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UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Risk-Informed Applications

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Presentation Outline

- Regulatory Guidance for Risk-Informed Applications
- Risk-Informed Technical Specifications
- Risk-Informed Standard Review Plan
- Risk-Informed Regulatory Guidance for New Reactors
- Conclusions

Regulatory Guidance for Risk-Informed Applications

- Regulatory Guide 1.174: Risk-informed decisions on plant-specific changes to the licensing basis
- Regulatory Guide 1.175: Risk-informed inservice testing
- Regulatory Guide 1.177: Risk-informed Technical Specifications
- Regulatory Guide 1.178: Risk-informed inservice inspection
- Regulatory Guide 1.200: PRA technical adequacy
- Regulatory Guide 1.201: Risk-informed categorization of SSCs (10 CFR 50.69)
- Standard Review Plan: NUREG-0800, proposed Introduction

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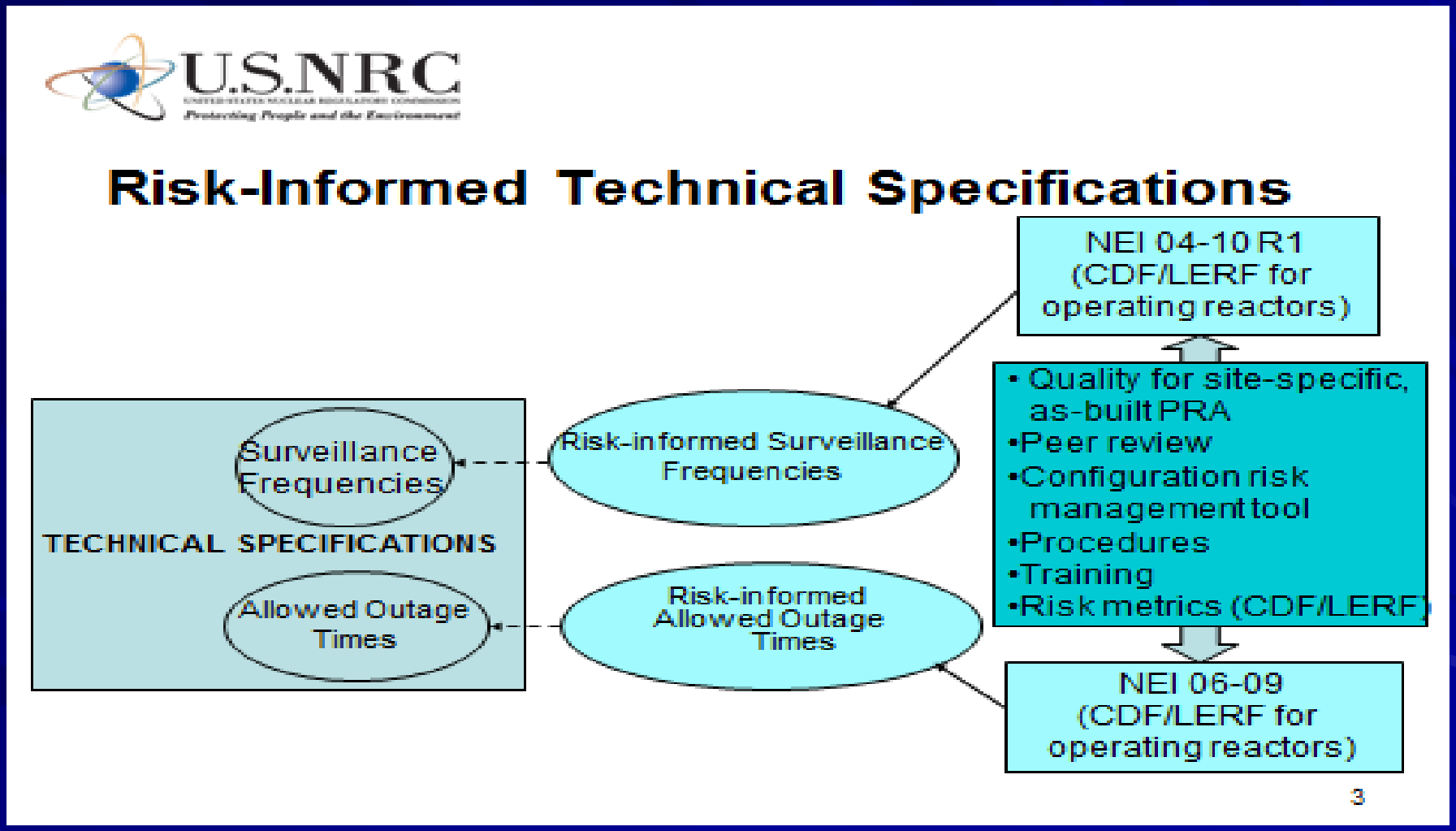
Risk-Informed Technical Specifications



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Risk-Informed Technical Specifications (cont.)

- NRC-endorsed industry guidance assumes:
  - Technically adequate site-specific, as-built PRA, incorporating operating experience
  - Peer review of PRA
  - Configuration risk management tool available for review
  - Procedures and training information available for review
- DC/COL-ISG-08 (New Reactors): "Interim Staff Guidance on the Necessary Content to Plant-Specific Technical Specifications for a Combined License" (ML082520707)

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Risk-Informed Technical Specifications (cont.)

- Continue public meetings with stakeholders discussing acceptable “methodology”
- Develop additional regulatory guidance addressing “methodology”
- COL applicant/licensee submit information based on acceptable “methodology”

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Risk-Informed Standard Review Plan

- Integration of risk insights into reactor reviews enables NRC staff to focus on the most important areas of contributing to plant safety and enhance the efficiency and effectiveness of the review
- Commission direction to more fully integrate the use of risk insights

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Risk-Informed Standard Review Plan (cont.)

- Proposed use of "regulatory controls" to supplement or replace performance-oriented acceptance criteria in SECY-2010-0456 (February 18, 2011)
  - Regulatory controls include: Technical Specifications; availability controls; Initial Test Program; Maintenance Rule; Reliability Assurance Program; Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)
- Risk significance used to determine extent of regulatory control use
- Waiting for Commission response to SECY-2010-0456

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Standard Review Plan Example

- Station Service Water System: Nonsafety–related, risk significant

Acceptance Criterion	Current Review	Risk-Informed Review
GDC 2 – protection against natural phenomena	Technical analysis and evaluation	Technical analysis and evaluation
GDC 4 – environmental and dynamic effects	Technical analysis and evaluation	Technical analysis and evaluation
GDC 45 - inspection	Technical analysis and evaluation	Consider programmatic requirements (initial plant testing, ITAAC*)
GDC 46 - testing	Technical analysis and evaluation	Consider programmatic requirements (reliability assurance program, ITAAC*)

* ITAAC: Inspections, Tests, Analyses and Acceptance Criteria

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Risk-Informed Standard Review Plan (cont.)

- Availability (technical adequacy and timing) of risk significance information for incorporation in regulatory guidance
- Determination of appropriate supplementation or replacement of performance-based acceptance criteria
- Administrative incorporation of risk insight information

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Risk-Informed Regulatory Guidance for New Reactors

- Policy decision on enhanced safety for new reactors
- Options include:
  - (1) Status quo
  - (2) Revise guidance, as necessary
  - (3) Establish new, lower metrics
- Addressing challenges:
  - Obtained stakeholder input
  - Requested Commission direction (SECY-10-0121) , including October 2010 briefing

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Risk-Informed Regulatory Guidance for New Reactors (cont.)

- Addressing challenges (cont.):
  - Received Commission direction Staff Requirements Memorandum March 2, 2011
    - Reaffirmed sufficiency of existing safety goals, safety performance expectations, subsidiary risk goals and associated risk guidance, key principles and quantitative metrics for risk-informed decision making for new reactors
    - Directed staff to engage with external stakeholders in series of tabletop exercises
- Next Steps:
  - Public workshops scheduled:
    - Risk-informed inservice inspection (5/4/11)
    - Risk-informed technical specifications (allowed outage times)/10 CFR 50.65(a)(4) (5/26/11 – tentative)
    - 10 CFR 50.69 (passive systems) (June 2011)
    - Risk-informed technical specifications (surveillance frequencies) (June 2011)
    - 10 CFR 50.69 (July 2011)

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Conclusions

- Risk-Informed applications may be included in design certification and combined license applications
- Risk information may be a valuable tool to increase the efficiency and effectiveness of NRC staff review