FORM AEC-374A

U. S. ATOMIC ENERGY COMMISSION

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 4-1039-2 (K62)

Amendment No. 6

Department of the Navy
San Francisco Naval Shipyard
Production Department
San Francisco, California

In accordance with application received October 11, 1961, License No. 4-1039-2 is amended as follows:

Items 6C, 7C, 8C, and 9C 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
C. Iridium 192	C. Budd Company Model 41030 Sealed Sources	C. 240 curies contained in 4 sources of 60 curies each

9. Authorized use

C. For use in Budd Company Model 20 projectors for industrial radiography and in Budd Company Model 41026 source changers for source replacement and storage.

For the U. S. Atomic Energy Commission

November 9, 1961

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

FORM AEC-374A

U. S. ATOMIC ENERGY COMMISSION

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 4-1039-2 (K62)

AMENDMENT NO. 5

Department of the Navy
San Francisco Naval Shipyard
Production Department
San Francisco, California

In accordance with application received October 11, 1961, License No. 4-1039-2 is amended to add:

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
F. Cobalt 60	F. Budd Company Model 41036 Sealed Source	F. 1 source of 20 curies
G. Iridium 192	G. Budd Company Model 41030 Sealed Sources	G. 60 curies contained in 2 sources of 30 curies each

9. Authorized use

F. For use in Budd Company Model 52 projector for industrial radiography.

G. For use in Budd Company Model 20 projector for industrial radiography and in Budd Company source changer for source replacement and storage.

Items 9.A. and 9.E. are amended to read:

A. For use in Budd Company Model 52 projector for industrial radiography and in Budd Company source changer for replacement of sources and storage.

E. For use in Budd Company Model 30 projector for industrial radiography and in Budd Company source changer for replacement of sources and storage.

For the U. S. Atomic Energy Commission

by Chief, Isotopes Branch

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

Date October 19, 1961

FORM AEC-374
11-57

ATOMIC ENERGY COMMISSION

BYPRODUCT MATERIAL LICENSE

No. 4-1039-2 Amendment No. 4

CORRECTED COPY (X62)

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	Department of the Navy San Francisco Naval Shipyard
2. Address	Production Department San Francisco, California

In accordance with letters dated February 12, 1961 and July 12, 1961

3. License number	4-1039-2 is amended in its entirety to read as follows:
4. Expiration date	November 30, 1962
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. Cobalt 60 (See page 2)	A. Budd Company Model 41035 Sealed Sources	A. 11 curies contained in one source of 10 curies and one source of 1 curie

9. Authorized use

A. For use in Budd Company Model 52 projector for industrial radiography.
B, C, & D. Performance of industrial radiography by "in-air" handling techniques.
E. For use in Budd Company Model 30 projector for industrial radiography.

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", and Part 31, "Radiation Safety Requirements for Radiographic Operations".

12. A curie of Iridium 192 is defined as that quantity of activity which presents a radiation intensity of 0.55 roentgen per hour at a distance of one meter.

13. Except as otherwise specifically provided for in the 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 application dated July 26, 1960, letters dated October 18, 1960; February 21, 1961; and July 12, 1961, and in related documents as follows:

A. "PRODEPT INSTRUCTION 5100.13C", dated November 23, 1960. (See page 2)

CORRECTED COPY

Encl 1 to BUSHIPS
Ser 362 1354

U.S. ATOMIC ENERGY COMMISSION

(PRODUCT MATERIAL LICEN

Supplementary Sheet

License Number 4-1039-2 (K62)

CORRECTED COPY

Amendment No. 4

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
B. Cobalt 60	B. Oak Ridge National Laboratory Sealed Sources	B. 1500 millicuries contained in one source of 1000 millicuries and one source of 500 millicuries
C. Cobalt 60	C. Technical Operations Model A-411 Sealed Source	C. One source of 500 millicuries
D. Cesium 137	D. Oak Ridge National Laboratory Sealed Sources	D. 4 curies contained in two sources of 2 curies each
E. Iridium 192	E. Budd Company Model 41030 Sealed Sources	E. 60 curies contained in two sources of 30 curies each

CONDITIONS

14. The licensee is authorized to receive, possess and use sealed sources of Iridium 192, Cobalt 60, and Cesium 137 where the radioactivity exceeds the maximum amount of radioactivity specified in Item 8 of this license provided:

A. Such possession does not exceed the quantity specified in Item 8 by more than 20% per source for Iridium 192, 10% per source for Cobalt 60, or 10% per source for Cesium 137; and

B. Records of the licensee show that no more than the maximum amount of radioactivity per source specified in Item 8 of the license was ordered from the supplier or transferer of the byproduct material.

CORRECTED COPY

For the U.S. Atomic Energy Commission

Date September 13, 1961

by Chief, Isotopes Branch

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

FORM AEC-374
(12-57)

U. S. ATOMIC ENERGY COMMISSION

BYPRODUCT MATERIAL LICENSE NO. 4-1039-2 AMENDMENT NO. 3
(K62)

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter I, 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	Department of the Navy
2. Address	San Francisco Naval Shipyard Production Department San Francisco, California

In accordance with application dated July 26, 1960

3. License number 4-1039-2 is amended in its entirety to read as follows:

4. Expiration date November 30, 1962

5. Reference No.

6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioactivity which licensee may posses at any one time
A. Cobalt 60 (See page 2)	A. Budd Company Model 2-136 Sealed Sources.	A. 11 curies contained in one source of 10 curies and one source of 1 curie.

9. Authorized use

A. For use in Budd Company Model 52 projector for industrial radiography.

(See page 2)

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 materials shall be used by, or under the direct personal supervision of, Charles P. Baldinger.

13. A curie of Iridium 192 is defined as that quantity of activity which presents a radiation intensity of 0.55 roentgen per hour at a distance of one meter.

14. Byproduct material as sealed sources shall not be opened.

15. Sealed sources shall be tested for leakage and/or contamination in accordance with the following:

A. Leak test shall be performed by persons specifically licensed by the Commission to perform such tests.

(See page 2)

Encl 1 to BUSHIPS
Ser 362-2/2

FORM AEC-374A
(12-57)

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

License Number 4-1039-2
(K62)

CONTINUED:

AMENDMENT NO. 3

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
B. Cobalt 60	B. Oak Ridge National Laboratory Sealed Sources.	B. 1500 millicuries contained in one source of 1000 millicuries and one source of 500 millicuries.
C. Cobalt 60	C. Technical Operations Model A-411 Sealed Source.	C. One source of 500 millicuries.
D. Cesium 137	D. Oak Ridge National Laboratory Sealed Sources.	D. 4 curies contained in two sources of 2 curies each.
E. Iridium 192	E. Budd Company Model 41030 Sealed Sources.	E. 60 curies contained in two sources of 30 curies each.

9. Authorized use

B, C, and D. Performance of industrial radiography by "in-air" handling techniques.

E. For use in Budd Company Model 30 projector for industrial radiography.

CONDITIONS

B. Each sealed source containing byproduct material with a half-life greater than thirty (30) days and in any form other than gas, shall be tested for leakage and/or contamination as follows:

(1) An appropriate test for leakage and/or contamination shall be performed on the sealed source surface, or on the accessible surfaces of the device in which such a sealed source is permanently or semipermanently mounted. The test shall be performed upon receipt of a source from another person, unless the licensee receives certification from the person making the transfer that the sealed source had been tested within thirty (30) days prior to transfer and found free of any removable radioactive material.

(2) Following completion of the test prescribed in B(1), each sealed source shall be tested for leakage and/or contamination at intervals not to exceed six (6) months.

C. The test performed pursuant to B shall be sufficiently sensitive to detect 0.05 microcurie of removable beta and/or gamma emitting radioactive material. Records of leak test results shall be maintained by the licensee.

(See page 3)

CONDITIONS

D. If the test performed pursuant to B(1) or B(2) reveals removable radioactive material, the licensee shall take immediate action to prevent spread of contamination and, within thirty (30) days after completion of the test, shall notify the Isotopes Branch, Division of Licensing and Regulation, U.S. Atomic Energy Commission, Washington 25, D.C.

E. Repair of sources shall be performed by the manufacturers of the sources or by persons specifically licensed by the Commission to perform such repairs.

16. Each sealed source of licensed material to be used outside of a shielded exposure device shall bear a durable, legible and visible tag permanently attached to the source. The tag shall be at least one (1) inch square, shall bear the conventional radiation symbol prescribed in Section 20.203(a) of Part 20 and a minimum of the following instructions: DANGER, RADIOACTIVE MATERIAL, DO NOT HANDLE, NOTIFY MILITARY AUTHORITIES IF FOUND. Repair or replacement of tags shall be accomplished by persons specifically licensed by the Commission to perform this service.

17. Except as otherwise specifically provided for in the 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 application dated July 26, 1960 and letter dated October 18, 1960, and in related documents and amendments as follows:

A. Untitled procedures submitted with application dated July 26, 1960.

18. Written administrative instructions referenced in Condition 17A covering radiological protection, control, and security of byproduct material shall be followed and a copy of instructions shall be supplied to each individual using or having responsibility for use of such material. Any changes in the administrative instructions shall have the prior approval of the Isotopes Branch, Division of Licensing and Regulation.

19. Calibrated and operable survey instrumentation is to be maintained and used at each site where radiographic exposures are being made. A physical radiation survey is to be made (1) to determine compliance with Sections 20.102 and 20.203 of Title 10, Code of Federal Regulations, Part 20, "Standards for Protection Against Radiation" and (2) immediately after each radiographic exposure is completed to determine that the source has been returned to its storage condition. The survey instrumentation shall have a range of a few milliroentgens per hour to at least one (1) roentgen per hour.

(See page 4)

U. S. ATOMIC ENERGY COMMISSION

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 4-1039-2
(K62)

AMENDMENT NO. 3

CONTINUED:

CONDITIONS

20. Temporary radiographic areas are to be kept under continuous surveillance during each exposure operation.

21. The licensee shall exercise appropriate administrative control to assure that no person will use or personally supervise the use of byproduct material until such person has:

A. Received instructions in, and demonstrated a thorough understanding of, the regulations of 10 CFR, Part 20, the licensee's operating and emergency procedures; and the provisions of this license.

B. Demonstrated competency in the use of byproduct material, equipment, and survey instruments which will be used.

22. Radiography exposure devices, portable carrying containers, shipping containers, and storage containers having a radius greater than four (4) inches shall be limited to maximum radiation levels of 200 mr/hr at the surface and 10 mr/hr at one meter from the source. Devices and containers having a radius of less than four (4) inches shall be limited to maximum radiation levels of 50 mr/hr at six (6) inches from the surface.

For the U. S. Atomic Energy Commission

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

FORM AEC-374A
(12-57)

U.S. ATOMIC ENERGY COMMISSION

PRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 4-1039-2
(K60)

AMENDMENT NO. 2

Department of the Navy
San Francisco Naval Shipyard
Production Department
San Francisco 24, California

Attention: H. S. Ryder, Commander, USN

License No. 4-1039-2 is amended as follows:

Item 3 is amended to change the symbol under the license number from (H60) to (K60).

Item 4 is amended to extend the expiration date from August 31, 1960 to November 30, 1960.

For the U. S. Atomic Energy Commission

Date August 29, 1960

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

FORM AEC-374A

U.S. ATOMIC ENERGY COMMISSION

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 4-1039-2 (H60)

AMENDMENT NO. 1

Department of the Navy
San Francisco Naval Shipyard
Production Department
San Francisco 24, California

Attention: H. S. Ryder, Commander, USN

In accordance with application dated February 12, 1959, License No. 4-1039-2 is amended as follows:

Items 6, 7, 8, and 9 are amended to add:

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
B. Cobalt 60	B. ORNL Sealed Sources	B. 1500 millicuries - 1 source of 1000 millicuries; 1 source of 500 millicuries.
C. Cesium 137	C. ORNL Sealed Sources	C. 4000 millicuries - 2 sources of 2000 millicuries each.

9. Authorized use

B. Cobalt 60 (ORNL Sealed Sources) - In-Air industrial radiography of welds.

C. Cesium 137 (ORNL Sealed Sources) - In-Air industrial radiography of welds.

Condition 13 is amended to read:

13. Byproduct material as Nuclear Systems sealed sources shall not be opened or removed from the Nuclear Systems Model 52 Multitron radiography camera.

Condition 14 is deleted.

(See page 2)

For the U. S. Atomic Energy Commission

Date May 4, 1959

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

Encl 1 to BUSHIPS
Ser 372-118

Form AEC-374A
(2-57)

U. S. ATOMIC ENERGY COMMISSION

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 4-1039-2
(E60)

CONTINUED:

Add the following Conditions:

14. Byproduct material as sealed sources shall not be opened.

15. Sealed sources containing byproduct material (except solid metal Iridium 192; Tantalum 182, Cobalt 60 plated with gold or nickel; and gases) shall be tested for leakage and contamination at intervals of not more than six (6) months and records of test results shall be maintained by the licensee.

16. Each sealed source of licensed material to be used outside of a shielded exposure device shall be acquired from the supplier with a durable, legible and visible tag permanently attached. The tag shall be attached directly to the source or attached by a durable chain or leader. The tag shall be at least 1 inch square, shall bear a conventional radiation symbol and a minimum of the following instructions: "DANGER RADIOACTIVE MATERIAL, DO NOT HANDLE, NOTIFY MILITARY AUTHORITIES IF FOUND". Repair or replacement of tags shall be accomplished by returning the source to the manufacturer.

17. The licensee shall possess and use byproduct material described in Items 6, 7, and 8 of this license in accordance with the following:

A. Application dated May 26, 1958.

B. Application dated February 12, 1959.

C. San Francisco Naval Shipyard "NAVSHIPYDSFNAN INST 9900.1A", dated April 18, 1958.

D. ANSWERS TO THE "OUTLINE OF WRITTEN ADMINISTRATIVE, OPERATING AND EMERGENCY INSTRUCTIONS".

E. Letter dated April 28, 1959 from Vincent F. Saitta.

For the U. S. Atomic Energy Commission

Date May 4, 1959

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