

Consideration of Assessment Process Changes

March 19, 2009



Background

- SECY paper and Commission meeting October 22, 2008
- NEI Memo on December 5, 2008 to Commission Regarding NRC Oversight of Construction Activities
- SRM issued on December 5, 2008
 - Reconsider the assessment process and propose policy options to the Commission
 - Address inclusion of objective elements such as construction program PIs and SDPs analogous to those used in the ROP
- January 29, 2009 Public Meeting to discuss staff's initial efforts to develop assessment program options for Commission consideration



- Provide an overview of refined staff approaches and schedule
- Encourage open dialogue on pros/cons of concepts and alternate options
- Need to establish viable options for Commission
- Each option needs to be sufficiently developed for feasibility



Summary of January 29 Meeting

 Staff Presented 3 potential concepts for an SDP-like process

Risk-Informed Matrix

- Reliability Growth Analysis
- Safety Significance Evaluation (Draft ConE process)



Summary of January 29 Meeting

- Staff Presented potential concepts for Performance Indicators
 - PIs were divided into Category A, B or C
 - 5 Potential PIs identified as Category A and 8 identified as Category B; possible implementation



- Primarily supported process as described in SECY Paper with questions regarding safety culture implementation
- Did not support Risk-Informed Matrix, Reliability Growth Analysis, or Safety Significance Evaluation Process – not technically feasible to apply probabilistic risk to construction activities
- General comments on PIs included a need to use rates vs. counts, a need to measure outcomes vs. processes, and threshold development would be difficult due to lack of historical data
- Any additional thoughts from the public that we missed or that have been developed since the last meeting?



- Carefully considered stakeholder feedback received during 1/29 meeting
- Additional review of ROP basis documents for applicability to the construction program in light of feedback received
- Eliminated Reliability Growth Analysis as an option
- Keyed in on risk matrix with options for using ITAAC ranking and/or risk informed approach to thresholds
- Will evaluate use of Construction Experience Risk Determination Model once sufficient construction experience is gained



Significance Determination Process Basis

- NRC initially developed and used the Significance Determination Process (SDP) to determine a probabilistic public health and safety risk characterization of reactor safety inspection findings.
- The risk characterization of findings was consistent with the thresholds used for the risk informed plant Performance Indicators (PIs). This allowed inspection findings and PIs to both be used consistently as inputs to the plant performance assessment portion of the ROP.
- Subsequently, other SDP tools were developed to characterize the safety significance of issues associated with emergency preparedness, radiation safety, physical protection, and issues in other areas.
- These SDP tools either used quantitative risk evaluation methods or were risk informed through expert judgment of the staff.
- Per Commission direction, the staff is reconsidering the construction assessment process and will propose policy options to the Commission.

Proposed Construction SDP For Consideration

- Assurance that all ITAAC are met prior to 52.103(g) finding must be provided to ensure public health and safety
- NRC will inspect ITAACs on a risk-informed sampling basis
- Proposed construction SDP would assign a risk significance to issues as they affect the construction process as opposed to a future fuel damage scenario
- Risk significant inspection findings will result in an increase in NRC inspection effort to expand ITAAC sampling proportionate to the significance of the finding
- Staff will estimate the resources required to develop a construction SDP process



Risk Informed Finding Matrix



Increasing ITAAC Ranking/FV/RAW



- PI thresholds in some instances could be directly tied to probabilistic risk assessment data, such as those for scrams and safety system unavailability.
- Other PI thresholds could not be specifically tied to probabilistic risk data. In such cases, the PI thresholds were tied to regulatory requirements or were risk informed based on the professional judgment of the NRC staff. For example, reactor coolant system activity thresholds were based on technical specifications.
- Per Commission direction, the staff is reconsidering the construction assessment process and will propose policy options to the Commission.



Risk Informed PIs

- Risk-informed PIs should measure the PIs' relative risk to the assurance that all ITAAC will be met
- Exceeding risk significant PI thresholds will result in an increase in NRC inspection effort proportionate to the significance of the PI



Performance Indicators

- Eliminated
 - Safety system functional failures
- Combined
 - Failure to assess Part 21 reports; Repetitive 50.55(e); Inadequate response to NRC Bulletins; Failure to assess NRC Information Notices; Failure to adequately assess 50.55 (e)
- Modified
 - Overdue pending design changes vs. Backlog
 - Overdue safety significant CAP issues vs. Backlog
 - Due Date Extensions to safety significant CAP issues
- Still viable
 - Ineffective corrective actions
 - Number of re-opened ITAAC
 - Number of errors due to inadequate training
 - Extent of condition review
 - Ratio of NRC identified findings to licensee identified



Additional PI Thoughts

- Identify impacts to ITAAC completion and closure process that can be objectively measured, reported, and verified
- Develop PIs that measure hardware deficiencies which tend to be more objective vs. programmatic deficiencies which tend to be more subjective
- Work processes should identify deficient conditions prior to last line of defense (ie., QA) to avoid "shots on goal" which could ultimately have an impact on ITAAC closure – not internally aligned
 - For instance, possible PI to measure QA identified welding deficiencies on risk significant systems; Threshold could be established above which NRC would conduct a supplemental inspection to review welding program
 - Similar PIs could be developed for other work processes such as concrete work, structural steel, etc.



Next Steps

- Near Term Category 2 Public Meeting? Does anyone have anything to discuss in this forum prior to SECY Paper draft?
- Continue Development of Risk Informed Finding Matrix
- Continue Development of Objective PIs
- Complete Assessment Program Options
- Complete Draft of SECY Paper 4/30
- Category 3 Public Meeting 05/14
- SECY Paper To NRO Director For Concurrence 07/31
- SECY Paper To OEDO For Concurrence 08/14
- SECY Paper To Commission 08/28



Input/Feedback/Questions