

**Laboratory Radiation Safety
Self-Audit Checklist**

Building _____ Room _____ Principal Investigator _____ Date _____

Audit Performed by _____ Radioisotopes in use: _____

Y	N	NA
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COMMENTS

A. Good Work Practices				
1. Absorbent papers, protective covers or containment trays used				
2. Work areas monitored and surveys documented				
3. Survey meter calibrated and appropriate				
4. Wipe test frequency met, appropriate locations tested				
5. Contaminated areas and items labeled and proper decontamination procedures used				
6. RAM users are familiar with properties of radioisotopes they use				
B. Personnel Dosimetry				
1. Radiation monitoring badges issued when required by University policy.				
2. Monitoring badges stored and used properly and returned promptly				
3. Lab personnel know location of dose records				
C. Exposure Control				
1. Protective clothing/personal protective equipment used				
2. Appropriate footwear worn (no sandals during rad work)				
3. Shielding of work areas adequate				

Key to Radiation Safety Self-Audit Checklist

A. Good Work Practices

1. All work involving physical or chemical manipulation of open radioactive material sources must be performed directly on work surfaces suitable for containment of contamination and easy decontamination.
2. Researchers manipulating open sources of radioactive materials must conduct operational work area surveys. The criteria for performing surveys can be found in the Radiation Safety Manual. These surveys are performed using portable survey meters and/or wipe testing, as appropriate. Records of such surveys must be kept.
3. Survey meters must have a current calibration and must be able to detect the isotopes used. Contact EHS for calibration services.
4. For some isotopes such as H-3, wipe tests by lab personnel may be required. Location of wipe tests must correspond to the work areas of the laboratory and wipe test locations must be sufficient to detect contamination.
5. When users find contamination on equipment or in work areas, decontamination must be performed in a timely manner. Skin contamination must be immediately decontaminated to the extent possible and reported to the "Health Physicist". Allowable limits for contamination can be found in the Radiation Safety Guide. To protect other lab personnel, all contaminated areas and objects should always be labeled.
6. A radioisotope user must be familiar with the properties of any radioisotope he or she uses, including its half-life, emissions, shielding requirements, special hazards, and how to detect the radioisotope. Information about specific radioisotopes is available in the Radiation Safety Manual or from EHS.

B. Personnel Dosimetry

1. The use of radiation monitoring badges is required for work with certain radioisotopes used in specified amounts. The criteria for monitoring are described in the Radiation Safety Manual.
2. Badges must be exchanged in a timely manner. Lost badges must be reported to EHS as soon as possible. Personal dosimeters must be stored away from radiation and heat sources.
3. Users issued dosimeters must have access to their dosimetry records, which are available from their Authorized User or EHS.

C. Exposure Control

1. Appropriate protective clothing, including gloves, a full-length laboratory coat, shoes and socks should be worn at all times for work with any open radioactive source. However, protective clothing must be worn when open sources exceeding amounts specified in the Radiation Safety Guide are used. The use of face shields or eye protection should be considered to reduce the risk of face and eye contamination.
2. Wearing sandals or open-toed shoes, while working with radioactive material, is prohibited.
3. In cases where the use of radioactive material presents unique or unusual hazards, special radiation safety equipment, shielding, precautions or procedures may be required.

	Y	N	NA	COMMENTS
4. No eating, drinking or storage of food in radioisotope lab <u>unless</u> lab has RSC-approved "Eating/Drinking Areas." No eating and drinking outside of such areas.				
D. Inventory Control				
1. RAM properly stored and secured				
2. Isotope possession limits not exceeded				
3. Vial Use Logs and other usage forms properly completed				
4. Vial Use Logs for discarded vials were returned to EHS				
5. Transfer of RAM procedures followed				
6. RAM transportation requirements met				
7. Waste is packaged and disposed of correctly				
8. EHS notified of mixed waste generation				
9. Sink releases of RAM limited to labeled secondary disposal sinks				
10. No radioactive waste found in non-radioactive lab trash				
E. Use Area Identification				
1. Lab entrance properly posted and labeled, including radioisotope use areas				
2. RAM work performed in authorized locations only				
F. Training				
1. All laboratory personnel (RAM users and non-RAM users) have completed EHS initial radiation safety training				
2. All users have attended the most recent refresher training provided by EHS				

Exposure Control (continued)

4. Smoking, eating, drinking and pipetting by mouth in radioisotope laboratories is prohibited, except as described below*. Food for human consumption shall not be placed or stored in any equipment such as refrigerators, freezers or ovens in which radioisotopes are stored or used or in any other RAM lab area. Storage of food and utensils on open surfaces in the laboratory is discouraged.

* Eating and drinking in a radioisotope lab is permitted only when the Authorized User has applied to the Radiation Safety Committee to establish an Eating/Drinking Area.

D. Inventory Control

1. Access to "Restricted Areas" must be controlled, and visitors should be supervised by a member of the laboratory staff who is familiar with the activities of the laboratory. All radioactive stock materials and sealed sources must be stored in a secured container or secured storage area when not in use. Further details of the security policy are described in the Radiation Safety Guide.
2. Purchase/possession limits must not exceed the Authorized User's authorization limits. EHS maintains records of possession limits assigned to Authorized Users along with their radioisotope use authorization.
3. EHS provides a Vial Use Log for each stock vial received. An entry in the Log must be made for every withdrawal from the stock vial.
4. When a vial is discarded into radioactive waste, its Vial Use Log should be promptly returned to EHS to maintain an accurate inventory.
5. EHS must be contacted before a transfer between Authorized Users occurs. Recipients of transferred RAM must be authorized or licensed to use the isotope. Inventory reports submitted to EHS must be updated to show transfers.
6. Radioisotopes moved within a building should be moved in such a way that no radioactive material can be readily released from its container under normal conditions and exposure to personnel is minimal. Radioactive material may not be left unattended during transit. These precautions are especially important when RAM is moved through non-restricted areas.

If the transfer involves shipment between buildings on campus or off-campus, or to a non-Princeton University facility, contact EHS for instructions to comply with DOT regulations.

7. Two monthly reports must be filed by the Authorized User with EHS: an inventory of radioisotopes on hand (including all wastes not yet removed from the lab) and a summary of radioisotope disposals. Both reports are filed with EHS no later than the eighth day of each month.
8. Waste must be segregated and packaged in accordance with current procedures. See the Princeton University Radiation Safety Manual for additional information.
9. If the generation of mixed waste (waste that is both radioactive and a hazardous chemical) is unavoidable, then the Authorized User must contact EHS to establish waste packaging and storage procedures for those materials. All Authorized Users are strongly encouraged to use laboratory techniques or to develop new techniques, which do not result in the production of mixed wastes.
10. The secondary disposal of radioactive materials using sinks in an Authorized User's laboratory is permitted provided that the sinks have been labeled for secondary disposal by EHS and the laboratory staff have been properly trained.
11. Self explanatory

E. Use Area Identification

1. All work and storage areas for Radioactive Materials must be properly labeled "Caution Radioactive Material".
2. All RAM work must be performed in rooms as listed in the authorization application. EHS must be notified when an Authorized User plans to discontinue all RAM work in a room or begin RAM work in a new room.

F. Training

1. All users and persons who frequent the laboratory must receive Radioactive Materials Safety Training provided by EHS. The schedule of these training sessions is posted on the EHS Web page.
2. All users must attend Refresher Training which is provided by EHS annually.

	Y	N	NA	COMMENTS
3. Specific laboratory training provided to all users by PI, lab manager, or senior lab staff				
4. Direct supervision provided by PI or senior lab staff for new and inexperienced rad users				
G. Engineering Controls				
1. Volatile radionuclide work conducted in fume hood				
H. Administrative Controls and Documentation				
1. Radioactive Material Authorization available to users				
2. All usage, survey, inventory and waste records are current and accurate				
3. NRC or NJDEP "Notice to Employees" posted within lab or department and contents known				
I. Emergency Procedures				
1. "Emergency Response Guidelines for Laboratory Workers" conspicuously posted and incident response procedures known.				

Key to Radiation Safety Self-Audit Checklist

3. Laboratory Supervisors provide supplemental training in addition to the mandatory training described above. All radiation workers must satisfy the training requirements established by their department and Principal Investigator.
4. Laboratory Supervisors are responsible for ensuring that new and inexperienced radioisotope users receive adequate direct supervision.

G. Engineering Controls

1. Uses of open radioactive sources, which could result in airborne radioactivity, should be carried out in fume hoods or glove boxes labeled "Radioactive Material".

H. Administrative Controls And Documentation

1. Radioactive Material Authorizations provide radioisotope limits and use conditions and are on file with the Authorized Users.
2. Records of all required radiation surveys, Sink Disposal Logs and Vial Use Logs are required to be maintained by each laboratory.
3. NRC and/or NJDEP "Notice to Employees" must be posted in the laboratory or department. Copies are available from EHS.

I. Emergency Procedures

1. "Emergency Response Guidelines for Laboratory Workers" must be conspicuously posted in the lab. Copies are available through EHS. Laboratory Supervisors are responsible for ensuring that lab personnel are familiar with incident response procedures.