NRC'S APPROACH TO SUSTAINING LONG-TERM PROTECTION AT NRC LICENSED SITES

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Outline

Introduction/background

Total system approach

Limiting restricted use sites

Draft decommissioning guidance

Other NRC regulations

Introduction/Background

NRC's License Termination Rule (LTR) for decommissioning (10 CFR 20 Subpart E)

License termination ends NRC's involvement

LTR's risk-informed performance-based approach

NRC prefers unrestricted release, but allows restricted use option

LTR addresses issue of sustaining protection for restricted use

Restricted use implementation issues

Total System Approach for Restricted Use Sites

Reliance on total system with six elements

Six elements contribute to protection

Six elements provide defense in depth

Risk-informed, graded approach tailored to specific site

Legally Enforceable Institutional controls

- Legal/administrative mechanisms
- Restrictions on adverse site access and land uses (i.e., human disruptions)
- Compliance with 25 mrem/yr dose criterion with restrictions
- Risk-informed, graded approach to select type of control and restrictions
- Legal enforceability
- Durable institutional controls for higher risk sites (government ownership or control, 5-year reviews, new NRC IC options)

Engineered Barriers

- Man-made structures separate from institutional controls
- Control natural and human disruptions
- Risk-informed graded approach to select specific barrier(s)
- Use of robust barriers (no reliance on active ongoing maintenance)
- Evaluate degradation of barriers

Monitoring and Maintenance

- Risk-informed approach: monitor disruptive processes that could cause non-compliance
- Monitoring/surveillance to detect indicators of potential disruptive processes
- Maintenance includes corrective actions
- Preference for robust designs that minimize reliance on active ongoing maintenance

Independent Third Party Oversight

- Provides oversight independent of site owner/custodian
- Assures that custodian maintains controls and maintenance

Agrees to act as a backup to custodian

Government entity or NRC under two new NRC IC options

Sufficient Funding

LTR requires sufficient financial assurance for control and maintenance

Trust fund independent of owner/custodian

Annual fund income pays for annual cost of controls and maintenance

Trust fund balance not depleted

Dose Caps for a Safety Net

LTR recognizes the potential for failure of institutional controls

Calculate dose assuming failure of institutional controls/degradation of engineered barriers

Comply with dose "cap" of 100 mrem/yr (NRC's public dose limit) or 500 mrem/yr

Dose caps provide a safety net

Limiting Restricted Use Sites

Existing decommissioning sites limited by LTR criteria and decommissioning process

New rulemaking will reduce future decommissioning problems, including future restricted use sites

Draft Decommissioning Guidance

Nine LTR issues addressed by draft guidance in NUREG-1757 Supplement 1

Restricted use and IC are one issue

Risk-informed graded approach for IC

Two "last resort" IC options involving NRC

Long-term control, possession only license

NRC legal agreement/restrictive covenant

Enhancements to seeking advice from affected parties

Risk-informed graded approach for engineered barriers

Risk-informed approach to monitoring and maintenance

Other NRC Regulations for Sustaining Protection

Low level waste disposal sites

Regulatory basis under 10 CFR Part 61

IC for 100 years to allow decay of Class A and B waste

Engineered barriers for 500 years to allow decay of Class C waste

Federal or State ownership and control

NRC license for 100 year IC period

Engineered barriers designed to remain effective without active maintenance

Uranium recovery sites

Statutory basis under UMTRCA and regulatory basis under 10 CFR 40 App. A

State or Federal ownership and control

NRC oversight under a general license

Engineered barriers designed to remain effective without active maintenance