

WAC 246-229-0060 What are the minimum requirements for particle accelerator installation? (1) Shielding and safety design. The installation must include:

(a) Primary and secondary radiation barriers to comply with the radiation protection standards of WAC 246-221-010 and 246-221-060.

(b) If necessary, a ventilation system designed to limit exposure to airborne radioactive materials as follows:

(i) For restricted areas, limits are specified in WAC 246-221-040;

(ii) For unrestricted areas, limits are specified in WAC 246-221-070; and/or

(iii) For unrestricted areas, the facility must prohibit releases, venting, or otherwise discharging airborne radioactive material which exceeds the limits of WAC 246-247-040 or 246-221-290 Appendix A - Table II, unless authorized in WAC 246-221-180 or 246-221-070(2). To calculate, concentrations may be averaged over a period not greater than one year. Every reasonable effort should be made to prohibit releases of radioactive material to unrestricted areas.

(2) Controls, instrumentation, and readouts. All controls, instrumentation, and readouts must be clearly identified and functional on the particle accelerator control console.

(3) Safety interlocks. All entrances into a target room or other high radiation area must have interlocks that shut down the machine if a door is opened (e.g., barrier penetrated) during irradiation.

(a) Manual reset. If the interlock engages (shuts the machine off), the machine must stay off until manually reset at the console.

(b) Independent function. Each safety interlock must function independently of any other safety interlocks.

(c) Failsafe. All safety interlocks must ensure that any defect or component failure in the interlock system prevents operation of the accelerator.

(4) Emergency power cutoff switch system. An identifiable "scram" button or emergency power cutoff switch which stops irradiation must exist in all high radiation areas. If the switch is engaged (shuts off the machine), the system must prohibit the accelerator from restarting until the switch in the room is reset and the main console restarted manually. Use of this system is limited to emergency situations.

(5) High radiation area warning devices. For areas designated as high radiation areas, the registrant must:

(a) Identify barriers (including temporary) for and pathways to high radiation areas according to WAC 246-221-120, Caution signs and labels.

(b) Except inside treatment rooms in facilities designed for human exposure, install easily observable warning lights at area entrances that activate when radiation is being produced.

(c) Except in facilities designed for human exposure, install an audible warning device which activates for fifteen seconds prior to accelerator use in all high radiation areas. Instruct all personnel in the area as to the signal's meaning.

(d) Except in facilities designed for human exposure, install continuous radiation detection monitoring equipment. The equipment must be electrically independent of the accelerator control and interlock systems and be calibrated every six months at a minimum. The equipment must provide:

(i) A remote and local readout; and

(ii) Visual and/or audible alarms at the control panel, entrances to high radiation areas, and other appropriate locations.

[Statutory Authority: RCW 70.98.050 and [70.98.]080. WSR 02-14-050, § 246-229-0060, filed 6/27/02, effective 7/28/02.]