

Informational Bulletin 2024-03

September 26, 2024

To: Dental Facility Registrants

From: David M. Howe, Program Director, 

Radiation Protection Services

Subject: Use of Rectangular Collimation Versus Circular Collimation for Dental Intraoral X-Ray Machines

The Public Health Division, Radiation Protection Services (RPS) is releasing this informational bulletin to clarify recent Oregon Administrative Rules (OARs) regarding the addition of “rectangular” collimation as an option for dental intraoral x-ray machine.

Radiation Protection Services (RPS) amended OAR 333-106-0325(2) which now includes the use of rectangular collimation as a beam limiting option for all dental intraoral x-ray machines. RPS recommends the use of rectangular collimators as a means to practice the “As Low As Reasonably Achievable” (ALARA) principle.

RPS revised the OARs due to a recent released study from the National Institutes of Health showing that rectangular collimators, if used and installed correctly, can reduce radiation exposure to patients. Rectangular collimators limit the amount of delivered radiation to little more than the image receptor. In contrast, circular collimators have a larger amount of excess radiation around an image receptor which results in more unnecessary radiation to the patient.

The use of rectangular collimation does create a greater chance of x-ray cut off from misalignment between the x-ray beam and the image receptor, since it has a lower radiation field to the image receptor. RPS intends to do rulemaking specific to using a rectangular collimator. A first of two conditions will be that the operator is required to use a positioning indicating device (PID) for each exposure. [Note: A PID is a device used to indicate the beam position and to establish a definite source to surface (skin) distance]. The second condition will be that each rectangular collimator must be installed by an Oregon approved vendor. Pending the proposed rulemaking, Registrants will need to comply with the two above conditions to use a rectangular collimator.

If you need further clarification, please feel free to contact Brent Herring, Radiation Protection Services, 503-891-0098 or email; Brent.E.Herring@oha.oregon.gov.