ORIGINAL

Radiation Safety Office *University of Massachusetts Lowell* *1 University Ave, Lowell MA 01854*	Document number: **HPP-X-ray** Revision: **A** Issue Date: **October 7, 2015**
WORK INSTRUCTIONS	
Analytical X-ray machines use	

1. PURPOSE

The purpose of this work instruction is to specify how to properly work with analytical X-ray machines at UMass Lowell

2. SCOPE

This applies to all analytical X-ray machines (e.g. X-ray Diffraction units, etc.) at UMass Lowell. The Radiation Safety Officer, or designee, can determine what items fall under these work instructions

3. RESPONSIBILITY

3.1. It is the responsibility of the Radiation Safety Officer (RSO) or designee to authorize individuals who can perform this procedure.

3.2. It is the responsibility of the Principal Investigator to ensure all users are trained and follow proper radiation safety, as determined by the radiation safety manual. The PI is also responsible for all evolutions occurring in their laboratory and as such shall notify the Radiation Safety Office of changes to the X-ray system that can possibly elevate radiation levels.

3.3. It is the responsibility of all personnel working with X-ray machines performing the above functions to read, understand, and abide by this work instruction and all other radiation safety procedures at the University of Massachusetts Lowell.

4. PROCEDURE

4.1. This procedure shall be performed only by those individuals authorized by the Principal Investigator (PI) and adequately trained in UMass Lowell radiation safety (online, quiz, site specific by PI).

4.2. If applicable, each individual performing this operation shall wear a passive radiation monitoring device (e.g. OSL dosimeter) on the trunk of his/her body (extremity monitor worn on the finger). If a radiation detector is required, each individual shall have access to a calibrated and operable radiation survey meter. NOTE: Radiation Safety will determine what controls and monitoring equipment (dosimetry, shielding, detectors, interlocks, etc.) is required based on the X-ray source and other parameters.

4.3. A prejob walk through should take place where this procedure will be read and walked through with all participants.

4.4. Ensure all applicable engineering controls (shielding material, interlocks, lights, etc.) are in place and fully functional (no holes drilled through shielding, etc.). Ensure adequate shielding around unused ports for X-ray diffraction units. NOTE: Radiation Safety approval is required prior to operating with removed or altered controls.

4.5. Avoid areas of radiation streamlining (where dose rates can be high and/or localized)

4.6. Secure and mark off any Radiation or High Radiation Areas with the approved signage. NOTE: Radiation Safety will need to re-asses if not already approved.

4.7. Restrict, monitor, and control access in/around the X-ray source to only those with training (as defined in this procedure. The X-ray machine shall not be run unattended unless approved by Radiation Safety.