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NRC RISK TOOLS ENHANCEMENT PROGRAM

March 18, 2010

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Agenda

- Purpose of Meeting
- Background
- Why RTE Program?
- Objectives of RTE Program
- RTE Process
- Selected RTE Activities
- Summary

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Purpose of Meeting

- Inform external stakeholders of NRC Risk Tools Enhancement (RTE) Program

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Background

- Risk tools are used to support several programs within the Agency such as:
  - Reactor Oversight Process (ROP)
  - Incident Investigation Program
  - Notice of Enforcement Discretion (NOED) request reviews
  - Emergency response activities

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Why RTE Program?

- Capitalize on the experience of Headquarters and Regional staff
- Understand the full scope of desired enhancements
- Coordinate our activities to update and enhance the NRC risk tools

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Major Objectives of RTE Program

- Continue to provide a suite of high quality NRC risk analysis tools
- Provide appropriate training information associated with each risk tool
- Continue to enhance the efficiency and quality of risk assessments in regulatory activities
- Maintain effective communication of risk assessment activities among involved NRC staff and management

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RTE Process

- Information Gathering Phase (May-July 2009)
- Organization of Information and Prioritization of Actionable Items (July-October 2009)
- Development and Issuance of the Program Plan (October 2009-February 2010)
- Implementation of Program Plan
  - Continuous since October 2009

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Selected RTE Program Activities

- RASP Handbook Revisions
- Low Power and Shutdown Risk Tools
- SPAR Model Development and Maintenance
- Saphire 8 Improvements

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RASP Handbook Background

- RASP Handbook remains a living document
- Expanded the RASP Users Group to
  - Include Regional SRAs
  - Review comments and recommend fixes
- Current focus areas
  - Common cause failure analysis
  - Human reliability analysis (HRA) methods

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RASP Handbook Revisions

- Vol. 1, Internal Events, "Risk Assessment of Operational Events"
  - Feedback from SRAs, NEI/industry, and 5 INL reviewers (Revision 1.03, August 2009)
  - Common Cause Failure (CCF) analysis in event assessment (Revision 2)
  - Human reliability analysis (HRA) in event assessment (recovery and repair actions), pending results of joint NRC-EPRI HRA evaluation project (Revision 3)

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RASP Handbook Update

- RASP Handbook Update from RTE Program
  - Crediting alternative mitigation strategies
  - Evaluation of degraded conditions of support systems causing initiating event
  - Method for estimating frequency of tornadoes/hurricanes

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Low Power and Shutdown Risk Tools

- ROP has seen an increase in the number of shutdown findings
- Low power and shutdown risk assessments are very unique and individualized
- An effort is underway to develop an integrated plan to enhance our ability to assess low power and shutdown operations

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SPAR Model Development and Maintenance

- NRC currently maintains 77 Level 1, Internal Events SPAR Models
  - 4 updated shutdown SPAR models have been developed (3 more planned in FY2010)
  - 15 external event models (based on IPEEE)
  - 3 Level 2 demonstration models
- Models are periodically updated and results compared to licensee PRAs
  - Parameter updates based on data collection and analysis activities
  - Revised to reflect major plant modifications (~12 models/year)

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SAPHIRE 8 Improvements

- Transitioning from current SAPHIRE Version 7
- SAPHIRE 8 has improved graphical user interface to support inspector use of the SAPHIRE code
  - Includes user-friendly SDP Phase 2 workspace to eventually replace the hardcopy SDP Notebooks
  - Staff working on development of Desktop Risk Guides to aid transition from SDP Notebooks to SAPHIRE 8
- Completing independent verification and validation effort to ensure high level of quality
- Desktop Risk Guides

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Summary

- RTE Program is a structured, coordinated effort to enhance NRC risk tools
- Enhanced risk tools facilitate efficient and quality risk assessments in regulatory activities
- Effective communication of RTE efforts among NRC staff is maintained throughout program implementation

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Public Participation