







Office of Waste, Air, Radiation & Remediation

Final Rulemaking: Radiation Safety Requirements for Non-Healing Arts Radiation Generating Devices

Environmental Quality Board Meeting November 15, 2022

Statutory Requirements

- Radiation Protection Act of July 10, 1984 (P.L. 688, No. 147), 35 P.S. Sec. 7110.101, et seq.
- Section 302(a) of the Act authorizes the Board to "adopt the rules and regulations of the department to accomplish the purposes and carry out the provisions of [the] act."
- Section 1920-A of the Administrative Code,
 April 9, 1929 (P.L. 177, No. 175), as amended,
 71 P.S. Sec. 510-20.

Background

- Radiological regulations in Chapter 227 for non-medical radiation-producing devices have not been updated since 2009, immediately after the Commonwealth became a Nuclear Regulatory Commission (NRC) Agreement State.
- Updates are needed to address technological advances and the resulting new devices that are not covered by the existing regulations.
- The devices are most common in the industrial field, including gauges, analyzers, and laboratory instrumentation.

Purpose of Rulemaking

- Create a concise Chapter 227a for non-medical X-ray operations by separating out field radiography into Chapter 225.
- Incorporate current Conference of Radiation Control Directors (CRCPD) Suggested State Regulation (SSR)
 Part H and Part E into this new Chapter.
- Revise the definition of "accelerator or particle accelerator" in Chapter 228 to exactly match the U.S. NRC's definition.



Chapter 225 Revisions

- Makes requirements applicable to field radiography.
- Removes definitions that were added to the new Chapter 227a.
- Adds definition of radiographic X-ray systems to accommodate revisions to § 225.101a.
- Revises records retention requirements to 5 years to maintain consistency with other current regulatory provisions.

Chapters 227 Revisions

- Chapter 227 is rescinded and reserved.
- Regulations from this chapter were moved to the new Chapter 227a for non-healing arts radiation-producing devices.



Chapter 227a Revisions

- The new Chapter 227a includes all non-healing arts radiation-producing devices except field radiography.
- Incorporates regulations for new human-use individual X-ray security screening devices, which are primarily used to control contraband, drugs, and other illegal items from entering correctional facilities.
- Some examples of these devices are Analytical X-ray Gauging Equipment, Electron Microscopes, and X-ray Calibration Systems. Examples shown on next slide.



Radiation-Producing Devices



Electron Microscope



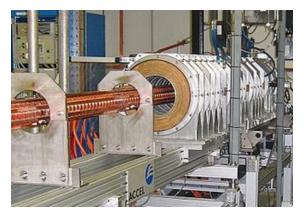
X-ray Analyzer



Radiography Unit



X-ray Security
Scanner



Accelerator



Diffraction Unit



X-ray Gauge

Photos: https://en.wikipedia.org

Chapter 227a Revisions

- Incorporating regulations for new human-use individual X-ray security screening devices.
- These are used to control contraband, drugs, and other illegal items from entering correctional facilities.



Chapter 228 Revisions

 Revised the definition of accelerator to match the federal definition.



Costs and Compliance

- There are approximately 1,400 current radiation-producing device Registrants affected by this rulemaking.
- A small number have an added initial training cost for the individual X-ray security screening devices.
- DEP regional inspectors will provide support to these registrants.



Public Comments

- IRRC and one member of the public submitted comments on the proposed rulemaking.
- Concerns included:
 - Duplicative requirements
 - Definitions of terms not used and substantive language added to definitions
 - Incorrect cross-references
 - Specifying an increase of radiation exposure



Public Comments (cont.)

- Records required and retention period
 - 5-year retention period added for uniformity
- Registrants demonstrating compliance
 - Performance evaluation added to § 227a.21
 - Clarified § 227a.22(5) on how compliance is determined during inspections
- Security device training requirement excessive
 - Training not excessive because operators unlikely to have any previous training



Conclusion

- With continuous advances in non-medical Xray devices, updating the radiological health regulations is vital for protection of workers and the public.
- DEP and the Radiation Protection Advisory Committee (RPAC) have worked together since early 2019 to develop these regulations.



Recommendation

DEP recommends that the Board adopt this final rulemaking.

 The final rulemaking would take effect 90 days after publication in the *Pennsylvania* Bulletin.











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