


NRC's Final Regulations for Yucca Mountain

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Outline



- Safety Approach
- Multi-Step Process
- Performance Assessment
- Reasonable Expectation

Safety Approach

- Safety Analyses
- Safety Plans/Procedures
- Continued Safety Oversight

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Safety Analyses

- Perform safety assessments (e.g., develop design basis events, screen FEPs)
- Evaluate radiological exposure (including ground-water protection and human intrusion)
- Update assessments (63.24, 63.51)
- Subject to NRC review

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Safety Plans/Procedures

- Train, test, certify, and requalify personnel (Subpart H)
- Emergency plans for potential releases (Subpart I)
- Waste retrieval – 63.11(e)

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Continued Safety Oversight

- Continued repository oversight – 63.51(a)(3)
 - land use controls
 - permanent markers
 - records and archives
- Repository monitoring (post-permanent closure) - 63.51(a)(2)

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Multi-Stepped Process Anticipates New Information

Construction authorization based on site characterization results



License to receive and possess informed by construction activity and performance confirmation program



Amendment for permanent closure updated by performance confirmation program

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Performance Assessment

- Account for uncertainties (e.g., parameter ranges and alternative conceptual models)
- Technical basis for inclusion or exclusion of FEPs
- Technical basis for models used in performance assessment (e.g., process-level models, empirical observations including natural analogs)
- Identification and description of barriers

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Reasonable Expectation

- Compliance based upon full record (63.304)
 - less than “absolute” proof
 - accounts for inherently greater uncertainty of long-term projections
 - does not exclude important parameters from assessments due to difficulties to precisely quantify
 - focuses performance assessment on full range of defensible and reasonable parameter distributions

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Compliance Determination

- Confidence that DOE has or has not demonstrated compliance is the essence of NRC's licensing process
 - Commission considers full record (irrespective of term used)
 - “reasonable expectation” allows Commission necessary flexibility

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