

## **BASIC LABORATORY PROCEDURES FOR UNSEALED RADIOACTIVE MATERIALS**

**RADIATION DOSIMETERS** – If you are assigned a dosimeter it must be worn when radioactive materials are used.

**INVENTORY** – The Approval Holder is responsible for maintaining a written inventory accurately showing the ordering and disposal of all radioactive materials in the laboratory. This inventory should be reconciled monthly with the inventory report posted online by the Radiation Control Office (RCO). The RCO must be notified immediately of discrepancies.

**SECURITY** – All radioactive materials must be kept locked or under the control of laboratory personnel at all times. Radioactive material storage areas (cabinets, refrigerator, etc.) must be locked when the approved possession limits exceed 200 mCi for  $^3\text{H}$ , or 50 mCi for all other nuclides combined.

**POSTINGS** – Each room approved for the use or storage of unsealed radioactive material must have a “Caution Radioactive Material – No Smoking, Eating or Drinking” sign posted on every entrance. The main entrance(s) must be posted with an “Emergency Procedures” (RC-072) sign and a “Notice to Employees” (ARRA 6) sign. Each location within a laboratory where radioactive material is stored must be posted with a “Caution Radioactive Material” sign. All radioactive material containers, radioactive equipment, and radioactive waste containers must be clearly labeled and radiation work areas must be clearly delineated as radioactive. The RCO must be notified immediately if posted radiation information or warning signs are removed or defaced.

**STORAGE**– All radioactive material must be stored in approved location(s) as specified by the Approval. The stock must be stored in original shipping containers or other containers with equivalent shielding and properly labeled.

**SHIELDING** – Use acrylic for betas and lead for gammas. Radioactive waste and working solutions of radioactive material must be shielded when count rates to which personnel may be exposed exceed twice the background count rate.

**ENVIRONMENTAL RELEASES** –The disposal of any radioactive material to the sewer or to fume hood exhaust must not exceed 50 nCi total nuclides/month. Prior arrangements for disposals greater than this amount per month must be made with the RCO and approved by the appropriate Radiation Safety Committee. Records of these disposals are to be documented on a monthly “Environmental Release Log” (RC-109) and reported to the RCO.

**WASTE** – Wastes must be segregated, packaged, labeled, and tagged in accordance with the "Rules for Packaging Radioactive Waste" (RC-040) posted on the RCO website. All waste items must have a “Radioactive Waste Summary Form” (RC-090) affixed to them prior to RCO collection. Waste items not properly prepared will not be taken out of the lab for disposal. Waste collections are requested online at the RCO website.

**PROTECTIVE MEASURES/CONTAMINATION CONTROL** – No eating, drinking, tobacco use, chewing gum, applying cosmetics, or storing of items intended for human consumption is permitted in laboratories. Lab coats and gloves must be worn when working with radioactive materials. Labeling procedures involving radioiodine or tritiated hydrides must be performed in fume hoods certified by Facilities Management. Placement of items in a fume hood, which could disrupt airflow, must be avoided unless evaluated by RCO. Plastic backed absorbent paper must be used on all radioactive material work surfaces.

**SURVEYS** – All survey results must be documented and include the date, instrument ID#, initials of person performing survey, locations surveyed, background counts, and the survey results. The action level for cleanup is 50 cpm or more above background. All areas with results above the action level should be cleaned, resurveyed, and the follow-up results documented.

**Monthly** – Radioactive material used during calendar month – must have comprehensive survey of all approved areas.

Radioactive material only stored during calendar month – Limited area survey of waste/storage areas.

Radioactive material not possessed during calendar month – No monthly survey required.

**After-Use** – Users must perform and document contamination surveys after every use of radioactive material.