MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

399623

Licensee	
1. University of Wisconsin - Stout	3. License Number 48-26694-01
2. 817 S. Broadway Menomonie, WI 54751-0790	4. Expiration Date March 31, 2007
	5. Docket or Reference No. 030-34031

6. Byproduct, Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum Amount that Licensee May Possess at Any One Time Under This License
A. Calcium-45	A. Calcium chloride	A. 3 millicuries

9. Authorized Use:

A. To be used for in vitro laboratory research studies.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at:

School of Human Environmental Science
University of Wisconsin - Stout
415 East 10th Avenue
Menomonie, Wisconsin

11. Radiation Safety Officer: Henry F. Grote, M.S.

12. Licensed material shall be used by, or under the supervision of, Carol D. Seaborn, Ph.D.

13. Licensed material shall not be used in or on human beings.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
48-26694-01

Docket or Reference Number
030-34031

14. The licensee may not possess and use materials authorized in Items 6, 7, and 8 until:

A. The licensee has constructed the facilities and obtained the equipment described in the application and supporting documentation; and

B. The U. S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Materials Licensing Branch, 801 Warrenville Road, Lisle, IL 60532-4351 has been notified that activities authorized by the license will be initiated.

15. Within 30 days of the date of a decision not to complete the facility, acquire equipment, or possess and use authorized material, the licensee must notify the Commission in writing, of the decision.

16. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated December 7, 1995; and

B. Letter dated February 10, 1997.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date 3/5/97

By Kevin A. Null
Materials Licensing Branch, Region III

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE:
STATUS CODE: 3
FEE CATEGORY:
EXP. DATE: 0
FEE COMMENTS:
DECOM FIN ASSUR REQD?

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: WISCONSIN, UNIVERSITY OF - STOUT
RECEIVED DATE: 951211
DOCKET NO: 3034031
CONTROL NO.: 399623
LICENSE NO.:
ACTION TYPE: NEW LICENSEE

56

2. FEE ATTACHED
AMOUNT: 0
CHECK NO.: 0

3. COMMENTS

SIGNED D. Hevey
DATE 12-13-95

B. LICENSE FEE MANAGEMENT BRANCH (CHECK IF REMITTANCE ENTERED /__/)

1. FEE CATEGORY AND AMOUNT: EX 3M FEE EXEMPT

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:
AMENDMENT
RENEWAL
LICENSE ✓

3. OTHER

SIGNED SC
DATE 12/18/95

Log DEC 13 III
Remitter
Check No.
Amount
Fee Category EX 3M
Type of Fee Application
Date Check Rec'd
Date Completed 12/18/95
By: C

RECEIVED
DEC 26 1995
REGION III

NRC FORM 313 (10-94)
10 CFR 30, 32, 33, 34, 35, 36, 39 and 40

U. S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR MATERIAL LICENSE

APPROVED BY OMB: NO. 3150-0120
EXPIRES 6-30-96

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 9 HOURS. SUBMITTAL OF THE APPLICATION IS NECESSARY TO DETERMINE THAT THE APPLICANT IS QUALIFIED AND THAT ADEQUATE PROCEDURES EXIST TO PROTECT THE PUBLIC HEALTH AND SAFETY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323-0199

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE RD.
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S.NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- [X] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [ ] C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip code)*

University Wisconsin-Stout
317 S. Broadway
Menomonie WI 54751-0790

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

School of Human Environmental Science, U. Wisconsin-Stout
415 East 10th Avenue
Menomonie WI 54751-0790

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Henry F. Grote

TELEPHONE NUMBER
(715) 232-2188

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time. See attached

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USE. See attached

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE. See attached

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS. See attached

9. FACILITIES AND EQUIPMENT. See attached

10. RADIATION SAFETY PROGRAM. See attached

11. WASTE MANAGEMENT. See attached

12. LICENSEE FEES *(See 10 CFR 170 and Section 170.31)*
FEE CATEGORY See attached | AMOUNT ENCLOSED $

13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39 AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

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.

CERTIFYING OFFICER – TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
Dr. George DePuy, Provost	George DePuy	12/7/95

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			$		399623
APPROVED BY				DATE	

RECEIVED
DEC 11 1995
REGION III

FEE EXEMPT
170.11(a)(4)

NRC FORM 313 (10-94) PRINTED ON RECYCLED PAPER

University of Wisconsin-Stout
Menomonie, Wisconsin 54751-0790

December 7, 1995

U.S. Nuclear Regulatory Commission
Regi(3
Materials Licensing Section
801 Warrenville Road
Lysle, IL 60532-4351

To Licensing Authority:

Enclosed is an original and one copy of the application for license for laboratory quantities of byproduct material submitted on Form NRC-3131.

Thank you for your assistance in helping us meet all of the regulations and for processing this application.

Sincerely,

Ted R. Knous
Associate Dean for Research

95R398

enclosure(2)

c: Henry Grotte
Carol Seaborn

NRC Form 313 - Application for Material License

Responses to Items 1-12

1. Application for new license

2. Name and address of applicant

University of Wisconsin-Stout
817 S. Broadway
Menomonie WI 54751-0790

3. Address where licensed material will be used or possessed

School of Human Environmental Science
University of Wisconsin-Stout
415 East 10th Avenue
Menomonie WI 54751-0790

4. Name of person to be contacted about this application

Henry F. Grote
Environmental Health and Safety Officer
817 S. Broadway
Menomonie WI 54751-0790

Telephone number of person to be contacted about application

715-232-2188

5. Radioactive Material

a. Element and mass number

45 Calcium

b. Chemical and/or physical form

Calcium chloride

c. Maximum amount that will be possessed at any one time

Not to exceed 3 millicuries

NRC Form 313

6. Purposes for which licensed material will be used

To be used for faculty in vitro laboratory research studies using CACA II colon cancer cells. Less than 100 microcuries will be utilized at any one time from a stock of 1 millicurie.

7. Individual(s) responsible for radiation safety program and their training experience

Henry Grote Telephone (715)232-2188
B.S. Comprehensive Chemistry
M.S. Environmental and Public Health

Type of Training	Duration	On the job	Formal Course
Semester course in Radiological Health	Semester 3 credits	no	yes
Radiation Safety Training, UW-Madison College Engineering	Intensive Week	no	yes
Troxler Nuclear Guage Training Course	Week 10-25-91	no	yes
Low level radioactive waste and plutonium disposal	9 years	yes	no

Henry Grote as Radiation Safety Officer, UW-River Falls, has been responsible for plutonium disposal for past five years. Henry Grote has also managed the waste disposal at UW-Eau Claire for the past 9 years. Isotopes managed include H^3, C^{14}, S^{35}, Ba^{133}, Cd^{109} Cl^{36}, Cr^{51}, Co^{57}, I^{125}, Fe^{59}, Mn^{54}, Ni^{63}, and P^{32}. His course training has included principles of radiation safety, radioactivity measurement and instrumental monitoring, mathematical calculations, and biological effects of radiation.

NRC Form 313

8. Training for individuals working in or frequenting restricted areas

Dr. Carol D. Seaborn

Where Trained	Duration	On the Job	Formal Course
Texas Tech University	1 year	yes	yes
Oklahoma State University	3 years	yes	yes
USDA Grand Forks Human Nutrition Research Center	3 years	yes	yes

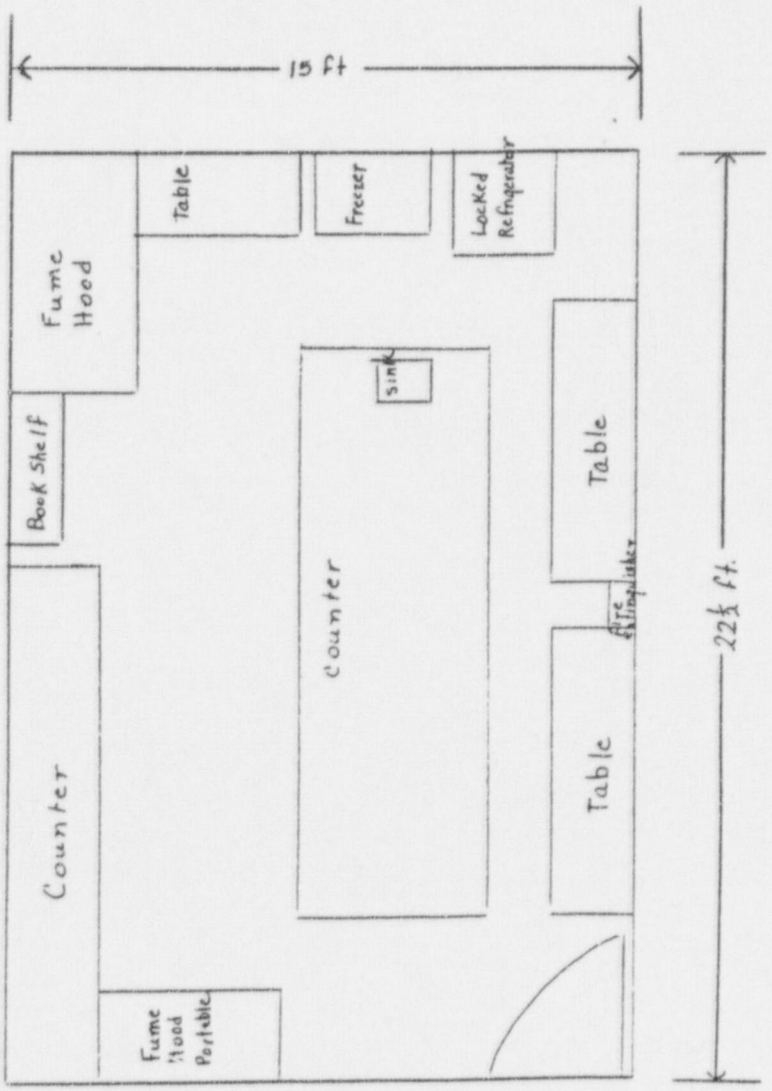
Isctope	Maximum Amount	Where Experience	Duration	Use
51-Cr	500 microcuries	Texas Tech U. Oklahoma State U.	1 year 3 years	Research
14-C	small 250 microcuries 250 microcuries	Oklahoma State U. Oklahoma State U. USDA Grand Forks	1 semester 2 semesters 2 years	Class Research Research
3-H	small 250 microcuries	Oklahoma State U. USDA Grand Forks	1 semester 1 year	Class Research
125-I	small small small	Oklahoma State U. Texas Tech U. USDA Grand Forks	2 semesters 1 semester 3 years	Research Research Research
63-Ni	50 microcuries	USDA Grand Forks	1/2 year	Research
65-Zn	50 microcuries	USDA Grand Forks	1/2 year	Research
45-Ca	1 millicurie	USDA Grand Forks	1 year	Research

Dr. Seaborn received mandatory training at Texas Tech University, Oklahoma State University and USDA Grand Forks Human Nutrition Research Center in principles and practices of radiation safety, radioactivity measurement and instrumental monitoring, mathematical calculations, and biological effects of radiation. Dr. Seaborn also had the course in Biochemistry Department at Oklahoma State University in use of Radioisotope Techniques in Research.

The graduate student will receive on the job training from Dr. Seaborn and formal instruction about principles of radiation safety, radioactivity measuring, and biological effects of radiation from the radiation safety officer and will be required to read the radiation safety plan for the university.

9. Facilities and Equipment

a. The School of Human Environment Sciences has designated Room 249 exclusively for use of radioisotopes. No other research or class activity will be conducted in this room. The radioisotope (45-Calcium) will be stored in a locked refrigerator in a secondary container. Only Dr. Seaborn and radiation safety officer will have a key to this refrigerator. This room has black satin chemical resistant counter tops and sink and two stainless steel fume hoods. The sink will be designated as the hot sink. Radioisotope work will be conducted on stainless steel trays on counter top or within one fume hood. A scale drawing of this room is below.



Rm 249

NRC Form 313

9. Facilities and Equipment (Continuation)

b. One portable survey meter Victoreen Model 490 Thyac III Serial 4296 with geiger probe 489-4, IB85 has been provided by safety officer. This instrument can detect both hard and soft beta in range of 0.1-100 mR; the window thickness is 30 mg/cm^2. A low activity radium check source (0.9 microcuries) of two different mR/hr values will be used for regular calibration of the instrument. This source is located at University of Wisconsin-Eau Claire. A two point calibration of each scale of the instrument will also be made monthly using the source supplied with the instrument. The instrument will be calibrated by safety officer. Each instrument has a bar region on the dial of the meter which is for checking to see if the meter is operating correctly. When the mR/hr control is set at Bat.Set, the meter needle should be in the center of the green bar region. This setting will be checked each time before the instrument is used.

c. An agreement has been reached with University of Wisconsin-Eau Claire to count samples at their facility. Samples that will be counted will have small amounts of radioactivity (0.001 μCi per 24 samples) and will be premixed with counting fluid in Room 249. Weekly swipes of Room 249 and swipes of box and container holding 45-calcium will also be counted at the Eau Claire facility. Samples will be transported in polypropylene box (identified with radioactive label and with isotope and amount of radioactivity indicated) with tight lid secured with tape and with absorbent materials adequate to soak up any spill from an accident. The survey meter will be taken in the car, emergency procedures and emergency numbers will be taped to the box in case of an accident. Approximately 0.001 μCi will be transported 30 miles in Dr. Seaborn's car trunk in the secured box. The three channel liquid scintillation spectrometer used for measuring is located in the Biology Department at Eau Claire is capable of detecting soft beta. The instrument is calibrated by the safety officer using standards prepared from calibrated C-14 labeled toluene and H-3 labeled toluene standard solutions which are purchased from Beckman or Amersham.

d. The graduate advisor will open all of the radiation packages received according to NRC procedure and as outlined in the attached Radiation Safety Program. The graduate advisor will dilute the isotopes to a safe concentration before graduate student uses it. The graduate advisor will always be on-hand when graduate student handles isotope in the diluted form. In order to check on dosage received, the graduate advisor and graduate student will wear a film badge and the preparation laboratory (Room 249) will be monitored with film badges

placed in critical areas. The counting room at UW Eau Claire is also monitored by film badges. ICN Dosimetry Services, PO Box 19536, Ervine CA 92713 (800-251-3331, 714-545-0113) will provide and monitor film badges worn by graduate advisor and graduate student.

10. Radiation Safety Program

NOTE: A copy of this program will be provided to all users of radioactive materials.

A. Ordering and Receiving Radioactive Materials

1. No requisitions for radioactive materials in the School of Human Environmental Science will be approved unless the one requesting the radioactive materials is authorized by our license to use radioactive materials.
2. The following procedure is to be followed in ordering radioactive materials:
   a. Fill out and submit the proper requisition form to the radiation safety officer.
   b. The person requesting the isotope should attach a sheet to the requisition form bearing the following information:
      1) Name of the person requesting the isotope and responsible for record keeping
      2) How the isotope will be used when received
      3) How isotope will be disposed (dry and wet waste)
      4) Names of all personnel who will be exposed
   c. The radiation safety officer will approve the requisition if it meets the license requirements and forward it to the department chairman for processing after making a copy to keep on file.
      1) The radiation safety officer shall keep a file of all isotope requisitions
3. Receiving radioactive materials
   a. Faculty member receiving the radioactive material shall fill out and file with the radiation officer, a Radioactive shipment Report for each isotope received. This shall include person receiving isotope, receipt date, isotope received, amount and form or isotope received and record of

counts of swipes of box and container.

1) The radiation safety officer shall keep a file of all Radioactive Shipment Receipt Report Forms.

2) The radiation safety officer shall keep a log book in which a record of all the isotopes received is kept. The record shall contain:

a) The isotope received
b) The date of receipt
c) the amount and form of the isotope received
d) The person receiving the isotope
e) Disposition of the isotope with dates

b. Procedures for opening packages containing radioactive materials

1) Visually inspect package for any sign of damage (e.g., wetness, crushed). If damage is noted stop procedure and notify Radiation Safety Officer.

2) Measure exposure rate at 3 feet from package surface--record. If >10 mr/hr--stop procedure and notify Radiation Safety Officer.

3) Measure surface exposure rate and record. If >200 mr/hr--stop procedure and notify Radiation Safety Officer

4) Put on gloves

5) Open the outer package (following manufacturer's directions if supplied) and remove packing slip. Open inner package to verify contents (compare requisition, packing slips, and label on bottle), check integrity of final source container (inspect for breakage of seals or vials, loss of liquid, discoloration of packing material). Check also that shipment does not exceed possession limits.

6) Wipe external surface of final source container with moistened cotton swab or filter paper held with forceps, assay and record.

7) Monitor the packing material and packages for contamination before discarding:
a) if contaminated, treat as radioactive waste
b) if not, obliterate radiation labels before discarding in regular trash.

B. Laboratory Rules for the use of Radioactive Material

1. Wear laboratory coats, or other protective clothing at all times in areas where radioactive materials are used
2. Wear disposable gloves at all times while handling radioactive materials. Gloves are removed and placed in properly labelled receptacles before leaving the room.
3. Wear safety glasses at all times while handling radioactive materials.
4. Monitor hands, clothing and shoes for contamination after each procedure and before leaving the area.
5. Wear monitoring badge at all times when handling radioactive materials.
6. Do not eat, drink, smoke, or apply cosmetics in any area where radioactive material is stored or used.
7. Dispose of radioactive waste only in specially designated receptacles labeled with the isotope you have used.
8. Never pipette by mouth; use remote pipetting devices.
9. Confine radioactive solutions in covered containers in the designated areas plainly identified and labelled with name of compound, radioisotope, date, activity, and radiation level if applicable.
10. Energetic beta and gamma emitting materials require shielding; only small quantities can be transported for counting.
11. Wash all contaminated glassware after soaking in decontaminate in the sink designated "hot sink"
12. No food or beverages will be stored, prepared or consumed in the room where radioisotope is being used.
13. All personnel handling radioactive materials even in low amounts must be instructed in radiation safety, receive one-the-job training and must be determined to be competent to work with such materials.

NCR Form 313

Radiation Safety Program (Continuation)

C. Emergency Procedures

1. Minor Spills:
   a. NOTIFY: Notify persons in the area that a spill has occurred.
   b. PREVENT THE SPREAD: Cover the spill with absorbent paper.
   c. CLEAN UP: Use disposable gloves and remote handling tongs. Carefully fold the absorbent paper and pad. Insert into a plastic bag and dispose of in the designated radioactive waste container. Include all other contaminated materials such as disposable gloves.
   d. SURVEY: With a GM Survey Meter, check the area around the spill, your hands, and clothing for contamination.
   e. REPORT: Report incident to the Radiation Safety Officer
2. Major Spills:
   a. CLEAR THE AREA: Notify all persons not involved in the spill to vacate the room.
   b. PREVENT THE SPREAD: cover the spill with absorbent pads, but do not attempt to clean it up. confine the movement of all personnel potentially contaminated to prevent the spread.
   c. SHIELD THE SOURCE: If possible, the spill should be shielded, but only if it can be done without further contamination or without significantly increasing your radiation exposure.
   d. CLOSE THE ROOM: Leave the room and lock the door to prevent entry.
   e. CALL FOR HELP: Notify the Radiation Safety Officer immediately.
   f. PERSONNEL DECONTAMINATION: Contaminated clothing should be removed and stored for further evaluation by the Radiation Safety Officer. If the spill is on the skin, flush thoroughly and then was with mild soap and lukewarm water.

NCR Form 313

Radiation Safety Program (Continuation)

Emergency Telephone Numbers

Radiation Safety Officer	Work:	715-232-2188
	Mobile:	715-495-6103
	Home:	715-836-5600
Public Health Officer	Days:	715-232-2258
	24 Hr:	715-664-8171
Campus Security	Business:	715-232-1632
	Emergency:	715-232-1283
Menomonie Police	Business:	715-232-1283
	Emergency:	715-232-1283
Menomonie Fire:	Business:	715-232-2414
	Emergency:	715-232-2414

Both local fire and police representatives will be toured in lab where radioisotope will be used.

D. Survey Procedures

1. The lab will be surveyed prior to use and then all elution and preparation areas will be surveyed each day when the area is being used with a G.M. survey meter and decontaminated if necessary.
2. Laboratory areas where only small quantities of radioactive material are used (less than 100 mic: :es) will be surveyed monthly during the time isotopes are being used in the area.
3. All other laboratory areas will be surveyed weekly during the time isotopes are being used in the area.
4. The weekly and monthly survey will consist of:
   a. A measurement of radiation levels with a survey meter sufficient sensitive to detect 0.1 mr/hr.
   b. A series of wipe tests to measure contamination levels. The method for performing wipe tests will be sufficiently sensitive to detect 100 dpm.

5. A permanent record will be kept of all survey results, including negative results. the record will include:
   a. Location, date, and type of equipment used.
   b. Name of person conducting the survey
   c. Drawing of area surveyed, identifying relevant features such as active storage areas, active waste areas, et.
   d. Measured exposure rates, keyed to location on drawing (point out rates that require corrective action).
   e. Detected contamination levels, keyed to locations on drawing.
   f. Corrective action taken in the case of contamination or excess exposure rates, reduced contamination levels or exposure rates after corrective action, and any appropriate comments.
6. Area will be cleaned if the contamination level exceeds 100 dpm/100 cm^2 as indicated by the wipe tests.

E. Identification of Areas Where Radioactive Materials Are Used or Stored
1. The room where isotopes are used shall be properly identified
   a. The door to the room in which radioactive materials are being used shall bear a radioactive sign signifying that the area is a radiation area or contains radioactive materials.
   b. Each container containing radioactive material shall be properly labeled and immediate area in which it is being used should be properly labeled.

2. Each storage area shall be properly identified and all isotopes stored in such a way that they do not become a health hazard to those in the area.

F. Disposal of Radioactive Materials
All isotopes used shall be disposed of in accordance with federal, state, and local regulations and in a manner described in item 11 of this document.

NRC Form 313

Radiation Safety Program (Continuation)

11. Waste Management

    a. The dry waste containing the isotope 45-calcium will be held for decay to a negligible level (10 half lives) then thrown away. It is anticipated that the isotope in dry waste would be stored for 3 years before disposal.
    b. Small quantities of the 45-calcium isotope will be disposed into the Menomonie sewer system in accordance with Federal Regulations and the local POTW ordinance. Under no conditions will be levels exceed those specified in section 20.2001-20.2002 of the Standards For Protection against Radiation of the U.S., AEC Rules and Regulation, CFR Part 20.
    c. Larger quantities of the 45-calcium isotope will be held for decay to a negligible level (10 half lives) then discharged into the sewer.
    d. Records of dry waste storage and sewer disposal with isotope, amount and date shall be provided to Radiation Safety Officer.

12. License Fees are not applicable to education/research institutions such as ours according to 170.2f (Rules and Regulations, Fees for Facilities, Materials, Import and Export Licenses and Other Regulatory Services.)

MAR 0 6 1997

Ted R. Knous
Associate Dean for Research
University of Wisconsin - Stout
817 S. Broadway
Menomonie, WI 54751-0790

Dear Mr. Knous:

Enclosed is your NRC Material License Number 48-26694-01 in accordance with your request.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.

2. Not possess and use materials authorized in Items 6, 7, and 8, on the license until:

   a. You have constructed the facilities and obtained the equipment described in the license application and supporting documentation; and

   b. You have notified the U. S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Nuclear Materials Licensing Branch, in writing, that activities authorized by the license will be initiated.

3. Notify NRC, in writing, within 30 days:

   a. When the Radiation Safety Officer permanently discontinues performance of duties under the license or has a name change; or

   b. When the licensee's mailing address changes (no fee is required if the location of byproduct material remains the same).

399623

4. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license:

   a. When you decide to terminate all activities involving materials authorized under the license; or

   b. If you decide not to complete the facility, acquire equipment, or possess and use authorized material.

5. Request and obtain a license amendment before you:

   a. Change Radiation Safety Officers;

   b. Order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;

   c. Add or change the areas of use or address or addresses of use identified in the license application or on the license; or

   d. Change ownership of your organization.

6. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or imposition of a civil penalty, or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions. Since serious consequences to employees and the public can result from failure to comply with NRC requirements,

prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Sincerely,

Original Signed By
Michael F. Weber
Nuclear Materials Licensing Branch

License No.: 48-26694-01
Docket No.: 030-34031

Enclosures:
1. License No. 48-26694-01
2. Form NRC-3

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UNIVERSITY OF WISCONSIN

Henry F. Grote, CHMM, CSP
Environmental Health and Safety Specialist
University of Wisconsin-Stout
712 South Broadway, Menomonie, WI 54751-0790
(715) 232-2188 FAX: (715) 232-1399 E-Mail: GROTEH@UWSTOUT.EDU

February 10, 1997

Michael F. Weber
Nuclear Materials Licensing Branch
US Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532-4351

Dear Mr. Weber:

RE: Control Number 399623

As stated in your letter dated December 20, 1996, below is the additional information that you need in order continue the review of our application.

1. Radiation Safety Officer

   The application makes reference to: (1) Mr. Grote's position as the Environmental Health and Safety Officer at UW-Stout, and (2) Mr. Grote's waste disposal activities at both UW-River Falls and UW-Eau Claire. Please indicate: (1) Mr. Grote's principal work location, and (2) how much time will be made available, in an average week, for Mr. Grote to perform radiation safety duties at UW-Stout.

   (1) Principle work location is the University of Wisconsin-Stout.
   (2) A minimum of 16 hours will be made available: Mr. Grote is available on-call, generally within one hour, when he is not on-campus.

2. Radiation Safety Training

   A. Please indicate if individuals other than Dr. Seaborn and her graduate student(s), such as undergraduate students, laboratory technicians, etc., will work in or frequent Room 249. If so, these individuals should also receive radiation safety training.

   No other individuals will work in or frequent Room 249.

B. Please confirm that personnel will be instructed before beginning duties with, or in the vicinity of, licensed materials and that this instruction will be given annually thereafter on a refresher basis, as well as whenever there is a significant change in duties, regulations, or the terms of the license.

Personnel will be instructed on radiation safety prior to working in Room 249 and thereafter if there is a significant change in duties, regulations or terms of license; annual refresher training will be conducted. All training sessions will be documented in writing regarding contents and attendees; the RSO will retain copies of all training records.

C. Please provide more detail regarding the topics covered in the radiation safety training. At a minimum, the training should include the following topics:

- Applicable regulations and license conditions; - ***10CFR20***
- Areas where radioactive material is used and stored; - ***Room 249***
- Potential hazards associated with radioactive material; - ***Training will be provided on all pertinent hazards.***
- Appropriate radiation safety procedures; - ***See item 10 which covers receiving, opening packages, survey and emergency procedures.***
- Special in-house rules; - ***See Section 10B***
- Individuals' obligation to report unsafe conditions to the RSO or applicable authorities; - ***Unsafe conditions are to be reported to the Radiation Safety Officer as specified in the radiation safety training.***
- Appropriate response to emergencies or unsafe conditions; - ***See 10C***
- Worker's right to be informed of occupational radiation exposure and bioassay results; - ***All workers will be informed of radiation exposure indicated by film badges.***
- Locations of pertinent regulations, licenses, and other material required by regulations. - ***The location of these regulations, licenses and other material will be in Room 249.***

3. Facilities and Equipment

A. The application states that the container of calcium-45 will be stored in a locked refrigerator in Room 249. However, the security of Room 249 is not addressed. For example, if wastes containing calcium-45 are kept in the room, or if experiments utilizing calcium-45 are unattended, then the room should be secured, per 10 CFR 20.1801 and 1802. Please address this security issue.

Room 249 will be rekeyed with access limited to Dr. Seaborn and Henry Grote.

B. The application states that radioisotope work will be done on the counter top or in a fume hood. Please indicate if the calcium-45 may become airborne during this work. If so, include schematic descriptions of the ventilation system, with pertinent airflow rates, pressures, filtration equipment, and monitoring instruments. Diagrams should be drawn to a specified scale, or dimensions should be indicated. In addition, if the calcium-45 may become airborne, both air sampling and effluent sampling may need to be addressed (see Item 15 of Regulatory Guide 10.7, enclosed).

There is no chance of airborne emissions; procedures can be conducted on a counter top; no filtering or other procedures likely to cause aerosolization are planned.

C. The application states that a radium check source will be used to calibrate the survey meter regularly. Please define "regularly". Survey meters should be calibrated at least annually.

Survey meter will be calibrated annually.

D. The application states that the survey meter will be calibrated by the safety officer. Please submit a detailed description of the calibration procedures. This description should include, as a minimum:

- The accuracy of the source (the traceability of the source to a primary standard should be provided);
- The step-by-step procedures;
- The pertinent experience of the safety officer who will perform the calibrations.

The survey meter will be calibrated by Radiation Calibration, University of Wisconsin, Medical Physics, 1300 University Avenue, Madison, WI 53706. Their NRC License # is 48-09843-18.

E. The application states that weekly swipes and swipes of the box and container holding the calcium-45 will be analyzed (counted) at UW-Eau Claire. Since Eau Claire is approximately 30 miles from Stout, it will take an extended amount of time before the analysis results are known. Therefore, please explain how a spread of contamination would be prevented if an area of use or a shipping container was, in fact, contaminated, and no one at UW-Stout was aware of the fact until the results were later communicated from UW-Eau Claire.

The agreement at the University of Wisconsin-Eau Claire includes permission for Dr. Seaborn to count samples. Keys will be provided, giving access, and results of swipe counts will be available on the day swipes are taken.

F. The application refers to a "graduate advisor". We assume this means Dr. Seaborn. Please clarify.

Graduate advisor is Dr. Seaborn.

G. Confirm that film badges will be exchanged at least monthly.

ICN Dosimetry Services, PO Box 19536, Ervine, CA, will be contracted with to provide monthly film badge service.

4. Radiation Safety Program

A. Describe your procedures for notification of responsible persons upon receipt of licensed materials, and for delivery of materials during off-duty hours. These procedures should be adequate to ensure that licensed materials are secured against unauthorized removal at all times.

Purchase order will specify delivery during normal working hours. In the unlikely event delivery occurs during off-duty hours, Henry Grote, RSO, will be contacted to secure the material; delivery specifications will be indicated on the purchase order with all pertinent telephone numbers.

B. The application refers to a "faculty member receiving the radioactive material." We assume this means Dr. Seaborn. Please clarify.

Dr. Seaborn will be the only faculty member receiving and storing radioactive material.

C. The application states that all personnel handling radioactive materials must be determined to be competent to work with such materials. Please indicate how this determination will be made.

Competency refers to understanding the radiation safety training. This will be determined by completion of a test with 95% accuracy.

D. The application states that all elution and preparation areas will be surveyed each day when the area is being used. Generally, the term *elution* is used to describe the process of obtaining technetium-99m from a molybdenum generator, for use in nuclear medicine scans. Please explain your usage of the term *elution*.

"Elution" is a typing error. This should state "dilution".

5. Waste Management

The application states that dry waste containing calcium-45 (half-life of 163 days) will be disposed of via decay-in-storage. According to current NRC policy, decay-in-storage is only authorized for byproduct materials with half-lives of 120 days or less. Therefore, please indicate how the waste will be disposed of, per 10 CFR 20.2001. On the other hand, if you wish to request a deviation from NRC policy, please so state and provide adequate justification.

Any dry waste will be disposed of by existing state contract with Chem-Nuclear, a division of chemical waste management. The NRC-SNM License # is 12-13536-01. Procedures are designed to eliminate dry waste production; dry waste generation will be minimal, if at all.

Sincerely,

Henry Grote
Environmental Health and
Safety Specialist

c: Carol Seaborn

UNIVERSITY OF WISCONSIN

Henry F. Grote, CHMM, CSP
Environmental Health and Safety Specialist
University of Wisconsin-Stout
712 South Broadway, Menomonie, WI 54751-0790
(715) 232-2188 FAX: (715) 232-1399 E-Mail: GROTEH@UWSTOUT.EDU

January 17, 1997

Michael F. Weber
Nuclear Materials Licensing Branch
United States Nuclear Regulatory Commission, region III
801 Warrenville Road
Lisle, Illinois 60532-4351

SUBJECT: License No. 48-26694-01
Docket No. 030-34031
Control Number 399623

Dear Mr. Weber:

We are in receipt of your letter of December 20, 1996 which was received here on December 26, 1996. Please understand:

1) The original application was dated December 7, 1995, 378 days prior to your letter!

2) The university is not in session over the Christmas holidays.

3) I made contact with the researcher, Dr. Carol Seaborn, yesterday, January 16, 1997.

4) We are unable to furnish the additional information prior to January 20, 1997.

It is our intention to respond with additional information prior to February 16, 1997; I trust this will be satisfactory.

Sincerely,

Henry F. Grote

c: Carol Seaborn

pm: 1-17-97

DEC 2 0 1996

Henry F. Grote
Environmental Health and
Safety Officer
University of Wisconsin-Stout
817 S. Broadway
Menomonie, WI 54751-0790

Dear Mr. Grote:

We have reviewed your application dated December 7, 1995 requesting a new material license, and find that we need additional information as follows.

1. Radiation Safety Officer

The application makes reference to: (1) Mr. Grote's position as the Environmental Health and Safety Officer at UW-Stout, and (2) Mr. Grote's waste disposal activities at both UW-River Falls and UW-Eau Claire. Please indicate: (1) Mr. Grote's principal work location, and (2) how much time will be made available, in an average week, for Mr. Grote to perform radiation safety duties at UW-Stout.

2. Radiation Safety Training

A. Please indicate if individuals other than Dr. Seaborn and her graduate student(s), such as undergraduate students, laboratory technicians, etc., will work in or frequent Room 249. If so, these individuals should also receive radiation safety training.

B. Please confirm that personnel will be instructed before beginning duties with, or in the vicinity of, licensed materials and that this instruction will be given annually thereafter on a refresher basis, as well as whenever there is a significant change in duties, regulations, or the terms of the license.

C. Please provide more detail regarding the topics covered in the radiation safety training. At a minimum, the training should include the following topics:

- Applicable regulations and license conditions;
- Areas where radioactive material is used and stored;
- Potential hazards associated with radioactive material;
- Appropriate radiation safety procedures;
- Special in-house rules;

399623

- Individuals' obligation to report unsafe conditions to the RSO or applicable authorities;
- Appropriate response to emergencies or unsafe conditions;
- Workers' right to be informed of occupational radiation exposure and bioassay results;
- Locations of pertinent regulations, licenses, and other material required by regulations.

3. Facilities and Equipment

A. The application states that the container of calcium-45 will be stored in a locked refrigerator in Room 249. However, the security of Room 249 is not addressed. For example, if wastes containing calcium-45 are kept in the room, or if experiments utilizing calcium-45 are unattended, then the room should be secured, per 10 CFR 20.1801 and 1802. Please address this security issue.

B. The application states that radioisotope work will be done on the counter top or in a fume hood. Please indicate if the calcium-45 may become airborne during this work. If so, include schematic descriptions of the ventilation system, with pertinent airflow rates, pressures, filtration equipment, and monitoring instruments. Diagrams should be drawn to a specified scale, or dimensions should be indicated. In addition, if the calcium-45 may become airborne, both air sampling and effluent sampling may need to be addressed (see Item 15 of Regulatory Guide 10.7, enclosed).

C. The application states that a radium check source will be used to calibrate the survey meter regularly. Please define "regularly." Survey meters should be calibrated at least annually.

D. The application states that the survey meter will be calibrated by the safety officer. Please submit a detailed description of the calibration procedures. This description should include, as a minimum:

- The accuracy of the source (the traceability of the source to a primary standard should be provided);
- The step-by-step procedures;
- The pertinent experience of the safety officer who will perform the calibrations.

E. The application states that weekly swipes and swipes of the box and container holding the calcium-45 will be analyzed (counted) at UW-Eau Claire. Since Eau Claire is approximately 30 miles from Stout, it will take an extended amount of time before the analysis results are known. Therefore,

please explain how a spread of contamination would be prevented if an area of use or a shipping container was, in fact, contaminated, and no one at UW-Stout was aware of that fact until the results were later communicated from UW-Eau Claire.

F. The application refers to a "graduate advisor." We assume this means Dr. Seaborn. Please clarify.

G. Confirm that film badges will be exchanged at least monthly.

4. Radiation Safety Program

A. Describe your procedures for notification of responsible persons upon receipt of licensed materials, and for delivery of materials during off-duty hours. These procedures should be adequate to ensure that licensed materials are secured against unauthorized removal at all times.

B. The application refers to a "faculty member receiving the radioactive material." We assume this means Dr. Seaborn. Please clarify.

C. The application states that all personnel handling radioactive materials must be determined to be competent to work with such materials. Please indicate how this determination will be made.

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We will continue our review of your application upon receipt of this information. Please reply in duplicate, within 30 days, and refer to Control Number 399623.

If you have any questions or require clarification on any of the information stated above, you may contact us at (630) 829-9887.

Sincerely,

Original Signed By
Michael F. Weber
Nuclear Materials Licensing Branch

License No. 48-26694-01
Docket No. 030-34031

Enclosure: As stated

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