

UNIVERSITY OF HOUSTON

Radiation Safety Manual

Radioactive Materials Laboratory Setup Guidelines

General

Radioactive material is to be used only in those facilities which have been approved by the Radiation Safety Committee. A Principal Investigator desiring to use radioactive material in an area which has not been approved by the Radiation Safety Committee must submit a completed amendment application to the Radiation Safety Officer which provides details of the area and the proposed uses.

Signage

All radioactive materials labs must be properly labeled with “Caution Radioactive Material, No Smoking, Eating, or Drinking in The Laboratory”, and other such signage at each entrance. This signage will be provided and posted by Radiation Safety.

Postings

Radioactive materials laboratories must be properly posted with copies of the Notice to Employees, the Document Location Notification, and the Radiation Emergency Procedures. These will be provided and posted by Radiation Safety.

Restrictive Access

Access to all radioactive material laboratories should be limited to authorized personnel only. Housekeeping or maintenance personnel may be allowed into these areas for short periods of time to perform their functions as previously arranged or at other times under the direct supervision of laboratory personnel who can assure their safety. Personnel monitoring devices will not be required for housekeeping or maintenance during these short periods in the laboratories.

All radioactive material laboratories doors must remain shut at all times. These doors must be locked if no authorized user is present. Radioactive material must remain secure at all times from unauthorized removal.

Survey and Analytical Instrumentation

A survey meter must be obtained or available for users of high energy beta and/or gamma emitting radioisotopes which is appropriate to the type and level of ionizing radiation used. Analytical instrumentation must be available for Principal Investigators to perform their required wipe tests.

Shielding

Shielding materials shall be made available appropriate to the types and levels of radiation in all laboratories. High energy beta emitters should be shielded with at least 3/8 inches of plexiglass to minimize the creation of bremsstrahlung radiation. Work and storage areas must be shielded such that the dose rate at one foot does not exceed 2 mR/hr. Exposures should always be kept As “Low As Reasonably Achievable” (ALARA). The ALARA program is set to keep occupational exposures under 1/10 of the allowable maximum permissible exposure limits.

Handling Equipment

Vessels which contain more than 100 microcuries of gamma or high energy beta activity should not be picked up by hand for more than a few seconds. Tongs, forceps, or some other remote handling tool should be used. Liquid or loose radioactive material should be contained in a secondary unbreakable corrosive resistant container.

Fume Hoods

Experiments that generate aerosols or use volatile compounds of radioisotopes must be performed in an approved fume hood. All iodinations must be performed in an approved fume hood without exception. Additionally, radioisotope experiments should be performed in an area under negative air pressure.