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

November 17, 2008

LICENSEE: Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc.

FACILITY: Shearon Harris Nuclear Plant, Unit 1

SUBJECT: SUMMARY OF SEPTEMBER 29, 2008, MEETING WITH PROGRESS ENERGY CAROLINAS, INC., TO DISCUSS THE SHEARON HARRIS NUCLEAR PLANT, UNIT 1 NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805 LICENSE AMENDMENT REQUEST (TAC NO. MD8807)

On September 29, 2008, a Category 1 public meeting was held between the U. S. Nuclear Regulatory Commission (NRC) and representatives of Progress Energy Carolinas, Inc. (PEC) at NRC headquarters, 6003 Executive Boulevard Building, Room 1B15, Rockville, Maryland. The purpose of the meeting was to discuss the results of the NRC acceptance review of the Shearon Harris Nuclear Plant, Unit 1 (HNP), May 29, 2008 license amendment request (LAR) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML081560639). This submittal requested to transition HNP to the risk-informed, performance-based fire protection program in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.48(c) and National Fire Protection Association Standard 805 (NFPA 805), "Performance Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants."

Enclosure 1 contains a list of attendees. Enclosure 2 contains the licensee's slide presentation.

DISCUSSION

On September 29, 2008, the NRC staff conducted a public meeting with PEC to discuss the results of the acceptance review for the May 29, 2008, submittal. This meeting was intended to discuss those results as described in NRC's acceptance review letter dated September 26, 2008 (ADAMS Accession ML082701158), and the schedule for their resolution. It should be noted that a version, erroneously dated September 29, 2008, was provided at the meeting. The NRC staff provided a brief overview of the results of the acceptance review. Under the normal acceptance review process, this licensing action would not have been accepted. However, since HNP is a NFPA 805 pilot plant, the NRC staff provided PEC with the option of providing an updated submittal within a reasonable time frame while the review of the acceptable sections of the LAR continues. This course of action is in the interest of ensuring public health and safety because the pilot's submittal helps to establish the threshold of what information is necessary for future applicants adopting NFPA 805 to allow the NRC to begin its safety review.

The NRC staff's acceptance review identified eight issues involving missing or incomplete information that present significant challenges to commencing and completing a comprehensive review of the LAR on an acceptable schedule. In the September 26, 2008, letter, the staff also identified three issues that mischaracterized the NRC's review of the HNP fire probabilistic risk assessment (PRA).

The licensee provided an overview of the NFPA 805 approach, a discussion on Fire PRA Implementation and the Summary Results for the HNP NFPA 805 analysis. Additionally, PEC indicated the intent to respond to items identified in NRC's letter dated September 26, 2008, by November 15, 2008.

The licensee provided a detailed discussion on the process used to transition Operator Manual Actions (OMAs) to Recovery Actions under NFPA 805 that will be submitted to the NRC by the NFPA 805 Task Force under a new Frequently Asked Question (FAQ), FAQ 07-0030, "OMA Transition to Recovery Actions." During the presentation on defense-in-depth (DID) associated with OMAs, it was discussed whether the licensee considered potential negative effects of these OMAs. The licensee indicated that other than control room evacuation actions, no recovery OMAs were credited in the fire PRA and the OMAs were reviewed to ensure that their effects were "risk neutral." In addition, the NRC staff questioned the availability of instrumentation to support the OMAs and whether the licensee had reviewed the potential impact, if any, on needed communication equipment. The licensee indicated that for the credited OMAs a review had been conducted to ensure instrumentation availability. However, PEC would need to followup regarding the potential impact of a fire on needed communication equipment.

The licensee also provided a discussion regarding their process for determining OMA feasibility. It was indicated that their deterministic approach to determining feasibility of OMAs did not incorporate the guidance for deterministically addressing reliability as provided in NUREG [NRC technical report designation] -1852, "Demonstrating the Feasibility and Reliability of Operator Manual Actions In Response to Fire." Therefore, the NRC staff questioned how reliability was addressed. The licensee indicated that reliability was addressed using the human reliability assessment (HRA) methods in the fire PRA. Additional questions were asked regarding the assumptions made by the licensee in support of the OMA timeline and whether diagnostic time, that is, time for an operator to determine the status and a course of action, was included in the timeline. The licensee indicated that diagnostic time was not specifically included, but additional margin should be available based on conservative access/egress time estimates.

The licensee provided a discussion of the fire models used. The licensee indicated that they used NUREG-1805, "Fire Dynamics Tools," and NUREG-1824, "Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications," as guidance for the fire modeling. The models identified for the HNP submittal were the Consolidated Model of Fire Growth and Smoke Transport, Fire Dynamics Simulator and the Fire Dynamics Tools. The licensee indicated that they will be providing the fire plume projection calculation methodology to supplement the NUREG modeling tools.

The licensee indicated that consistent with the planned approach for FAQ 07-0030, they divided their operator manual actions into three categories: (1) those that would always be performed and modeled in the fire PRA, for which both feasibility and quantitative reliability, via an HRA, would be assessed; (2) those that would always be performed but, because of their "risk neutral" nature, would not be modeled in the fire PRA, for which only a deterministic assessment of feasibility would be conducted as per the Nuclear Energy Institute (NEI) guidance document, NEI 04-02; "Guidance for Implementing a Risk-informed, Performance-Based Fire Protection Program Under 10 CFR 50.48 (c)," and (3) those that would be performed at operators' discretion, depending on the staffing availability, and would not be modeled in the fire PRA, but assessed deterministically for feasibility. The licensee categorized both these latter two types of operator manual actions as "defense-in-depth" actions. The NRC

staff questioned whether either or both groups constituted DID actions as specified under NFPA 805, and requested that this be clarified. Also, the NRC staff noted that it appeared that the second category would be analogous to the types of OMAs that might be pertinent to feasibility and reliability criteria for non-NFPA 805 plants, e.g., as discussed in NUREG-1852. Therefore, the staff questioned whether these OMAs should also be assessed deterministically for reliability.

Based on insights gained from the NFPA 805 analyses, the licensee identified that approximately 40 modifications to the plant are planned. Of the 40 modifications, 16 have been installed and 24 are still in the planning stage. Of the 24 planned, the licensee identified that three were significant safety modifications. The most significant modifications involved (1) the addition of a new diesel generator with a dedicated seal injection pump, and improved battery charging capability, (2) installation of incipient fire detection, (3) upgrades of existing Hemyc and MT electrical fire raceway barrier systems. As the proposed modifications would be connected to Class 1E components, the NRC staff questioned whether reviews of the modifications under 10 CFR 50.59 had been completed. The NRC staff indicated that this evaluation should be completed, as soon as possible, as the modifications may need prior NRC approval and may require a revision to the significant hazards consideration made under 10 CFR 50.91. It was requested by the NRC staff that the licensee explicitly identify each modification in the supplement to the submittal and the schedule for completion. It should be noted that one of the issues in the acceptance review letter centers around the submittal accurately reflecting the current, as well as the proposed plant configuration.

The licensee provided a general discussion of the development and use of the HNP fire PRA model. The licensee indicated that the guidance in NUREG/CR 6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities," was used. Additional information was provided on modifications modeled in the PRA, risk impact of variances from the deterministic requirements, and a general discussion of risk impacts of various issues. Questions were asked regarding the modeling of Hemyc and cable-to-cable interactions. The licensee indicated that credit for Hemyc was based on licensee as-tested configurations. The cable-to-cable interactions were not modeled any differently from the NUREG/CR-6850 approach, but the licensing bases would be revised to reflect mitigation of inter-/intra-cable shorts. The treatment of recovery actions was discussed. The licensee reiterated that the recovery OMAs are not required, but are included in the site procedures. The NRC staff stated concerns about the clarity of the procedures given many OMAs (other than those performed during control room evacuation) are not required. The licensee stated that they will conduct a review to ensure that the OMAs not credited are reflected in the procedures in such a way that maintains the regulatory and licensing basis proposed.

The licensee provided a discussion regarding the quality of the HNP fire PRA and the application of the fire PRA to NFPA 805 transition. The NRC staff review and subsequent industry peer review of the HNP fire PRA were discussed as well as the PEC resolution of comments from these reviews. The NRC staff indicated that the review of the fire PRA is not completed and that there are plans to audit several areas. The licensee provided their view regarding the fire PRA quality requirements in Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," for NFPA 805 applications. The licensee provided their view of how the fire PRA capability categories should be addressed when applying the fire PRA to NFPA 805 transition change evaluations. The NRC staff indicated the expectation that the

licensee explicitly identify the capability category, consistent with the fire PRA standard ASME/ANS-Ra-S-2007, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications." This identification should allow the NRC staff to see that PEC looked at the problem, the attributes and the supporting requirements to make the category determination. The licensee indicated the belief that their approach should be adequate to address the NRC staff's concerns, but would take another look to ensure the expectations were met.

At the completion of the formal presentations, the NRC staff provided a question and answer session for any interested members of the public. One public attendee had several questions regarding the control of combustible materials during the transition period, whether the analyses performed will cover both operating and outage conditions and whether the timelines considered all experience levels.

There were several members of the public in attendance both in the meeting room and by teleconference; however no feedback forms were received. No commitments or regulatory decisions were made by the NRC staff during the meeting.

/RA/

Eva A. Brown, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosures:
1. List of Attendees
2. Presentation Slides

cc w/enclosures: Distribution via ListServ

SEPTEMBER 29, 2008, MEETING WITH PROGRESS ENERGY CAROLINAS, INC., TO DISCUSS THE SHEARON HARRIS NUCLEAR PLANT, UNIT 1 NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805 LICENSE AMENDMENT REQUEST

LIST OF ATTENDEES

U. S. NUCLEAR REGULATORY COMMISSION

Sunil Weerakkody
Ray Gallucci
Steven Laur
Margaret Stambaugh
Eva Brown
Paul Lain
Harold Barrett
Andrew Howe
Antonio Zoulis

PACIFIC NORTHWEST NATIONAL LAB

Tye Blackburn
Steve Short

PROGRESS ENERGY CORPORATION

Jeff Ertman
Robert Rishel
Dave Corlett
Robert Rhodes
Paul Kannapel
David Miskiewicz
Keith Began
Alan Holder

PUBLIC

Andy Ratchford	Kleinsorg Group Risk Services
Dave Lochbaum	Union of Concerned Scientists
Paul Amico	Science Applications International Corporation
Steven Hutchins	Nuclear Energy Institute
Vincent Rubano	Florida Power and Light
Reene Gambrell	Duke Energy
David Goforth	Duke Energy
Kent Alter	Duke Energy
Larry Young	Entergy Nuclear
Jessica Walker	Entergy Nuclear
Stephanie Pyle	Entergy Nuclear
Laurie Potts	Entergy Nuclear
Jim Warren	North Carolina Waste Awareness & Reduction Network
Paul Oullette	Engineering, Planning, and Management, Incorporated

Harris Nuclear Plant
10 CFR 50.48(c), NFPA 805 LAR
Opening Remarks

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Executive Boulevard Building
Rockville, MD
09-29-08

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Purpose of Meeting

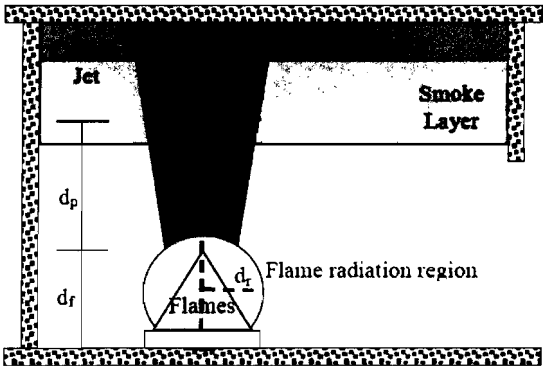
- Discuss Harris LAR, Supplement 1 that is being prepared by Progress Energy
- Supplement addresses NRC Acceptance Review criteria

Meeting Agenda

- Operators Manual Action Process
- Fire Model Tools
- Modification Information
- Modifications Modeled in Probabilistic Risk Analyses
- Risk Impact of Variances From Deterministic
- Fire PRA and RG 1.200

NFPA 805 Approach

- Performance Based Analysis
- Level of detail previously not possible



NFPA 805 Approach

Identification of Important Fire Scenarios in a Compartment – Examples Shown

Ignition Source Examples	Ignition Source Description	Example Targets	Example CDF	Example % CDF
FC99_S99001	Control Panel	Tray10, Conduit 11555	2.2 E-06	3 to 4
FC99_S99002	Inverter	Conduits 88899, 34666	3.4 E-07	< 1
FC99_S99003	Control Panel	Panel 200, Tray 50	1.6 E-08	C
FC99_S99004	MCC	Trays 30, 60, 90	8.1 E-10	C

NFPA 805 Approach

- Defense-In-Depth Maintained
  - Prevent Fires
  - Prompt Detection of Fires
  - Prompt Control and Suppression of Fires
  - Separation of Safety Systems

Fire PRA Implementation

- Extensive Walk-downs Identified Potential Fire Sources
- 4000+ Fire Scenarios Evaluated
- NRC Team Review
- Industry Expert Peer Review
- Fire PRA is Acceptable For Use
- Other Inputs are Used for Decision Making

Harris Summary Results

- Transition to NFPA 805 is Improving Fire Protection Program
  - Resolution of Generic FP Issues
  - Physical Plant Modifications Already Completed
  - Additional Modifications Being Implemented

Harris Summary Results

- Implements Classical Requirements
- Implements Nuclear Safety Performance Criteria
- Addresses Fire Safety During Non-Power Operations
- Final Modifications to Implement NFPA 805 Determined
- Fire PRA Being Updated to Address Final Modifications

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10 CFR 50.48(c), NFPA 805 LAR

Fire Modeling Tools

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Fire Modeling Tools
NFPA 805 Requirement

- **2.4.1.2.1 Acceptable Models.** Only fire models that are acceptable to the authority having jurisdiction shall be used in fire modeling calculations.

Fire Modeling Tools
Models Used in Development of HNP LAR

- Models identified in NUREG 1824 and 1805
  - Consolidate Model of Fire Growth and Smoke Transport (CFAST)
  - Fire Dynamics Simulator (FDS)
  - Fire Dynamics Tools (FDT)
- HNP-M/MECH-1196, Transient Fire Modeling Analysis of Fixed Ignition Source Fires
  - Utilizes fire plume projection calculation methodology to supplement modeling tools listed above.

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10 CFR 50.48(c), NFPA 805 LAR
Modification Implementation

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NFPA 805 Plant Modifications

- LAR and Supplement depict NFPA 805 plant configuration
  - As-Built plant + Planned modifications
- Impact of modifications addressed in PRA

NFPA 805 Plant Modifications

- 16 Modifications Installed To-Date
  - Based on 805 Insights
- 24 Additional Modifications Planned
- Significant Safety Modifications
  - New Diesel Generator with dedicated Seal Injection Pump and battery charging capability
  - Incipient Fire Detection
  - Upgrade to Hemyc/MT Fire Wrap

NFPA 805 Summary of Modifications Installed

- Install Interam Fire Wrap
- Provide alternative power supplies for Component Cooling and Water Chiller Valves
- Eliminate Manual Actions for Dampers
- Install level indication at Auxiliary Control Panel
- Install Manual Transfer Switch for Charging / Safety Injection
- Install Fire Rated Cable
- Provide protection for Chilled Water and Main Steam Valves
- Provide alternative access pathway
- Provide protection for Charging / Safety Injection and provide Emergency Lighting
- Modify power supply for Service Water

NFPA 805 Summary of Modifications Planned

- Provide New Diesel Generator with dedicated Seal Injection Pump
- Provide Incipient Fire Detection
- Upgrade of Hemyc fire wrap
- Upgrade of MT fire wrap
- Charging / Safety Injection Pump Recirculation
- Prevent Spurious Damper Actuation
- Additional Emergency Lighting
- Prevent spurious valve actuation Reactor Coolant System, High Head Safety Injection, Component Cooling
- Intervening Combustible Free Zone Designation
- Circuit / cable protection for Service Water, Auxiliary Feed Water, Steam Generator
- Cable re-routing for spurious actuation prevention
- Additional power outlets for back-up ventilation
- Provide Containment Spray cross-connect power
- Provide additional permanent access ladders
- Motor Operated Valve circuit protection
- Protect Communications circuits

Harris Nuclear Plant
10 CFR 50.48(c), NFPA 805 LAR

Fire PRA Model

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Fire PRA Model

- HNP Fire PRA developed based on guidance in NUREG/CR-6850
- Industry involvement with NEI and EPRI and non-pilots through the NFPA-805 and Fire PRA Task Forces
- Individual tasks presented to the NRC throughout the pilot process
- The Fire PRA was reviewed by both NRC and Industry using the latest standards and Regulatory Guide 1.200 requirements

Modifications Modeled in PRA

- New mitigation equipment is credited (Alternate Seal Injection pump & diesel generator, backup diesel power to battery chargers)
- New suppression/detection systems are credited (incipient detection)
- Hemyc is credited based on the as-tested configuration
- Cables proposed to be re-routed with Meggitt are excluded from fire damage
- Other considerations

Risk Impact of Variances From the Deterministic Requirements

- Cable separation items due to newly identified cables because Hemyc, MSOs, or other reasons
  - Delta risk driven by ignition source target sets and hot gas layer potential
- Hemyc – 25 minutes vs. 60 minutes protection
  - Delta risk driven by the available time for suppression

Risk Impacts -2

- Operator Manual Actions
  - None credited in Harris Fire PRA
  - Retained actions in fire procedures will support the fire PRA results as defense-in-depth
  - If credited as a recovery action, the impact can be risk ranked using existing PRA methods

Risk Impacts - 3

- General Risk evaluations
  - Determine risk by CDF/LERF by fire scenario
  - Rank fire scenarios by CDF/LERF
  - Identify top contributors based on fire scenarios
- Contributors
  - Ignition sources, secondary combustibles
  - Suppression/detection effectiveness
  - Equipment failures due to the fire (can be any combination of failure modes; not just MSOs)
  - Human error

Conclusion

- HNP Fire PRA developed based on guidance in NUREG/CR-6850
- Modifications incorporated to reflect the to be as-built/as-operated plant post transition to NFPA-805
- The risk impacts included in change evaluations result from cable separation and barrier worth variances
- Additional risk insights are provided by evaluating the Fire PRA results to identify important risk contributors

Harris Nuclear Plant
10 CFR 50.48(c), NFPA 805 LAR

Fire PRA and Reg. Guide 1.200

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HNP Fire PRA

- Harris Plant Fire PRA followed the methodology outlined in NUREG/CR-6850
- NRC staff review in February of 2008 of a Fire PRA model not finalized
- Industry Peer Review conducted in April 2008 after model finalized
  - Industry team members included some of the writers and technical experts for NUREG/CR-6850.
  - Results indicated that much of the PRA was "state of the art"
  - Many of the ASME/ANS Fire PRA Standard Supporting Requirements were given Capability Category II or III.

* See Page 17 for List of Acronyms

Fire PRA Review Comment Resolution

- Findings and Suggestions From the NRC Staff review
  - Will provide disposition of all NRC Findings and Suggestions
  - Most of these Findings and Suggestions were resolved and reviewed by the Industry Peer Review team
  - Responses will include extent of condition if appropriate

* See Page 17 for List of Acronyms

Fire PRA Review Comment Resolution

- From the Industry Peer Review Finding and Suggestions
  - Industry Peer Review Team had a smaller number of Findings and Suggestions.
  - Disposition of these Findings and Suggestions will be provided

Fire PRA Quality Requirements per Reg. Guide 1.200 for the NFPA 805 Application

* See Page 17 for List of Acronyms

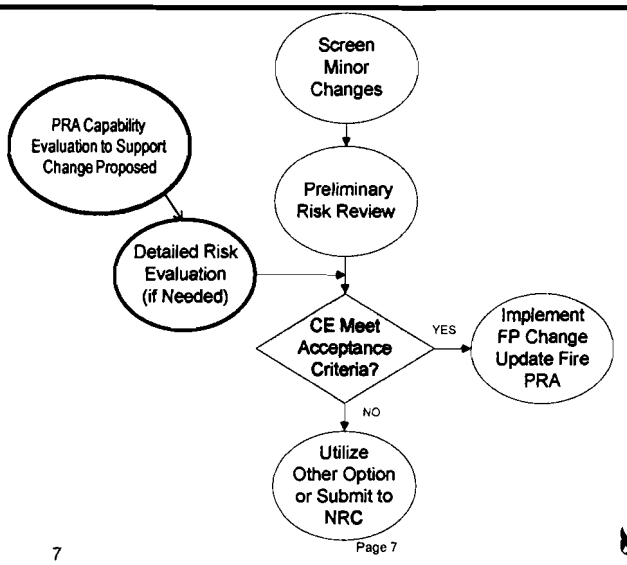
- For the NFPA 805 application Capability Cat I is acceptable for many of the supporting requirements
  - Capability Cat I is the simplest treatment
  - Capability Cat III is a more detailed treatment
- Approximately 139 of 187 Supporting Requirements in the ASME/ANS Standard to not differentiate category levels
  - Rating is either simply 'Met' or 'Not Met'

Fire PRA Quality Requirements per Reg. Guide 1.200 for the NFPA 805 Application

* See Page 17 for List of Acronyms

- For those Supporting Requirements (SR) that are graded at Capability Cat II or III, no evaluation is required.
- For those SRs are graded as Capability Category I, an evaluation is needed for acceptability for the NFPA 805 application.
- For those SRs Findings that Progress Energy evaluates as acceptable without revision, an evaluation is required to state why it is acceptable as is for the NFPA 805 application.
- The capability category required is dependent upon the types of NFPA 805 changes being evaluated.

Interface with Fire PRA Change Evaluation Process



HNP Fire PRA Summary

- Used NUREG/CR 6850 methodology
- NRC Staff Review was performed
- Industry Peer Review was performed
  - Considered State of the Art by Peer Reviewers
- Disposition of the NRC and Peer Review Findings will be provided
- Capability Category requirements for SRs is dependent upon the NFPA Changes being evaluated
- Process to determine capability category will be provided in LAR Supplement and coordinated with NEI 04-02 change process

Harris Nuclear Plant
10 CFR 50.48(c), NFPA 805 LAR

Operator Manual Action (OMA) Process

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* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

Background

- Request for additional detail in HNP LAR concerning:
  - Methodology for dispositioning pre-transition OMAs
  - Additional risk review of recovery actions
  - Feasibility evaluation methodology

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

Presentation Overview

(ML072340368)

FAQ 06-0012, Rev. 5
OMA Binning Process

Bins A, B, C, D, E, F, G, H

Previously reviewed/ accepted

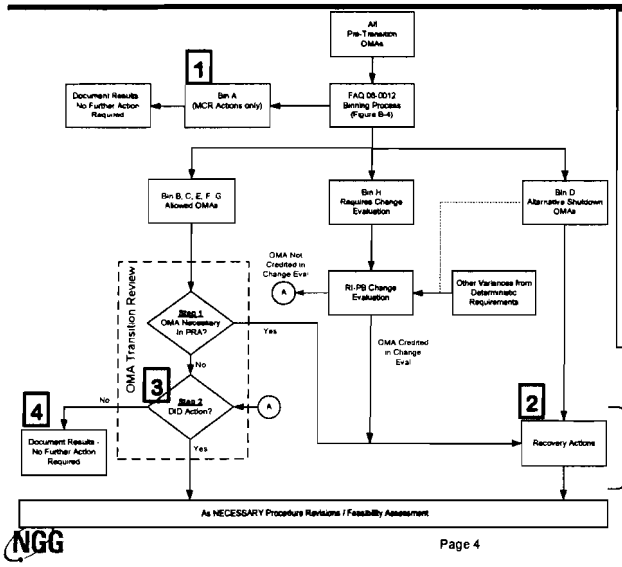
FAQ 07-0030, Rev. 0 Draft
OMA Transition to Recovery Actions

Includes:
- Determination of Recovery Actions and Defense-in-Depth actions
- Additional Risk Review
- Feasibility Review

Focus of this Presentation

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process



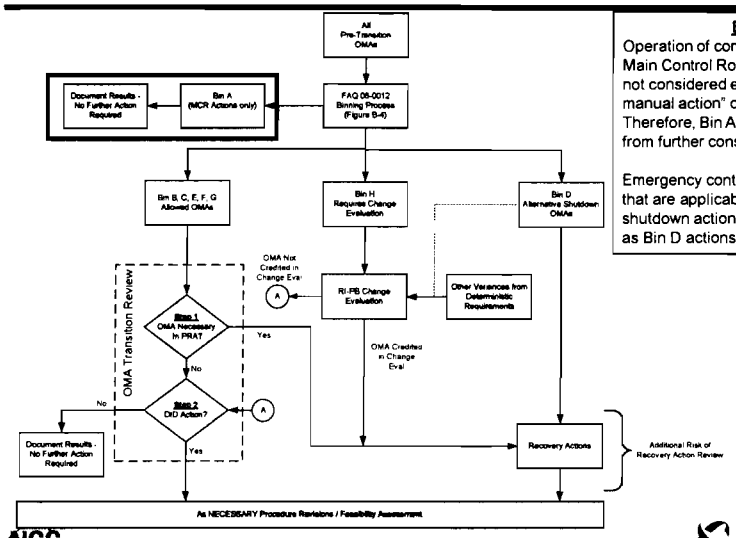
OMA Transition Review yields 4 possible outcomes

1. MCR Actions
2. Recovery Actions
3. Defense-in-Depth (DID) Actions
4. Neither Recovery nor DID

Note: This process is applicable to transition to NFPA 805. Post transition OMA (recovery action) considerations will be clarified under a separate FAQ to update the change process. All fire protection changes will be evaluated under the NFPA 805 change process, post transition, including any proposed new or modified recovery actions.

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process



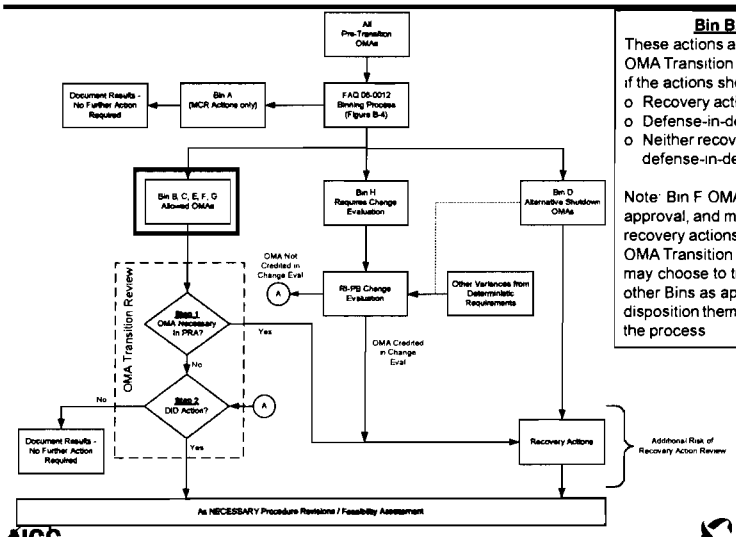
Bin A

Operation of components from the Main Control Room, by definition, is not considered either an "operator manual action" or "recovery action" Therefore, Bin A OMAs are excluded from further consideration

Emergency control station actions that are applicable to alternative shutdown actions are characterized as Bin D actions.

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process



Bin B, C, E, F, G

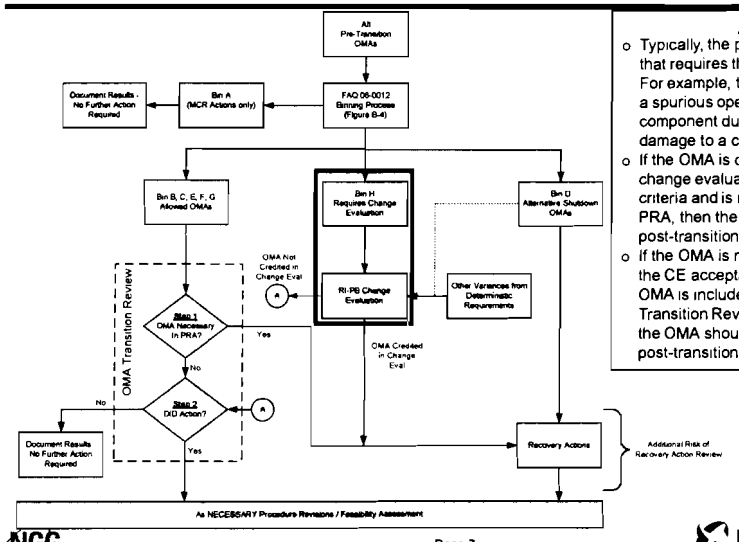
These actions are assessed in the OMA Transition Review to determine if the actions should be:

- o Recovery actions, or
- o Defense-in-depth actions, or
- o Neither recovery actions nor defense-in-depth actions.

Note: Bin F OMAs have prior NRC approval, and may be treated as recovery actions without additional OMA Transition Review. A licensee may choose to treat Bin F OMAs in other Bins as appropriate, and disposition them in accordance with the process

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

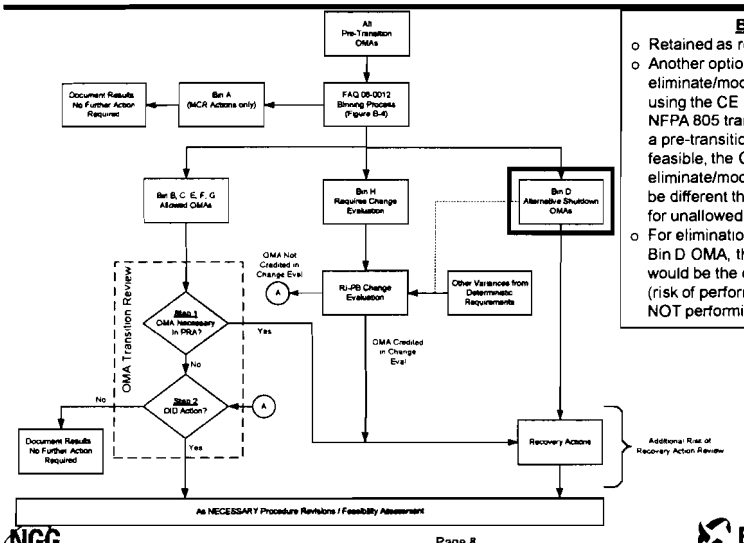


Bin H

- Typically, the pre-transition condition that requires the OMA is evaluated. For example, the condition could be a spurious operation of a component due to potential fire damage to a cable.
- If the OMA is credited to meet the change evaluation (CE) acceptance criteria and is modeled in the Fire PRA, then the OMA is considered a post-transition recovery action.
- If the OMA is not credited to meet the CE acceptance criteria, the OMA is included as part of the OMA Transition Review to determine if the OMA should be maintained as a post-transition DID action.

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

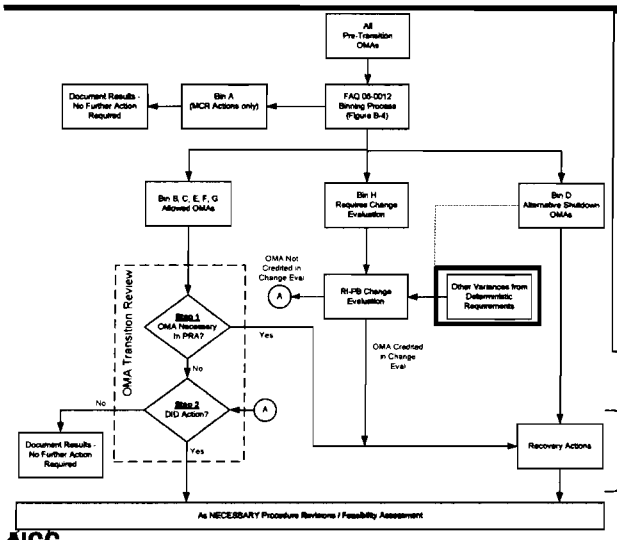


Bin D

- Retained as recovery actions
- Another option would be to eliminate/modify a Bin D OMA using the CE process as part of NFPA 805 transition. Assuming a pre-transition Bin D OMA is feasible, the CE process to eliminate/modify the OMA would be different than the CE process for unallowed OMAs.
- For elimination/modification of a Bin D OMA, the change in risk would be the difference between. (risk of performing) – (risk of NOT performing).

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process



Other Variances from Deterministic

- A variance may not be designated as a Bin H OMA.
  - If a cable lacks protection or separation per the pre-transition deterministic criteria, the CE will initially assess the condition for acceptability without crediting an OMA. An output of the CE may be the need for a post-transition recovery action (that did not exist as a pre-transition OMA), or the need for a post-transition DID action (that did not exist as a pre-transition OMA). These actions are included as part of the OMA Transition Review.

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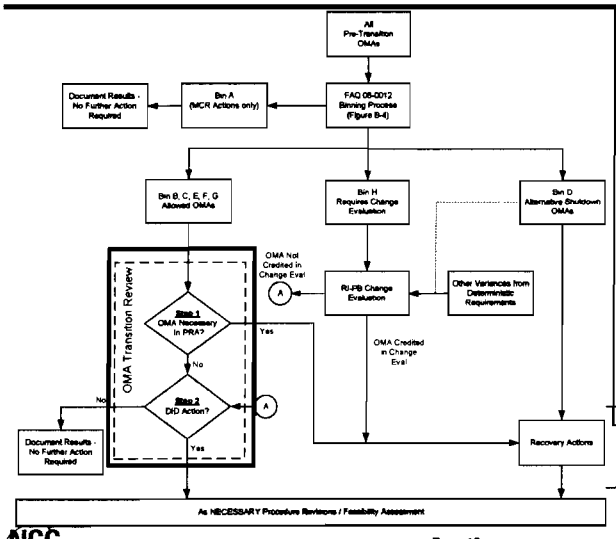
* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process



OMA Transition Review

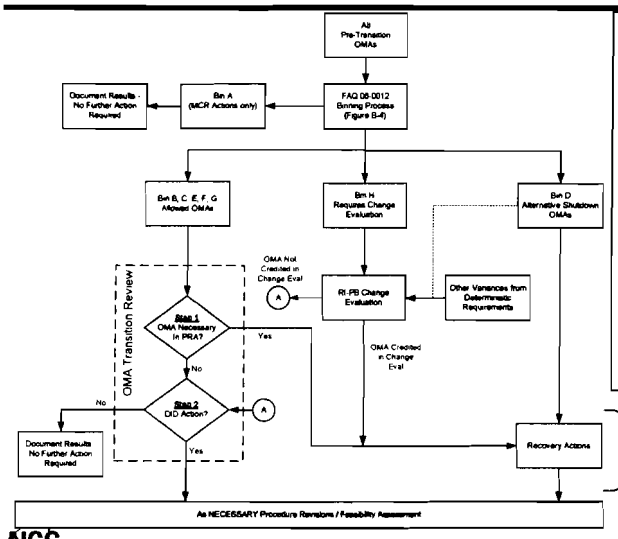
- Step 1:
  Identify OMAs that are modeled in the Fire PRA and provide a risk benefit such that inclusion in plant procedures is warranted. Example:
  - 10% risk reduction of individual fire scenario and scenario overall CDF is >1E06/yr
- Step 2:
  OMAs not modeled in the Fire PRA, or OMAs modeled in the Fire PRA that don't provide a risk benefit are assessed for retention as a DID action. Considerations
  - Fire PRA scenarios that involve the OMA/cable discrepancy
  - Timing of the action
  - Enhance existing defense-in-depth
  - Modeling differences between Fire PRA and NSCA.

NGG

Progress Energy

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process



Additional Risk Review

- Recovery Actions
  - Include in Fire PRA
  - Address risk impact qualitatively or quantitatively
  - Those with significant risk impact are identified along with the basis
- DID Actions
  - assessment of the additional risk is not required
- Negative Risk Review
  - Actions with a negative risk impact are resolved during NFPA 805 implementation via an alternate strategy that eliminates the need for crediting the action for success in the NSCA

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

Summary of Results

- All pre-transition OMAs reviewed
  - No recovery actions credited as a result of change evaluations (Bin H)
  - Control room evacuation recovery actions retained (Bin D)
  - Defense-in-Depth actions retained that enhance plant control (Bins B, C, E, F, G, H)
  - Main control room actions retained (Bin A)
- All retained actions reviewed against feasibility criteria

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

Criteria for Demonstrating Feasibility

- **Basis**
  - NEI 04-02, Rev. 1, *"Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program under 10 CFR 50.48(c)"*
  - Inspection Procedure IP 71111.05TTP, Issue Date 05/09/06, *"Fire Protection-NFPA 805 Transition Period (Triennial)"*
- **Attributes**
  - **Demonstrations**
    The proposed recovery actions should be verified in the field to ensure the action can be physically performed under the conditions expected during and after the fire event.
  - **Systems and Indications**
    Consider availability of systems and indications essential to perform the recovery action.

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

Criteria for Demonstrating Feasibility

- **Attributes (continued)**
  - **Communications**
    The communications system should be evaluated to determine the availability of communication, where required for coordination of recovery actions.
  - **Emergency Lighting**
    The lighting should be evaluated to ensure sufficient lighting is available to perform the intended action. Note NFPA 805 contains no requirement for emergency lighting with 8-hour battery power supply. If other than 8-hour battery powered lighting is credited an evaluation should be performed to assess that the lighting is sufficient.

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

Criteria for Demonstrating Feasibility

- **Attributes (continued)**
  - **Tools-Equipment**
    Any tools, equipment, or keys required for the action should be available and accessible. This includes consideration of SCBA and personal protective equipment if required. (Includes staged equipment for repairs)
  - **Procedures**
    Written procedures should be provided.
  - **Staffing**
    Walk-through of operations guidance (modified, as necessary, based on the analysis) should be conducted to determine if adequate manpower is available to perform the potential recovery actions within the time constraints (before an unrecoverable condition is reached), based on the minimum shift staffing. The use of essential personnel to perform actions should not interfere with any collateral industrial fire brigade or control room duties.

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

Criteria for Demonstrating Feasibility

- **Attributes (continued)**
  - **Actions in the Fire Area**
    When recovery actions are necessary in the fire area under consideration or require traversing through the fire area under consideration, the analysis should demonstrate that the area is tenable and that fire or fire suppressant damage will not prevent the recovery action from being performed.
  - **Time***
    Sufficient time to travel to each action location and perform the action should exist. The action should be capable of being identified and performed in the time required to support the associated shutdown function(s) such that an unrecoverable condition does not occur. Previous action locations should be considered when sequential actions are required.
    ** This feasibility criterion will be performed for time critical recovery and defense-in-depth actions (less than 2 hours).*

* See Page 20 (last page) for List of Acronyms

Operator Manual Action (OMA) Process

Criteria for Demonstrating Feasibility

- **Attributes (continued)**
  - **Training**
    Training should be provided on the post-fire procedures and implementation of the recovery actions.
  - **Drills**
    Periodic drills that simulate the conditions to the extent practical, (e.g., communications between the control room and field actions, the use of SCBAs if credited, the appropriate use of operator aids)

* See Page 20 (last page) for List of Acronyms

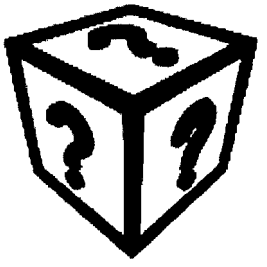
Operator Manual Action (OMA) Process

Summary

- Methodology provided for
  - Dispositioning pre-transition OMAs
  - Additional risk review of recovery actions
  - Feasibility evaluation
- All pre-transition OMAs reviewed
  - No recovery actions credited as a result of change evaluations (Bin H)
  - Control room evacuation recovery actions retained (Bin D)
  - Defense-in-Depth actions retained that enhance plant control (Bins B, C, E, F, G, H)
  - Main control room actions retained (Bin A)
- All retained actions reviewed against feasibility criteria

Operator Manual Action (OMA) Process

QUESTIONS



Operator Manual Action (OMA) Process

Acronyms:

CDF – Core Damage Frequency
CE – Change Evaluation
CRA – Control Room Action
DID – Defense-in-Depth
FAQ – Frequently Asked Question
HRA – Human Reliability Assessment
LAR – License Amendment Request
MCR – Main Control Room
NEI – Nuclear Energy Institute
NFPA – National Fire Protection Association
NRC – Nuclear Regulatory Commission
NSCA – Nuclear Safety Capability Assessment
OMA – Operator Manual Action
PRA – Probabilistic Risk Assessment
SCBA – Self Contained Breathing Apparatus
SM – Safety Margin

licensee explicitly identify the capability category, consistent with the fire PRA standard ASME/ANS-Ra-S-2007, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications." This identification should allow the NRC staff to see that PEC looked at the problem, the attributes and the supporting requirements to make the category determination. The licensee indicated the belief that their approach should be adequate to address the NRC staff's concerns, but would take another look to ensure the expectations were met.

At the completion of the formal presentations, the NRC staff provided a question and answer session for any interested members of the public. One public attendee had several questions regarding the control of combustible materials during the transition period, whether the analyses performed will cover both operating and outage conditions and whether the timelines considered all experience levels.

There were several members of the public in attendance both in the meeting room and by teleconference; however no feedback forms were received. No commitments or regulatory decisions were made by the NRC staff during the meeting.

/RA/

Eva A. Brown, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosures:
3. List of Attendees
4. Presentation Slides

cc w/enclosures: Distribution via ListServ

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