

# **Risk-Informed Regulatory Guidance for New Reactors**

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# **NRC's Risk-Informed Framework**

- **Derived from the Commission Safety Goal Policy Statement and subsidiary objectives**
- **Regulatory Guide 1.174 provides integrated process for risk-informed decision making**
  - **Risk-informed versus risk-based**
  - **Meeting regulations, absolute and delta risk guidelines, defense in depth, safety margin, performance monitoring**
  - **Effectively used for many years without degradation of safety margins**



# Industry Perspectives

- **Industry provided paper to NRC staff and ACRS in March 2009**
  - **Included in SECY-10-0121**
- **Industry believes Option 1 is sufficient to address NRC staff concern and preserve safety margins**
  - **With addition of new plant change control guidance through Appendix to NEI 96-07**



# SECY Option 2

- **Identify and implement changes to the existing risk-informed guidance**
- **We have reviewed the guidance for several key risk applications:**
  - **Risk-Informed Technical Specifications**
  - **Maintenance Rule**
  - **Reactor Oversight Process**
    - **Mitigating Systems Performance Index**
    - **Significance Determination Process**



# SECY Option 2

- **Current risk-informed guidance already includes many provisions that address the NRC concern (backstops, limits, defense in depth considerations)**
- **New plant change control guidance will address severe accident design features and other elements of Part 52 not applicable to operating plants**
  - **This guidance is thus more restrictive than that for operating plants**



# Technical Specifications

- Risk informed technical specifications initiative 4B – flexible completion times
- Includes a 30 day deterministic backstop on equipment out of service regardless of low risk significance
- For a lower CDF new plant, this backstop is more restrictive than for an operating plant
- Also bounds Maintenance Rule configuration management (a)(4) assessments



# Reactor Oversight Process

- **Mitigating Systems Performance Index**
  - Index is triggered by failures exceeding a performance based limit regardless of risk significance
  - For a new multi-train plant, this feature will be more restrictive than for operating plants due to lower risk significance of MSPI components



# Reactor Oversight Process (Cont)

- **Significance Determination Process**
  - **Green findings require corrective action and receive NRC scrutiny**
  - **Safer plants will have fewer significant findings – it is a safety focused process**



# **Concerns with new metrics (Option 3)**

- **Inconsistent with safety goal policy**
- **Undermines basic premise of risk-informed philosophy which is to focus resources based on safety significance**
- **Would penalize new plants**
- **Would create public perception problems**
- **Would act as a disincentive for new plant risk-informed applications**



# Technical Issues with Option 3

- **Metrics could be well within PRA uncertainty bands**
- **Considerations are premature based on incomplete CDF profile for new plants**
- **Large release (used for DCD) is undefined in this context and should be replaced with Large Early Release as used in Regulatory Guide 1.174 for operating plants**



# Summary

- **Industry is engaged with NRC staff on new plant change control guidance**
- **Existing controls are sufficient for other risk applications, and have been effective in practice**
- **New reactors should transition to Regulatory Guide 1.174 risk metrics when operating**
- **Maintains consistent commission policy and rational regulatory framework**

