U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

EPRI
Maintenance Rule Users Group
2009 WINTER WORKSHOP
FOR MR COORDINATORS

NRC INSPECTION PROCESS
AND ENFORCEMENT ACTIVITIES
FOR THE MAINTENANCE RULE (10 CFR 50.65)

Richard Branch
Reactor Engineer (APOB)
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Objectives

- Review and discuss NRC documents used for Maintenance Rule inspection activities
  - Inspection Procedures 71111.12 and 71111.13
  - Inspection Manual 0612 and 0609
- Review and discuss NRC documents used for MR enforcement activities
  - Enforcement Manual Chapter 7
- Recent NRC inspection and enforcement activities

10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"

- Risk-informed, performance-based regulation
- Utilities generally follow NUMARC 93-01 guidance for implementation
- NRC inspects to language in 10 CFR 50.65
- Maintenance Rule creates unique challenges for inspection and enforcement activities

Risk-Informed Regulation

- Monitoring commensurate with safety
- In-scope SSCs risk ranked and categorized as “low” or “high” safety significance
- Goals and performance criteria developed using risk insights
- Scope of risk assessment and management activities limited by risk insights

Performance-Based Regulation

- Reactive vs. proactive - results vs. process
- Prescribe general process, results expected, allow flexibility in implementation
- More difficult to implement, inspect and enforce

Prescriptive Regulation

- Provides detailed processes, requirements, and instructions
- Tends to be inflexible
- Correlation between safety and risk not always clear
- Provides easier implementation and regulation

Maintenance Rule Inspection

- Inspection Procedure IP 71111.12, “Maintenance Effectiveness”
- Performed by resident inspectors
- RIs look at 8-10 activities per year at 4 different times
- Emphasis on high risk-significant items
- Provides criteria for minor/more than minor categorization
- Not used for (a)(4) portion of Maintenance Rule

IP 71111.12 Inspection

- Work practices
- Identifying and addressing common cause failures
- Proper scoping of SSCs
- Reliability monitoring (functional failures)
- Monitoring of unavailability
- Condition monitoring
- Classification of SSCs as (a)(1) or (a)(2)
- Appropriateness of performance criteria for (a)(2) SSCs
- Review of goals and corrective actions for (a)(1) SSCs

IP 71111.12 Sources of Information

- Operating logs
- Condition reports
- Work order history
- System health reports
- Maintenance Rule program documents
- (a)(3) assessment
- Interviews with system engineers and managers and MR coordinator
- MR expert panel meeting minutes

Maintenance Rule Inspection

- Inspection Procedure IP 71111.13, “Maintenance Risk Assessments and Emergent Work Control”
- Performed by resident inspectors
- RIs looks at 14-24 activities per year, spread out during the year
- Includes scheduled and emergent work
- Integrated with other inspections of plant activities

IP 71111.13 Inspection

- Performance of risk assessment activities for scheduled maintenance activities
- Accuracy and completeness of information in RA
- Proper categorization of risk and implementation of risk management activities
- Update to RA for emergent conditions
- Capture of deficiencies related to RA process in corrective action program

IP 71111.13 Sources of Information

- Work week schedules
- Procedures for risk assessment and risk management activities
- PRA information
- Interviews with PRA personnel, STA, work week coordinators

Maintenance Rule Enforcement

- Enforcement Manual Chapter 7.11, “Reactor Operations, Actions Involving the Maintenance Rule”
- Describes what are and are not violations of 10 CFR 50.65
- Provides specific examples of violations

Maintenance Rule Enforcement

- Inspection Manual Chapter 0612, “Power Reactor Inspection Reports”
- Determines if performance deficiency exists
- Screen for “greater than minor” and significance
- Screen for traditional enforcement

Maintenance Rule Enforcement

- Inspection Manual 0609, “Significance Determination Process”
- Supports Inspection Procedure 71111.13, the (a)(4) process
- Used for “greater than minor” inspection findings
- Assessments performed by regional or headquarters senior reactor analysts
- Provides the significance (color) for (a)(4) findings

Inspection Activities for 2008

- IP 71111.12, “Maintenance Effectiveness”
  - 5,680 inspection hours
- IP 71111.13, “Maintenance Risk Assessments and Emergent Work Control”
  - 5,550 inspection hours

Enforcement Activities for 2008

One Finding:

- Inadequate risk assessment prior to beginning maintenance
- Green
- Very low safety significance

Enforcement Activities for 2008

34 Non-Cited Violations:

- All green
- 19 involved (a)(4) process
- 10 identified deficiencies in the (a)(1)/(a)(2) process
- 3 involved inadequate scoping of SSCs
- 2 identified inadequate (a)(1) goal-setting activities

Enforcement Activities for 2008

Examples:

- (a)(4) Risk Assessment and Management
  - Failure to include emergent work activities
  - Failure to implement compensatory measures
  - Inaccurate risk assessment
  - Inadequate risk assessment during shutdown conditions

Enforcement Activities for 2008

Examples:

- (a)(1)/(a)(2) process
  - Monitoring programs not established for (a)(2) SSCs
  - Failure to identify functional failures
  - Failure to establish goals for (a)(1) SSCs

Enforcement Activities for 2008

Examples:

- Scoping
  - Failure to include Radiation Monitoring System in scope
  - Failure to include portions of the Main Feedwater System in scope
  - Failure to include Gland Steam System in scope

Enforcement Activities for 2008

Examples:

- (a)(1) resolution
  - Failure to take timely corrective action while classified as (a)(1)
  - Failure to establish goals for an SSC considered (a)(1)

Maintenance Rule

Questions and Comments