

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

INSTRUCTIONS.—Complete Items 1 through 16 if this is an initial application. If application is for renewal of a license, complete only Items 1 through 7 and indicate new information or changes in the program as requested in Items 8 through 15. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail three copies to: U. S. Atomic Energy Commission, Washington 25, D. C. Attention: Isotopes Branch, Division of Licensing and Regulation. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30 and the Licensee is subject to Title 10, Code of Federal Regulations, Part 20.

1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital, person, etc.)

Aerojet-General Nucleonics
Foot of Fostoria Way
San Ramon, California

(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1 (a).)

Same

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

As required by the needs of research and development. See 4 below.

3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.)

4-647-1

4-647-2 Renewal

4. INDIVIDUAL USER(S). (Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in Items 8 and 9.)

By or under the direct supervision of individuals approved by Isotope & Safety Committee, Mr. H. G. Simens, Chairman.

5. RADIATION PROTECTION OFFICER (Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Items 8 and 9.)

H. G. Simens, Radiological
Safety Officer (resume' on file)
F. W. Boone, Deputy Radiological
Safety Officer (resume' on file)

6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.)

No.'s 3 thru 83
(No. 60 excepted)
Cobalt-60
Polonium-210
Polonium-210
Curium-242
Californium-252

(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME. (If sealed source(s), also state name of manufacturer, model number, number of sources and maximum activity per source.)

Any chemical or physical form - 40 curies total

Any chemical or physical form - 200 curies total

0.5 curie sealed neutron source, Mound Laboratories

Any chemical or physical form - 10 curies total

Any chemical or physical form - 1 curie total

Any chemical or physical form - 2 microcuries total

7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for "human use," supplement A (Form AEC-313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.)

Research & Development as defined in Section 30.4(k) of Title 10, Code of Federal Regulations, Part 30, "Licensing of Byproduct Material."

DUPLICATED
FOR DIV. OF COMPLIANCE,

(Continued on reverse side)

Form AEC-313 (5-58)

TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4 (Use supplemental sheets if necessary)

8. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
a. Principles and practices of radiation protection			Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments			Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity			Yes No	Yes No
d. Biological effects of radiation			Yes No	Yes No

9. EXPERIENCE WITH RADIATION. (Actual use of radioisotopes or equivalent experience.)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE

10. RADIATION DETECTION INSTRUMENTS. (Use supplemental sheets if necessary.)

TYPE OF INSTRUMENTS (include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm ²)	USE (Monitoring, surveying, measuring)
See attached Sheet 1.					

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE.

See attached Sheet 2.

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED. (For film badges, specify method of calibrating and processing, or name of supplier.)

See attached Sheet 2.

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. (Circle answer) Yes () No () See attached Sheet 2.

14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source. See attached Sheet 2.

15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved. See attached Sheet 2.

CERTIFICATE (This item must be completed by applicant)

16. 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 THAT ALL INFORMATION CONTAINED HEREIN, INCLUDING ANY SUPPLEMENTS ATTACHED HERETO, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

AEROJET-GENERAL NUCLEONICS

Applicant named in Item 1

Date JUN 26 1962

H. W. Davis

H. W. Davis

Vice President & Asst. Secy.

Title of certifying official

WARNING.—18 U. S. C., Section 1001, Act of June 25, 1948, 62 Stat. 749, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

ITEM 10 - RADIATION DETECTION INSTRUMENTS

Sheet 1

<u>TYPE OF INSTRUMENT</u>	<u>NO.</u>	<u>RADIATION DETECTED</u>	<u>SENSITIVITY RANGE</u>	<u>WINDOW THICKNESS</u>	<u>USE</u>
Proportional Alpha Meter	5	Alpha	0-20,000 cpm	0.00025" Aluminized Mylar	Monitoring & Surveying
Nuclear-Chicago Count Rate Meter	4	Alpha	0-15,000 cpm	0.8 mg/cm ² Rubber Hydrochloride	Monitoring & Surveying
Beckman Berkeley G-M Meter	4	Beta-Gamma	0-20 mr/hr	40 mg/cm ²	Monitoring & Surveying
Juno Ionization Meter	2	Beta-Gamma	0-5 r/hr	0.00025" Aluminized Mylar	Monitoring & Surveying
R C L-Combo Neutron Meter	2	Slow & Fast Neutrons	0-10 mpl	1 BF ₃ & 1 Proton Recoil	Monitoring & Surveying
Nuclear-Chicago Nemo Neutron Meter	1	Slow & Fast Neutrons	0-5 mpl	2 BF ₃ Tubes	Monitoring & Surveying
Tracerlab Lab. Monitor	2	Alpha	0-20,000 cpm	0.00025" Aluminized Mylar	Laboratory Area Monitor
Tracerlab Lab Monitor	1	Beta-Gamma	0-20,000 cpm	10 mg/cm ²	Laboratory Area Monitor
Chatham CH-710	3	Beta-Gamma	0-50 r/hr	40 mg/cm ²	Emerg. Meters
Jordan	1	Beta-Gamma	0-50 r/hr	20 mg/cm ²	Monitoring & Surveying
Nuclear-Chicago Classmaster	2	Beta-Gamma	0-1500 cpm	10 mg/cm ²	Area Monitoring (alarm type)
Radiation Counters	2	Alpha-Beta-Gamma	0-10 ⁵ cpm	Gas Flow	Measuring
Pulse Height Analyzer	1	Gamma	0-10 ⁶ cpm	NaI Crystal	Measuring
RIDL Count Rate Meter	2	Beta-Gamma	0-10 ⁶ cpm	4 mg/cm ²	Measuring
Riggs Electronic	1	Beta-Gamma	0-10 mr/hr	Ion Chamber	Area Monitoring (alarm type)
Eberline Gas Propor- tional Alpha Meter	1	Alpha	0-100,000 cpm	0.85 mg/cm ²	Monitoring & Surveying
RCL	1	Beta-Gamma	0-50 mr/hr	40 mg/cm ²	Monitoring & Surveying
Baird-Atomic Scintil- lation Counter	1	Alpha	0-10 ⁸ cpm	0.00025" Aluminized Mylar	Measuring

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS ABOVE.

Alpha survey instruments are calibrated weekly by placing the probe against a counting planchet.

Beta gamma survey instruments are calibrated monthly on a calibration bench using a calibrated Co-60 source.

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED.

Film badges are supplied by Radiation Detection Company, Palo Alto, California.

10 Landsverk Model L-50 self-reading dosimeters, 0-200 mr range, are used at AGN.

13. FACILITIES AND EQUIPMENT. (No sketch)

Refer to AEC Docket 70-38, specifically AGN's 11 May 1962 letter to D. L. & R.

14. RADIATION PROTECTION PROGRAM.

AGN Report No. 5 has been superseded by AGN Report No. 552, a copy of which is attached.

15. WASTE DISPOSAL.

Nuclear Engineering Company, Pleasanton, California.