

# Radiation Laboratory Inspections

## Laboratory Inspection Policies

The FSU Radiation Safety Officer (RSO) inspects all areas where radioactive materials are used or stored to ensure that safety requirements are being met; that the posting of signs and the labeling of containers is proper; that exposure levels are not exceeding prescribed limits; and that radioactive material is being used in accordance with the license, the proposal and/or directives of the FSU Radiation Control and Policy Committee (RCPC). If during inspections, violations are found, a letter describing the violations will be sent to the Principal Investigator (PI). Corrective actions will be described and suggested in the letter. If corrective actions are not taken, a meeting to discuss the infractions will be set up with the PI and laboratory personnel. If the PI refuses to comply with the corrective actions, a meeting with the RCPC will be called. The RCPC can revoke the PI's proposal. All radioactive materials will be confiscated pending additional review.

Laboratories actively engaged in the use of radioactive material will be surveyed by Radiation Safety Office personnel at least monthly, as appropriate, and wipe tested in places where contamination may be suspected. More frequent wipes and/or surveys will be performed when:

- The laboratory has a recent history of being contaminated; e.g., contamination is found in the laboratory for several consecutive months or contamination levels exceed 1,000 dpm per 100 cm<sup>2</sup>.
- The laboratory has a high potential of being contaminated; e.g., frequent handling of solutions of multi-millicurie amounts or the user is inexperienced and using multi-millicurie amounts.
- The nature of a multi-millicurie procedure is unusual or inherently risky.
- The RSO has determined that it should be done based on professional judgment.

Laboratory personnel shall perform additional surveys during procedures that could cause contamination or exposure concerns in addition to their routine in-process and post work surveys.

[Radiation Safety](#) should be contacted when any technical assistance is needed such as during non-routine decontamination procedures.

## Action Levels

Except for hoods, glove boxes and other enclosed areas not susceptible to the transfer of removable activity, the RSO will take action to have laboratory areas decontaminated if any wipe tests exceeds 100 disintegrations per minute beta/gamma or alpha activity averaged over 100 cm<sup>2</sup>.

Any contamination exceeding this limit will be highlighted on the lab map and delivered to the PI as soon as possible. Lab wipes that indicate levels of contamination 10 times the limit stated above are immediately made known to the PI and the areas are rewiped by the RSO within seven working days. Lab wipes that indicate the contamination 20 times (2000 dpm) the limit stated above are immediately made known to the PI and decontamination procedures are begun immediately. The RSO will provide technical assistance during any laboratory or personnel decontamination procedure, as necessary.

During laboratory surveys conducted by the RSO, any elevated radiation levels found that are not considered as low as reasonably achievable "ALARA", will be discussed with laboratory personnel and an attempt will be made to resolve the matter before leaving the laboratory.

## Laboratory Surveillance by Wipe Criteria

- Disposable gloves should be worn by any person taking wipes where contamination is suspected.
- The wipe medium should consist of an absorbent paper measuring approximately 2.5 x 3.0 cm.
- All wipe papers should be moistened with ethanol just prior to being used.
- Each wipe should represent a surface area as close to 100 cm<sup>2</sup> as possible, but typically should be made in a random pattern over the general areas of interest.

### **Laboratory Surveillance with Portable Instrumentation**

Survey in and around areas where the radioactive materials are stored and/or used. Laboratories that use only tritium will not be surveyed due to the inability of survey meters to detect this low energy beta emitter. The RSO will provide technical assistance, as needed.

- Since alpha emitters' progeny emit betas, gammas and/or characteristic x-rays, a G-M survey meter with a suitable detector may be used for alpha surveys; however, a properly calibrated alpha survey meter should always be available, if needed.
- A properly operating survey meter with a current calibration shall be used for surveys. Radiation Safety Office personnel calibrate survey instruments at least annually and will arrange for prompt repair or replacement of inoperable or contaminated instruments.
- The survey instrument's audible switch should be turned "on" and "fast" response selected, if provided.
- A close distance must be maintained between the probe and the surface being surveyed, about one centimeter, while avoiding potential probe contamination from contact with the surface.
- While surveying, the detector must be moved slowly so that the instrument will have time to respond.
- If any elevated radiation levels are found that are not considered normal, an attempt should be made to resolve the matter before leaving the laboratory.
- After the survey, the instrument should be turned off, including the "audible" switch, if independently powered.