

University at Buffalo
Environment, Health & Safety Services
APPLICATION TO USE RADIATION GENERATING EQUIPMENT
PRINCIPAL INVESTIGATOR AUTHORIZATION INSTRUCTIONS

Environment, Health & Safety (EH&S) Services administers a radiation protection program required under New York State Department of Health (DOH) Radiation Installation Certificate of Registration 14009844. To request authorization to use x-ray equipment as a Principal Investigator (PI) at the University at Buffalo (UB) under this registration, complete the "Application to Use Radiation Generating Equipment Principal Investigator Authorization" (form RMA-1X). The Radiation Safety Officer (RSO) and the EH&S Radiation Safety Division staff will check the application for completeness and forward it to the Radiation Safety Committee (RSC) for review. Upon approval by the RSC, EH&S will set up an appointment to implement the new x-ray permit. The qualifications for an authorized radiation generating equipment PI are as follows:

- Must be recognized as a member of the UB faculty or staff and have a definite and demonstrable application for the radiation emitting device requested.
- Must be the senior researcher of the project and **directly responsible for the radiation generating equipment use in the laboratory or clinic.**
- Must provide facilities suitable for the work proposed.
- Must have a minimum of one year's experience working with radiation generating equipment.
- Must provide documentation of successful completion of academic courses pertaining to, or demonstrate to the satisfaction of the Radiation Safety Officer (RSO), competence in and knowledge of:
 - 1) Principles and practices of radiation protection;
 - 2) Radioactive measurement standardization and monitoring techniques and instruments;
 - 3) Mathematics and calculations basic to the use and measurement of radiation;
 - 4) Biological effects of radiation; and
 - 5) Regulations contained in the Campus "Radiation Equipment Safety Manual."

All work involving the use of x-ray emitting machines must be performed in a safe manner and all exposures to radiation shall be maintained as low as reasonably achievable (ALARA).

GENERATION OF HAZARDOUS WASTE

Use of radiation generating equipment typically does not directly produce hazardous waste. However, other activities in labs or clinical settings may generate chemical, radiological, or biological waste. For example, waste associated with dark rooms must be properly stored and disposed of. University Facilities disposes of hazardous chemical and radiological waste at no direct cost to the generator. Arrangements for the disposal of regulated medical waste must be made by the department (not EH&S). Contact EH&S (829-2401) for specific instructions on biohazards, human blood, toxic, carcinogenic or other such hazardous material.

RADIATION DETECTION INSTRUMENT REQUIREMENTS

Portable radiation survey instruments are not usually required for x-ray users. Radiation surveys of shielding is performed by EH&S upon the initial installation of x-ray machines and every two years afterwards. Depending on the type of work being performed, an appropriate portable survey meter (such as an ion chamber), capable of detecting the energy of radiation produced, may be useful by some x-ray users (i.e., x-ray diffraction). Contact EH&S for more information. EH&S calibrates survey meters on a yearly basis.

ADDITIONAL INFORMATION

Experimental Protocols:

The most important part of the application is descriptive experimental protocols. Include the experimental procedures for each x-ray machine requested. For guidance, use a "Radiation Generating Equipment Experimental Procedures Application" (form RMA-42X) for each protocol. If animals are to be used, form RMA-42X is not required, but an

application must be approved by the Institutional Animal Care and Use Committee (IACUC).

The descriptions in your protocols should be complete enough so that the RSC can adequately understand the proposed work. If the description is too short or lacking specific safety related details, it will hold up the review process. Do not supply just a recipe or technical protocol. Provide a thorough description of each step and include the safety requirements needed. This process will also provide a training guide for workers who may not readily know the safety precautions required to maintain ALARA conditions.

Facilities:

Make a sketch of each x-ray room showing the location of radiation generating devices along with primary beam directions. Describe any shielding to be used and any other related facilities. For occupancy factors, provide a description of use of all spaces adjacent to the x-ray room.

Associate Investigators:

Associate Investigators (AIs) are those individuals (technicians, faculty or staff) working under the supervision of and directly responsible to a PI. Have each associate who will be working with radioactive material in your lab fill out form RMA-2X, "Application to Use Radiation Generating Equipment Associate Investigator Authorization". The PI is responsible for giving instruction on approved, safe methodology to personnel under his/her direction *prior* to the personnel assuming duties with, or near, radiation emitting devices. This initial training is documented on the form RMA-2X and includes:

- 1) Potential hazards associated with ionizing radiation in each area where the employee will work;
- 2) Appropriate radiation safety procedures, regulations;
- 3) In-house work rules;
- 4) Appropriate response to emergencies or unsafe conditions.

Use of X-Ray Machines during a Course:

Students participating in a course using radioactive material shall be adequately instructed in the applicable provisions of the "Radioactive Materials Safety Manual" (i.e., basic radiation protection procedures, dose limits, etc.). Contact EH&S prior to conducting a class involving radiation generating equipment.

Send the completed application with supporting documents to:

**EH&S Radiation Safety Division
14 Parker Hall
South Campus**