

# **Perspective on Safety Approach In 10 CFR Part 63**

Presented to:

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# 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)