

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Parts 30, 32, 33, 34, and 35, 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.

<p style="text-align: center;">Licensee</p> <p>1. University of Idaho Department of Dairy Science</p> <p>2. Moscow, Idaho 83843</p>	<p>In accordance with letter dated July 12, 1968,</p> <p>3. License number 11-00197-06 is amended in its entirety to read as follows:</p> <p>4. Expiration date October 31, 1973</p> <p>5. Reference No.</p>
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6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioac- tivity which licensee may possess at any one time
A. Hydrogen 3	A. Any	A. 50 millicuries
B. Carbon 14	B. Any	B. 50 millicuries
C. Iodine 131	C. Any	C. 20 millicuries
D. Iodine 125	D. Any	D. 20 millicuries

9. Authorized use

A. through D. **Used as tracers for studying metabolic processes concerning reproductive phenomenon in farm and laboratory animals.**

CONDITIONS

- 10. **Byproduct material may only be used at 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 material shall be used by, or under the supervision of, R. Garth Sasser, Ph.D.**

A/6

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

License Number 11-00197-06

(Continued)

CONDITIONS

Amendment No. 04

- 13. Experimental animals administered radioactive materials or their products shall not be used for human consumption.
- 14. Byproduct material shall not be used in or on human beings or in products distributed to the public.
- 15. Except as specifically provided otherwise by this 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 application dated December 18, 1967.

Date SEP 6 1968

For the U. S. Atomic Energy Commission

Original Signed by *[Signature]*
John E. Bowyer

by Isotopes Branch *9-6-68*

Division of Materials Licensing
Washington, D. C. 20545

JM

SPV / [Signature]

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Parts 30, 32, 33, 34, and 35, 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.

<p style="text-align: center;">Licensee</p> <p>1. University of Idaho Department of Dairy Science</p> <p>2. Moscow, Idaho 83843</p>	<p>In accordance with application dated December 18, 1967,</p> <p>3. License number 11-00197-06 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date October 31, 1968</p> <hr/> <p>5. Reference No.</p>
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6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioac- tivity which licensee may possess at any one time
A. Hydrogen 3	A. Any	A. 50 millicuries
B. Carbon 14	B. Any	B. 50 millicuries
C. Iodine 131	C. Any	C. 20 millicuries

9. Authorized use

A. through C. Used as tracers for studying metabolic processes concerning reproductive phenomenon in farm and laboratory animals.

CONDITIONS

10. Byproduct material may only be used at 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 material shall be used by, or under the supervision of, R. Garth Sasser, Ph.D.

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

License Number 11-00197-06

Amendment No. 03

(Continued)

CONDITIONS

- 13. Experimental animals administered radioactive materials or their products shall not be used for human consumption.
- 14. Byproduct material shall not be used in or on human beings or in products distributed to the public.
- 15. Except as specifically provided otherwise by this 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 application dated December 18, 1967.

JAN 26 1968

Date _____

For the U. S. Atomic Energy Commission
Original Signed By *JEB*
John E. Bowyer
by Isotopes Branch 1-26-68

Division of Materials Licensing
Washington, D. C. 20545

JEB/CJK

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Parts 30, 32, 33, 34, and 35, 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		In accordance with letters dated August 26 and September 21, 1966 License number 11-00197-06 is amended in its entirety to read as follows:
1. Name	University of Idaho Department of Animal Science	
2. Address	Department of Dairy Science Moscow, Idaho 83843	4. Expiration date October 31, 1968
		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. Carbon 14	A. Any	A. 100 millicuries

9. Authorized use

A. Used to synthesize labeled compounds for use in ruminant metabolism studies.

CONDITIONS

10. Byproduct material may only be used at 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 material shall be used by, or under the supervision of, Dr. John P. Baker.

The licensee shall not use byproduct material in or on human beings or in field applications where such activity is released except as provided otherwise by specific condition of this license.

BYPRODUCT MATERIAL LICENSE

Supplementary Sheet

License Number 11-00197-06

Continued from Page 1

Amendment No. 02

- 14. Except as specifically provided otherwise by this 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 application dated February 15, 1963.
- 15. Laboratory animals or their products administered radioactivity shall not be used for human consumption.

OCT 26 1966

RJA / eig PF

For the U. S. Atomic Energy Commission

Original Signed by *JEB*

John E. Bowyer

10-26-66

by Isotopes Branch

Division of Materials Licensing
Washington, D. C. 20545

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICF SE
Supplementary Sheet

License Number 11-197-6
(C67)

AMENDMENT NO. 1

University of Idaho
Department of Dairy Science
Moscow, Idaho

Attention: E. M. Cook

In accordance with application dated February 10, 1965, License
No. 11-197-6 is amended as follows:

To extend the expiration date (Item No. 4) from March 31, 1965,
to March 31, 1967.

To change the symbol below the license number from C65 to C67.

MAR 17 1965

Date _____

For the U. S. Atomic Energy Commission
JCB 3-17-65 Original Signed by
Isotopes Branch John E. Bowyer
by Division of Materials Licensing
~~Division of Licensing and Regulation~~
Washington 25, D. C.

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENS

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	University of Idaho Department of Dairy Science	3. License number 11-197-6 (C65)
2. Address	Moscow, Idaho	4. Expiration date March 31, 1965
		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. Carbon 14	A. Any	A. 40 millicuries

9. Authorized use

A. Used to synthesize labeled compounds for use in ruminant metabolism studies.

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 material shall be used by, or under the supervision and in the physical presence of, R. M. Cook.
13. The licensee shall not use byproduct material in or on human beings or in field applications where such activity is released except as provided otherwise by specific condition of this license.
14. Except as specifically provided otherwise by this 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 February 15, 1963.
15. Laboratory animals or their products administered radioactivity shall not be used for human consumption.

For the U. S. Atomic Energy Commission

Date March 7, 1963

DUPLICATED
by **ISOTOPE BRANCH**

Original Signed by *John E. Sawyer* **3-7-63**
Isotopes Branch
Division of Licensing and Reg
Washington 25, D. C.

RB/Howard



JUL 17 1968

DML:IB:JPV (03473)

University of Idaho
Department of Dairy Science
Moscow, Idaho 83843

Attention: R. Garth Sasser, Ph.D.

Gentlemen:

The Commission's safety evaluation of an application for a byproduct material license is made on the basis of the individual user's training and experience as well as the instrumentation, equipment, facilities and procedures which are proposed for radiation protection and waste disposal. An individual user's training and experience should be commensurate with the materials which will be used.

Until such time as other individuals acquire the necessary training and experience in the use of radionuclides, all use of byproduct material covered by License No. 11-00197-06 should be by or under the supervision of R. Garth Sasser, Ph.D., as stated in Condition 12 of that license.

Sincerely,

John E. Bowyer
Isotopes Branch
Division of Materials
Licensing

Enclosure:
How to Get a License

bcc: CO, RegionIV

Stand. Branch Dist.

OFFICE ▶	DML:IB <i>JMV</i>	DML:IB <i>CPA</i>				
SURNAME ▶	JPVeerling/vjh	JEBowyer				
DATE ▶	7/17/68	7/17 168				

UNIVERSITY OF IDAHO

MOSCOW, IDAHO 83843



Department of Dairy Science

612 Job

July 12, 1968

Mr. John E. Bowyer
U. S. Atomic Energy Commission
Isotope Branch
Division of Materials Licensing
Washington, D. C. 20545

Dear Mr. Bowyer:

Enclosed is a copy of license No. 11-00197-06, amendment No. 03. I would like to make an addition to items 6, 7, and 8 to read as follows:

- 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
- D. Iodine 125
- D. Any
- D. 20 millicuries

The items listed above correspond to Form AEC-313, items 6a and 6b. *use?*

If you have not processed the request in my letter of June 18, 1968, you may want to include that material in this amendment. At the time of writing the above letter I had not anticipated a use for I¹²⁵.

Sincerely,

R. Garth Sasser

R. Garth Sasser
Assistant Professor
Department of Dairy Science

RGS:mmm

DUPLICATED
FOR COMPLIANCE

04046

UNIVERSITY OF IDAHO

MOSCOW, IDAHO 83843



Department of Dairy Science

612 John 19

June 18, 1968

John E. Bowyer
U. S. Atomic Energy Commission
Isotope Branch
Division of Materials Licensing
Washington, D. C. 20545

Re: AEC By-product Materials
License No. 11-00197-06

Dear Mr. Bowyer:

There are three graduate students who will begin working under my supervision with the radioisotopes listed in license number 11-00197-06. Their names are Jon C. Bloxham, Bruce Bradley, and Edward Fiez. Would you please add their names to the list of those using by-product materials if it is necessary.

Accordingly, the following items, numbered to correspond to Form AEC-313, are requested modifications to the above-referenced license:

8. Type of training*

- a) None
- b) None
- c) None
- d) None

* These students will begin "on the job" training this summer.

Sincerely,

R. Garth Sasser, Ph.D.
Department of Dairy Science

GS:mm

DUPLICATED
FOR DIV. OF COMPLIANCE

03473

UNIVERSITY OF IDAHO

MOSCOW, IDAHO 83843



Department of Dairy Science

10/1/67

December 18, 1967

U. S. Atomic Energy Commission
Washington D. C. 20545

Attention: Isotope Branch
Division of Materials Licensing

Dear Sirs:

Enclosed is an application for renewal of license 11-00197-06. Due to changes in personnel this license was canceled in the spring of 1967. Recently I have become a member of the staff here and will have use for it. Because records have been misplaced I have filed form AEC-313 in detail. If it is not possible to renew the old license then I would prefer that this be considered an application for a new license.

Sincerely,

Garth Sasser

Garth Sasser,
Assistant Professor
Department of Dairy Science

GS:mm

P.S. Would you please send recent copies of the

Atomic Energy Commission's regulations 99199

10 CFR Part 20

and 10 CFR Part 30

DUPLICATED
FOR DIV. OF COMPLIANCE

*Thank you
Garth Sasser*

Form AEC-313 (8-64) 10 CFR 30	UNITED STATES ATOMIC ENERGY COMMISSION APPLICATION FOR BYPRODUCT MATERIAL LICENSE		Form approved. Budget Bureau No. 38-R027
<p>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.</p>			
<p>1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital person, etc. Include ZIP Code.)</p> <p>University of Idaho Department of Dairy Science Moscow, Idaho</p>		<p>(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1(a). Include ZIP Code.)</p> <p>University of Idaho Department of Dairy Science, Moscow and Dairy Science Center University of Idaho, Moscow, Idaho</p>	
<p>2. DEPARTMENT TO USE BYPRODUCT MATERIAL</p> <p>Department of Dairy Science University of Idaho Moscow, Idaho</p>		<p>3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.)</p> <p>Renewal of 11-00197-06</p>	
<p>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.)</p> <p>Department of Dairy Science University of Idaho Moscow, Idaho R.S.S.</p> <p>R. Garth Sasser, Ph.D.</p>		<p>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.)</p> <p>Individual user</p>	
<p>6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.)</p> <p>A. Hydrogen - 3 B. Carbon - 14 C. Iodine - 131</p>		<p>(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLCURIES 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.)</p> <p>A. Any chemical and/or physical form; 50 millicuries B. Any chemical and/or physical form; 50 millicuries C. Any chemical and/or physical form; 20 millicuries</p>	
<p>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.)</p> <p>All materials will be used as tracers for studying metabolic processes concerning reproductive phenomenon in farm and laboratory animals. They will also be used to calibrate instruments and evaluate methodology.</p> <p style="text-align: right;">99199</p>			

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	Animal Science Department University of California, Davis	4 years	Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments	University of California Davis	4 years	Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity	University of California Davis	4 years	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
1 ^{14}C	100 m curies	U. of California, Davis	4 years	1 and 2 (See additional sheets)
2 ^3H	20 m curies	U. of California, Davis	2 years	

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)
Liquid Scintillation Spectrometer	1	beta, gamma		-	quantitation
Tracerlab, SU 14	1	beta, gamma	0 - 0.25 0 - 2.5 0 - 25	less than 2	monitoring, surveying

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

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

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS IN DUPLICATE

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
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.
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.

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.

Date Dec 18, 1967

Applicant named in item 1 R Harth Sasser Ph.D.

Title of certifying official Assistant Prof. and Assistant DAIRY Scientist

University of Idaho
Dept of DAIRY Science

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.

9. Experience with radiation. Type of use:
- 1 and 2. Studies related to steroid synthesis and metabolism in farm animals and in tissue from farm animals.
11. The survey meter will be calibrated against suitable secondary standards once a day when in use and will be calibrated against 1 mc Co-⁶⁰ sealed source at least twice a year.
- The scintillation counter will be calibrated once a day when in use against secondary standards and periodically with the Nuclear-Chicago SK-4 liquid standards sets for ¹⁴C and ³H.
12. A film badge service will be obtained for monitoring of personnel working with the isotopes. A 0-200 mr dosimeter will be available for personal monitoring of temporary assistants and general dose determination. Records and reports required by the Atomic Energy Commission's regulation 10 CFR Part 20 will be made.
13. Laboratory facilities include fume hoods, distilled water, storage cans for radioactive waste materials, various warning signs and labeling tape, and instructions on use and safety precautions concerning isotopes.
14. A Tracerlab, Su-14, survey meter will be used periodically to survey the working area and equipment or will be used immediately if contamination is suspected. The recommendations of the Atomic Energy Commission's regulations 10 CFR Part 20 will be followed.
15. No radioactive material will be disposed of without the approval of the Radiological Safety Officer. Disposal procedures will conform to provisions listed in AEC's regulation 10 CFR Part 20. Facilities include a burial ground.

99199

UNITED STATES
ATOMIC ENERGY COMMISSION
CERTIFICATE—DISPOSITION OF RADIOISOTOPES

LICENSEE (Institution, firm, hospital, person, etc.)

University of Idaho

LICENSE NUMBER

11-197-6

ADDRESS

Moscow, Idaho

DEPARTMENT(S)

Dairy Science

INDIVIDUAL RADIOISOTOPE USER(S)

R. M. Cook

CERTIFICATION

The licensee and any individual executing this certification on behalf of the licensee certify that (check appropriate item(s) below):

No byproduct materials have been procured and/or possessed by licensee.

OR

All byproduct materials procured and/or possessed by licensee under Byproduct Material License No. 11-197-6 have been:

(1) transferred to (state name of institution, firm, hospital, person, etc.)

R. M. Cook

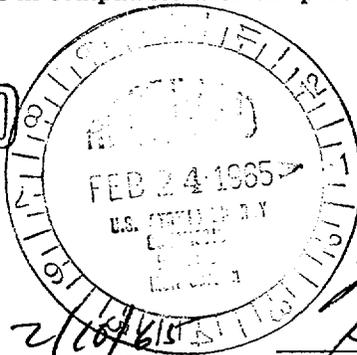
which has Byproduct Material License No. 11-197-6

(2) disposed of by decay.

(3) disposed of in compliance with the provisions of 10 CFR 20.

Remarks:

DUPLICATED
FOR DIV OF COMPLIANCE



app. submitted
(66193)
Received 2/24/65

[Signature]
Radiological Safety Officer

[Signature]
(Signature of certifying official)
Kenneth A. Dick

Date February 10, 1965 Financial Vice President
University of Idaho

01202 I JEB

UNIVERSITY OF IDAHO



MOSCOW, IDAHO

Engineering Experiment Station

21 September 1966

OFFICE OF THE DIRECTOR

Division of Licensing and Regulation
U.S. Atomic Energy Commission
Washington 25, D. C.

Re: AEC Byproduct Materials
License No. 11-197-6

Gentlemen:

As a result of changes within our faculty, we would like to amend our Byproduct Materials License 11-197-6(C67). Dr. R. M. Cook, the presently authorized user, will soon leave the University and we wish to have his name deleted from the license.

We request that Dr. John P. Baker be authorized to use the licensed material. Accordingly, the following items, numbered to correspond to Form AEC-313, are requested modifications to our above-referenced license:

2 DEPARTMENT TO USE BYPRODUCT MATERIAL
Department of Animal Science
Department of Dairy Science

4 INDIVIDUAL USER
John P. Baker, Associate Professor and Associate
Animal Scientist

8	<u>TYPE OF TRAINING*</u>	<u>DURATION</u>	<u>ON THE JOB</u>	<u>FORMAL COURSE</u>
a.	Radiation Principles and Practice	16 weeks	yes	no
b.	Radioactivity Measurement and Monitoring	16 weeks	yes	no
c.	Radioactive Calculations	16 weeks	yes	no
d.	Biological Effects of Radiation	16 weeks	yes	no

* All training taken at the University of Idaho

9. EXPERIENCE WITH RADIATION

At the University of Idaho, 15 millicuries of Carbon-14 were used during the period from May 1966 to September 1966 for ruminant metabolism studies. C-14 labeled volatile fatty acids and glucose were used.

- 10. RADIATION DETECTION INSTRUMENTS (in addition to those specified in earlier license applications)
 - 1 ea. Nuclear-Chicago Model 724 Liquid Scintillation Spectrometer.

Information concerning Byproduct Material, and intended use of this material remains unchanged from earlier correspondence.

Your approval of the requested license modification will be appreciated.

Sincerely yours,

John P. Baker
 John P. Baker, Assoc. Prof.
 Animal Sciences Dept.

T. D. Bell
 T. D. Bell, Head
 Animal Sciences Dept.

G. A. McKean
 G. A. McKean
 Radiological Safety Officer

Kenneth A. Dick
 Kenneth A. Dick
 Financial Vice President

GAM/rs



UNIVERSITY OF IDAHO

MOSCOW, IDAHO



61203
Feb I
Department of Dairy Science

83843

August 26, 1966

U. S. Atomic Energy Commission
Isotopes Branch
Division of Materials and Licensing
Washington 25, D. C.

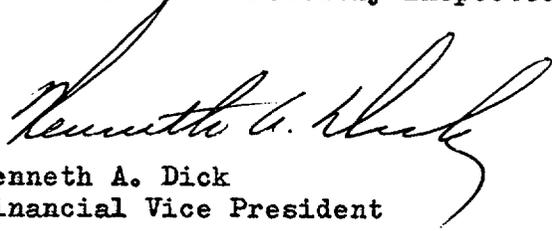
Dear Sirs:

It is requested that License No. 11-197-6 C67 (University of Idaho) be amended as follows:

To reflect a maximum possession limit of 100 millicuries (item 8).

To change item 12 to read: "By product shall be used by, or under the supervision of R. M. Cook."

These changes were recommended by Mr. E. D. Mc Fall, the AEC officer who recently inspected our facilities.


Kenneth A. Dick
Financial Vice President


G. A. McKean
Radiological Safety Officer



80153

UNITED STATES GOVERN. NT

Memorandum

TO : The Files

DATE: July 19, 1963

FROM : Richard E. Cunningham, Chief, Isotopes Branch, REC
Division of Licensing and Regulation

SUBJECT: BYPRODUCT MATERIAL LICENSE NO. 11-197-6 (C65)

L&R:IB:REC

At the suggestion of Mr. P. S. Sandel (AEC Inspector at Denver), Dr. Robert M. Cook inquired, by letter dated June 12, 1963, about the necessity of amending License No. 11-197-6 to permit transportation of microcurie quantities of Carbon 14 from the University of Idaho to Washington State University for counting in their liquid scintillation counter. The present license authorized 40 millicuries of Carbon 14 as labeled compounds in metabolic studies.

Dr. Cook was informed that, if we were to amend the license to permit the transportation and use at the University of Washington, it would be necessary to add a transportation condition to the license and obtain approval of the University of Washington for use at their site. As an alternative, it was suggested to Dr. Cook that he could possess the samples under the provisions of Section 30.72, Schedule B, provided that the University of Idaho has not exceeded the generally licensed quantities. Dr. Cook felt sure that the general license provisions would fulfill his needs and that it would not be necessary to amend the specific license.

With respect to the general license and use at Washington State University, Dr. Cook was informed that he should maintain appropriate records and that it would be advisable to inform the Radiation Safety Officer at the University of Washington as to the scope of activities at that location.

No further action appears necessary with respect to the June 12, 1963, letter.

cc: Compliance, Hdqrs.

Form AEC-313
(8-64)
10 CFR 30

UNITED STATES ATOMIC ENERGY COMMISSION
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved.
Budget Bureau No. 38-R027

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.) University of Idaho Moscow, Idaho	(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1(a). Include ZIP Code.)
2. DEPARTMENT TO USE BYPRODUCT MATERIAL Department of Dairy Science	3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.) renewal 11-197-6
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.) R. M. Cook, Assistant Professor of Dairy Science	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.) G. A. McKean
6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.) Carbon 14 Carbon 14 Carbon 14 Carbon 14 Carbon 14	(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.) BaCO₃, 10 millicuries Acetate-1-C¹⁴, 10 millicuries Propionate-1-C¹⁴, 10 millicuries Butyrate-1-C¹⁴, 10 millicuries Glucose-C¹⁴, 10 millicuries
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.) The carbon 14 compounds will be used in ruminant metabolism studies. Barium carbonate will be used to synthesize specifically labeled chemical compounds for use in ruminant metabolism studies.	

(Continued on reverse side)

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)	
			Yes	No	Yes	No
a. Principles and practices of radiation protection	Refer to previous application for items 8 through 15		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)

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

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

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS IN DUPLICATE

- 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
- 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.
- 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.

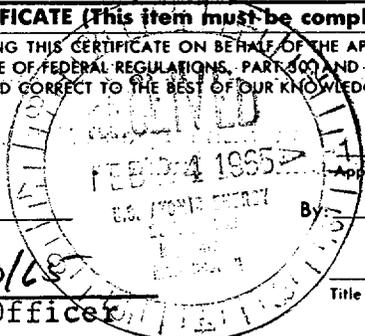
CERTIFICATE (This item must be completed by applicant)

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

Date February 10, 1965

By: Kenneth A. Dick
 Applicant named in item 1
 Financial Vice President
 University of Idaho

JAM
 Radiological Safety Officer



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.

UNIVERSITY OF IDAHO



MOSCOW, IDAHO

Department of Dairy Science

June 12, 1963

BT

*Amend 1
11-197-6*

United States Atomic Energy Commission
Isotopes Branch
Division of Licensing and Regulation
Washington 25, D. C.

Dear Sirs:

My AEC byproduct material license number is 11-197-6 (C65). I wish to use a Packard liquid scintillation spectrometer at Washington State University to assay carbon 14 compounds. This involves dosing ruminants with carbon 14 labeled volatile acids, isolating various compounds from body fluids and tissues, preparing the compounds for liquid scintillation counting and then transporting the samples eight miles from the University of Idaho to Washington State University at Pullman, Washington. These samples from biological material will have a very low activity, approximately 50 to 10,000 counts per minute per sample.

Pull

Mr. P. S. Sandel (AEC inspector at Denver) informs me that special permission from your office may be necessary before the samples in question can be transported to Washington State University.

Please advise.

Thank you.

Sincerely,

Robert M. Cook

Robert M. Cook, Asst. Professor
Department of Dairy Science

RMC:mm



52649

ACKNOWLEDGED

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.

11-197-6 New

<p>1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital, person, etc.)</p> <p>University of Idaho Moscow, Idaho</p>	<p>(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1 (a).)</p>
<p>2. DEPARTMENT TO USE BYPRODUCT MATERIAL</p> <p>Department of Dairy Science</p>	<p>3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.)</p>
<p>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.)</p> <p>R. M. Cook, Assistant Professor of Dairy Science</p>	<p>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.)</p> <p>P. K. Freeman</p>

<p>6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.)</p> <p>Carbon 14 Carbon 14 Carbon 14 Carbon 14</p>	<p>(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.)</p> <p>BaCO₃, 10 millicuries Acetate-1-C¹⁴, 10 millicuries Propionate-1-C¹⁴, 10 millicuries Butyrate-1-C¹⁴, 10 millicuries</p>
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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.)

The volatile fatty acids will be used in ruminant metabolism studies.

Barium carbonate will be used to synthesize specifically labeled volatile fatty acids for use in ruminant metabolism studies.

UNCLASSIFIED
FOR SA. O. COMPLIANCE

ACKNOWLEDGED
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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	University of Illinois	1 semester	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
C ¹⁴	15 milli-curies	University of Illinois	2 years	Metabolism studies; synthesis and degradation of specifically labeled compounds

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 attachment					

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

Carbon counters and GM tubes are calibrated once a day, when in use, against standards in New England Nuclear Model 1225 Beta Reference Source Sets.

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

Compounds under investigation will be isolated from biological material, oxidized to CO₂ and counted as BaCO₃.

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 attachment
- 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 attachment
- 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 attachment

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.

Date February 15, 1963

University of Idaho

Applicant named in item 1

By: Fredrick D. Johnson Chairman
Rodis isolat
Commelle

Kenneth A. Dick
Title of certifying official

Kenneth A. Dick
Financial Vice President

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 5

P. K. Freeman

8. Type of Training	Where Trained	Duration of Training	On the Job	Formal Course
A.	Univ. of California, Institute in Basic Nuclear Science and Radiation and Radioisotope Technology	7 weeks	No	Yes
B.	" "	7 weeks	No	Yes
C.	" " Univ. of Colorado	7 weeks 1 semester	No No	Yes Yes
D.	Univ. of California	7 weeks	No	Yes

9. Experience with Radiation

Dr. Freeman's formal experience with radiation was gained at Institute in Basic Nuclear Science and Radiation and Radioisotope Technology at the University of California, July 11 to August 26, 1960.

ITEM 13

Facilities in the Dairy Science Building:

Five laboratories, preparation room, storage rooms, glassware cleaning room, two hoods, distilled water, hot and cold water, gas, air, vacuum, refrigerator, deep freeze, automatic pipettors, chemical glassware, chemicals and general laboratory supplies and equipment, waste disposal cans for normal and radioactive waste.

ITEM 15

Carbon 14 waste will be disposed of in the University burial ground according to the requirements of the Federal Register and according to regulations listed in Item 14 of this form.

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