

ATOMIC ENERGY COMMISSION  
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

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  
*(Institution, firm, hospital, person, etc.)*  
Veterans Administration Center  
Wilshire and Sawtelle Blvds.  
Los Angeles 25, California

(b) ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED  
*(If different from shipping address)*  
Same

2. DEPARTMENT TO USE BYPRODUCT MATERIAL  
Radioisotope Service

3. INDIVIDUAL USER *(Name and title of individual(s) who will use or directly supervise use of byproduct material)*  
William H. Bland, M.D., and Nome Baker, Ph.D.

4. RADIOLOGICAL SAFETY OFFICER *(Name of person qualified in radiological safety, if other than individual user)*

5. PREVIOUS LICENSE OR AUTHORIZATION NUMBER *(If this is an application for renewal of a license for byproduct material obtained under a prior license or authorization for radioisotope procurement)*  
none

BYPRODUCT MATERIAL OR IRRADIATION SERVICE DESIRED

6. BYPRODUCT MATERIAL: *Element and mass number*: Carbon-<sup>14</sup>  
*Chemical and or physical form*: Sodium Bicarbonate-<sup>14</sup>  
Aspartic Acid-<sup>14</sup>  
Glutamic Acid-<sup>14</sup>

7. MAXIMUM AMOUNT OF RADIOACTIVITY IN MILLICURIES THAT YOU WILL POSSESS AT ANY ONE TIME  
1 mc.  
1 mc.  
1 mc.  
1 mc.

8. 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. Material is to be used in or manufactured as a "sealed source" complete Supplement B in addition to this item.*  
Study of rates of turnover and oxidation in muscular dystrophic subjects and in biological laboratory studies for use in lower animals.

(b) DESCRIBE PROCEDURES WHICH WILL BE OBSERVED TO MINIMIZE HAZARD FROM HANDLING, STORAGE, AND DISPOSAL OF THE BYPRODUCT MATERIAL  
See License No. 4-181-2 and 4-181-4

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 California  
County of Los Angeles

Subscribed and sworn to before me this 21<sup>st</sup> day of July, 1956

Notary Public: John A. Clements

By: William H. Bland  
Title of Certifying Official: William H. Bland, M.D., Asst. Ch. Radioisotope Service

Date: \_\_\_\_\_

A. GRHAM WHEELY, JR.  
Radioisotope Division  
Veterans Administration

WARNING

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

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<br>(Circle answer) |    | FORMAL COURSE<br>(Circle answer) |    |
|--|-------------------------|----------------------|-------------------------------|----|----------------------------------|----|
|  |                         |                      | Yes                           | No | Yes                              | No |
| 1. Principles and practices of radiological health safety. . . . .   | See License No. 4-181-4 |                      | Yes                           | No | Yes                              | No |
| 2. Radioactivity measurement standardization and monitoring techniques and instruments . . . . .                                   |                         |                      | Yes                           | No | Yes                              | No |
| 3. Mathematics and calculations basic to the use and measurement of radioactivity. . . . .   |                         |                      | Yes                           | No | Yes                              | No |
| 4. Biological effects of radiation. . . . .  |                         |                      | Yes                           | No | Yes                              | No |
| 5. Actual use of radioisotopes in the types and quantities for which application is being made, or equivalent experience . . . . . |                         |                      | Yes                           | No | Yes                              | No |

**13. ISOTOPE HANDLING EXPERIENCE**

| ISOTOPE                 | MAXIMUM AMOUNT | WHERE EXPERIENCE WAS GAINED | DURATION OF EXPERIENCE | TYPE OF USE |
|-------------------------|----------------|-----------------------------|------------------------|-------------|
| See License No. 4-181-4 |                |                             |                        |             |

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<br>(Include make and model number of each) | NUMBER AVAILABLE | RADIATION DETECTED | SENSITIVITY RANGE<br>(mr/hr) | WINDOW THICKNESS<br>(mg/cm <sup>2</sup> ) | USE (Monitoring, surveying, measuring) |
|--|------------------|--------------------|------------------------------|---|--|
| See License No. 4-181-2  |                  |                    |                              |   |  |

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

See License No. 4-181-2

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

See License No. 4-181-2

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

See License No. 4-181-2

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

Yes No

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

See License No. 4-181-2

## PROPOSED DIAGNOSIS OR TREATMENT

6. (a) DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED INCLUDING SPECIFIC CONDITIONS OR DISEASES TO BE DIAGNOSED OR TREATED:

Study of rates of turnover and oxidation in muscular dystrophic subjects.

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

See Licenses 4-181-2 and 4-181-4

## PROPOSED DOSAGE SCHEDULE

7.

Complete this item for new or unusual uses only

*(In millicuries for internally administered byproduct material other than discrete fixed sources; and in roentgens or rads, as appropriate, for internal or external irradiation from discrete fixed sources (gold seeds, cobalt needles, etc.) state separately for each condition or disease—use additional sheet if necessary)*

A maximum of one dose containing 0.1 millicurie will be administered to each subject.

8. CHEMICAL FORM ADMINISTERED: Sodium Bicarbonate- $C^{14}$ , Acetate- $1-C^{14}$ , Glycine- $1-C^{14}$ , Glutamic Acid- $1-C^{14}$ 

9. IF BYPRODUCT MATERIAL WILL NOT BE OBTAINED IN PRECALIBRATED FORM FOR ORAL ADMINISTRATION OR IN PRECALIBRATED AND STERILIZED FORM FOR PARENTERAL ADMINISTRATION, DESCRIBE IDENTIFICATION, PROCESSING, AND STANDARDIZATION PROCEDURES:

See License No. 4-181-2

## EXPERIMENTAL PROGRAMS AND NEW OR UNUSUAL USES

10. INVESTIGATIVE PROPOSAL IS ATTACHED OUTLINING STUDY CONDITIONS TO BE EVALUATED, RATIONALE FOR PROPOSED USE AND DOSAGE INCLUDING DATA FROM ANIMAL STUDIES AND/OR LITERATURE REFERENCES IF AVAILABLE. NUMBER AND TYPE OF PATIENTS (E. G., AGE GROUP, MORIBUND, ETC.).

CIRCLE ANSWER

YES

 NO

11. DESCRIPTION AND SKETCHES OF SPECIAL DEVICES TO BE USED FOR ADMINISTERING BYPRODUCT MATERIAL TO HUMAN BEINGS ARE (a) ATTACHED (LITERATURE REFERENCES WILL SUFFICE)

CIRCLE ANSWER

YES

 NO(b) ON FILE WITH THE ISOTOPES EXTENSION  
REFER TO APPLICATION NO: .....

CIRCLE ANSWER

YES

 NO

12. THE PROPOSED USE OF BYPRODUCT MATERIAL HAS BEEN, OR WILL BE, APPROVED BY THE MEDICAL ISOTOPE COMMITTEE

CIRCLE ANSWER

 YES

NO

**APPLICATION FOR BYPRODUCT MATERIAL LICENSE**  
SUPPLEMENT A—HUMAN USE

FOR DIV. O. INSP.

If byproduct material is for "human use" (internal administration of byproduct material, or the radiation therefrom to human beings), complete this supplement and attach to the application for byproduct material license.

**QUALIFICATIONS OF PHYSICIAN WHO WILL SUPERVISE USE OF BYPRODUCT MATERIAL**

1. THE INDIVIDUAL USER(S) ITEM 3, PAGE ONE, OF THIS APPLICATION IS (ARE) LICENSED TO DISPENSE DRUGS IN THE PRACTICE OF MEDICINE IN THE STATE OR TERRITORY WHERE THE BYPRODUCT MATERIAL WILL BE USED.

CIRCLE ANSWER

YES

NO

2. **CLINICAL TRAINING AND EXPERIENCE WITH BYPRODUCT MATERIAL**

NOTE: Customarily item 2 is completed and signed by the preceptor. (See instructions.)

| (A)<br>ISOTOPE  | (B)<br>TOTAL NUMBER OF HOURS OF PARTICIPATION IN TRAINING PROGRAM | (C)<br>CONDITION(S) DIAGNOSED OR TREATED<br>(e. g., diagnosis of thyroid function, treatment of hyperthyroidism) | (D)<br>NUMBER OF CASES | (E)<br>TYPE OF PARTICIPATION FOR ALL CASES IN COLUMN D (circle applicable numbers of items in accordance with key set forth below) |
|-----------------|---|--|------------------------|--|
| See License No. | 4-181-4   |  |                        | 1 2 3 4 5 6 7 8  |
|                 |   |  |                        | 1 2 3 4 5 6 7 8  |
|                 |   |  |                        | 1 2 3 4 5 6 7 8  |
|                 |   |  |                        | 1 2 3 4 5 6 7 8  |
|                 |   |  |                        | 1 2 3 4 5 6 7 8  |
|                 |   |  |                        | 1 2 3 4 5 6 7 8  |

Key to above numbers

Active participation and observation

- Evaluation of the suitability of the patient for radioisotope diagnosis and/or treatment by taking patient histories and performing medical examinations and/or study of case histories.
- Collaboration in diagnosis and/or treatment and dosages prescribed.
- Measurement of doses and their administration.
- Related measurements and plotting of data.
- Active period of training and experience of sufficient duration to permit the following of specific patients through treatment and post-treatment periods, including reevaluation as to effectiveness and complications.
- Study of case histories (without seeing patients).
- Study of case histories (observed patients).
- Observation and discussion of diagnostic and/or therapeutic techniques, as well as management of patients during follow-up periods.

3. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OR GUIDANCE OF

*Franz K. Bauer*  
Franz K. Bauer, M.D.

(Name of physician (preceptor))  
Chief, Radioisotope Service

AT Veterans Administration Center  
Los Angeles, Calif.

(Signature)

**HOSPITAL FACILITIES FOR INDIVIDUAL PRACTICE USE ONLY**

4. (a) THE APPLICANT HAS COMPLETED ARRANGEMENTS FOR A HOSPITAL TO ADMIT RADIOACTIVE PATIENTS WHENEVER ADVISABLE.

CIRCLE ANSWER

YES

NO

(b) A COPY OF INSTRUCTIONS TO BE FURNISHED TO THE HOSPITAL AS TO RADIOLOGICAL SAFETY PRECAUTIONS TO BE TAKEN AND AVAILABLE RADIATION INSTRUMENTATION IS ATTACHED.

CIRCLE ANSWER

YES

NO

5. PATIENTS CONTAINING MORE THAN 30 MILLICURIES OF RADIOACTIVITY WILL BE HOSPITALIZED UNTIL BODY CONTENT OF RADIOACTIVITY IS LESS THAN 30 MILLICURIES (see instructions).

CIRCLE ANSWER

YES

NO