



## Missouri Radiation Control Program Guidance Document/Frequently Asked Question

See below for regulatory guidance on the following issue. If you have additional questions, you may contact the Missouri Radiation Control Program at [MRCP@health.mo.gov](mailto:MRCP@health.mo.gov) or 573-751-6083

### Radiation Safety Compliance Guidance for facilities with small, minimal exposure x-ray machines (updated Aug 2015)

*Question: The radiation my facility's x-ray machine produces is minimal (Examples: XRF, cabinet x-ray machine, electron microscope, baggage/security, DEXA, routine dental). Why am I required to have surveys and shielding evaluations?*

While it is true that certain x-ray machines *typically* produce minimal exposures, obviously minimal exposure is not the same as zero exposure. Moreover, there are many different types of radiation-producing machines, used in many different ways, at many types of facilities. There has not yet been evidence presented to completely exempt an entire class of x-ray machines from the radiation control rules. Therefore, it is required that the owner of any radiation-producing machine demonstrate compliance with applicable rules. Two of these rules that impact *all* facilities are

- Periodic survey by a qualified expert (19 CSR 20-10.050 (1)), and
- Demonstration of adequate radiation shielding (19 CSR 20-10.190 (1))

It is important to note that a significant allowance has *already* been made due to recognition of minimal risk equipment through facility Classification, allowing less frequent safety inspections (after the initial one) If the *only* type of radiation equipment used by your facility consists of these minimal exposure risks, your facility type will be coded a Class D. This means that, after initial evaluation and survey, routine surveys will only need to be done every 6 years (as opposed to every 12, 24, or 48 months, which are more frequent periods required for Class A, B, or C facilities, respectively). Exceptions exist for facilities with compliance problems, or adding additional x-ray rooms or additional units.

Usage of MRCP-approved Qualified Experts (QE) is mandated to demonstrate compliance with the rules by both onsite surveys and shielding evaluations. Demonstrating compliance with the radiation safety regulations via consultation with a Qualified Expert is a necessary part of owning and using radiation-producing equipment.

A complete shielding evaluation/calculation *may not* be necessary, depending on the type of equipment used by your facility and how it will be utilized. But because of all of the different factors, that determination can only be made by a Qualified Expert. This evaluation (through on onsite area survey) can be done at the same time as the initial machine survey. However, if you wish to use the equipment prior to scheduling the onsite survey, that evaluation must be in writing prior to use. Upon receiving a written statement from the QE, Class D facilities may use the equipment for up to 90 days before the onsite survey. Regardless, a QE must evaluate in writing the use of the equipment for proper radiation shielding, *even if typical usage* is going to be portable or used at multiple locations. In these cases, the QE can evaluate the situation and make a simple statement to the effect that "no additional shielding is necessary" and this will be sufficient.

The following are applicable rules all owners/users of x-ray equipment must demonstrate compliance with:

192.430, RSMo: All sources of radiation shall be shielded, transported, handled, used and kept so as to prevent all users thereof and all persons within effective range of them from being exposed to unnecessary radiation.

19 CSR 20-10.050 (1) The [facility] shall provide for radiation surveys and monitoring sufficient to assure compliance with other rules of this chapter. The radiation survey and monitoring shall be performed by, or under the direction of, a qualified expert using suitable instruments and methods for measuring radiation.

19 CSR 20-10.050 (2) Until an actual radiation survey can be performed, a written statement made by a qualified expert based on...analysis of the situation shall be acceptable as evidence of the absence of radiation hazard in a given area.

19 CSR 20-10.190 (1) The requirements for room shielding shall conform to the requirements defined in the various handbooks published by the [National Council on Radiation Protection (NCRP Report 145, 147, 151 etc.)].

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