

U. S. ATOMIC ENERGY COMMISSION
BYPRODUCT MATERIAL LICENSE

Page 1 of 1 Pages

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 Moscow, Idaho	3. License number 11-197-7 (A70)
2. Address		4. Expiration date January 31, 1970
		5. Reference No.
6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioac- tivity which licensee may pos- sess at any one time
A. Hydrogen 3	A. Tritium foil contained in Barber-Colman Co., Model A-5120 detector cell	A. One detector cell not to exceed - 300 millicuries
9. Authorized use		
A. To be used in a Barber-Colman Co., Model 5072 gas chromatography unit for sample analysis.		

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 of, Dr. John E. Montoure.
13. Hydrogen 3 foil shall not be removed from detector cells by the licensee.
14. Detector cells containing Hydrogen 3 foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

For the U. S. Atomic Energy Commission

Date JAN 25 1965

JUN 1-25-65 Original Signed by
John E. Bowyer
by Isotopes BranchDivision of Materials Licensing
Washington, D. C. 20545RJD
1 Rjd/slm

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UNIVERSITY OF IDAHO

MOSCOW, IDAHO 83843



College of Agriculture

DEPARTMENT OF DAIRY SCIENCE

December 11, 1964

Mr. Lyall Johnson, Chief
Licensing Branch
Division of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

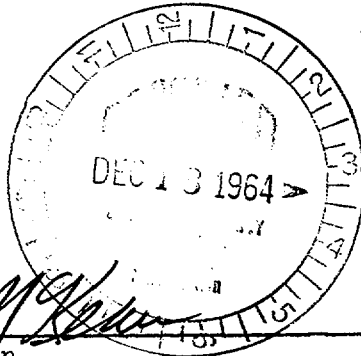
Dear Mr. Johnson:

Enclosed herewith is our application for an AEC Byproduct Material license that will permit us to possess and use a 300 millicurie tritium (H^3) sealed source electron attachment detector in our pesticide research work.

Very truly yours,

John E. Montoure

John E. Montoure



G. A. McKean

G. A. McKean
University Radiation Protection Officer
University of Idaho

James E. Kraus

James E. Kraus
Dean, College of Agriculture
Director, Agriculture
Experiment Station
University of Idaho

R. H. Ross

R. H. Ross, Head
Department of Dairy Science
University of Idaho

Kenneth A. Dick

Kenneth A. Dick
Financial Vice President
University of Idaho

JEM:mm
Enclosures

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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.) Department of Dairy Science University of Idaho Moscow, Idaho		(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1 (a).) Department of Dairy Science University of Idaho Moscow, Idaho	
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.) 11-197-6 (C65) Carbon 14 40 millicuries ruminant metabolism studies	
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.) Dr. John E. Montoure Assistant Professor		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.) George A. McKean (attachment A)	
6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.) (a) Tritium (H^3)		(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.) Tritium (H^3) Sealed source Barber-Colman Co. Model 5120 electron attachment detector 300 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.)

This material is in a sealed source and is the basis for a sensitive detector to be used in our research employing gas chromatography analyses.

Installation of the detector will be made by the Barber-Colman Co.

The sealed source will be stored in the Barber-Colman Column and Detector Bath cabinet, Model 5072.

The door to the laboratory will be locked unless authorized personnel are present.

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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			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	Washington State University	one sem.	Yes <u>No</u>	<u>Yes</u> No
d. Biological effects of radiation			Yes No	Yes No

9. EXPERIENCE WITH RADIATION. (Actual use of radioisotopes or equivalent experience.) None

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)
Attachment B contains a listing of University of Idaho radiation equipment.					

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

See Attachment C

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

Pocket chamber dosimeters will be used in areas where radiation level exceeds background radiation by 0.5 mr/hr.

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 Attachment D

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. Attachment E

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. Attachment F

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.

G. A. McKean, University Radiation Safety Officer
 Date December 11, 1964
 By: Kenneth A. Dick
 Financial Vice President
 Title of certifying official University of Idaho

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 or to any officer within its jurisdiction.

Attachment C

Item 11 Method, Frequency, and Standards Used in Calibrating
Instruments Listed Above.

Instruments to be used will be calibrated by the University of
Idaho Engineering Experiment Station by AEC inspector - approved
methods under AEC Byproducts Materials License No. 11-197-4 (G65).
All calibration methods are subject to final approval of the
Radiation Protection Officer.

Attachment D

Item 13 Facilities and Equipment

The laboratory where the radioactive sealed source will be housed is located on the top floor in the extreme S. E. corner of the Dairy Science building. (A sketch of the laboratory accompanies this attachment).

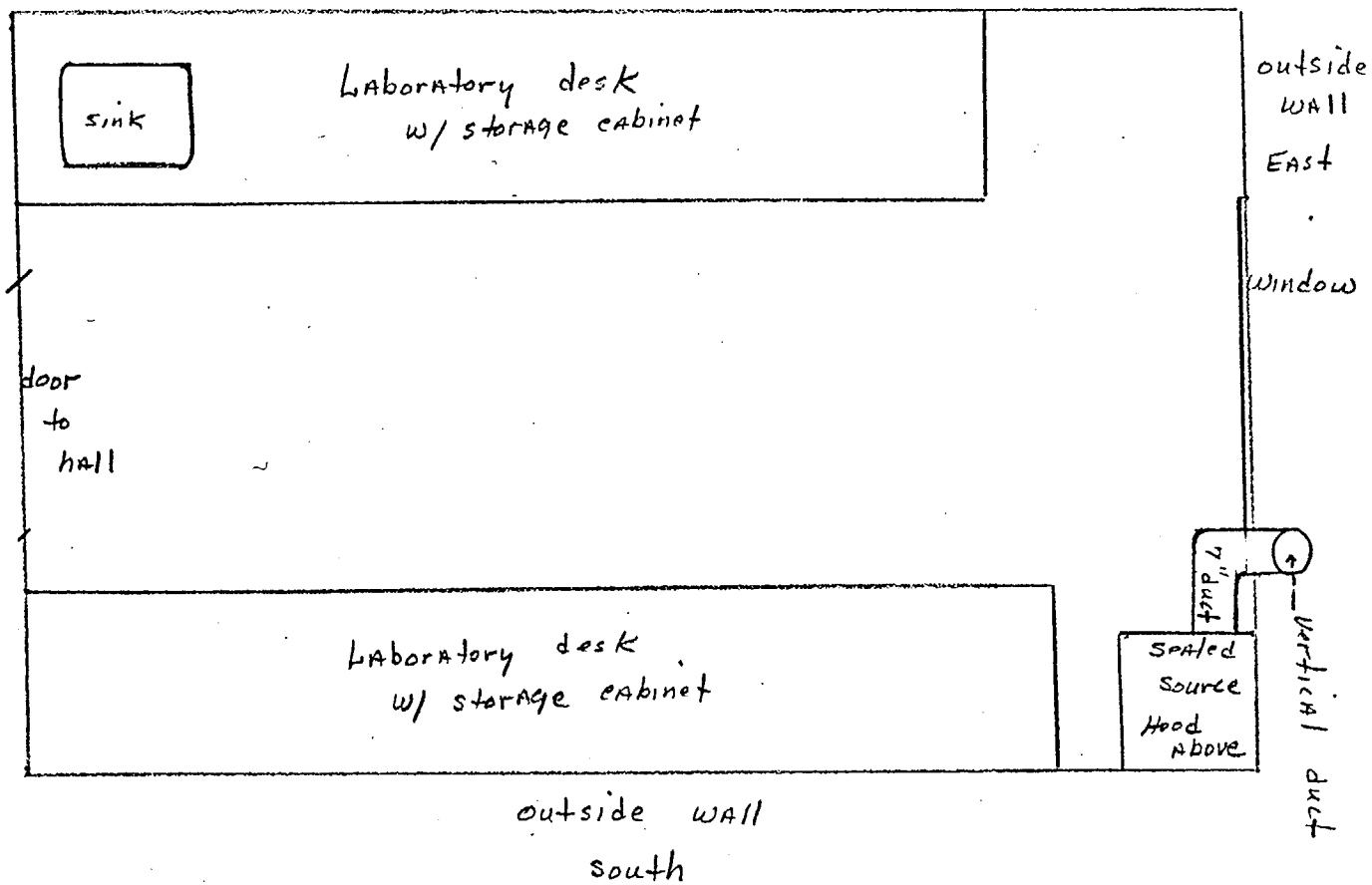
The detector has a high temperature limit switch to prevent overheating of the detector and the consequent release of radioactive tritium. The equipment, however, will be located under a fume hood as an added safety measure to protect laboratory personnel in event of high temperature limit switch failure.

The hood will be vented (independent of other hoods) with a seven (7) inch duct. The duct will terminate with a roof hood above the roof line of the building. A fan (1800 RPM) rated at 1300 cu ft/min air flow will provide the positive exhaust for the hood.

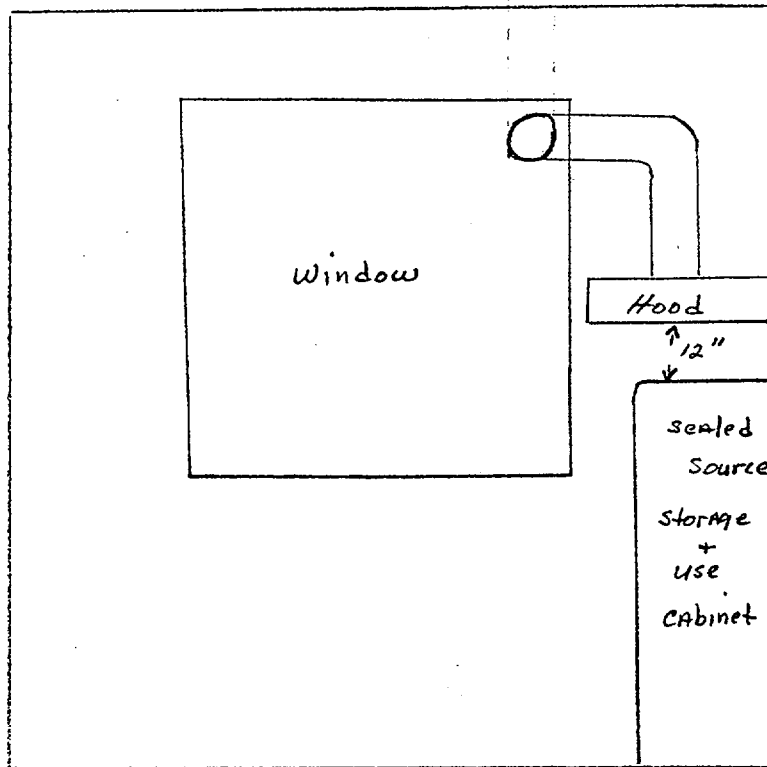
During normal operation, no handling of the sealed source material will be required. The isotope will be stored and used in the Barber-Colman, Model 5072 Column and Detector Bath cabinet. When leak tests are to be performed, a three (3) foot long handling tool will be used.

The sealed source will be installed by Barber-Colman personnel. After installation, radiation in the area will be checked by the Engineering Experiment Station by AEC inspector - approved methods under AEC Byproducts Materials License No. 11-197-4 (G65). Final approval will be subject to inspection by the University Radiation Safety Officer.

Sketch of Laboratory floor plan
Dairy Science Bldg Rm 206 D



← 7" duct
(terminates Above roof line)



East Wall of laboratory

Dairy Science Bldg

Room 206 D

Attachment E

Item 14 Radiation Protection Program

Leak tests will be performed at least once each six (6) months by the Engineering Experiment Station by AEC inspector - approved methods under AEC Byproducts Material License No. 11-197-4 (G65).

An outline of the regulations governing the safe handling of radioisotopes at the University of Idaho is included with this attachment.

Attachment F

Item 15 Waste Disposal

Disposal, if necessary, will be accomplished through Barber-Colman Co. in accordance with existing AEC regulations and in a manner approved by the Radiation Protection Officer.