

# Radioactive Material Inspection/Survey Guidelines

## SIGNAGE AND POSTINGS

Answer "yes", "no", or "n/a"

If answer is "no", please indicate if issue was resolved during inspection or describe planned corrective action and follow-up date.

Inspection Topic	Regulation/Requirement
Employee Notices Posted (DEQ Form 410-3, Emergency Procedures, Declared Pregnancy Notice)	DEQ 410-3, Radiation Emergency Procedures, Declared Pregnancy must be posted inside RAM laboratory in plain, unobstructed view.
Radioisotope Materials Facilities Posted (door placard and stickers at entrances)	Laminated door placard with name of responsible authorized user and off campus phone number must be posted on outside of door (or next to) in plain, unobstructed view
Radiation Area Posted (work areas and equipment)	All work benches where RAM are used as well as tools, supplies, equipment, and shielding must be clearly labeled with RAM stickers or tape. All labeled items must be stored inside the RAM use area
Storage and Waste Areas Posted	Storage and waste locations must be clearly labeled with RAM stickers or tape.

## SURVEY AND VENTILATION INSTRUMENTS/EQUIPMENT

Answer "yes" or "no".

If "yes", include serial numbers and calibration dates if available.

\*For Geiger counters, only list serial number if RSO calibration sticker is not on it.

Inspection Topic	Regulation/Requirement
Liquid Scintillation Counter	Required to be available and working where H-3, C-14, and other low-energy betas are used.  Efficiencies for radioisotopes used in lab must be determined.
Gamma Counter	Efficiencies for radioisotopes used in lab must be determined.
Geiger Counter*	Required for most isotopes.  MUST be in current calibration.
Fume Hood	If a fume hood is used for RAM procedures, it MUST be in current

	calibration.
<b>Laminar Flow Hood</b>	If a laminar flow hood is used for RAM procedures, it MUST be in current calibration
<b>Biosafety Cabinet</b>	If a biosafety cabinet is used for RAM procedures, it MUST be in current calibration

## RECORD KEEPING AND WASTE STORAGE

Answer "yes", "no", or "n/a".

If answer is "no" please indicate if issue was resolved on-site or describe planned corrective action and follow-up date.

<b>Inspection Topic</b>	<b>Regulation/Requirement</b>
<b>Monthly Contamination Surveys</b>	<p>Contamination surveys must be performed and logged on a monthly basis so long as stock and/or waste is present in the laboratory. These will need to be done using swipes to test for removable contamination in areas where stocks or waste are stored.</p> <p>Logs will need to include LSC/gamma printouts, date, and initials of person performing the survey, areas included in survey, and be converted to dpm or pCi units.</p> <p>Cleaning will be required if contamination is found in excess of 100 pCi/100 cm<sup>2</sup> (220 dpm/100 cm<sup>2</sup>). If cleaning is required, cleaning methods and follow-up swipes must be included.</p>
<b>Usage Contamination Surveys</b>	<p>Contamination surveys must be performed at the end of each use of radioactive materials. This can be done using an LSC or gamma counter, or a Geiger counter if applicable (can be used for beta emitters with energies &gt;160 keV and gamma emitters).</p> <p>LSC/gamma counter surveys must include the printouts from the counter.</p> <p>Geiger counter surveys must include the serial number and calibration date of the counter, and it must have appropriate beta efficiencies determined by RSO during calibration. If contamination is indicated, swipes must be used to check for removable contamination.</p> <p>All surveys must include date of survey, initials of person performing survey, items/equipment included in survey, and be converted to dpm or pCi units.</p> <p>Cleaning will be required if contamination is found in excess of 100</p>

	pCi/100 cm <sup>2</sup> (220 dpm/100 cm <sup>2</sup> ). If cleaning is required, cleaning methods and follow-up swipes must be included.
<b>Inventory Logs (Sealed Sources)</b>	Logs for the last three years must be available upon request.
<b>Inventory Use/Disposition Logs (Unsealed Sources)</b>	Logs for the last three years must be available upon request.  Disposition sheets must be filled out in a timely manner and copies of disposition sheets for disposed inventory must be sent to RSO.
<b>Waste Disposals (Sewer, solid, liquid)</b>	All disposals should be logged accordingly on disposition sheets.  Sewer disposals must have activity concentration (in dpm or pCi) and volume disposed as well as date and diluted volume.
<b>Waste Containers Labeled</b>	Waste containers must be clearly labeled with RAM stickers/tape and the radioisotope it contains.
<b>Waste Separated by Isotope</b>	Only H-3 and C-14 are allowed to be mixed in waste containers with the exception of dual-labeling procedures.
<b>Training Certificates – URCA</b>	Current training certificates for online training through the RSO must be available for all active users on a PI's permit.
<b>Training Certificates – Lab Specific</b>	Lab-specific training is required for ALL personnel who work with radioactive materials. Such training must be documented and renewed on an annual basis. Records of this training for the last three years must be made available upon request.

<b>STORAGE OF RADIOISOTOPES</b>	
Answer "yes", "no", or "n/a"	
If answer is "no", please indicate if issue was resolved on-site or describe planned corrective action and follow-up date.	
<b>Inspection Topic</b>	<b>Regulation/Requirement</b>
<b>Unsealed Sources have RSO Inventory Labels</b>	All unsealed sources must have an inventory label issued by OSU's Radiation Safety Office with an identifying inventory number.
<b>Sealed sources have RSO Inventory Labels</b>	All sealed sources must have an inventory label issued by OSU's Radiation Safety Office with an identifying inventory number.
<b>Security of Licensed Material</b>	All RAM sources must be kept in a secure from unauthorized access. This can be a lab that is locked when unoccupied by authorized personnel, or in a locked refrigerator/freezer/cabinet with restricted

	access to the key.  Portable gauges must be double-secured; i.e. kept in a locked cabinet inside a locked room.
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<b>MISCELLANEOUS</b>	
Answer "yes" or "no". If answer is "yes" please indicate if issue was resolved on-site or describe planned corrective action and follow-up date.	
<b>Inspection Topic</b>	<b>Regulation/Requirement</b>
<b>Food in Lab</b>	Food, drinks, medication, cosmetics, or any evidence of such things are strictly prohibited from any laboratory where RAM are used or stored.
<b>Proper PPE/dosimetry being worn where applicable</b>	Personnel using RAM must be wearing the proper PPE (gloves, goggles, lab coat, etc.) and dosimetry if required.
<b>Open-toed shoes</b>	Open-toed shoes of any kind are strictly prohibited from being worn in any laboratory that is authorized for use of unsealed sources of radioactive materials.
<b>Full length pants/skirts must be worn when handling unsealed sources of RAM</b>	Shorts, short skirts, and Capri pants are not to be worn while working with unsealed sources of RAM.

<b>Geiger Counter Proficiency</b>
In labs where Geiger counters are available, the RSO will select an individual in the lab who is on the PI's list of users (NOT the PI) and ask them to demonstrate how they use a Geiger counter in their lab. We will look for the following topics: <ul style="list-style-type: none"> <li>• Checking battery</li> <li>• Removing probe cover if required</li> <li>• Do they get the probe close enough to surface</li> <li>• Do they check all required surfaces</li> <li>• Speed of probe movement across surface</li> <li>• Are there radioisotopes in their work area that cannot be detected with a Geiger counter</li> </ul>

<b>Results of RSO's Contamination Swipes</b>
The RSO will consider an area contaminated if our counts show >100pCi/100 sq. cm. Any levels above 100 pCi on our results will require cleaning of the area and follow-up swipes by the RSO.