

Proposed 10 CFR Part 57

“Licensing Requirements for Microreactors and Other Reactors with Comparable Risk Profiles”

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Purpose

- Current licensing frameworks are not optimized for high-volume, rapid deployment of commercial microreactors and other reactors with comparable risk profiles.
- Establish a streamlined regulatory framework, supported by multiple licensing pathways, that leverages design standardization to efficiently license microreactors and other reactors with comparable risk profiles.
- The licensing process would complete, as much as possible, the safety, security, and environmental reviews with public engagement at one time, by leveraging a joint application for a construction permit (CP) and the associated operating license(s) (OL).
- Site reviews would verify that the site characteristics are within the reactor design envelope where pre-existing data can be leveraged as much as possible.
- The reactor design envelope would need to meet two entry criteria to justify an alternative risk-informed and performance-based regulatory framework for various requirements and operational programs (e.g., safety, security, environmental).

Rule Structure

Focused Part 50 technical requirements and Parts 50 and 52 licensing and approval frameworks.

- Subpart A – General Provisions
- Subpart B – Eligibility
- Subpart C – Construction Permits and Operating Licenses
- Subpart D – Manufacturing Licenses
- Subpart E – Standard Design Approvals
- Subpart F – Reporting of Defects and Noncompliance
- Subpart G – Irradiated Fuel Storage, Decommissioning, and License Termination Requirements
- Subpart H – Maintaining and Revising Licensing-Basis Information
- Subpart I – Transportation Package Design Certification
- Subpart J – Physical Security Requirements
- Subpart K – Categorical Exclusion
- Subpart L – Inspections
- Subpart M – Material Control and Accounting
- Subpart N – [Reserved]
- Subpart O – Enforcement
- Subpart P – Operator Licensing and Human Factors
- Subpart Q – Reporting and Other Administrative Requirements
- Part 26, Subpart P – Fitness For Duty

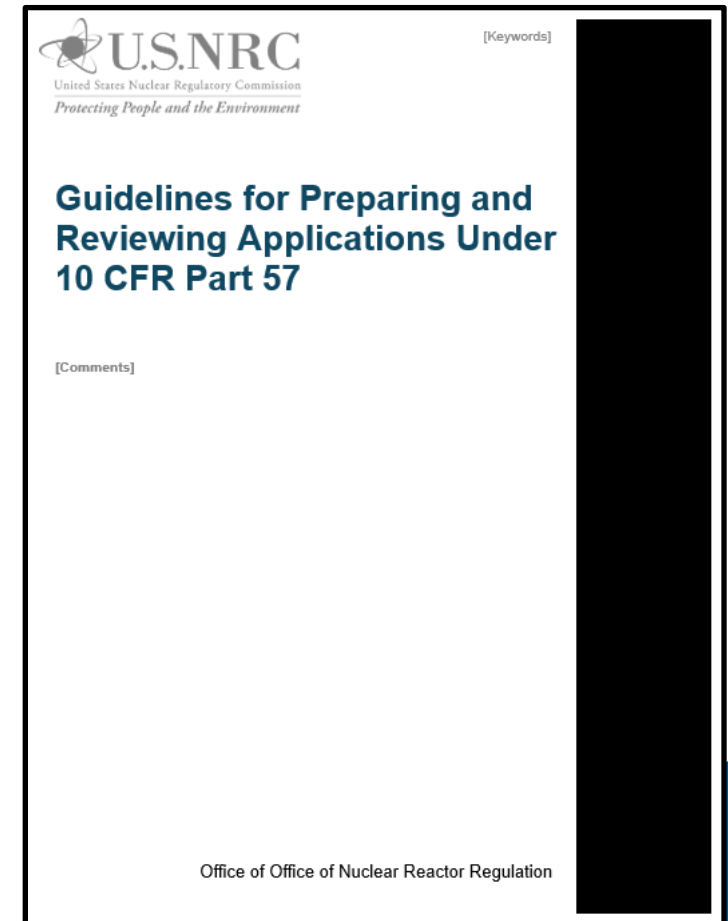
Part 57 Subpart B - Eligibility

- **Intent: Attract reactor designs with high thermal and shutdown margin for rapid, high-volume licensing.**
- Utilizes two “Entry Criteria” and six “Design Criteria Attributes,” which describe attributes of microreactors and other reactors with comparable risk profiles.
- Not defining microreactors and other reactors with comparable risk profiles by power level.
- Given the wide range of reactor types and their functional characteristics, this proposed rule would emphasize these “attributes:” reactivity control, heat removal, fission product retention, shielding, radioactive effluent control, and security by design.
- Attribute-based approach emphasizes the capability to prevent or mitigate accidents without active systems or operator intervention.
- Recognizes certain reactors with inherently safe and passive design features with favorable safety profiles may appropriately be designed with higher power levels than other reactor designs.

Part 57 Implementation Guidance

Draft NUREG-2271, “Guidelines for Preparing and Reviewing Applications Under 10 CFR Part 57”

- Patterned from existing licensing practices (e.g., non-power production and utilization facilities) and guidance (NUREG-1537).
- Combines applicant and staff guidance into one document for developing and reviewing submittals under Part 57.
- Provides a flexible, graded hazard analysis approach consistent with DOE authorization methodologies.



Questions?