

## **SAFE HANDLING OF RADIOACTIVE MATERIALS**

### **Policy:**

Safe handling techniques are to be strictly adhered to by all source handlers. This policy is to provide guidelines to keep exposures as low as reasonably achievable, to reduce the risk of source breakage, and to make sure that all sources in possession are accountable.

### **Procedure:**

1. Apply the following general guidelines when working with sealed sources:
  - a. Always carry a survey meter when handling radioactive sources. It is easy to locate a source that flew off a pair of forceps and to ensure that no single source out of the safe.
  - b. Work at a distance from the source.
    1. Always use long forceps to manipulate sources.
    2. NEVER touch a source with your fingers.
  - c. Keep sources behind shielding barriers as much as possible.
    1. Work behind an L-block.
    2. Transport sources only in shielded containers.
    3. Work with as few sources at a time as possible.
    4. View sources through the leaded glass window of the L-block.
  - d. Minimize time spent handling sources.
    1. Plan tasks ahead of time.
    2. Work as quickly as possible, but not so quickly as to make mistakes which would require a longer exposure.
  - e. Always wear a body monitor and a ring monitor when handling sources.
  - f. **NEVER** leave the Hot Lab unattended with the door open or unlocked.
  - g. Never eat, drink, or smoke in the Hot Lab.

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2. Apply the following specific guidelines when working with cesium tube sources:
  - a. To prevent the bending or shearing of a source when closing safe drawers, make sure that all sources have dropped fully into their positions before closing the drawer.
  - b. Use the lead pig to hold the plastic tandem tube while loading sources.
  - c. Close the safe drawer immediately after removing a source.
3. Apply the following specific guidelines when working with iridium sources:
  - a. When altering the active length of a ribbon, cut through the tubing (in between the seeds) by using a pair of long scissors.
  - b. When altering the active length of a ribbon, push the ribbon all the way through the pig so that the tip of the ribbon is exposed. Hold the tip of the ribbon with long forceps and cut off the required number of seeds.
  - c. If a seed is accidentally cut while altering the ribbons, notify the physicist immediately.
  - d. When storing or transporting the sources, make sure that the ribbons are not pushed so far into the pig that they are exposed on the other side.
  - e. Ribbons begin to show brittleness due to radiation damage and should not be used after two months from the date of shipment. Verify age of ribbons prior to use.
  - f. Ribbons should not be used in open-end catheters if the open end is inside the patient's body.
  - g. Notify the physicist if sterilization of the ribbons is required. The documentation accompanying the iridium source gives instructions for sterilizations.
3. Apply the following specific guidelines when working with gold, iodine, or palladium seeds:
  - a. To count seeds, pour them into a cup and spread them across the bottom.
  - b. To prevent seed loss during sterilization, **ALWAYS** put seeds into the autoclavable vial and cap with a gauze plug before autoclaving.
  - c. Transport seeds in a shielded container.
  - d. Keep the container closed at all times.

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- e. Keep seeds in the container provided and keep shielded at all times.

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