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# PRA QUALITY & SCOPE

Presented by:

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Session T3 – Risk Informed Activities



An SKF Group Company

**Technical Quality**

**Methods & Approaches**

Quality  
Risk  
Information

Results  
Interpretation

Application  
Methods

Treatment  
of Limitations

Application-Specific  
Guidance

Peer Review

Documentation

Technical Attributes

PRA Scope

Accepted methods/  
PRA Standards/  
NEI 00-02

Applicability

Capability

# INDUSTRY PEER REVIEW PROCESS

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- NEI 00-02 Standard Peer Review Process for Internal Events PRAs
- Completed for All U.S. Plants
- Valuable Feedback to Utilities
- Useful Input to Standards Development
- Informal Basis for Establishing Quality for On-going Risk-informed Applications

# ASME PRA STANDARD

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- 3+ Years of Development (Utilities, NRC, Contractors)
- Defines “What” Must Be Done, Not “How”
- Based on Three “Capability Categories”
- Addendum A Issued in 2003 to Address Reg. Guide 1.200 Comments
- 2003 Trial Application at San Onofre Found:
  - Significantly Increases Expectations for ALL PRAs
  - Multiple Interpretations of Requirements
  - Difficulty in Determining When Requirements Were “Met”
- Addendum B Writing Team Formed to Address Trial Application Findings

# ANS EXTERNAL EVENT PRA STANDARD

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- Issued in Late 2003
- Addresses Seismic, High Winds, External Flooding
- Includes Requirements for Both Seismic PRA (SPRA) and Seismic Margin Assessments (SMA)
- EPRI Trial Application Completed in 2003
  - SPRA (San Onofre, Surry)
  - SMA (Catawba)
- SPRA Requirements Raise the Bar
- NRC Reviewing for Incorporation into RG 1.200

# OTHER ANS STANDARDS

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- ANS Standard on Low Power/Shutdown PRAs
  - Draft Issued for Limited Review
  - Significant Comments
  - Expected Completion: 2005
  
- ANS Standard on Fire PRAs
  - Being Coordinated with NRC/EPRI Fire PRA Re-baselining Project
  - Drafts To Be Developed This Year
  - Expected Completion: 2005

# IMPACT OF STANDARDS

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- PRA Standards Raise the Bar, Especially in Documentation
- Costs:
  - Significant Resources Required to Meet ASME Standard (man-years)
  - Significant Upgrades Required to Meet ANS Seismic PRA Standard (man-years)
  - Resources Required for Additional Standards Unknown
- Benefits:
  - Reduced NRC Staff Review
  - Additional Benefit Under 50.69
  - Enables Additional Applications?

# NEI 00-04 APPROACH

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- Supports 10CFR50.59 Categorization of SSCs Based on a Risk-informed Approach
- Requires Internal Events PRA That Meets Capability Category II of ASME PRA Standard
- Other Risk Sources Can Be Addressed Using PRA or Alternative Qualitative/Screening Method (e.g., FIVE, SMA)
- When Qualitative/Screening Method is Relied Upon, Categorization Process is Applied Conservatively

# MY VIEWS

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- Role of Standards:
  - Some PRA Inputs Are **Necessarily** Judgmental
  - Peer Review Are An Essential Part of PRA Quality
  - Standards Useful in Focusing Peer Review and Reducing NRC Staff Review of PRAs
  - Will Not Make PRAs of Different Risk Sources Equivalent
- Risk-Informed Applications:
  - Scope & Type of Risk Information Required Can Only Be Determined in the Context of the Decision Being Made
  - There Are A Lot of Ways to Use Risk Information – Not a One-Size-Fits-All Proposition
  - Limitations in PRA Technology May Limit Applications
  - Application-specific Guidelines Will Always be Necessary
- Biggest Threat to Risk-informed Regulation:
  - Pre-occupation with Bottom Line Numbers/Numerical Guidelines