>5. Reference No.</p>
<p>6. Byproduct material (element and mass number)</p> <p>A. Hydrogen 3</p>	<p>7. Chemical and/or physical form</p> <p>A. U.S. Radium Corporation and/or Radium Chemie Tritiated Paint</p>	<p>8. Maximum amount of radioactivity which licensee may possess at any one time</p> <p>A. 5000 curies</p>

9. Authorized use

- A. Application of tritiated self-luminous paint to timepieces, hands and dials for sale or distribution to persons exempt from the requirements for a license pursuant to Section 30.10(a), Title 10, Code of Federal Regulations, Part 30, "Licensing of Byproduct Material".

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.
11. The licensee shall comply with the provisions of Title 10, Part 20, Code of Federal Regulations, Chapter 1, "Standards For Protection Against Radiation".
12. Byproduct material shall be used by, or under the supervision of, individuals designated by the Institutional Isotopes Committee, J. G. MacHutchin, Chairman.
13. Quality control procedures on finished timepieces, hands and dials shall be as follows:
- A. Each batch of paint used under this license shall be tested by applying it to prototype hands and dials or test metallic strips with a backing similar to that which will be in production hands and dials and performing the tests specified in Section 30.24(i)(1)(a)(b) and (c), 10 CFR 30. Not less than three (3) samples each shall be used for the tests specified in Section 30.24(i)(1)(a) and (b).

(See page 2)

J. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE
Supplementary Sheet

License Number 37-30-6
(B65)

AMENDMENT NO. 3

Conditions continued

- 13.B. All production lots of hands and dials shall be sampled according to the schedule below and subjected to the tests specified in Section 30.24(i)(i)(a) and (b), 10 CFR 30. The minimum sample size for a lot not specified below shall be fifteen (15).

<u>LOT SIZE</u>	<u>SAMPLE SIZE</u>	<u>ACCEPTABLE NUMBER OF REJECTS</u>
66 - 110	15	0
111 - 180	25	0
181 - 300	35	0
301 - 500	50	1
501 - 800	75	2
801 - 1300	110	3
1301 - 3200	150	4
3201 - 8000	225	5
8001 - 22000	300	7

- C. Should there be rejects in excess of the number specified in Condition 13B, the entire lot shall be rejected.

- D. If ten (10) consecutive lots of hands and dials have been tested according to the schedule in Condition 13B and found acceptable, the sampling plan designated below may be followed. The minimum sample size for a lot not specified below shall be three (3):

<u>LOT SIZE</u>	<u>SAMPLE SIZE</u>	<u>ACCEPTABLE NUMBER OF REJECTS</u>
111 - 180	5	0
181 - 300	7	1
301 - 500	10	1
501 - 800	15	1
801 - 1300	22	2
1301 - 3200	30	2
3201 - 8000	45	3
8001 - 22000	60	4

- E. Should there be rejects greater than the acceptable number in Condition 13D and less than the acceptable number in Section B, additional samples shall be taken so that the total number of samples is that specified in Section B.

(See page 3)

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 37-30-6
(B65)

AMENDMENT NO. 3

Conditions continued

- 13.F. Should the total number of rejects exceed the number specified in Section B, the entire lot shall be rejected.
- G. Should it be necessary to change from the testing schedule specified in Section D to the testing schedule specified in Section B, subsequent lots must be tested according to the testing schedule specified in Section B and ten (10) consecutive lots found acceptable prior to testing according to the schedule in Section D.
- H. There shall be one hundred percent visual inspection of all finished hands and dials to determine that there is no flaking or chipping of the paint.
14. Notwithstanding the provisions of Condition 13B, lot sizes of fifty pieces or less may be tested by taking a sample size of one-third (1/3) of the number of pieces in the lot or a sample size of fifteen pieces, whichever is less, and subjecting them to the tests specified in Section 30.24(i)(i)(a) and (b), 10 CFR 30. The acceptable number of rejects for such lots shall be zero (0).
15. A report shall be furnished to the Director, Division of Licensing and Regulation every six (6) months which shall state the quantity of Hydrogen 3 (tritium) which has been transferred to persons exempt from the requirements for a license. The reports shall be filed not later than July 31 and January 31 and shall include transfers for the six month periods ending June 30 and December 31.
16. A report shall be furnished to the Director, Division of Licensing and Regulation every six (6) months which shall state the name of each person to whom a quantity of Hydrogen 3 (tritium) in excess of five curies has been transferred during the six month period. The reports shall be filed not later than July 31 and January 31 and shall include transfers for the six month periods ending June 30 and December 31.
17. Except as specifically provided otherwise by this license, the licensee shall possess and use byproduct material described in Items 6, 7 and 8 of this license in accordance with statements, representations and procedures contained in applications and related documents specified in Condition 14 of Amendment 16 to License No. 37-30-2 dated May 17, 1961.
18. The paints specified in Item 7 shall have the formulations described in U.S. Radium Corporation letter dated January 9, 1961 and Radium Chemie letter dated March 13, 1962.

For the U. S. Atomic Energy Commission

Date

MAR 7 1963

I. C. *MB* REC

* U. S. GOVERNMENT PRINTING OFFICE : 1962 O - 648267

by Isotopes BranchDivision of Licensing and Regulation
Washington 25, D. C.

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE
Supplementary Sheet

License Number 37-30-6
(B65)

AMENDMENT NO. 4

United States Radium Corporation
4150 Old Berwick Road
Bloomsburg, Pennsylvania

Attention: Mr. J. G. MacHutchin

Condition 13.B. is amended to read:

- 13.B. All production lots of hands and dials shall be sampled according to the schedule below and subjected to the tests specified in Section 30.24(i) (i)(a) and (b), 10 CFR 30. The minimum sample size for a lot of less than 66 shall be three (3).

<u>LOT SIZE</u>	<u>SAMPLE SIZE</u>	<u>ACCEPTABLE NUMBER OF REJECTS</u>
66 - 110	15	0
111 - 180	25	0
181 - 300	35	0
301 - 500	50	1
501 - 800	75	2
801 - 1300	110	3
1301 - 3200	150	4
3201 - 8000	225	5
8001 - 22000	300	7

Condition 13.D. is amended to read:

- 13.D. If ten (10) consecutive lots of hands and dials have been tested according to the schedule in Condition 13B and found acceptable, the sampling plan designated below may be followed. The minimum sample size for a lot of less than 111 shall be three (3).

(See page 2)

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE
Supplementary Sheet

License Number 37-30-6
(B65)

AMENDMENT NO. 4

Condition 13D continued

<u>LOT SIZE</u>	<u>SAMPLE SIZE</u>	<u>ACCEPTABLE NUMBER OF REJECTS</u>
111 - 180	5	0
181 - 300	7	1
301 - 500	10	1
501 - 800	15	1
801 - 1300	22	2
1301 - 3200	30	2
3201 - 8000	45	3
8001 - 22000	60	4

Date

1.25/28 5-9-63

DUPLICATE
FOR THE U.S. ATOMIC ENERGY COMMISSION

For the U. S. Atomic Energy Commission

Richard E. Cummings
by Isotopes Branch

Division of Licensing and Regulation
Washington 25, D. C.

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 37-30-6
(B65)

AMENDMENT NO. 5

United States Radium Corporation
4150 Old Berwick Road
Bloomsburg, Pennsylvania

Attention: Mr. J. G. MacHutchin

License No. 37-30-6 is hereby amended as follows:

Condition 14 is deleted.

For the U. S. Atomic Energy Commission

Date _____

M. B. [unclear] [unclear]

DUPLICATED
FOR DIV. OF COMPLIANCE

Chief and Director
Isotopes Branch

by _____
Isotopes Branch
Division of Licensing and Regulation
Washington 25, D. C.

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENS.

Supplementary Sheet

License Number 37-30-6
(B65)

AMENDMENT NO. 6

United States Radium Corporation
4150 Old Berwick Road
Bloomsburg, Pennsylvania

Attention: Mr. J. G. MacHutchin

License No. 37-30-6 is hereby amended as follows:

Condition 19 is added to read:

19. Records of tests carried out pursuant to the requirements of Condition 13 of this license shall be maintained for a period of five (5) years.

Date _____

1. 11/2/57 77 B 10/16/64

For the U. S. Atomic Energy Commission

Original Signed by
Isotopes Branch *Kenneth Gascin*
by **Division of Materials Licensing**

~~Division of Licensing and Regulation~~
Washington 25, D. C.