Plans for Increasing NRC Staff Capabilities to Use Risk Information in Decision-Making Activities

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NRC Has a Longstanding Commitment to Increasing the Use of Risk Informed Decision-Making (RIDM)

- PRA Implementation Plan, 1994
- Risk-Informed Regulation Implementation Plan, 2000
- Risk-Informed and Performance-Based Plan, 2006 – Present
- Risk Management Regulatory Framework, 2012

→ **Current Approach**

Significant Progress Has Been Made but Cultural, Process, and Technical Challenges Still Remain

1. Staff members have varying degrees of awareness, knowledge, and support for RIDM processes and applications.
2. The staff is working to more fully integrate reviews to include complementary insights from traditional engineering and risk assessment approaches.

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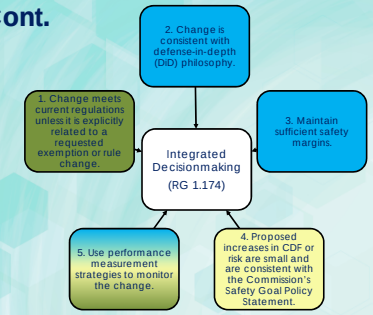
Challenges Cont.

3. Guidance for reviewing formal "risk-informed" submittals is well established. Guidance for the use of risk insights in other types of licensing reviews could be enhanced.



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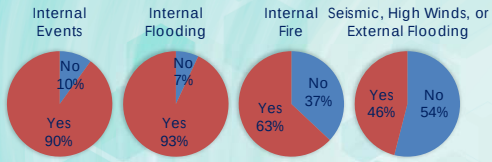
Challenges Cont.

4. Licensee probabilistic risk assessments (PRAs) have varying levels of maturity limiting generic applicability of risk-informed initiatives.

Are models across the fleet peer-reviewed?*



*Source: 2013 letter from NEI to NRC (ADAMS Accession No. ML13354B997)

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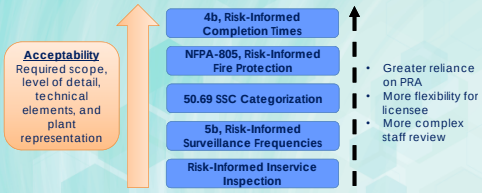
Challenges Cont.

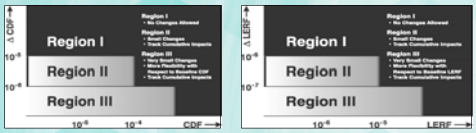
4. *Licensee probabilistic risk assessments (PRAs) have varying levels of maturity limiting generic applicability of risk-informed initiatives.*

Level of PRA Acceptability Depends on the Application



Challenges Cont.

5. Unrealistic PRA modeling assumptions can mask or change high-risk contributors leading to over or underestimates of total risk thereby potentially affecting operational flexibility.
6. Aggregated quantitative risk values can approach risk acceptance guidelines.



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NRC Has a Cross-Cutting Approach to Overcome Challenges

I. Evaluate and Update Guidance
II. Develop a Graded Approach for Using Risk Information in Licensing Reviews
III. Enhance Mandatory Training Requirements Related to RIDM for Managers and Staff
IV. Advance Risk-Informed Initiatives
V. Enhance Communication on Risk-Informed Activities

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NRC Has a Cross-Cutting Approach to Overcome Challenges

Strategy / Challenge	Strategy I Evaluate and Update Guidance	Strategy II Develop Graded Approach	Strategy III Enhance Staff Training	Strategy IV Advance Risk Initiatives	Strategy V Increase Commun.
1. Knowledge and Support	X		X		X
2. Review Integration	X	X	X		X
3. Guidance Development	X	X	X		X
4. PRA Acceptability				X	X
5. PRA Realism	X			X	X
6. Risk Aggregation	X			X	X

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A 'Living' RIDM Action Plan Provides a Framework for Implementing Strategies

- Expand use of review teams with risk analysts and technical staff
- Broaden understanding of risk and risk insights
- Apply a graded approach for using risk information in licensing reviews
- Address RIDM related recommendations from an NRC differing professional opinion panel report
  - Evaluate guidance
  - Evaluate use of internal risk-informed tools
- Evaluate the use of LERF in various regulatory applications

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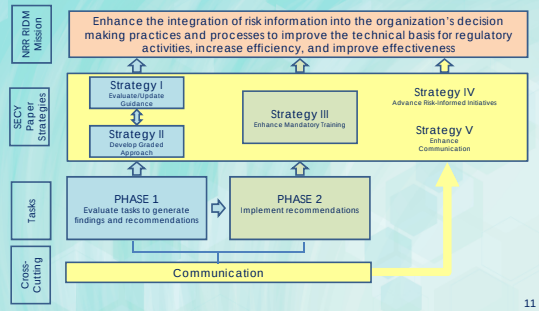
Action Plan Cont.



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The NRC Maintains its Commitment to Increasing the Use of RIDM

- Staff recognizes the evolving cultural, process, and technical challenges associated with increasing the use of RIDM.
- Staff has articulated a strategic vision for addressing challenges for the reactor program.
- A 'living' action plan has been developed and is enabling positive change towards increased use of RIDM.

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References

- U.S. Nuclear Regulatory Commission, Policy Issue, SECY-17-0112, "Plans for Increasing Staff Capabilities To Use Risk Information in Decision-Making Activities," (ADAMS Accession No. ML17270A197).
- Action Plan: Risk-Informed Decision-Making - Operating Reactor Business Line (CAC No. A11008) (ADAMS Accession No. ML18005A911).

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Acronyms

- CDF: Core Damage Frequency
- LERF: Large Early Release Frequency
- DID: Defense-In-Depth
- F&O: Fact and Observation (Finding)
- LAR: License Amendment Request
- NEI: Nuclear Energy Institute
- NFPA: National Fire Protection Association
- NRR: Office of Nuclear Reactor Regulation
- NTTF: Near Term Task Force
- PRA: Probabilistic Risk Assessment
- RG: Regulatory Guide
- RICT: Risk-Informed Completion Time
- RIDM: Risk-Informed Decision-Making
- RITS: Risk-Informed Technical Specifications
- SFCP: Surveillance Frequency Control Program
- SSC: Structure, System, or Component
- SR: Surveillance Requirement
- SRM: Staff Requirements Memorandum
- TS: Technical Specification
- TSTF: Technical Specification Task Force

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