

Guide to Radioisotope Protocol Preparation

The University of Memphis Radiation Safety Committee has developed this Guide to assist you in preparation of protocols required under University procedures and licensing requirements. In cases where isotope quantities to be used in any one (1) experiment exceed two (2) times those found in Table RHS 8-31 of *State Regulations for Protection Against Radiation* (please see attachment), the protocol must be approved by the RSC; those at or below the limit may be approved by the Radiation Safety Officer (RSO).

The primary reason for this process of documentation and approval is to ensure that appropriate safety measures are in place and that researchers have carefully thought through the process involved in using the isotope(s). The RSO will be pleased to assist you by reviewing initial drafts of the protocol prior to submission to the Committee.

Protocols should contain the following information:

- The individual who will direct the experiment and be responsible for the radioactive material involved.

This individual is the Responsible User listed on the radioactive material license.

- The names of all individuals who will work with the materials or who will potentially be exposed to radiation from the materials.

All personnel listed here should be trained and/or approved by the RSO.

- The qualifications of all individuals involved, including training and experience in handling radioactive materials.

This can be supported by copies of certificates, etc. Personnel with previous occupational exposure must contact the RSO to ensure that dosimetry records are forwarded to Environmental Health and Safety.

- The isotopes and quantities involved.

When quantities are expected to vary, indicate the maximum quantity and note that variation will occur.

- A brief description of the experiment with an analysis of the radiation hazards involved, including external exposure, absorption, ingestion, and inhalation. Handling of waste must be addressed. The following are examples of questions that should be answered (as appropriate):

- *What portions of the work will be done in a fume hood (e.g., centrifugation, opening stock vials, labeling, etc.)?*
- *What type and configuration of shielding is to be used for waste, labeled material, stock solution?*
- *How often and in what location will wipe tests be performed?*
- *How often will surveys be performed?*
- *How will waste be handled (e.g., decay in storage)?*

- *Where will waste be stored?*
- *What security measures will be taken?*

For wipe tests and surveys, number the facility diagram to show wipe test locations; these locations should include: door handles leading out of the lab, refrigerator handles, telephone, water faucet handle, labeling area, centrifuge, fume hood, sink, and other appropriate areas.

- A description of the facility where the experiment will be performed.

The description should include a diagram of the laboratory and storage areas indicating locations of labeling areas, fume hoods, sinks, refrigeration units, waste storage, etc.

- A description of any special precautions that will be taken to ensure that radiation exposures to individuals are kept as low as reasonably achievable.

This should address factors of time, distance, shielding, and dosimetry.

The Committee may ask for additional information that will assist in evaluating the protocol and safety measures that are proposed.

A complete description of radiation safety procedures may be found in the *Radiation Safety Manual* which is available on-line at <http://www.memphis.edu/ehs/pdfs/radman2010.pdf>.

Please contact the Radiation Safety Officer at 678-4672 for additional assistance.