



## **SOP-2 PROCEDURES FOR PERFORMING RADIATION SURVEYS**

- Radiation surveys are to be performed annually on all operational radiation generating devices.
- Radiation surveys should be performed on new radiation generating devices following installation, and on any existing device following a repair.
- Additional radiation surveys may be deemed necessary when a location meets or exceeds the criteria for Radiation Area or High Radiation Area as specified in the regulations.
- If any radiation survey exceeds general area background radiation levels by a factor of two, the radiation generating device will be declared unsafe and removed from service. The device shall remain posted as inoperable until repairs or modifications are made that allow the device to operate at the levels as specified in the regulations.
- This SOP is only applicable to radiation generating devices that are regulated within the scope of the licenses issued to Laboratory Services (LS). This SOP does not apply to the diagnostic or healing devices maintained at Student Health.

### **Procedure for Radiation Surveys of Operational Radiation Generating Devices:**

1. Perform surveys on all approved radiation generating devices.
2. Obtain the necessary calibrated radiation detecting instrument, Form DHS-31, "Radiation Generating Devices Survey Record", and appropriate personnel dosimetry.
3. Measure and record the general area background radiation reading by holding the energized detector probe at waist level with the detector instrument sound amplifier ON.
  - a. When using Analog Devices, record the one minute and record the highest meter deflection observed.
  - b. When using Digital Devices, obtain the average level over a one to two minute interval.
4. Survey the exterior of the device with the energized detector.
5. Record probe position and highest meter deflection for at least five planar positions surrounding the radiation generating device. If any one or more planar meter deflections exceed the general area background radiation level, the generating device shows evidence of x-ray leakage.
6. The test of the operational interlocks is to be performed with the assistance of the Principal Investigator (PI). Operational interlocks must demonstrate that the power to the device is interrupted upon activation of the interlocks. Failure of the interlocks to correctly interrupt power upon activation constitutes a failure of the instrument functions and it is inoperable until repaired.

7. Verify that the warning mechanism (lights, alarm, etc.) is automatically activated when penetrating radiation is being produced by the device during operation.
8. Notify the PI in writing if a device fails any of the survey criteria or requires repair.
9. Maintain all survey records in the Radiation Devices Survey Record binder located in LS.

### **Procedures for Performing General Area Radiation Surveys:**

1. Obtain the appropriate survey instrument, laboratory diagram and personnel dosimetry from the Radiation Protection Specialist (RPS). Ensure the detecting probe and instrument are fully operational, functional, and in calibration.
2. Permanent records of all radiation surveys, including negative results must be maintained. The records must include:
  - Date and Time
  - Surveyor name/ title
  - Instrument (Model number, serial number, calibration date.
  - Location
  - Background radiation level
  - Device
  - Reason for the survey
  - Areas Surveyed
3. General area surveys are to be performed with the energized detector probe at waist level. Surface scans should be performed slowly approximately 1 inch from the surface.  
**Note: The probe of the survey meter should never make contact with any surface areas during surveys.**
4. All radiation survey results will be maintained in the Site Radiation Survey binder located in LS.