

UNITED STATES ATOMIC ENERGY COMMISSION  
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

INSTRUCTIONS.—Complete Items 1 through 16 if this is an initial application or an application for renewal of a license. Information contained in previous applications filed with the Commission with respect to Items 8 through 15 may be incorporated by reference provided references are clear and specific. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to: U.S. Atomic Energy Commission, Washington, D.C., 20545, Attention: Isotopes Branch, Division of Materials Licensing. 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. Include ZIP Code.)		(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1 (a). Include ZIP Code.)	
Departments of Biology & Physics Gettysburg College Gettysburg Pa. 17325		Master's Hall McCreary Hall  Gettysburg College Gettysburg Pa. 17325	
2. DEPARTMENT TO USE BYPRODUCT MATERIAL Biology & Physics Departments		3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.) 37-6176-1 (B62)	
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.) Allen C. Schroeder Asst. Prof. Biology  David J. Cowan Assoc. Prof. Physics		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.)  David J. Cowan	
6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.) Chromium-51 Calcium-45 Carbon-14 Hydrogen-3 Iodine-131 Phosphorus-32 <del>Potassium-42</del> Sodium-22 Sulfur-35		(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.) 0.5 mc Liquid 0.5 mc " 0.5 mc " 1.0 mc " 0.1 mc " 0.5 mc "  0.1 mc " 0.5 mc "	
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.) Material will be used for instructional purposes in an introductory undergraduate course dealing with the characteristics, handling, and use of radiation.  Students will handle no more than 10 uc of an isotope at any one time and that quantity will have been prepared by the instructor.  Specific use of the isotopes will involve simple tracer experiments in animal and plant organisms.  A/49 13768			

Supplement to application form AEC-313  
8-64  
10 CFR 30

Applicant: Depts. Biology & Physics  
Gettysburg College  
Gettysburg Pa. 17325

Item 8. Allen C. Schroeder

Training in points a,b,c,d, NSF Summer Institute in  
Radiation Biology, Summer 1969, Colorado State Univ.  
Fort Collins Colorado, Director, Adrian H. Dahl

Also, Graduate Training, Catholic Univ. of America,  
Washington D.C. Four Months, Fall 1965, in a formal  
course, "Radioisotope Methodology"

David J. Cowan

Radiation Protection Officer, I.B.M. Corp. Poukeepsie N.Y.  
1960-61 On the Job.

M.D. Anderson Hospital, Department of Physics,  
Houston, Texas. On the Job.

U.S. Dept. of Agriculture, Summers 1956 & 1957  
On the Job.

Item 9. Allen C. Schroeder

Most experience with  $I^{131}$  and  $S^{35}$  during educational  
training at Catholic Univ. of America

David J. Cowan

Most experience with X-rays. Also experience with 50 uc  
quantities of  $P^{32}$  with Dept. of Agriculture.  
Also experience with 1 c Plutonium<sup>239</sup> source in conjunction  
with Neutron Howitzer at Gettysburg College.

Item 10. Model 530 scintillation spectrometer with gas flow (Baird)

Model L-64 Landsverk Dosimeter

Both of the above are measuring devices

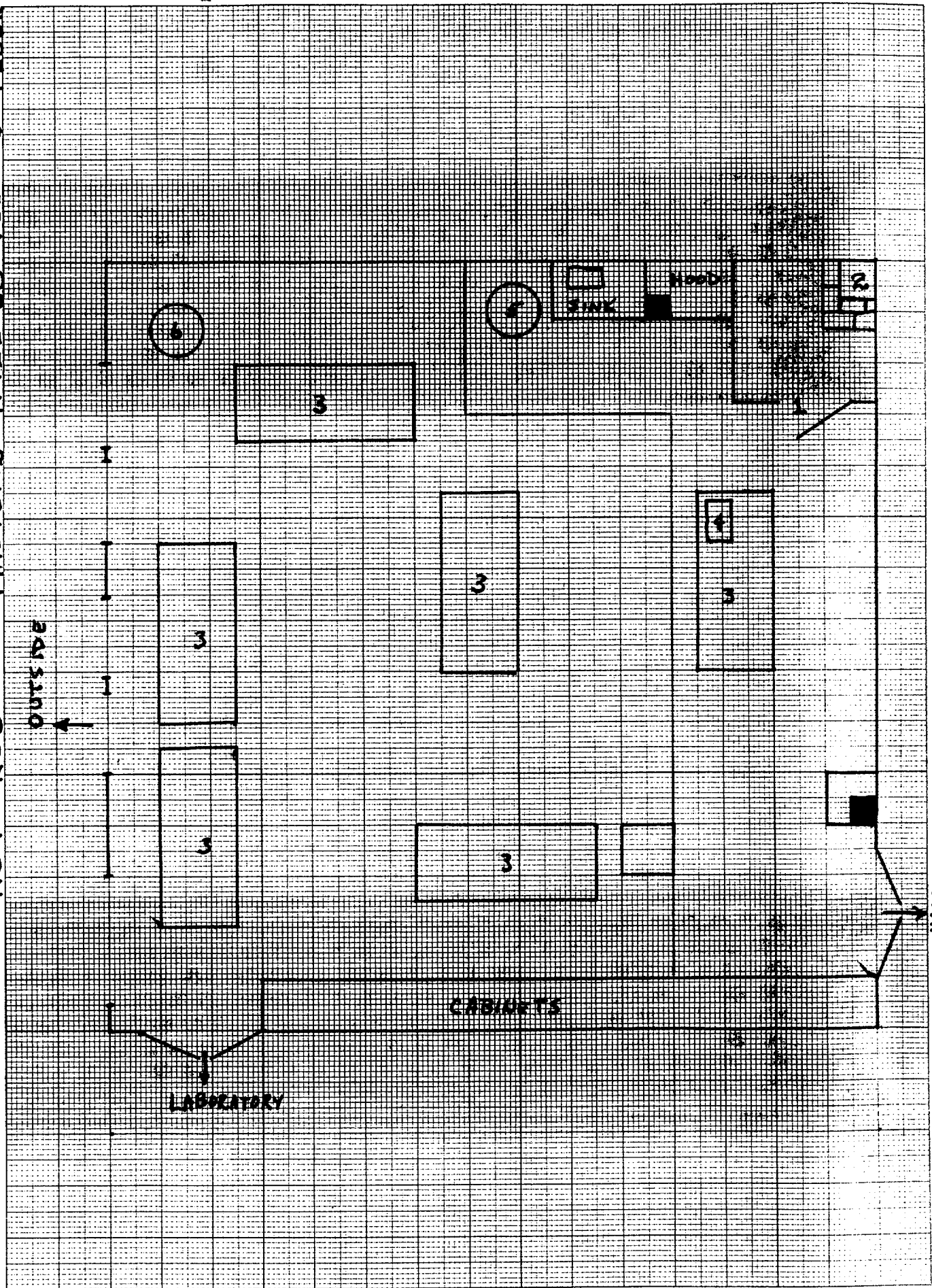
Supplement to application form    AEC-313  
   8-64  
   10 CFR 30

Applicant: Depts. Biology Physic.  
             Gettysburg College  
             Gettysburg Pa. 17325

- Item 13. Laboratory facilities consist of four rooms: a hot lab containing work benches, fume hood, sink; a counting lab; an animal room; greenhouse. Storage of isotopes will be in original containers, shielded with lead bricks in a central location of the hot lab.
- Item 14. Protection program. See attached "Rules and Operating Procedures for Safe Handling of Isotopes"
- Personnel and Lab Area monitoring devices will be utilized before and after the use of radioisotopes.
- Item 15. Waste Disposal. Isotopes will be held for adequate decay then discharged into the sewer. Records will be kept of the method and amount of activity disposed of.

1. Pipetting by mouth is prohibited.
2. Eating, drinking, smoking and the application of cosmetics is prohibited.
3. All work with liquid material will be confined to the designated lab area and will be carried out over an absorbant surface, preferably under the fume hood.
4. When carrying radioactive material always use a secondary container.
5. Rubber gloves will be worn whenever there is danger of contaminating the hands or if cracks or cuts are present on the hands. Protective clothing will also be worn whenever the danger of contamination is present.
6. Before leaving the laboratories, the hands shall be washed first, then checked with a beta-gamma survey meter. Contamination remaining after thoroughly washing shall be reported to the instructor.
7. Only authorized personnel shall be allowed in the laboratory. Those persons will wear the personnel survey devices provided.
8. Active solid wastes and contaminated materials shall be placed in properly labeled trash cans.
9. Active liquid wastes shall be poured into the containers provided.
10. In the event of a spillage over a work surface or the floor, one should prevent the spread of contamination, isolate the area of contamination, and notify the instructor.
11. All decontamination of equipment shall be done in the designated area.
12. Radioactive materials and contaminated materials are to be stored in the proper place within the vault which should be locked when not in use.
13. Equipment used in the laboratory should remain within the lab.
14. If there are any questions about procedure consult with the instructor.

# HOT ROOM MASTERS HALL 28 (SECOND FLOOR)



SCALE 1 CM = 2 FT

# Gettysburg College

GETTYSBURG, PENNSYLVANIA

17325

DEPARTMENT OF PHYSICS

## NOTES CONCERNING PROPOSED HOT ROOM-MASTERS HALL 28

### GETTYSBURG COLLEGE

#### General Comments

All walls shown are cinder block.  
All doors shown have locks. Keys are not accessible to students.  
The counting room is in Masters Hall 22 which is 60 feet down the hall.  
Twenty lead bricks (2"x4"x8") are available for shielding.  
The red line in the sketch marks the boundary of the hot room area. The remainder of the room will not be used by any other students during the time the course is being held.

#### Facilities Now Present

##### Code

- 1 Closet properly marked with approved radiation signs.
- 2 Well formed by solid concrete blocks. Well is from 7" to 15" thick and 30" high.
- 3 Laboratory tables
- 4 Counting equipment for rough counting only.

#### Facilities To Be Present By January 1, 1970

- Nuclear-Chicago 1613A radiation monitors with Baird-Atomic EWH 108 geiger tubes.
- 5 Waste can with plastic liner labelled for radioactive materials only.
- 6 Neutron howitzer ( 1 curie Pu-Be)