

31-350-3

Form AEC-818  
(9-55)

ATOMIC ENERGY COMMISSION  
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form 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 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 <i>(Institution, firm, hospital, person, etc.)</i>	(b) ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED <i>(If different from shipping address)</i>
Nuclear Development Corp. of America 5 New Street. White Plains, New York	5 New St., White Plains, N.Y. 90 Grove St., White Plains, NY Route #55, Pawling, N.Y.
2. DEPARTMENT TO USE BYPRODUCT MATERIAL Health and Safety	
3. INDIVIDUAL USER <i>(Name and title of individual(s) who will use or directly supervise use of byproduct material)</i> Roger H. Miles - <del>Aristides Millietos</del>	
4. RADIOLOGICAL SAFETY OFFICER <i>(Name of person qualified in radiological safety, if other than individual user)</i>	
5. PREVIOUS LICENSE OR AUTHORIZATION NUMBER <i>(If this is an application for renewal of a license for byproduct material obtained under a prior license or authorization for radioisotope procurement)</i>	

BYPRODUCT MATERIAL OR IRRADIATION SERVICE DESIRED

6. BYPRODUCT MATERIAL <i>(Element and mass number)</i> Co <sup>60</sup>	7. CHEMICAL AND/OR PHYSICAL FORM <i>(Or catalog number)</i> Sealed source	8. MAXIMUM AMOUNT OF RADIOACTIVITY IN MILLICURIES THAT YOU WILL POSSESS AT ANY ONE TIME 460
--	--	--

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.)*

For instrument calibration and shielding tests.

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

Stored in locked safe. Signed out to authorized personnel only - personnel dosimetry and continuous monitoring during use.

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 YORK  
County of WESTCHESTER  
Subscribed and sworn to before me this  
day of 17th July 1957  
Gertrud Stuebing  
Notary Public

Nuclear Devel. Corp. of America  
Applicant named in Item 1  
By Peter B. Murphy  
License coordinator, Security Dir.  
Title of Certifying Official  
July 17 1957 AJY

GERTRUD STUEBING  
Notary Public, State of New York  
No. 60-9225579

18 U. S. C., Section 1001. Any person who makes any false statement or representation to any department or agency of the United States shall be guilty of a criminal offense to make a willfully false statement or representation to any department or agency of the United States in any matter within its jurisdiction.

5406

(Continued on reverse side)

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. . . . .	NDA U.S. Army	1½ 2	<input checked="" type="radio"/> Yes No	Yes <input checked="" type="radio"/> No
2. Radioactivity measurement standardization and monitoring techniques and instruments . . . . .	NDA U.S. Army	1½ 2	<input checked="" type="radio"/> Yes No	Yes <input checked="" type="radio"/> No
3. Mathematics and calculations basic to the use and measurement of radioactivity. . . . .	NDA U.S. Army	1½ 2	<input checked="" type="radio"/> Yes No	Yes <input checked="" type="radio"/> No
4. Biological effects of radiation. . . . .	NDA U.S. Army	1½ 2	<input checked="" type="radio"/> Yes No	Yes <input checked="" type="radio"/> No
5. Actual use of radioisotopes in the types and quantities for which application is being made, or equivalent experience . . . . .	NDA U.S. Army	1½ 2	<input checked="" type="radio"/> Yes No	Yes <input checked="" type="radio"/> No

**13. ISOTOPE HANDLING EXPERIENCE**

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Co <sup>60</sup>	10 curies	NDA	1½	In-pile testing-- instrument calibration

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 <sup>2</sup> )	USE (Monitoring, surveying, measuring)
Nuclear-Chicago 2612	5	beta-gamma	0 to 20	30 mg	monitoring&surveying
Juno SRJ-3	4	" "	0 to 5000	--	" "

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

beta-gamma film badges -- pocket chambers -- pocket dosimeters

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

Instrument calibration at 3-month intervals with Co<sup>60</sup> standard source  
Film badges - Nuclear Consultants, Inc.

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

Remote handling tongs - 3" thick lead storage casks - combination storage safes

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

Yes  No

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

Source used under constant monitoring and personnel dosimetry.

Form AEC-313b  
(9-55)

**APPLICATION FOR BYPRODUCT MATERIAL LICENSE**  
**SUPPLEMENT B—SEALED SOURCES**

Form approved.  
Budget Bureau No. 35-R028.3

If application is for byproduct material to be used in or manufactured as a "sealed source" complete this supplement and attach to the application for byproduct material license. Applicant for use of sealed source should complete Section I. An applicant desiring to manufacture a sealed source should complete Section II. If information has been submitted previously and there are no changes in the sealed source and/or device design or other changes in information submitted previously, details requested below may be omitted provided reference is made on line below to the application or other document on which this information appears.

**SECTION I—USE (See instructions)**

1. IF SEALED SOURCE OR DEVICE CONTAINING SEALED SOURCE IS MANUFACTURED COMMERCIALY, GIVE FOLLOWING INFORMATION:  
A. Manufacturer or supplier of sealed source and/or device Canadian Radium and Uranium Corp.  
B. Make and model number of sealed source and/or device \_\_\_\_\_  
C. Person who will hold legal title to sealed source \_\_\_\_\_

2. (a) NAME OF PERSON WHO WILL PERFORM NECESSARY PERIODIC LEAKAGE TESTS (6-month intervals for beta-gamma; 3-month period for alpha emitters. See instructions)  
Aristides Millotes

(b) IF ABOVE PERSON IS NOT THE SUPPLIER, MANUFACTURER, NOR A COMMERCIAL LABORATORY ROUTINELY OFFERING SUCH SERVICES, GIVE BRIEF STATEMENT OF EXPERIENCE OR TRAINING OF SUCH PERSON IN TECHNIQUES TO BE EMPLOYED, A STATEMENT OF LEAK TESTING PROCEDURES INCLUDING EVIDENCE OF ITS EFFICACY AND INSTRUMENTATION TO BE USED:  
  
90 day swipe test using laboratory scaler and scintillation counter

3. ARRANGEMENTS WHICH WILL PREVAIL FOR PERFORMING INITIAL RADIATION SURVEY (if appropriate), SERVICING MAINTENANCE, REPAIR, CONTROL, AND DISPOSAL, ETC., OF THE SOURCE:

Source is removed from cask and monitored with calibrated dosage rate meter.  
(Juno SRJ-3)

**SECTION II—MANUFACTURE**

4. IF SEALED SOURCE TO BE MANUFACTURED OR FABRICATED BY THE APPLICANT IS DESIGNED TO TRANSMIT ONLY GAMMA RAYS AND CONTAINS IN ELEMENTAL FORM (but not powders) COBALT 60, IRIIDIUM 192, GOLD 198, TANTALUM 182, OR THULIUM 170, GIVE FOLLOWING INFORMATION AND DISREGARD QUESTIONS 5 THROUGH 12 ON THIS SUPPLEMENT:

- (a) Quantity of byproduct material per source and model number
- (b) Leak testing procedure to be employed:
- (c) Attach annotated engineering drawing of source container and holder, if any:
- (d) Describe label to be affixed to source container and/or source-holder (or attach copy. See instructions):

**APPLICATION FOR BYPRODUCT MATERIAL LICENSE**  
**SUPPLEMENT B—SEALED SOURCES**

**ALL SEALED SOURCES OTHER THAN THOSE DEFINED IN ITEM 4**

5. QUANTITY OF BYPRODUCT MATERIAL PER SOURCE AND MODEL OR DRAWING NUMBER

6. MEANS BY WHICH BYPRODUCT MATERIAL WILL BE DEPOSITED IN SOURCE CONTAINER:

7. ATTACH ANNOTATED ENGINEERING DRAWING OF SOURCE CONTAINER AND HOLDER, IF ANY:

8. TYPE OF SEAL TO BE USED TO PRECLUDE LEAKAGE OF RADIOACTIVITY TO EXTERIOR OF SOURCE:

9. IF SOURCE HOLDER IS TO BE USED WILL CONTAINER BE PERMANENTLY OR SEMIPERMANENTLY MOUNTED THEREIN?

10. DESCRIBE LABEL TO BE AFFIXED TO CONTAINER AND/OR SOURCE HOLDER (*Or attach copy. See instructions*):

11. EVIDENCE OF STABILITY OF SOURCE CONTAINER MATERIAL TO IRRADIATION FROM BYPRODUCT MATERIAL THEREIN (*Omit if such stability is obvious*):

12. LEAK TESTING PROCEDURE TO BE EMPLOYED INCLUDING EVIDENCE OF ITS EFFICACY AND INSTRUMENTATION TO BE USED:

**DEVICES CONTAINING SEALED SOURCE**

*(Give following information if sealed source is to be mounted in a device)*

13. ATTACH ANNOTATED ENGINEERING DRAWING OF DEVICE INCLUDING MODEL NUMBER AND DETAILS OF MOUNTING OF CONTAINER OR SOURCE HOLDER IN THE DEVICE:

14. DESCRIBE CONSTRUCTION AND OPERATION OF THE POSITIONING MECHANISM FOR BRINGING SOURCE INTO "ON" AND "OFF" POSITIONS:

15. DESCRIBE CONSTRUCTION AND OPERATION OF READILY VISIBLE INDICATOR OF DEVICE INDICATING "ON" AND "OFF" POSITIONS OF SOURCE:

16. DESCRIBE DESIGN FEATURES WHICH SERVE TO MINIMIZE RADIATION HAZARD FROM THE DIRECT BEAM AND SECONDARY RADIATION (*Including type and amount of shielding as well as limited accessibility inherent in installations where use is contemplated*):

17. DESCRIBE LABEL TO BE AFFIXED TO DEVICE (*Or attach copy. See instructions*):

18. RADIATION PROFILE OF A PROTOTYPE DEVICE IS ATTACHED. (*Circle your answer*):

YES

NO