



UNIVERSITY OF MAINE

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Chemical/Radiation/Laboratory Safety Office

Service Building
Orono, Maine 04469
207/381-1637

25 Feb 1987

License No. 18-01475-15
Docket No. 030-11003
Control No. 106343

U.S. Nuclear Regulatory Commission
Region I
Attn: Mr. Thomas K. Thompson
Nuclear Materials Safety Section B
Division of Radiation Safety and Safeguards
631 Park Avenue
King of Prussia, PA 19406

Gentlemen:

This is in response to your request for additional information concerning our application for renewal of License No. 18-01475-15, in your letter dated 6 February 1987. Items 1 through 8 of your request are addressed in order.

Please note as well an additional piece of information not included in our application. The University of Maine has constructed a new waste storage facility which will be put into use soon. The facility was inspected by Mr. Tom Thompson of the NRC on October 7-8, 1986, shortly before its completion. The facility is on a remote but contiguous part of our main campus. The site is located in the City of Old Town, while the bulk of the campus is in the Town of Orono. Use of this facility for storage of radioactive waste has been approved by the City of Old Town.

1. Scintillation fluids containing H-3 and C-14 in quantities less than 0.05 microcuries per gram will be disposed of through ordinary commercial channels as hazardous waste. Scintillation wastes containing other isotopes, or H-3 and C-14 in excess of this limit, will be disposed of through brokers licensed by NRC or Agreement States.
2. Bioassays for radioiodine users will conform to the recommendations found in Table I of Regulatory Guide 8.20: experiments using volatile radioiodine will require bioassay at 10 millicurie levels when performed in a ventilation hood, and at 1 millicurie levels when not performed in a ventilation hood.
3. Procedures for receiving and opening packages will conform to the details outlined in our letter of April 16, 1985 (copy enclosed).
4. If an area is found to be contaminated at levels in excess of 1000 dpm, no further work will be permitted in that area until decontamination is complete, as shown by

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THE LAND GRANT UNIVERSITY and SEA GRANT COLLEGE OF MAINE

Anti-Affirmative Action Employer

OFFICIAL RECORD COPY

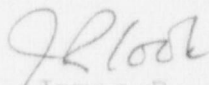
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subsequent contamination surveys.

5. The Application for Approval to Use Radioisotopes, required of all prospective investigators, is enclosed.
6. Our Radiation Safety Committee will perform an annual audit of our radiation safety program.
7. All requisitions for radioisotopes must go through our Purchasing Department; copies of all requisitions are forwarded to the Radiation Safety Office by the Purchasing Department. This Office maintains records of all radioisotopes ordered to ensure that the permitted limit for individual investigators is not exceeded, and the total quantity on campus does not exceed our licensed limit.
8. Contamination surveys in work areas will be made by the Principal Investigator or members of his staff. Frequency of surveys will be determined by the quantity of isotope used and the length of the experiment. Quantities of 1 millicurie or greater will require daily wipes during the course of the experiment. Quantities less than 1 millicurie will require weekly wipes during the course of the experiment, or at the end of the experiment if the duration is less than a week. Records will be kept of wipe results and checked periodically by the Radiation Safety Officer. The RSO will be notified immediately of contamination in excess of 1000 dpm.

Sincerely,



James R. Cook
Radiation Safety Officer
University of Maine

Chemical Radiation Laboratory Safety Office

Service 11dp

Orono, Maine 04469

207/8412637

16 April 1985

Let Mail Control No. 03301

John E. Glenn, Ph.D., Chief
Nuclear Materials Safety Section I
Division of Radiation Safety and Safeguards
Nuclear Regulatory Commission, Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Dr. Glenn:

This is in response to your letter of March 22, 1985, requesting additional information concerning our procedure for receiving and opening packages of radioactive material. We will follow this protocol:

1. The Radiation Safety Officer (RSO) is notified of all requisitions for by-product material, to ensure that the shipment will not exceed our possession limit.
2. All incoming packages of by-product material will be delivered to our Police and Safety Office, which is always open; packages will be stored in a lead-lined box. The responsible investigator will be notified immediately during normal working hours, or as soon as practicable if received after normal working hours. The investigator will pick up the package as soon as possible after notification.
3. All incoming packages will be visually inspected for any sign of damage.
4. All incoming packages will be monitored for exposure rate at 3 feet, with the rate being recorded; if greater than 10 mR/hr, the RSO will be notified.
5. All incoming packages will be monitored for exposure rate at the surface, with the rate being recorded; if greater than 200 mR/hr, the RSO will be notified.
6. All incoming packages will be opened with the following precautions:
 - 1). Gloves will be worn.
 - 2). The packing slip will be removed.
 - 3). The inner container will be removed and the contents described on the label compared to the requisition and the packing slip.
 - 4). The integrity of the final container will be checked.

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7. All packages containing by-product material in excess of quantities listed in Schedule B of 10 CFR 30.71 will be assayed for contamination caused by leaking. The final source container will be wiped with filter paper moistened with alcohol; the amount of removable radioactivity will be determined by liquid scintillation or with an end-window G-M survey meter, whichever is more sensitive. The reading will be recorded.

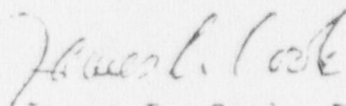
8. All packing material will be monitored with a G-M survey meter. If contaminated, it will be handled as radioactive waste; if not, it will be handled as ordinary trash, with the labels obliterated.

9. Any discrepancies, contamination, or excessive external radiation will be reported to the RSO. The Region 1 office will also be notified of any leakage, excessive radiation, or other serious discrepancies.

10. A record of the results of these inspections will be maintained for each incoming package.

11. All investigators will be made aware of these requirements.

Sincerely,



James R. Cook, RSO

cc: Dr. Aceto
Dr. Sherblom
Mr. Stuart

Renewal: Yes _____ No _____

Procurement Reference No. _____

Termination Date _____

U N I V E R S I T Y O F M A I N E A T O R O N O

A P P L I C A T I O N F O R R A D I O I S O T O P E S

INSTRUCTIONS: Complete Section I in triplicate and forward to the Radiation Protection Office. When approved, a copy of the application, with designated Procurement Reference number, will be returned to the Project Supervisor and Purchasing Department. To place a purchase order, submit a purchase requisition to the purchasing department of which is stated "Radioactive Material" and the designated Procurement Reference number. (Each purchase order to be accompanied with project isotope useage inventory in duplicate.)

SECTION I

1. Identification of person(s) (a) who use and (b) who will supervise use of materials:

(a) Name of person(s) who will use the material: (List principal user first.)

<u>Name</u>	<u>Department</u>	<u>UMO Title</u>	<u>Bld. & Rm. No.</u>	<u>Tel. No.</u>
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(b) Name of person(s) who will supervise the use of the material:

<u>Name</u>	<u>Department</u>	<u>UMO Title</u>	<u>Bld. & Rm. No.</u>	<u>Tel. No.</u>
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2. Rooms where the material will be handled:

- (a) Shipment delivered to _____
- (b) Material stored in _____
- (c) Chemistry performed in _____
- (d) Material used in _____

3. Description of material to be procured:

(a) Radioactive materials

Radio Nuclide	Amount of Activity			Chemical and Physical Form of Material to be Procured***
	Total*	To Be Possessed**	Used Per Exp.	

* Total amount needed for project.

** Maximum amount to be possessed by project at any one time.

*** Is material in powdered, pyrophoric, live, virus, nerve gas, or other hazardous form? _____

(b) Radiation Producing Equipment

Types of Radiation Sources	Make of Unit	ma or KVA	Type of Unit
Medical or Dental X-rays			
Industrial X-rays			
Other* (Specify)			

*Other: Radioactive static eliminators, beta ray gauges, nuclear reactor, particle accelerators, electron microscopes, etc.

4. Type of investigation for which material will be used:

5. Principal procedures involved in the use of the material:

6. Radiation protection: Equipment and procedures that will be used to control external and internal radiation exposure:

7. Waste disposal: Describe type of waste and method of disposal:

8. Name of person completing items 1 thru 7 _____

9. Project supervisor's approval (signature) _____ Date _____

10. Department chairman's approval (signature) _____

SECTION II

This section to be completed by the Office of Radiation Protection:

Date application received _____

To be reviewed by _____

A. Comments relating to application:

Following are comments based on discussion of the application with:

Project Supervisor _____ Dept. Chairman _____ Personnel involved _____

B. Following are items discussed and agreed upon as conditions of approval of this application:

C. Signature of person completing A & B this section _____

Date _____

D. This application is approved with the following conditions:

1. As specified in Section IIB.
2. No changes shall be made without prior authorization of the chairman of the Radiation Safety Committee.
3. The use, storage and disposal of radioactive material shall be in conformity with (a) the provisions of the Code of Federal Regulations Title 10, Part 20 "Standards for Protection Against Radiation" and (b) The UMO "Manual on Radiation Safety".

Approved by: _____
Chairman, UMO Radiation Safety Committee

Date _____

E. Experiment terminated (date) _____

Disposition of:

Radioactive material
Waste containers

Laboratory area checked out by _____ Date _____

"Manual on Radiation Safety" returned _____ Date _____

Approved for "Terminated file" _____ Date _____

UNIVERSITY OF MAINE at ORONO

Office of Radiation Protection

REGISTRATION AND RADIATION RECORD

SECTION I

1. Name _____

Last
First
MI
- 1a. Present association with UMO: _____
2. Social Security Number _____ Faculty _____ Title _____
3. Department _____ Staff _____ Title _____
4. Office No. _____ Tel. _____ Student _____ Year _____
5. Lab No. _____ Tel. _____ Other _____
6. Supervisor _____ Dept. _____
7. Date on which present association with UMO began _____
8. Date of Birth _____
9. Will your work with radiation at UMO continue 3 Mo _____ 12 Mo _____ ?
10. Have you worked previously with:

	<u>Yes</u>	<u>No</u>
a. Radioactive materials	_____	_____
b. Particle accelerators or Nuclear Reactors	_____	_____
c. X-ray machines or equipment producing x-rays...	_____	_____
d. Nuclear-bomb testing programs	_____	_____
11. Description of present work with radiation:
 - a. Catagory (underline): (Research) (Thesis) (Supervisor) (Student)
 (Technician) (Other): _____
 - b. Technical objective of work: _____
 - c. Description of work: _____
12. Radioactive material to be used in your present work:

Radionuclide	Procured	Maximum amount	Chemical & physical
<u>Sealed</u> <u>Unsealed</u>	<u>Amount in Mci</u>	<u>Used per experiment</u>	<u>form of material</u>
13. Radiation producing equipment to be used in your present work:

Type: _____ Maximum energy: _____

SECTION II Previous Experience with Radiation

If you have answered "yes" to any part of question 10, please complete Section II.

1. Previous experience with radioactive material:

Radionuclides handled				
Sealed →				
Largest activity handled Unsealed →				

PlacesDatesType of Work

2. Previous experience with radiation producing equipment:

<u>Equipment</u>	<u>Maximum Energy</u>	<u>Places</u>	<u>Dates</u>	<u>Type of Work</u>
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3. Previous experiences in nuclear-bomb testing programs:

<u>Places</u>	<u>Dates</u>	<u>Type of Work</u>
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4. Have you ever inhaled or ingested radioactive material in amounts known (or suspected) to be above permissible limits? _____

5. Have your exposures to external radiation totaled more than 5 rems (or rads) in any one year?

6. If answer is "yes" to question 4 or 5, please explain:

7. To the best of your knowledge, what is the total of your previous occupational exposure?

a. External exposure:

Whole body	Partial body

rems, rads or
roentgens
unknown to me

b. Internal exposure: Radionuclide _____

*Body burden _____

Body burden unknown to me _____

*Body burden may be specified as numbers of microcuries "fixed" in body,
or as urinary excretion rate.

SECTION III Training

<u>Type of Training</u>	<u>Where Trained</u>	<u>Duration of Training</u>	<u>Formal</u>	<u>On Job</u>
1. Principles and practices of radiation protection				
2. Radioactivity measurement standardization and monitoring techniques and instruments				
3. Mathematics and calculations basic to the use and measurement of radioactivity				
4. Biological effects of radiation				
5. Signature _____		Date _____		

SECTION IV (to be completed by Radiation Safety Officer)

1. a. Interviewed by _____ Date _____
- b. Written instructional material given: Yes _____ No _____
- c. Supervisor assigned during training _____
- d. Experiment description reference _____
- e. Film badge issued: Body _____ Ring _____
- f. Urine samples requested (date) _____
- g. Whole body radiation measurements requested (date) _____
- h. Eye examination requested (date) _____

2. Evaluation of previous exposure:

- a. Request for previous exposure records sent as follows:

<u>Requests sent to (place)</u>	<u>Dates</u>	
	<u>Sent</u>	<u>Received</u>
	_____	_____

- b. Comments on information received: