Perspective on Safety Approach

In

10 CFR Part 63

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Lawrence Kokajko (Division of High Level Waste Repository Safety, NRC)
Outline

1) Roles and Responsibilities

2) Safety Approach

3) Objectives of Risk Informed Approach

4) Confidence in Safety
Roles and Responsibilities

- NRC and DOE have different roles
  - DOE responsible for design, construction and operation
  - NRC must assure DOE complies with rules

- As an independent agency, NRC does not participate in design or site selection

- Review scope determined by application presented
Part 63 Approach

• Well-defined, incremental decision points
  - allow for continual learning
  - progressive confidence
  - decisions subject to critical review based on new information (retrievability)
Phased or Multi-Stepped Decisions in Part 63

- 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
Safety Approach

• Safety Analyses
• Safety Plans and Procedures
• Continued Safety Oversight
Safety Analyses

• Perform safety assessments
  - Pre-closure (structures, systems and components important to safety)
  - post-closure (barriers important to waste isolation)

• Evaluate potential radiological exposures
• Update safety assessments
• Subject to NRC review
Safety Plans and Procedures

**Pre-Closure**
- Train, test, certify, and requalify personnel
- Emergency plans for potential releases

**Post-Closure**
- Waste retrieval
- Performance Confirmation
Continued Oversight of Safety

• Continued repository oversight – 63.51(a)(3)
  - land use controls
  - permanent markers
  - records and archives

• Repository monitoring (post-permanent closure) – 63.51(a)(2)
Objectives of Risk Informed Approach

• Provides an “informed” and focused approach for NRC’s review
  - identification of important parameters, models, and assumptions
  - identification of important uncertainties
  - focus review on technical support in key areas of performance assessment
Post-Closure Safety Analyses

- Overall understanding of repository system (i.e., capabilities of each barrier - 63.115)
- Performance assessment includes:
  - natural features of geologic setting
  - design features
  - features, events and processes that may be detrimental to performance
Confidence in Safety

• **Independent lines of evidence** – 63.114(g)
  - comparisons with detailed process-level models, laboratory testing, field investigations, and natural analogs

• **Performance Confirmation Program** - 63.131
  - tests, experiments, and analyses conducted to evaluate the adequacy of the information used to demonstrate compliance
  - provides additional data, where practicable
  - updates performance assessment
Performance Confirmation Plan

• Identifies extent and nature of confirmatory information
  - in-situ experiments, monitoring, laboratory and field testing
  - barriers functioning as intended and anticipated
  - risk significant assumptions and uncertainties
Summary

• Building confidence is iterative

• Part 63 provides well-defined decision points based on continual learning

• Demonstration of safety provided in safety assessments and the supporting technical bases

• Forward looking approaches to further ensure safety (performance confirmation program, and continued oversight)