

OSU Written Radiation Protection Plan for X-Ray Machine Registrants required by ODEQ 252:410-3-32

- Each Principal Investigator (PI) will comply with all Federal, State, local, and institutional regulations regarding the procurement, installation, testing, use, maintenance, and disposal of all machines and equipment capable of producing ionizing radiation while operating as a registered device under the Oklahoma State University X-Ray permit.
- Each PI will ensure that his machine or instrument is properly registered with the OSU office of Radiation Safety prior to first use and remains properly registered at all times.
- Each PI will ensure that machines are properly secured at all times so as to prevent operations by unauthorized personnel.
- Each PI will ensure that each machine is operated in accordance with manufacturer's operating and emergency operating procedures.
- Each PI will take appropriate security measures to ensure that only personnel trained for and authorized as a registered user for each machine use that machine. Note that lapsed training personnel, i.e. personnel who have gone past time requirements for refresher training, are no longer considered "trained" personnel.
- Each PI will ensure that only personnel authorized (in accordance with state regulations and OSU licenses) to do maintenance on equipment capable of producing ionizing radiation perform such maintenance.
- Each PI will ensure that proper radiation surveys are done on equipment under their cognizance. These include, but may not be limited to:
 - Initial installation;
 - At least once every 12 months after installation;
 - Following any change in the initial arrangement, number or type of local components in the system;
 - Following any maintenance requiring the disassembly or removal of a local component in the system;
 - During the performance of maintenance or alignment procedures if the procedures require the presence of a primary x-ray beam;
 - Any time observation of the local components in the system reveals an abnormal condition;
 - Whenever personnel and/or area monitoring devices show a significant increase over the previous monitoring period;
 - Whenever the PI has reason to suspect that the equipment may not be operating in accordance with manufacturer's specifications.

Any changes from normal reading should be investigated and reported to the Radiation Safety Office.

- Each PI shall ensure that operators are properly badged as specified by the Radiation Safety Office when operating the machine or equipment.

- Each PI shall ensure that all research is conducted in a manner that keeps exposure rates to authorized users and members of the general public as low as reasonably achievable (ALARA) and in every case below institutional limits (generally 100 mrem in any one calendar year). Note that actual exposures are generally far lower than these limits and in all cases the ALARA principle above applies.
- Each PI shall ensure that machine operating and safety features such as interlocks and shutdown mechanisms remain functional at all times. Machines are not to be operated with malfunctioning safety features, safety features overridden, or with faulty or malfunctioning indicators, e.g. a burned out light bulb on a mechanical interlock indicator is equivalent to a malfunctioning interlock since the status of the interlock cannot be confirmed by its normal means.
- Intentional exposure of live human subjects is strictly forbidden without the express consent of the Radiation Safety Committee and the OSU Institutional Review Board. Note that while it is not a “radiation safety” issue intentional exposure of vertebrate animals also requires approval of the OSU Institutional Animal Care and Use Committee.
- Any unintentional exposure that might result or might have resulted in personnel or members of the general public exceeding institutional limits, will be reported to the Radiation Safety Office immediately regardless of hour, date, or time, whether involved personnel are/were badged or not.