



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

November 21, 2016

MEMORANDUM TO: Greg A. Casto, Chief  
Fire Protection Branch  
Division of Risk Assessment  
Office of Nuclear Reactor Regulation

FROM: Daniel M. Frumkin, Senior Fire Protection Engineer */RA/*  
Fire Protection Branch  
Division of Risk Assessment  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE NOVEMBER 8, 2016, CATEGORY 2 MEETING  
REGARDING TOPICS RELATED TO NUCLEAR POWER PLANT FIRE  
PROTECTION

On November 8, 2016, the U.S. Nuclear Regulatory Commission (NRC) staff held a public meeting with stakeholders to discuss topics related to nuclear power plant fire protection. This meeting focused on Frequently Asked Questions (FAQs) at plants that are adopting National Fire Protection Association Standard 805 (NFPA 805) and other fire protection topics. The meeting announcement is in the NRC's ADAMS system as Accession No. ML16313A394. This meeting addressed NFPA 805 FAQ and general fire protection topics. Action items are included below in **bold** type. A list of attendees is included in the enclosure to this memorandum.

FAQ 16-0076 Industry stakeholders had provided a revised version of FAQ 16-0076, "NFPA 805 Fire PRA [Probabilistic Risk Assessment] Update Process," see ML16312A037. NRC staff and industry stakeholders discussed various aspects of the FAQ. For example, industry stakeholders indicated that the FAQ did not include information beyond that which is already in accepted guidance. NRC staff questioned the applicability of the FAQ to new data and new methods. The discussion became quite technical and all parties agreed (similar to the discussion in the previous meeting summary ML16229A236) that a separate meeting would be needed to discuss the details of this FAQ. **NRC staff will work with industry stakeholders on holding a separate meeting to specifically discuss FAQ 16-0076.**

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FAQ 10-0059 Industry stakeholders provided slides prior to the meeting that were presented using the Go-To-Meeting capability, through which they provided their description of how the use of the maintenance rule is sufficient to meet the monitoring requirements of NFPA 805. The slides are included in Enclosure 2 of this summary. The industry stakeholder discussion focused on slides 20 through 25 of the enclosed presentation. The NRC staff indicated that this description will help the staff better understand the latest revision of FAQ 10-0059, "NFPA 805 Monitoring," see ML16307A079. The NRC staff still had reservations about the lack of an example, which had been included in a written comment sent to industry stakeholders, see ML16307A079. Industry stakeholders were reluctant to provide an example, since one example could not cover all cases and industry stakeholders did not believe that covering all cases was needed. **The NRC staff indicated that they would review the slides in the context of the revised version of FAQ 10-0059, and be prepared to discuss at the next meeting.**

FAQ 07-0040 Industry stakeholders had provided a proposed Revision 5 to FAQ 07-0040, "Non-Power Operations Clarifications," see Accession No. ML16312A021. The NRC staff explained that they had not completed their review. **The NRC staff will provide comments before or at the next meeting on this topic.**

FAQ 14-0073 Industry stakeholders had provided written comments regarding NRC concerns on FAQ 14-0073 "Acceptable Uses of Fuel Fired Equipment" Revision 2, see ML16125A501. These written comments are included in Enclosure 3 of this meeting summary. The topic was discussed and industry stakeholders were concerned that some of the questions asked about fuel fired equipment that came up during licensing may come up during inspection. NRC staff queried the industry stakeholders on the phone, and none indicated that this had been the case in the various NFPA 805 inspections. NRC staff indicated that the FAQ should be forward looking rather than focusing on licensing questions. The NRC staff suggested that a path forward would be to replace the FAQ as written with guidance on how the rules in NFPA 805 for combustibles and ignition sources apply to fuel fired equipment (other than heaters). Industry stakeholders indicated that they were not interested in pursuing additional guidance. [Following the meeting NRC staff and management met internally on the topic. The conclusion that follows is based on that discussion.] **The NRC staff determined that the likely success path would involve developing additional guidance and since industry stakeholders expressed during the meeting that they were interested in new guidance, the NRC staff will terminate review on this topic.**

NEI 04-02 and NEI 00-01 Industry stakeholders have provided draft versions of NEI 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program under 10 CFR 50.48(c)," see ML16312A030 and NEI 00-01, "Guidance for Post-Fire Safe Shutdown Circuit Analysis," see ML16312A019, for NRC staff review. NRC staff plans to review these documents and consider their content for incorporation into NRC regulatory guides. **The NRC staff expects to begin review of these documents over the next few months and engage with industry stakeholders as needed.**

Inspection White Paper Industry stakeholders presented slides regarding re-evaluation of the fire protection inspection procedures. The slides are included as Enclosure 4. NRC staff indicated that any action on the inspection process would involve NRC staff that were not represented at this meeting. **Industry stakeholders intend to provide the full white paper by the end of calendar year 2016 for NRC staff review and further discussion.**

No public comments were provided during the public comment period. Note that Office of Public Affairs was contacted at the beginning of the call regarding problems with the call in line. The corrected information was provided. The staff contact phone and email were monitored during the meeting and if problems persisted, the meeting staff was not contacted.

NRC staff expects to hold the next meeting early calendar year 2017.

Enclosure:

As stated

No public comments were provided during the public comment period. Note that Office of Public Affairs was contacted at the beginning of the call regarding problems with the call in line. The corrected information was provided. The staff contact phone and email were monitored during the meeting and if problems persisted, the meeting staff was not contacted.

NRC staff expects to hold the next meeting early calendar year 2017.

Enclosure:  
As stated

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**ADAMS Accession No.: ML16315A144**

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Date	11 / 15 /2016	11 / 16 /2016	11 / 21 /2016	11/ 17 / 2016

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**NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805  
FREQUENTLY ASKED QUESTIONS MEETING  
LIST OF ATTENDEES**

November 8, 2016

**U. S. Nuclear Regulatory  
Commission Staff**

D. Frumkin  
C. Moulton  
B. Metzger  
S. Dinsmore  
C. Moulton  
H. Barrett

**Stakeholders (Participated by Phone)**

V. Anderson – NEI  
A. Ratchford – Jensen Hughes  
J. Walker – Jensen Hughes  
C. Pragman – Exelon  
B. Simril – TVA  
G. Kvamme – Xcel Energy  
J. Hiller – Ameren Missouri  
T. Jutras – EPM  
A. Jelalian - EPM  
R. Welch - EPM  
M. Schairer - EPM  
J. Quinn - EPM  
B. Meade - EPM  
R. Kreider – EPM  
D. Davidson – Southern Nuclear  
K. Wilson – Southern Nuclear  
M. Janssens – SwRI  
R. Neild – RNR Consulting  
J. Ross – First Energy  
M. Murtha – First Energy  
T. Swiecicki – Entergy  
M. Hulet – APS  
J. Lechner – Jensen Hughes  
J. Stone – Exelon  
T. Gorman – Jensen Hughes

## NFPA 805 MONITORING

### TOPICS

- ◆ Current Regulatory Concerns
- ◆ Relationship to the Maintenance Rule
- ◆ Basis for use of Maintenance Rule
- ◆ Possible Path Forward
- ◆ Conclusion & Questions

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## NFPA 805 MONITORING DEFINITION

- ◆ 2.6<sup>+</sup> Monitoring.
  - A monitoring program shall be established to ensure that the availability and reliability of the fire protection systems and features are maintained and to assess the performance of the fire protection program in meeting the performance criteria. Monitoring shall ensure that the assumptions in the engineering analysis remain valid.
- ◆ 2.6.1 Availability, Reliability, and Performance Levels.
  - Acceptable levels of availability, reliability, and performance shall be established.
- ◆ 2.6.2 Monitoring Availability, Reliability, and Performance.
  - Methods to monitor availability, reliability, and performance shall be established. The methods shall consider the plant operating experience and industry operating experience.
- ◆ 2.6.3 Corrective Action.
  - If the established levels of availability, reliability, or performance are not met, appropriate corrective actions to return to the established levels shall be implemented. Monitoring shall be continued to ensure that the corrective actions are effective.

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## CURRENT REGULATORY CONCERNS

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## NFPA 805 MONITORING REGULATORY BACKGROUND

- ◆ FAQ 10-0059 was written
  - Rev 5 was agreed upon with NRC (March 2012)
- ◆ LARs prepared using FAQ 10-0059 approach
- ◆ Licensees received/responded to generic RAI on Monitoring
- ◆ Majority of NFPA 805 monitoring programs were performed using FAQ 10-0059 in similar fashion
- ◆ SEs issued based of FAQ 10-0059 approach
- ◆ Findings on monitoring during Triennial Inspections (2015-2016)

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## MONITORING FINDINGS

- ◆ 2 sites currently have findings related to Maintenance Rule Unavailability being higher than the Fire PRA test and maintenance value.
- ◆ Findings based on wording in NFPA 805 and the FAQ
- ◆ NFPA 805:
  - 2.6<sup>+</sup> Monitoring.  
A monitoring program shall be established to ensure that the availability and reliability of the fire protection systems and features are maintained and to assess the performance of the fire protection program in meeting the performance criteria. *Monitoring shall ensure that the assumptions in the engineering analysis remain valid.*
- ◆ From FAQ 10-0059 Rev 5:
  - 3. Action level threshold – When establishing the action level threshold for reliability and availability, *the action level should be no lower than the fire PRA assumptions.*

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## DEFINITION OF MONITORING

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## BASIC ELEMENTS OF A MONITORING PROGRAM

- ◆ Determine the SSCs and programmatic elements that are integral to your NFPA 805 Fire Protection Program
- ◆ Ensure a process exists to track the performance of the SSCs
- ◆ Determine which of these have a significant risk impact
- ◆ Ensure the tracking and trending processes are commensurate with the risk impact
- ◆ Ensure adverse trends in the SSCs are documented
- ◆ Ensure a process is in place to reverse adverse trends

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## WHAT MONITORING DOES NOT DO

- ◆ Determine functional failure criteria
- ◆ Determine required compensatory measures
- ◆ Require condition reports for individual failures
- ◆ Set Surveillance Frequencies

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## RELATIONSHIP TO THE MAINTENANCE RULE

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## NFPA 805 MONITORING (APPENDIX A)

- ◆ **A.2.6 The maintenance rule is an example of an existing availability and reliability program.** A program requiring periodic self-assessments is an example of a method for monitoring overall effectiveness or performance of the fire protection program. Regulation Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant Specific Changes to the Licensing Basis," provides further guidance on acceptable monitoring programs.

Assumptions that are not subject to change do not need to be monitored. The level of monitoring of assumptions should be commensurate with their risk significance.

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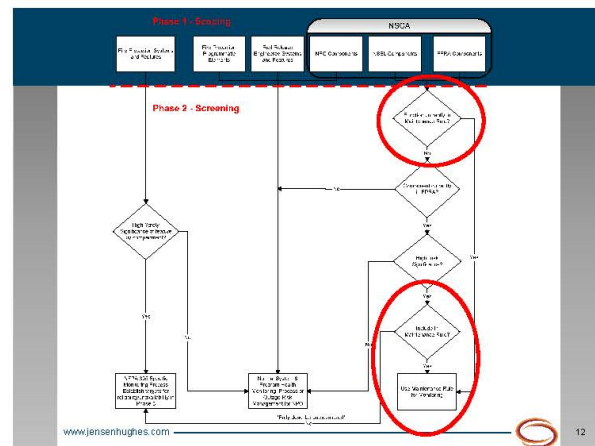
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## FAQ 10-0059 REV 5

- ◆ The **Maintenance Rule (10 CFR 50.65)** and **Regulatory Guide 1.174** are provided as examples in NFPA 805 Section A.2.6 of acceptable monitoring programs. However, the appendices of NFPA-805 are not part of the 50.48(c) rule and flexibility is provided to allow plant-specific processes to be established for performance monitoring.
- ◆ The majority of NSCA SSCs relied upon to ensure post-fire nuclear safety performance criteria is met is equipment that is important for plant risk and mitigation of the consequences of design basis accidents. Therefore, most NSCA equipment important to fire risk will be subjected to inspection, testing, and performance monitoring as part of the **Maintenance Rule process** and subjected to a variety of plant controls and processes.
- ◆ NSCA equipment may already be **appropriately monitored by the Maintenance Rule.**

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## REQUEST FOR ADDITIONAL INFORMATION (RAI) EXAMPLES

- ◆ a. A description of the process by which systems, structures, and components (SSCs) will be identified for inclusion in the NFPA 805 monitoring program, including the approach to be applied to any fire protection SSCs that are already included within the scope of the Maintenance Rule program.
  - Per the guidance of FAQ 10-0059, those SSCs already within the scope of the Maintenance Rule per 10 CFR 50.65 will be reviewed to ensure that the monitored function under the Maintenance Rule adequately bounds the NFPA 805 credited function of the SSC. For those cases where the function is not bounded, a new Maintenance Rule function with appropriate performance goals will be created to accommodate the needs of the NFPA 805 Monitoring program.
  - When the NFPA 805 monitoring program determines the need to monitor structures, systems, and components (SSCs) for reliability and/or unavailability that are currently monitored under the Maintenance Rule Program, the Maintenance Rule Program monitoring will be credited for the NFPA 805 monitoring requirements. In these cases, the NFPA 805 monitoring program will include steps to ensure that the maintenance rule monitoring appropriately bounds the assumptions of NFPA 805, including risk significance and function. Adjustment will be made as required to the Maintenance Rule monitoring to bound the NFPA 805 assumptions as well as the maintenance rule assumptions.

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## BASIS FOR USE OF MAINTENANCE RULE

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## INDUSTRY PERSPECTIVE

- ◆ Goal and Intent of Maintenance Rule was the same as NFPA 805 Monitoring
 

"In 10 CFR 50.65(a)(1), the NRC requires that power reactor licensees monitor the performance or condition of SSCs against licensee-established goals in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. Such goals are to be established commensurate with safety and, where practical, take into account industrywide operating experience. When the performance or condition of an SSC does not meet established goals, appropriate corrective action must be taken." Reg Guide 1.160
- ◆ NSCA and FPRA equipment currently considered risk significant in Maintenance Rule have the appropriate level of tracking to ensure adverse trends were identified and corrective actions were in place to improve performance once adverse trends were identified.

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## SCREENING

- ◆ Risk Screening in NFPA 805 is based on the risk importance of components in the Fire PRA model.
  - The Maintenance Rule approach when using the Fire PRA creates a new set of High Safety Significant equipment requiring monitoring
  - These HSS functions must be compared to the equivalent risk significant functions in Maintenance Rule
  - Any equipment not currently Risk Significant in Maintenance Rule requires additional NFPA 805 Monitoring

"HSS NSCA SSCs not currently monitored in Maintenance Rule should be included in either the Maintenance Rule or the NFPA 805 monitoring program." FAQ 10-0059 Rev 5

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## PERFORMANCE CRITERIA

- ◆ Fire PRA is built upon the internal events framework
  - NSCA equipment is taken directly from the internal events model
  - NSCA failure rates and unavailability values are not altered in the Fire PRA model
- ◆ Maintenance Rule goals and performance criteria are based on the failure rates and unavailability values that are identical to the ones in the Fire PRA
  - Creation of performance criteria in Maintenance Rule utilizes the same base assumptions as the NFPA 805 Monitoring Risk Target Values
- ◆ Although the risk significance of specific equipment may differ between IEPRA and Fire PRA, the underlying availability and reliability values and assumptions are the same

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## PERFORMANCE CRITERIA

### FAILURE CRITERIA DISCUSSION IN IMPLEMENTING DOCUMENTS

- ◆ FAQ 10-0059 Rev 5
 

"Failure criteria are established by an expert panel or evaluation based on the required fire protection and nuclear safety capability SSCs and programmatic elements assumed level of performance in the supporting analyses."
- ◆ NUMARC 93-01
 

"Specific risk significant SSC performance criteria should consider plant-specific performance and, where practical, industrywide operating experience. Performance criteria for risk significant SSCs should be established to assure that reliability and availability assumptions used in the plant-specific PRA, IPE, IPEEE, or other risk determining analysis are maintained or adjusted when determined necessary by the utility."

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## MAINTENANCE RULE PROCESS

- ♦ Risk Informed
  - Utilizes an expert panel approach
  - Plant Operating Experience
  - Industry Operating Experience
- ♦ Final values used as Performance Criteria may not be specific one-to-one correlation to PRA data
  - Based on multiple cycles of data
  - Ensures the assumed average performance is maintained
  - Intended to determine adverse long term trends – not individual extended maintenance or spikes in failure data

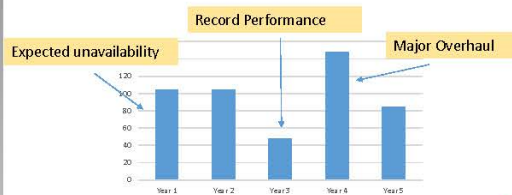
*"2.6.2 Monitoring Availability, Reliability, and Performance. Methods to monitor availability, reliability, and performance shall be established. The methods shall consider the plant operating experience and industry operating experience." NFPA 805*

## MAINTENANCE RULE DISCUSSION - UNAVAILABILITY

- ♦ PRA Models should be designed to represent the average "as-built, as operated" plant.
  - PRA Models typically take multiple cycles of unavailability data to create the target values.
- ♦ Use of an average value over multiple cycles removes the conservative bias from:
  - Extended planned major overhauls
  - Extended unavailability due to corrected issues
- ♦ The average values in the Fire PRA should improve over time with improved plant performance or decline given poor performance of equipment – match the as-operated plant
- ♦ Maintenance Rule Unavailability targets are based on:
  - Expected planned activities in a year
  - Industry and operator experience with equipment
  - Risk insights

## MAINTENANCE RULE DISCUSSION – UNAVAILABILITY EXAMPLE

- ♦ Plant Equipment has monthly required maintenance / yearly required major surveillances
  - Generally the monthly maintenance takes an 8 hour shift and the yearly surveillance takes 2 shifts
- ♦ A major overhaul is required due to a found failure
- ♦ Over a 5 year period – the unavailability data is shown below



## MAINTENANCE RULE DISCUSSION – UNAVAILABILITY EXAMPLE

- ♦ The PRA takes the data from all 5 years and creates an average yearly unavailability
- ♦ Based on the data the PRA would have an unavailability of 1.13E-2 (98 hours)
- ♦ This correlates to a value LESS than the expected maintenance practice at the site which would have 1.20E-2 (104 hours)



## MAINTENANCE RULE DISCUSSION - UNAVAILABILITY

- ♦ Maintenance rule is intended to find adverse trends and not penalize the site for expected maintenance.
  - The expected unavailability at the plant is 104 hours in this case.
  - An adverse trend is not expected unless the unavailability for the year is GREATER than 104 hours.
- ♦ The Expert Panel would use the information from the PRA and inform it with the known unavailability of the plant.
- ♦ The Expert Panel could set allowable per year value of 104 hours based on expected maintenance practices.
  - A PRA sensitivity could be performed if desired to show impact of using 104 hours on the PRA.

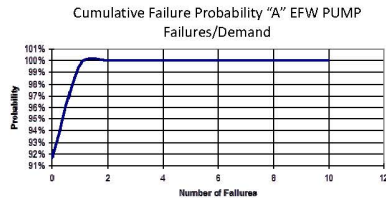
*As maintenance practices continue to show improved times – PRA value would continue to improve and the expert panel could choose to lower the criteria based on PRA and plant experience.*

## MAINTENANCE RULE EXAMPLE - RELIABILITY

- ♦ PRA data is based on industry documents and informed by plant specific data as appropriate.
- ♦ PRA model data is built on actual distributions of data of which the mean is typically documented in the model.
- ♦ The maintenance rule performance criteria is intended to show adverse trends in data.
- ♦ Typically for reliability values the performance criteria based on a 90% threshold of the distribution in the PRA model.
- ♦ Reliability criteria for risk significant equipment is generally <2 FF
  - In many cases there is no numeric difference in using the MEAN value vs the 90% when determining the actual number of FF.

## MAINTENANCE RULE EXAMPLE - RELIABILITY

- Using a Binomial distribution for the demand failures provides the following cumulative probability curve for an EFW pump.
- A cumulative probability refers to the probability that the value of a random variable falls within a specified range. The distribution represents a 100% likelihood that the random number of EFW pump demand failures will be  $\leq 2$  failures based on this distribution.

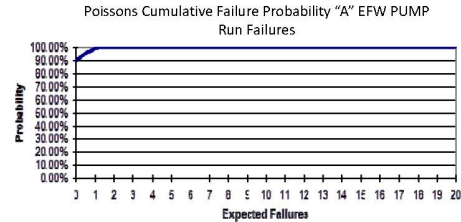


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## MAINTENANCE RULE EXAMPLE

- Using the Poisson distribution for the run failures provides the following cumulative probability curve.



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## MAINTENANCE RULE EXAMPLE

- Reviewing the data, it can be concluded that the 90% cumulative probability of a demand failure or a run failure for Train "A" is 1 demand failure and 1 run failure per cycle of operation.
  - This analysis would predict a 90% probability of at least 2 failures of the "A" train of EFW per cycle of operation.
- Therefore, 2 failures per cycle would be recommended to the expert pane as the reliability performance criteria for the Maintenance Rule.

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## MAINTENANCE RULE EXAMPLE

- This 90% threshold is reasonable in relation to evaluating the performance of the system and protects the assumptions (the distributions) in the PRA.
- The use of the 90% threshold in establishing the performance criteria allows for the determination that a system is operating outside the bounds of the PRA assumptions and actions are required to improve performance.
- The use of any criteria less than 90%, although providing a more accurate depiction of the mean value used in the PRA model, would not add any value to the evaluation of the system performance and adds no additional value for ensuring that the assumptions in the PRA remain valid.

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## BASIS FOR USE OF MAINTENANCE RULE

- Similar regulatory goal – ensuring risk significant SSC performance is tracked and actions are taken when adverse trends are noted
- Same PRA data used in Maintenance Rule PRA as in NFPA 805 monitoring for NSCA SSCs
- Maintenance Rule processes are built upon plant knowledge and industry experience
- Maintenance Rule processes are set to ensure the overall assumptions in the PRA remain valid

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## BASIS FOR USE OF MAINTENANCE RULE

- The charts demonstrate that use of the mean values from the PRA model would most likely set the performance criteria at zero failures.
- Zero failures is not an appropriate criteria for monitoring (i.e. some random failures are to be expected)
  - Not adequate for ensuring the assumptions in the model are maintained.

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## CURRENT REGULATORY CONCERNS

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## MONITORING FINDINGS

- ♦ 2 sites currently have findings related to Maintenance Rule Unavailability being higher than the Fire PRA test and maintenance value.

*Monitoring shall ensure that the assumptions in the engineering analysis remain valid.*

Monitoring program shall ensure that the assumptions in the engineering analysis remain valid. The availability and reliability of the fire protection systems and features are maintained and to assess the performance of the fire protection program in meeting the performance criteria. *Monitoring shall ensure that the assumptions in the engineering analysis remain valid.*

*the action level should be no lower than the fire PRA assumptions.*

*lower than the fire PRA assumptions.*

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## NFPA 805 WORDING

*Monitoring shall ensure that the assumptions in the engineering analysis remain valid.*

- ♦ Taken beyond original intent of reviewing assumptions in analysis
- ♦ Assumptions are reviewed as part of monitoring
  - Data in the PRA is not considered an assumption
  - Monitoring looks at assumptions related to transient combustibles, hot work, fire brigade, etc.
  - These assumptions are then reviewed for monitoring

Assumptions Example

- ♦ PRA assumes certain electrical cabinets are sealed –
  - Monitoring program would ensure that there is a program to track and trend failures of cabinets to be sealed

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## FAQ WORDING

Action level threshold – When establishing the action level threshold for reliability and availability, *the action level should be no lower than the fire PRA assumptions.*

- ♦ Statement appears in the beginning of FAQ in the Points of Clarification Discussion and not in the body of the FAQ
- ♦ If read without the entire FAQ process, it can be taken out of context of the overall FAQ
- ♦ The FAQ process was written as a process – which assumed you would only be “establishing action level thresholds” for items not currently in Maintenance Rule

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## FAQ WORDING

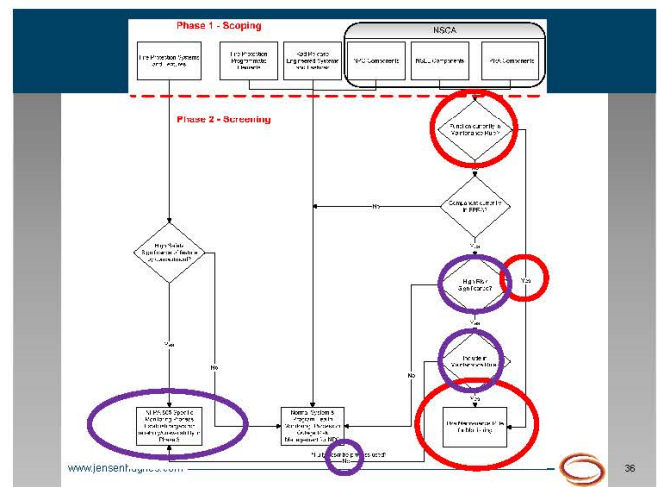
- ♦ Phase 2 Screening states:  
2. Nuclear Safety Capability Assessment Equipment\*

NSCA equipment may already be appropriately monitored by the Maintenance Rule. A comparison of NSCA equipment to the SSCs that are monitored in the Maintenance Rule program should be performed to determine what equipment may require additional NFPA 805 Monitoring.

- ♦ Phase 3 Risk Target Value states  
Action level should be developed for the NSCA SSCs that are included in a monitoring program.
- ♦ The process of monitoring would state that Phase 3 did not apply to those items SCREENED in Phase 2 as part of the Maintenance Rule program.
- ♦ This is further clarified in the FAQ flow chart.

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Below are comments on NFPA 805 Frequently Asked Question (FAQ) 14-0073, Acceptable Uses of Fuel Fired Equipment - ML16125A501, which provide basis for our non-acceptance of the FAQ. Industry stakeholders requested written comments during the August 9, 2016 public FAQ meeting.

- 1) The NRC staff does not agree with the concept that a fire caused by fuel fired emergency equipment used to respond to an initial fire is considered "independent." If a piece of emergency equipment were to catch fire when called upon, this would not be considered independent.

I respectfully disagree with the NRC position relative to independence. Using the NRC logic, if any plant installed equipment relied upon to respond to the initial fire were to catch fire for whatever reason then it would not be considered "independent". This would not be consistent with the industry guidance as discussed on Page 4 of FAQ-14-0073, "As noted in NUREG/CR-6850 on page 11-12, "[T]he analysis is limited to considering a single fire occurring at any given time. The analysis does not consider the possibility of multiple, concurrent fires." There are also several references in NFPA 805-2001 that discuss the "single fire" requirement such as Sections 4.2.1 and D.3.4.(a)(1). Additionally, Federal Register Notice 69 FR 33550, June 16, 2004, Voluntary Fire Protection Requirements for Light Water Reactors; Adoption of NFPA 805 as a Risk-Informed, Performance-Based Alternative, also refers to one success path being maintained free of fire damage from a "single fire". The FAQ was written with respect to the use of fuel fire equipment in general not specific to "emergency" equipment. As described in the FAQ, the use of fuel fired vehicles in crane bays or fuel fired man-lifts are examples of fuel fired equipment relied upon to support safe reliable nuclear plant operation and are examples that meet the NFPA 805 requirements but do not meet the more generic interpretation prohibiting "fuel fired equipment". It should be noted that licensees that received RAI's related to the use of fuel fired fans ended up utilizing a different safe shutdown strategy to respond to a fire rather than using fuel fire fans.

- 2) The NRC staff does not agree that the hazards of this equipment do not need to be addressed in the analyses. This lack of consideration is a significant issue that has prevented the NRC staff from accepting the use of this equipment.

FAQ-14-0073 was not intended to imply that fuel fire equipment should be ignored. Rather, FAQ-14-0073 attempted to document that the use fuel fired equipment, other than fuel fired heaters, is not prohibited per NFPA 805-2001 and that there is guidance for control of combustibles and ignition sources that is included in the Table B-1 guidance that each licensee was required to address. The NRC accepted the licensee responses to the guidance for control of combustibles and ignition sources by the fact that Safety Evaluations were provided and no industry non-pilot RAI's were found related to the responses contained in Table B-1 of the license amendment request submittals.

- 3) The NRC staff does not agree that the use on fuel fired equipment was justified by the FAQ author. The FAQ fails to explain acceptable uses for fuel fired equipment (not heaters) and why those uses are consistent with the regulatory framework. The FAQ includes extensive discussion of RAIs, GDC 3, regulations and NFPA 805 standard language. This discussion is not consistent with the title of the FAQ, "Acceptable Uses of Fuel Fire Equipment." Additionally, the FAQ mentions review issues that have been settled, so this the information provided adds little value.



FAQ-14-0073 was attempting to clarify that the use of fuel fired equipment, other than fuel fired heaters, is not prohibited per NFPA 805-2001 and is addressed or supported by the RAI's or lack of RAI's related to licensee responses in Table B-1, GDC 3 or agreement that GDC 3 was satisfied when NFPA 805 requirement were met (FAQ 07-0032), and NFPA 805 standard language as well as the fact that the NRC has provided approved Safety Evaluations. The Fire Protection programs accepted by the NRC approved Safety Evaluations satisfy the NFPA 805 requirements and provide the controls to maintain an acceptable fire risk. FAQ-14-0073 was simply trying to document or clarify for all involved parties that use of fuel fire equipment is not prohibited, is supported by existing guidance, and there is no regulatory guidance specific to a more generic interpretation prohibiting "fuel fired equipment".

- 4) The FAQ's conclusion "K.X" adds little value to the regulatory process. First it restates the NFPA 805 standard language about the prohibition of fuel fired heaters, then it says that licensees should follow their combustible control program regarding other fuel fired equipment. Restating the standard has no value. Additionally, in the five pages of the FAQ there is very little to explain the correct use of other types of fuel fired equipment. Please note in NRC comments on the FAQ ML14336A078 – the NRC specifically asked about specific applications of fuel fired equipment (not heaters), and the revised FAQ did not satisfactorily address those comments.

FAQ-14-0073 does add value to the regulatory process by clarify that the use of fuel fired equipment, other than fuel fired heaters, is not prohibited per NFPA 805-2001, is supported by the existing guidance, and there is no regulatory guidance specific to a more generic interpretation prohibiting "fuel fired equipment". This clarification adds value by ensuring that all parties have a common understanding related to the use of fuel fired equipment related to Fire Protection Program implementation and routine inspections. It is not practical to use a more generic interpretation prohibiting "fuel fired equipment" as part of maintaining and safely operating a nuclear power plant.

### Evaluation of Original Purpose

- SECY 96-267 and SECY-99-140 Fire Protection Functional Inspections
  - Inspect the Thermo-Lag corrective actions at all plants,
  - Inspect non-Thermo-Lag items to support ongoing NRC programs (SISBO, pen seals, Turbine Building assessments, IPEEE),
  - Assess the NRC reactor fire protection program to determine if it had appropriately addressed all fire safety issues,
  - Determine if licensees are maintaining compliance with NRC fire protection requirements,
  - Program management and configuration control,
  - Focus resources on fire protection issues of most importance,
  - Renew industry attention to the importance of fire protection,
  - Improve consistency



### Evaluation of Original Purpose

- SECY 96-267 and SECY-99-140 Fire Protection Functional Inspections
  - Inspect the Thermo-Lag corrective actions at all plants, ✓
  - Inspect non-Thermo-Lag items to support ongoing NRC programs ✓ (SISBO, pen seals, Turbine Building assessments, IPEEE),
  - Assess the NRC reactor fire protection program to determine if it ✓ had appropriately addressed all fire safety issues,
  - Determine if licensees are maintaining compliance with NRC fire protection requirements,
  - Program management and configuration control,
  - Focus resources on fire protection issues of most importance,
  - Renew industry attention to the importance of fire protection, ✓
  - Improve consistency ✓



### Additional Activities Accomplished

- Construction inspection procedures (ex., 64053 fire loop installation)
- Original BTP 9.5-1 compliance (fire prevention)
- One-time Appendix R Implementation – 64100
  - Closeout of items from submittal/SER
  - Periodic re-verification
- Hemyc
- Manual actions
- Review of MSO resolution
  - Due November 2012
  - At least one round of inspections at each site since



### Duplication of Activities

- Fire drills in addition to those conducted by residents
- Overlap with other inspection modules
  - Fire questions during CDBI
  - 805 modifications related to 50.59



### Scope Expansion

- Undue focus on re-verifying licensing basis
- Addition of B.5.b inspections
- Application of draft documents
- Difficulty screening more than minor at 805 plants



### Proposed Path Forward

- Move portions to other modules, where appropriate (CDBI, etc.)
- Use TIs when appropriate
- Focus more on configuration control
- Relocate B.5.b inspections
- Use resident quarterlies to address regular FP issues
- Remaining inspection scope anticipated to be substantially smaller
  - May call for re-evaluation of triennial structure

