Office of Radiation Safety
Medical College of Wisconsin
(414) 456-4347

Instructions for
Application for the Use of Radioactive Materials

When an Application is required:

- For all investigators who have not previously been authorized for the use of radioactive materials at FMLH or MCW, or

- For all investigators who are applying for a new use of radioactive materials. This application covers a specific use, such as tritium for autoradiography, P-32 for gene sequencing, etc. When an authorized user wishes to substantially change the nature of radioactive materials use, either the purpose of the procedure or the chemical processes involved, a new application is required. (Example: An user authorized for P-32 labeled nucleotides for gene sequencing, and who was applying to increase the possession limit to do Northern or Southern blotting, would only require an amendment. If the same user was applying to switch to gamma-labeled P-32 in protein kinase assays, the user would need to complete a new application. Note: An applicant may request multiple processes as described above on single application, providing that complete handling protocols are established for each.)

When an Amendment is required:

- An Amendment to Radioactive Materials Authorization is required for minor changes to an existing authorized use, such as increases in possession or shipping limits, a change in isotope or chemical form for an approved use, changes in lab locations, or changes in personnel. The Amendment is not intended for fundamental changes in purpose of use.

Section 1 – Applicant Information

A. Applicant Information – It is vitally important that ORS be able to correspond with each user throughout the duration of a project. The preferred method of communication is through MCW email. Please fill out the application fully.

B. Training – Complete the Radioactive Materials Training and Experience form that comprises pages 6 and 7 of this form. Please note section II-B of the *MCW Guidelines for the Use of Radioactive Materials in Research.*

C. Participating Personnel – All persons (techs, students, post-docs, etc.) who will handle radioactive materials in the laboratory must be listed on the authorization. Training is to be provided by the investigator and documented on Radiation Worker Training Form.

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Section 2 – Proposed Use

A. Project Title – If the intended use is for a specific project, such as would be the case with a specific grant proposal, list the project title. If the intended use is more generic, such as a specific isotope procedure that may be utilized for similar research on different projects or grants, make the title descriptive of the isotope procedure.

B. Check all categories that apply. ORS must correspond with other MCW research committees to verify that all authorizations are obtained prior to issuing a use permit.

C. Purpose – Give a simple description of the intended use of radioisotopes, such as "tracer studies to determine uptake of 'Type A' chemical in 'Type B' cells."

D. Handling Procedures – Give a description of how the isotope will be handled and what chemistry, if any, will occur. Example:

1. Pipette 10 μCi isotope into 500 ml solution and mix thoroughly.
2. Pipette 1 ml solution per tube.
3. Add cell solution.
4. Incubate for 2 days.
5. Centrifuge tubes.
6. Pour off excess liquid into radioactive liquid waste container.
7. Prepare tubes for analysis.
8. Following analysis, discard cell culture into radioactive liquid waste.

Keep the narrative simple, yet complete.

E. Subsidiary Hazards – Some isotope procedures are more inherently hazardous than others. The process of iodination, for example, can release vapors with radioiodine, and must be performed in a controlled environment. In general, the use of pre-labeled compounds avoids most of these complications, and is considered to be a "simple, wet operation". Compounds that must be labeled with radioisotopes are typical of "normal" chemical operations, but may have associated hazards. Carefully research the processes to be performed and list any potential hazards.

F. Animal Use – For users who will be working with live animals, list all animals involved. ORS must make arrangements with ARC to accommodate these needs.

Section 3 – Waste

A. Carefully describe the waste generated in the proposed project. Describe the approximate composition of each waste type. This will help ORS plan for disposal of specific wastes. Note: Current MCW policy allows for use of High Flash-Point Scintillation fluids ONLY. Under special circumstances, users may receive an exemption to use low flash-point cocktails, with permission from the RSC. Inquire with ORS for the procedure.

B. Describe what containers will be used, where they will be stored, what precautions will be taken, and what waste will be disposed of in sink drains.

Section 4 – Facilities

A. Describe what facilities are available and utilized in your laboratory.

B. List the rooms that will be used for radioisotope storage, work areas, waste, counting, etc. Any rooms that are shared with other users of radioactive material must have an agreement in writing from all authorized users. (*Guidelines*, Section V-E.) Provide a sketch of all lab areas, showing benches, hoods, equipment, storage areas, etc.

C. Security of Isotopes – All users must submit a plan to keep isotopes secured from unauthorized removal that includes locking of materials not in use.

Section 5 – Contamination Surveys and Monitoring

A. See Section VI-J of the *MCW Guidelines for the Use of Radioactive Materials in Research.*

B. Survey Instruments – All users must perform contamination surveys with equipment capable of detecting at the contamination limits, such as liquid scintillation counters or gamma counters. List the type and location of equipment to be used to perform these surveys.

C. Portable Meters – Users of high-energy beta emitters, gamma or x-ray emitters should have a portable survey instrument available for daily surveys.

D. Dosimeters – List the type of dosimetry (finger badges, body badges) that will be required for personnel listed in Section 1.

Section 6 – Certification of Responsibility

No application will be accepted without appropriate signatures.