

**Radiation Safety Office**  
**Annual In-Laboratory Radiation Safety Training Record**  
**Enclosed and Interlocked Analytical X-ray Machines**

**Instructions and Training Content**

1. The purpose of this training is to ensure that **ALL** personnel granted authorization and trained to use this analytical X-ray equipment are annually reminded about regulatory requirements promulgated by the State of South Carolina, Department of Health and Environmental Control (DHEC) and the operating and emergency procedures specific to this unit.
2. All University faculty, staff, students, and employees who have been authorized and trained to operate this analytical X-ray machine must review and sign this form upon completion of initial training, and annually thereafter by January 31<sup>st</sup> of each year upon completion of annual retraining.
3. Topics to review must include:
  - a. Restricted area: The area restricted for control of hazardous exposures to ionizing radiation is within the interlocked analysis chamber in this equipment. Ionizing radiation exposure levels do not exceed 0.25 mR / hr at all surfaces as verified by the Radiation Safety Office during annual reviews. These radiation levels are far below levels needed to control for radiation exposures above a typical background radiation dose.
  - b. The health protection problems associated with exposure to radiation and that under normal operation, where all interlocks are operational and enclosures are in place; radiation doses exterior to the equipment will not exceed a typical background radiation dose.
  - c. Ensure that everyone understands that only DHEC approved service registrants shall service this equipment; and to contact Radiation Safety to ensure the service contractors is approved by DHEC before authorizing any service representative to service this equipment.
  - d. If any University faculty, staff, student, contractor, or employee performs self-service requiring replacement or alteration of any device within the path of the X-ray beam including but not limited to sample holders, automatic sample changers; alignment of the X-ray beam, the X-ray detectors; that they must be authorized by the Environmental Health and Safety Office for service; and complete all training required for service with a signed training document before servicing the equipment. Procedures specific to the service to protect from ionizing radiation will be written and approved.
  - e. Precautions and procedures to minimize exposure to ionizing X-ray radiation and in the purposes and procedures of protective devices employed.
    - Review all equipment lights that indicate the presence of X-rays inside the enclosure chamber; including X-ray tube “on” lights and shutter open lights.
    - Review interlock procedures; that the analysis chamber interlock is NEVER to be relied upon to close the shutter or shut off high voltage to the x-ray tube;
    - The software and/or the steps in the operating procedures must be utilized to close the shutter or turn off the X-ray tube; and the shutter shall be verified closed or the X-ray tube “off” before opening the analysis chamber door;
  - f. Review all operating and emergency procedures applicable to this equipment; including the current and signed Principal Investigator/Primary Operator agreements and ensure everything is accurate and ensure all understand them.
  - g. Review the current list of trained operators (separate from this in-lab training form); remove trained users no longer authorized to operate this equipment who will not be signing this in-lab annual training form; and ensure all current trained users are listed.
  - h. Review all required postings including the DHEC “Notice to Employees” and the Radiation Safety posting notifying where all authorized users may review DHEC regulations applicable to this unit.
  - i. Review and ensure the DHEC registration tag and the Radiation Safety Office tag is on the equipment; legible and secured with clear packing tape.
  - j. Ensure that everyone knows of their responsibility to notify Radiation Safety immediately if any operating procedure is not being followed, a control device is inoperable, or any other condition that may alter the safety of this equipment.
4. Authorized PIs may delegate responsibilities for training and completion of this form to an approved primary operator.

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**All annual re-training documentation must be completed on this form and submitted to Radiation Safety by January 31<sup>st</sup>.**

Please fax or email all completed forms to Radiation Safety at 803-777-5275 or [radsafe@mailbox.sc.edu](mailto:radsafe@mailbox.sc.edu).

**A copy of in-lab training records must be kept in the equipment notebook. Notebooks must be kept clean, neat, and free of all old documentation. The Radiation Safety Office will review and collect older records for storage or destruction per DHEC documentation regulations.**

**Training Record**

<b>PI:</b>	<b>DEPARTMENT:</b>
<b>BUILDING :</b>	<b>LABORATORY ADDRESS:</b>
<b>Equipment manufacturer:</b>	<b>Model / Serial #:</b>
<b>Trainer Name:</b>	<b>Signature and Date:</b>

**By signing below you hereby certify that you have received and understand the regulatory training requirements and all operating and emergency procedures; and will abide by them.**

	<b>Signature</b>	<b>First Name      Last Name (Please Print )</b>	<b>Date</b>
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**Add a continuation page if needed.**