June 21, 2011

ATTACHED ARE SLIDES/ HANDOUTS WHICH WERE PRESENTED AT THE 5/26/11 "PUBLIC MEETING TO PERFORM TABLETOP EXERCISES REGARDING GUIDANCE ON RISK-INFORMED TECHNICAL SPECIFICATIONS INITIATIVE 4b AND MAINTENANCE RULE 50.65(a)(4) FOR NEW REACTORS"

U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

Maintenance Rule (a)(4)
Background & Experience

10 CFR 50.65(a)(4)

Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventative maintenance), the licensee shall **assess and manage the increase in risk that may result from the proposed maintenance activities**.

The scope of the assessment may be limited to structures, systems, and components that a risk-informed evaluation process has shown to be significant to public health and safety.

Evolution of the Maintenance Rule

- The original version of the maintenance rule stated licensees should take into account the overall effect on safety functions when performing maintenance.
- Concerns identified during plant visits in the mid 1990s that licensees were increasing the amount and frequency of maintenance performed during power operation without adequately evaluating safety.
- Resulted in 1999 revision to 10 CFR 50.65.

Maintenance Rule (a)(4) Objective*

- The 1999 revision to 10 CFR 50.65 expanded the objective of the maintenance rule to require that:

  (1) Licensees assess the impact of equipment maintenance on the capability of the plant to perform key plant safety functions; and

  (2) Licensees use the results of the assessment before undertaking maintenance activities at operating nuclear power plants to manage the increase in risk caused by those activities.

* From July 19, 1999 Statements of Consideration

Maintenance Rule
Risk Assessment Process

- Paragraph (a)(4) of the maintenance rule requires an evaluation of the impact of removing a(n) SSC for maintenance.
- This is basically a three step process:
  - Identify key plant safety functions to be maintained
  - Identify SSCs that support key plant safety functions
  - Consider the overall effect of removing SSCs from service on key plant safety functions

Risk Assessment Considerations

- Maintenance activities are performed that do not remove equipment from service, but have the potential to challenging safety systems. These activities are required to be evaluated as well under the maintenance rule.
- Various events not under plant control also need to be considered as part of the overall risk assessment.
  - Extreme weather conditions (hurricanes, tornados, etc)
  - Grid conditions (such as a peak demand period)
- Risk significant plant configurations should generally be avoided, as should conditions where a key plant safety function would be significantly degraded while conducting maintenance activities.

Actions Following a Risk Assessment

- The risk assessments required by the maintenance rule are expected to provide insights for identifying and limiting risk-significant maintenance activities and their durations.
- It is the NRC's expectation that licensees' processes for managing the risk are scrutable and control the risk increase of the maintenance activity.
- Risk can be managed by planning for contingencies; coordinating, scheduling, monitoring the maintenance; or modifying the duration of the maintenance.

MR (a)(4) Violations (Issues that are violations)

- Failure to perform a risk assessment prior to performing maintenance activities.
- Failure to perform an adequate assessment.
- Failure to update an assessment due to changing plant conditions that could impact the existing assessment.
- Failure to manage the increase in risk that may result from the proposed maintenance activity.

MR (a)(4) Violations (Issues that are not violations)

- Failure to document an assessment.
- Failure to use probabilistic analyses to perform a risk assessment.
- Failure to perform an adequate assessment that is questioned and corrected prior to commencement of maintenance activities.

MR (a)(4) Violations (Recent Experience)

- 116 Violations since May 1, 2001
  - All GREEN
  - 115 non-cited violations (NCVs)
  - 1 cited violation (failure to correct a previous NCV)
- 34 failures to perform an assessment when required
- 53 failure to perform an adequate assessment
- 29 failure to adequately manage the potential increase in risk