LESSONS LEARNED REPORT FROM THE THIRD

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 805

PILOT PLANT OBSERVATION VISIT

Date: November 6–9, 2006

Location: Progress Energy Headquarters, Raleigh, North Carolina

Attendees: Representatives from the following organizations attended the meetings:

Duke Power	NRC Headquarters
Progress Energy	NRC Region I
Kleinsorg Group	NRC Region II
Nuclear Energy Institute (NEI)	Pacific Northwest National Laboratory (PNNL)
Appendix R Solutions	ERIN Engineering and Research Inc

Subject: Risk-Informed, Performance-Based Fire Protection Transition Pilot-Plant Observation Visit – Raleigh, North Carolina

Agenda: See Attachment 1

Summary:

A U.S. Nuclear Regulatory Commission (NRC) transition pilot plant observation visit for implementation of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.48(c) was held with representatives from Progress Energy and Duke Power at Progress Energy Headquarters in Raleigh, North Carolina and at the Harris Nuclear Plant (HNP). Other utility and industry representatives were also present to observe the proceedings. Progress Energy and Duke Power presented the status for their respective transition projects and specific topics related to 10 CFR 50.48(c) implementation. This report's Attachment 1 provides the meeting agenda. Attachment 2 provides the "parking lot" issues raised by meeting participants. These issues are documented and tracked by industry as part of the pilot-plant observation visits. Attachment 2 also provides cross-references between "parking lot" issues and relevant NFPA 805 frequently asked questions (FAQ). Attachment 3 provides additional information, clarification, and details on "parking lot" items by NRC staff via issue summary sheets.

General Discussion:

Observation visits facilitate communications between NRC staff and the pilot plant licensees adopting 10 CFR 50.48(c) in order to: (1) gain experience with plant specific application of risk-informed, performance-based methods, including validation of the approach and methods of NEI 04-02, and Regulatory Guide (RG) 1.205; (2) identify regulatory and licensing issues that may impact implementation; and (3) identify improvements and lessons learned to be considered in future revisions and applications of the implementing guidance, methods, and future inspection procedures and inspector training.

ENCLOSURE

This trip supported the NRC observation visit for on-going pilot-plant activities by Progress Energy and Duke Power involving the transition from their current fire protection programs to a risk-informed, performance-based fire protection program that meets 10 CFR 50.48(c) and NFPA 805, as endorsed therein.

HNP and Duke Power's Oconee Nuclear Station (ONS) are the (currently) designated pilot plants for 10 CFR 50.48(c) implementation. Both utilities had representatives at the meeting to present their respective transition project status and to present information on specific topics as identified in the attached agenda (Attachment 1). The topics covered are works-in-progress and do not represent final analyses, processes, or procedures. The reference section of this report lists the presentations provided at the meeting.

Project Status:

Agenda Topic 1, Progress Energy NFPA 805 Project Status (Handout References 1-4): Progress Energy detailed the transition status for the HNP. Reference 2 provides a work breakdown structure indicating current and planned activities and includes indications of activities at other Progress Energy plants in addition to HNP. NFPA 805 Chapter 3 and 4 transition tasks are underway. Work continues on the fire probabilistic risk assessment (PRA) development tasks, Hemyc/MT technical evaluation (See Topic 2), and manual action feasibility. The current HNP schedule (Reference 3) indicates a May 2008, license amendment request (LAR) submittal and transition completion in mid-2009.

Agenda Topic 3, Duke NFPA 805 Project Status (Handout Reference 7): Duke Power provided transition status of the ONS. ONS Units 2 & 3 safe shutdown analysis reconstitution is complete. NFPA 805 Chapter 3 and 4 transition tasks are underway (e.g., Chapter 3 walkdowns complete, NEI 04-02 Table B-1 approximately 80% complete). Work continues on the fire PRA development tasks, transient analysis, and manual action feasibility. The current ONS schedule shows transition complete in the third quarter of 2007.

Specific Meeting Topics:

Attachment 1 lists Meeting topics, the "Handout References" section provides cross-reference between topics and handouts. This section of the trip report summarizes the specific meeting topics identified in the agenda and include information that resulted in identification of new parking lot issues, lessons learned, or other information that has the potential to influence regulatory or industry processes or guidance for implementation of NFPA 805. Attachment 3 provides issue summary sheets associated with the agenda topics:

Agenda Topic 1, Progress Energy NFPA 805 Project Status (Handout Reference 1 -4): See "Project Status" discussion above. In addition to project status, Progress Energy emphasized the need for keeping the "parking lot" clear, resolution of FAQs, and timely NRC trip reports as essential to adherence to their schedule. Progress Energy provided a "strawman" schedule for Pilot Plant Observation visits (Reference 4) that is consistent with their schedule, but will have to be coordinated with the Duke Energy schedule for ONS.

Agenda Topic 2, Progress Energy – Hemyc/MT Status (Handout Reference 7): Progress Energy's MT 3-hour Electrical Raceway Fire Barrier System (ERFBS) testing indicates its applications may be acceptable using performance based approach. Hemyc testing at Intertek Labs scheduled for November 17 and December 14 will test configurations for multiple trays, multiple conduits, include supports, terminations, and contain plant specific cable fills.

Agenda Topic 3, Duke NFPA 805 Project Status (Handout References 5-6): See "Project Status" discussion above.

Agenda Topic 4, Parking Lot Issues (Attachment 2): See separate discussions below and in Attachment 2.

Agenda Topic 5, FAQ 06-0004 Discussion (Handout Reference 8): Progress Energy led a discussion on FAQ 06-0004, "Relationship between Chapter 3 and Chapter 4 systems." A number of sections of NFPA 805 Chapter 3 are dependent upon requirements for protection in Chapter 4 (e.g., ERFBS, traditional fire barriers, suppression, and detection). Concerns are that utilities could inadvertently remove defense-in-depth (DID) for systems under consideration based on risk alone. Discussions included a review of the flowcharts for fire protection systems, NFPA 805's definition of DID, and 10 CFR 50.48(c) statements of consideration for information related to general design criteria (GDC) 3 / 10 CFR 50.48(a). NRC will provide comments on FAQ 06-0004 by November 30, 2006, and Progress Energy will update FAQ 06-0004 to further address DID systems. **Issue Summary Sheets 7 and 22** document these concerns.

Agenda Topic 6, Progress Energy NFPA 805 Chapter 3 Topics/Results (Handout References 9-14): Progress Energy presented the status of their NFPA 805 Chapter 3 efforts. The 82 paragraphs of Chapter 3 required 200 staff-hours to review and were categorized in NEI 04-02 Table B-1 into one of six categories (i.e., comply, comply with clarification, complies with previous approval, LAR, further action required, or N/A). Seventeen paragraphs appear to be new requirements (Reference 12). Clarification of ten paragraphs may require new FAQs (Reference 9, pages 10-18). An additional FAQ clarify/standardizing the terms used in NEI04-02 Table B-1 will also be considered. Participants requested that this FAQ also address other items such as mapping of old Branch Technical Position (BTP) references (i.e., a tool not a requirement to list) and clarify the table format is not rigid (i.e., database, other report formats are acceptable). **Issue Summary Sheet 23** documents this concern.

Agenda Topic 7, Duke 805 Chapter 3 Topics/Results (Handout Reference 15-17): Duke Energy and Nexus presented the status of their NFPA 805 Chapter 3 efforts for ONS. Duke Energy has accomplished two tasks associated with Chapter 3, a population of NEI 04-02 Table B-1, and walkdowns to verify fire protection features and NUREG/CR-6850 ignition sources in each fire zone. This latter task included relating any fire protection program elements in a zone to prior licensing commitments. Duke Energy and Nexus made similar changes to the recording and enhancing information in NEI 04-02 Table B-1 as Progress Energy. As noted in Topic 6, a FAQ clarifying the terminology and acceptability of alternate (e.g., database) information storage will be required, as concerns exist over consistency of final documentation (primarily for non-pilot plants). The group agreed that this is an NFPA 805 Task Force Item. **Issue Summary Sheet 23** documents these concerns.

Agenda Topic 8, Progress Energy Follow-up on Ignition Source Counting Issues (Handout Reference 18 - 21): Progress Energy provided a follow-up from the ONS Pilot in October 2006, concerning ignition source counting issues. Topics included: Draft FAQ 06-0016, "Electrical Cabinet Counting (Bin 15);" Draft FAQ 06-0017, "High Energy Arcing Faults (Bin 16)"; and Draft FAQ 06-0018, "MCB [Main Control Board] counting (Bin 4)" (see References 19 – 21). In addition, another FAQ is under development for miscellaneous counting issues. The NRC requested clarification on location of high energy arcing faults (HEAF) and bounds of the motor control center clarification (e.g., only applicable to molded case breakers in MCC) in FAQ 06-0016. **Issue Summary Sheet 21** documents these concerns.

Agenda Topic 9, Progress Energy NFPA 805 Chapter 4 Topics/Results (Handout Reference 22): Progress Energy presented their Nuclear Safety Performance Criteria transition. This included their methodology and fire area transition processes was well as alternate safe shutdown (ASD) considerations. Progress specifically noted that Chapter 4 work is dependent on resolution of five current outstanding FAQs (06-0004, 06-0006, 06-0008, 06-0011, and 06-0012). **Issue Summary Sheets 3, 4, 7, and 8** documents these concerns. ASD operator manual actions (recovery actions) played a role in most of the discussions and will need to be resolved to complete this work. For example, issues surround the need to model recovery actions in the fire PRA when the recovery actions have existing documentation as to their acceptability. Discussion indicated NEI 04-02 Table B-3 defines content and not format (similar to the Chapter 3 discussions concerning NEI 04-02 Table B-1). **Issue Summary Sheet 23** documents this issue**.**

Agenda Topic 10, Duke NFPA 805 Chapter 4 Topics/Results (Handout Reference 23): Duke Energy discussed their Nuclear Safety Performance Criteria transition. Duke found the issue concerning content versus format discussed for NEI 04-02 Tables B-1 and B-3 also applies to Table B-2 and presented their alternate format (Reference 23, page 8). Duke recommends, as a lesson-learned from this effort, that databases are more useful in managing the required information versus strict adherence to a table format. **Issue Summary Sheet 23** documents this issue. As with the Progress Energy effort FAQ 06-0011 may have significant impact on the level of effort required for the ONS transition. If ASD areas are not transitioned deterministically a significant number of performance based, risk-informed (PB/RI) evaluations will be required. **Issue Summary Sheet 24** documents this issue. Duke specifically stipulated that a PB/RI approach begins to look like a change evaluation and that this should not be required if in compliance with III.G.3.

Agenda Topic 11, Progress Energy NFPA 805 Data and Process (Handout Reference 24): Progress Energy discussed the different tools, processes, and documents used and developed for current compliance and planned post-transition compliance. NRC requested input from Pilot plants on cost and scope of NFPA 805 transition efforts (with emphasis on physical plant modifications) in order to help NRC management understand licensee efforts and potential benefits.

Agenda Topic 12, NRC Perspectives (Handout Reference 25): NRC provided a perspective of the Pilot Plant transition process. Recovery action (operator manual actions) discussions held at this time resulted indicated there are issues needs/methods to report this information as part of the transition (**Issue Summary Sheet No 24** documents this issue). Industry expressed issues concerning NRC endorsement of American Nuclear Society (ANS) fire PRA standard

and potential problems regarding lack of endorsement (**Issue Summary Sheet No. 5** documents this concern).

Agenda Topic 13, NEI Perspectives (Handout Reference 26): NEI led a discussion on the NEI NFPA 805 Task Force. The NFPA 805 Task Force provides mechanisms for the resolution of technical issues and acts as communication hub. Constellation raised concerns and questions on ability to effectively follow and learn pilot plants. NEI proposed extending non-pilot enforcement discretion to allow non-pilot LAR submittal to be six months following the first pilot plant License Amendment Safety Evaluation Report (actions given to NEI Task Force for consideration as a FAQ).

Parking Lot Issues Summary:

The attached "parking lot" (see Attachment 2) documents issues and needs identified during observation meeting presentations and related discussions. Industry uses the parking lot to track identified issues and updates the list to close resolved items, revise existing items as necessary, and open new items for issues identified during the meeting.

Meeting participants identified ten new "parking lot" items and closed four. The updated "parking lot" provides information on the actions taken, a summary of the meeting discussions on the specific issues, and whether a FAQ is associated with the item.

Parking Lot Issues Assigned to NRC:

Participants at the November 2006 meeting closed the following item identified and assigned to the NRC during a previous meeting:

Item 20: This issue is associated with the peer review process for the Progress Energy and Duke Power 10 CFR 50.48(c) implementation fire PRAs. The PRA peer review by NRC staff for the pilot plants is part of the observation process. Fire PRA methods and results will be used in support of change evaluations during transition and the industry requested NRC input on how the "in progress" peer review will be performed and documented to provide some degree of certainty in the use of the fire PRA in support of transition activities. Progress Energy's "strawman" schedule (Reference 4) provides the basis for closure of this item. New **Item 31** created to track.

The NRC accepted assignment of two new items during the November 2006 meeting.

Item 31: (related to closure of **Item 20** above): The NRC is to provide feedback to Progress Energy on "strawman" 2007 schedule (Reference 4) for interim review of deliverables (in particular, the PRA activities). Duke is to provide NRC with PRA schedule information to plan review activities.

Item 37: Determine whether the NRC plans to endorse the ANS fire PRA standard in RG 1.200 or wait for an integrated standard.

Issue Summary Sheets

Following the March 2006 meeting, the NRC staff determined that additional information, clarification, and detail (to that provided in the "parking lot" table) was needed to convey pilot-plant identified issues and lessons learned to the non-pilot licensees and other interested parties that are not directly involved in the pilot-plant transition and observation process. The enclosed issue summary sheets (Attachment 3) address these needs. In addition, issue summary sheets combine items identified in the "parking lot" that related.

Plans for Next Observation Meeting:

Meeting participants discussed plans for future observation meetings and tentative meeting schedules. Progress Energy provided a "strawman" for a 2007 schedule (Reference 4) for interim review of deliverables (in particular, the PRA activities) and Duke is to provide NRC with PRA schedule information to facilitate planning of review activities. "Parking Lot" **Item 31 to 40** tracks these efforts.

Attachments:

1. NFPA 805 Transition Observation Visit at Progress Energy Headquarters, Agenda, Raleigh NC – November 6-9, 2006

2. NFPA 805 Transition Observation Visit at Progress Energy Headquarters, Updated Parking Lot , Raleigh, NC – November 6-9, 2006 (Meeting Agenda Topic 4)

3. NFPA Pilot-Plant Implementation Issue Summary Sheets

Handout References:

1. NFPA 805 Pilot Observations Meeting, Progress Energy Transition Status, Paul Gaffney, Jeff Ertman, Progress Energy, November 7, 2006 - Meeting Agenda Topic 1.a - Slide Presentation.

2. Progress Energy (PE) Fire Protection Initiatives Project with NFPA Transition Work Flow, Jeff Ertman, Progress Energy November 7, 2006 - Meeting Agenda Topic 1.b - Slide Presentation

3. PE NFPA 805 Transition Outlook 2007, Jeff Ertman, Progress Energy, November 7, 2006 - Meeting Agenda Topic 1.c - Slide Presentation

4. Strawman Schedule 2007 NRC Harris Pilot Observation Reviews, Jeff Ertman, Progress Energy, November 7, 2006 - Meeting Agenda Topic 1.d - Slide Presentation

5. PE – Hemyc/MT Status, Mike Fletcher, Progress Energy, November 7, 2006 - Meeting Agenda Topic 2.a - Slide Presentation

6. PE – Hemyc Testing Items, Mike Fletcher, Progress Energy, November 7, 2006 - Meeting Agenda Topic 2.b - Slide Presentation

7. Duke Power NFPA 805 Transition Pilot Observation Project Status, Harry Barrett, Duke Energy, November 7, 2006 - Meeting Agenda Topic 3 - Slide Presentation

8. FAQ 06-004, Clarifying the Relationship Between Chapter 3 & 4 of NFPA 805 and Defense-in-Depth, Alan Holder, Progress Energy, November 7, 2006 - Meeting Agenda Topic 5 - Slide Presentation

9. PE NFPA 805 Chapter 3 Transition, Mike Fletcher, Shirelle Johnson, Progress Energy November 7, 2006 - Meeting Agenda Topic 6.a - Slide Presentation

10. Fire Protection Initiatives Project, Project Instruction, FPIP-0120, "NFPA 805 Chapter 3 Fundamental Transition," Revision 1A Draft, Progress Energy, November 7, 2006 – Meeting Agenda Topic 6.b – Draft Instruction

11. Results of Review – Examples, Mike Fletcher, Progress Energy, November 7, 2006 - Meeting Agenda Topic 6.c - Slide Presentation

12. Chapter 3 sections with no similar NUREG-0800 requirements, Mike Fletcher, Progress Energy, November 7, 2006 - Meeting Agenda Topic 6.d - Slide Presentation

13. HNP Chapter 3 Further Actions Required, Mike Fletcher, Progress Energy, November 7, 2006 - Meeting Agenda Topic 6.e - Slide Presentation

14. Carolina Power & Light Company, Calculation HNP-M/BMRK-0007, "Code Compliance Evaluation NFPA 20 – Centrifugal Fire Pumps", Progress Energy, November 7, 2006 - Meeting Agenda Topic 6.f – Calculation

15. Oconee NFPA-805 Project, Chapter 3 Initiative, Harold Lefkowitz, Duke Energy, November 8, 2006 - Meeting Agenda Topic 7.a - Slide Presentation

16. Oconee Nuclear Station NFPA 805 Chapter 3 Transition, NEI 04-02 Table B-1, Corey Kinsman, Nexus, November 8, 2006 - Meeting Agenda Topic 7.b - Slide Presentation

17. NFPA 805 Chapter 3 Transition Fire Hazards Analysis Verification, Oconee Nuclear Station, Robert Jackson, Nexus, November 8, 2006 - Meeting Agenda Topic 7.c - Slide Presentation

18. NFPA 805 Pilot Observation Meeting, Fire PRA Ignition Source Counting, Dave Miskiewicz, Progress Energy, Kiang Zee, ERIN, November 8, 2006 - Meeting Agenda Topic 8.a - Slide Presentation

19. FAQ 06-0016, Revision 0a, "Clarification/enhancement of Ignition Source couting guidance for Electrical Cabinets in NUREG/CR-6850, supporting NFPA-805 Fire PRA application," David Miskiewicz, Progress Energy, November 8, 2006 - Meeting Agenda Topic 8.b - Slide Presentation

20. FAQ 06-0017, Revision 0a, “Clarification/enhancement of Ignition Source counting guidance for High Energy Arcing Faults (HEAF) in NUREG/CR-6850, supporting NFPA-805 Fire PRA application,” David Miskiewicz, Progress Energy, November 8, 2006 - Meeting Agenda Topic 8.c - Slide Presentation

21. FAQ 06-0018x, Revision 0a, “Clarification/enhancement of Ignition Source counting guidance for Main Control Board in NUREG/CR-6850, supporting NFPA-805 Fire PRA application,” David Miskiewicz, Progress Energy, November 8, 2006 - Meeting Agenda Topic 8.d - Slide Presentation

22. Harris Nuclear Plant Nuclear Safety Performance Criteria Transition, Kieth Began, Bob Rhodes, Progress Energy, November 8, 2006 - Meeting Agenda Topic 9 - Slide Presentation

23. Duke Power NFPA 805 Ch 4 Transition, Harry Barrett, Duke Energy, November 8, 2006 - Meeting Agenda Topic 10 - Slide Presentation

24. SSA Transition Pre and Post Transition, Steve Hardy, Progress Energy, November 8, 2006 - Meeting Agenda Topic 11 - Slide Presentation

25. NRC Perspective of Pilot Plant Transition, Paul Lain, NRC, November 9, 2006 - Meeting Agenda Topic 12 - Slide Presentation

26. NEI NFPA 805 Task Force, Jim Riley, NEI, November 9, 2006 - Meeting Agenda Topic 13 - Slide Presentation

The above handout references are available in ADAMS Accession No. ML063310386.

Attachment 1 Trip Report
Pilot Plant Observation Meeting
November 6 - 9, 2006

NFPA 805 Meeting for Harris and Oconee Pilot Plants NRC Observation Meeting Topics and Agenda, Raleigh, NC – November 6 - 9, 2006				
		Topic	**Lead Presenter**	**Topic Notes**
Monday November 6	1400 - 1750	Harris Nuclear Plant walkdown for select NRC and industry attendees	N/A	
Tuesday November 7	0830 - 0845	Introductions, Meeting Kickoff	Gaffney	Topic 1, Reference 1
	0845 - 0900	Progress Energy (PE) NFPA 805 Project Status	Ertman	Topic 1, References 1-4
	0900 - 0915	PE – Hemyc/MT Status	Fletcher	Topic 2, References 5-6
	0915 - 0945	Duke NFPA 805 Project Status	Barrett	Topic 3, Reference 7
	0945 - 1000	Break		
	1000 - 1110	Parking Lot Issues		Topic 4, Attachment 2
	1110 - 1130	FAQ 06-0004 Discussion	Holder	Topic 5, Reference 8
	1300 - 1700	PE NFPA 805 Chapter 3 Topics/Results	Fletcher	Topic 6, References 9-14
Wednesday November 8	0830 - 1130	Duke NFPA 805 Chapter 3 Topics/Results	Lefkowitz	Topic 7, References 15-17
	1130 - 1300	Lunch		
	1300 - 1330	PE Follow-up on Ignition Source Counting Issues	Miskiewicz	Topic 8, References 18-21
	1330 - 1445	PE NFPA 805 Chapter 4 Topics/Results	Began	Topic 9, Reference 22
	1445 - 1500	Break		
	1500 - 1540	Duke NFPA 805 Chapter 4 Topics/Results	Barrett	Topic 10, Reference 23
	1540 - 1600	PE NFPA 805 Data and Process	Hardy	Topic 11, Reference 24
	1600	Wrap-up		

NFPA 805 Meeting for Harris and Oconee Pilot Plants NRC Observation Meeting Topics and Agenda, Raleigh, NC – November 6 - 9, 2006				
		Topic	**Lead Presenter**	**Topic Notes**
Thursday November 9 Information Sharing Meeting[1]	0830 - 0845	Introductions/Transition Status	Gaffney Ertman - PE Status Barrett - Duke Status	Topics 1 & 2
	0845 - 1130	Summary of Results Questions and Answers	Fletcher – HNP Lefkowitz - ONS	Topics 3 – 11 Summary
	1130 - 1300	Lunch		
	1300 - 1400	NRC Perspectives	Lain	Topic 12, Reference 25
	1400 - 1430	NEI Perspectives	Riley	Topic 13, Reference 26

[1] Information Sharing Meeting was open to invited utilities and selected consultants.

Attachment 2 Trip Report
Pilot Plant Observation Meeting
November 6 – 9, 2006

NFPA 805 Transition Observation Visit & Information Sharing Meeting Raleigh, NC - November 6 - 9, 2006 – Attachment 2: Updated Parking Lot							
No	**Topic**	**Assigned To**	**Actions**	**Schedule**	**Action Taken**	**March/October/November 2006 Discussion**	**FAQ Action**
1	How will Reactor Oversight Process deal with multiple spurious operations? Low significance vs. high significance. Philosophical approach for RI-PB treatment of multiple spurious operations is in NEI 04-02. 'Endorsement' of process will be accomplished via Reg. Guide.	Duke / Progress	ROP (new) / NEI 04-02 Methodology for Expert Panel Update Markup to P. Lain 3/28/06 flowchart Review of MC 0612	**March 2007 (HNP Pilot Mtg)**	NRC (Paul Lain) presented flowchart for "unevaluated Multiple Spurious operations" on 03/27/06. It included a screening process that included CAP and comp. measure inclusion, and documentation of the issue as a potential URI based upon risk significance.	Concerns and questions were raised about the process and the burden associated with URIs. Look at minor violation questions for MC 0612 – to see if 'potential multiple spurious operation findings' are adequately addressed. 1E-08 threshold for screening. Is it an appropriate value to use and consistent with the ROP? (NEI 04-02, NUREG-6850. RG 1.205) Pilot plants to provide comments on NRC flowchart and potential changes to NEI 04-02. **Pilot Plants to provide Update by March 2007**	Potential
2	Consider Fussell-Vesely risk importance criteria for spurious operations in the gray area.					**[CLOSED] Refer to previous version of parking lot for details.**	No
3	Clarify approved/unapproved manual actions for change analysis.						**Closed to FAQ 06-0001 and 06-0012 October 2006**
4	NRC feedback on high-low pressure interface methodology and other items.						**Closed to FAQ 06-0006 October 2006**
5	Submittal/approval relative to Fire PRA peer review. Will the peer review be a prerequisite for license amendment submittal / approval.					**[CLOSED] Refer to previous version of parking lot for details.**	No

NFPA 805 Transition Observation Visit & Information Sharing Meeting Raleigh, NC - November 6 - 9, 2006 – Attachment 2: Updated Parking Lot							
No	**Topic**	**Assigned To**	**Actions**	**Schedule**	**Action Taken**	**March/October/November 2006 Discussion**	**FAQ Action**
6	Non-power operational modes PRA requirements will be a 'show stopper'.					**[CLOSED] Refer to previous version of parking lot for details.**	No
7	NEI 04-02 needs to be clearer on the relationship between NFPA 805 Chapter 3 and 4 requirements.						**Closed to FAQ 06-0004** **October 2006**
8	Recommend making nuclear safety questions first in screening reviews.						**Closed to FAQ 06-0002** **October 2006**
9	Clean up all change evaluation examples and send to NRC.					**[CLOSED to Item 10] Refer to previous version of parking lot for details.**	No
10	Modify NEI 04-02 to "show the path through" fire area boundary qualification.						**Closed to FAQ 06-0008** **October 2006**
11	Guidance for performing preliminary risk screening.					**[CLOSED] Refer to previous version of parking lot for details.**	No
12	Change Question 4.f to "potentially greater than minimal" vs. "greater than minimal"						**Closed to FAQ 06-0003** **October 2006**
13	How should the screening question be "reviewed" by the PRA engineers?					**[CLOSED] Refer to previous version of parking lot for details.**	
14	Consider having others serve as role of AHJ with respect to prior approval of Ch. 3 anomalies.					**[CLOSED to No. 10] Refer to previous version of parking lot for details.**	
15	Match up NEI 04-02 with RG 1.205 for baseline (Section 2.2 of Draft RG 1.205)						**Closed to FAQ 06-0010** **October 2006**
16	How are interim changes to NEI 04-02 and issues going to be handled administratively?					**[CLOSED] Refer to previous version of parking lot for details.**	
17	Impact of circuit failure draft proposed RIS (May 2005) and Generic Letter (October 2005)					**[CLOSED] Refer to previous version of parking lot for details.**	
	Items started at PE Pilot (March 2006)						

NFPA 805 Transition Observation Visit & Information Sharing Meeting Raleigh, NC - November 6 - 9, 2006 – Attachment 2: Updated Parking Lot							
No	**Topic**	**Assigned To**	**Actions**	**Schedule**	**Action Taken**	**March/October/November 2006 Discussion**	**FAQ Action**
18	Format for NEI 04-02 Appendix B NSPA methodology transition process.						**Closed to FAQ 06-0013 October 2006**
19	Need to provide definitions and examples of related and unrelated changes.						**Closed to FAQ 06-0005 October 2006**
20	NRC provide any specific needs for "in progress" Fire PRA Peer Review This is relative to NRC stated intent to credit the observation process in instead of a Peer Review.	NRC and Progress	Provide proposed schedule at Nov. 2006 Pilot Mtg for NRC review of PRA task documents (estimated Jan. – Feb. 2007)	11/6/06		**11/7/06 Discussion** Item closed based on PE 'strawman' schedule for 2007 presented at 11/7/06 meeting. New item 31 (related) created. **[CLOSED]**	None
21	Reconciliation of different risk acceptance thresholds (RG 1.205, ROP acceptance, MSO acceptance).	Duke / Progress	Table of data and recommendations for change. Create FAQ?	4/30/07		Discussed at Oct. 2006 Pilot Mtg. Guidance will be needed prior to performance of change evaluations.	Potential
22	Update Appendix I of NEI 04-02 to include non-power operational mode change evaluation.	NEI	Create FAQ to provide specific guidance.	05/31/07			Potential
23	Discussion was held over wording related to FPP systems and features for the purposes of an FPP change.						**Closed to FAQ 06-0005 October 2006**
24	NRC expressed concern over "dividing up" individual changes that are small.						**Closed to FAQ 06-0014 October 2006**

NFPA 805 Transition Observation Visit & Information Sharing Meeting Raleigh, NC - November 6 - 9, 2006 – Attachment 2: Updated Parking Lot							
No	**Topic**	**Assigned To**	**Actions**	**Schedule**	**Action Taken**	**March/October/November 2006 Discussion**	**FAQ Action**
	Items started at ONS Pilot (October 2006)						
25	ONS Fire PRA are based on the fire zones as defined in the FP Program, which are not necessarily based on physical barriers or features that are subject to any rigorous treatment. The discussion with the NRC highlighted concerns with respect to the treatment of such compartment in the Fire PRA and the consistency of that treatment with the guidance provided in NUREG/CR-6850. Questions arose over impact of this approach on other tasks and level of documentation needed to justify this approach.	Duke	Provide clarification on methodology.	TBD		**11/7/06 Update** Closed due to change in Duke approach. PE will create similar item if issues arise at the PE sites. **[CLOSED]**	Potential
26	The NUREG/CR- 6850 methodology includes a specific frequency Bin for the treatment of the main control board in the Main Control Room (Bin 4 of Table 6-1). While the general description of this board by making Reference to the 'horseshoe', is generally correct, there are control room layout details that create some ambiguity, and the potential to characterize other electrical panels/cabinets as Bin 15. The guidance in NUREG 6850 is not clear enough to result in consistent application.	Duke	Provide clarification on methodology (FAQ?)	11/6/06 (HNP Pilot Mtg.)		High priority	FAQ 06-0018

NFPA 805 Transition Observation Visit & Information Sharing Meeting Raleigh, NC - November 6 - 9, 2006 – Attachment 2: Updated Parking Lot							
No	**Topic**	**Assigned To**	**Actions**	**Schedule**	**Action Taken**	**March/October/November 2006 Discussion**	**FAQ Action**
27	NUREG/CR-6850 does not provide explicit guidance for the counting of plant electrical cabinets. Two basic approaches were debated. The Method 1 approach would count each individual electrical cabinet based on the physical boundaries of that cabinet independent of size or length. Method 2 would count electrical cabinets based solely on size.	Duke and Progress	Provide clarification on methodology (FAQ?)	11/6/06 (HNP Pilot Mtg.)		High priority **11/8/06 Update** FAQ 06-0016 presented at the meeting. **[CLOSED]**	FAQ 06-0016
28	The overall counting method guidance for switchgears, load centers, unit substations, and bus ducts is not completely clear. The concern is that counting these component types for Bin 16 using the Bin 15 method could result in a fire frequency distribution for HEAFs for switchgears and load centers that is inconsistent with industry experience in that the HEAF on the load centers and load centers would be much more frequent as compared to switchgears. A proposed change to the counting method for this Bin is proposed so that the HEAF frequency for low voltage equipment would be weighted to a lesser degree.	Duke / Progress	Provide clarification on methodology (FAQ?)	11/6/06 (HNP Pilot Mtg.)		High priority **11/8/06 Update** FAQ 06-0017 presented at the meeting. **[CLOSED]**	FAQ 06-0017
29	Miscellaneous ignition frequency binning issues. Questions arise during ignition frequency counting, such as: ○ MOV motors ○ Hydraulic actuators for valves ○ Transformers.	Duke / Progress	Provide clarification on methodology (FAQ?)	12/31/06		High priority	Potential

NFPA 805 Transition Observation Visit & Information Sharing Meeting Raleigh, NC - November 6 - 9, 2006 – Attachment 2: Updated Parking Lot							
No	**Topic**	**Assigned To**	**Actions**	**Schedule**	**Action Taken**	**March/October/November 2006 Discussion**	**FAQ Action**
30	There is potential confusion over the role of 10 CFR 50.48(a) for a plant that is transitioning to NFPA 805. This may impact the scope of the transition and post-transition program management.	Duke	Provide clarification on the role of 10 CFR 50.48(a) with a post-transition fire protection program.	12/31/06		**11/7/06 HNP Pilot Discussion** Discussion held on information available in promulgation of 10 CFR 50.48(c) on 6/8/04 [ADAMS Accession No. ML041340086]. New FAQ to be issued to update NEI 04-02.	Yes
	Items started at PE Pilot (November 2006)						
31	NRC to provide feedback to PE on 'strawman' 2007 schedule for interim review of deliverables (in particular, the PRA activities). Duke to provide NRC with PRA schedule information to plan 'peer review' activities.	NRC / Duke / Progress	Work together on plan for peer review	12/31/06		Added 11/7/06	
32	What to do about the new requirement for seismic hose stations (NFPA 805 Section 3.6.4, considering info in 10 CFR 50.48(c)))	Duke / Progress	Provide proposed resolution.			Added 11/8/06	
33	What to do about the new 'requirement' for suppression for the diesel fire pump (NFPA 805 Section 3.9.4).	Duke / Progress	Provide proposed resolution.			Added 11/8/06	
34	What to do about the new requirement for qualified cable (NFPA 805 Section 3.3.5.3, considering info in 10 CFR 50.48(c))	Duke / Progress	Provide proposed resolution.			Added 11/8/06	

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No	**Topic**	**Assigned To**	**Actions**	**Schedule**	**Action Taken**	**March/October/November 2006 Discussion**	**FAQ Action**
35	Need additional discussion on FAQ 06-0011 (ASD area transition). Discussion was held at the 11/8/06 meeting on how an ASD fire area (in particular operator manual actions) transition over. Confusion was voiced over the characterization of ASD fire areas as 'deterministic', while recovery actions are defined in NFPA 805 as 'performance-based.' This issue needs additional clarification.	Duke / Progress	Provide proposed resolution.			Added 11/8/06	
36	Discussion was held on assessing the risk of recovery actions (operator manual actions) and the need/methods to perform/report this information as part of transition. Reference Section 4.2.4 of NFPA 805. NRC expressed concerns over risk significant operator manual actions.	Duke / Progress				Added 11/9/06	
37	Determine whether the NRC plans to endorse the ANS Fire PRA standard in RG 1.200 or wait for an integrated standard. The impact on non-pilots requiring peer review needs to be understood.	NRC / NEI				Added 11/9/06	
38	Determine information sharing between task force members (details of project / products).	Duke / PE / NEI					
39	Question was raised on allowing the NRC to have some specific access to the NEI NFPA 805 webboard.	NEI					
40	With respect to getting acknowledgment from the NRC, NEI stated that working level task progress could be posted on the NEI Webboard. This could be used to get information out on specific tasks to the non-pilot plants.	NEI / Duke / Progress					

Attachment 3 Trip Report
Pilot Plant Observation Meeting
November 6 – 9, 2006

Issue Summary Sheets

National Fire Protection Association (NFPA) 805 Pilot-Plant Implementation
Issue Summary Sheet No. 1

Topic: Multiple Spurious Operation - Treatment of newly identified multiple spurious operations in reactor oversight process (ROP) prior to risk significance determination

Associated Observation Meeting Parking Lot Item(s): 1

Description: Nuclear Energy Institute (NEI) 04-02, Appendix B-2, which, in turn, references NEI 00-01 describes the proposed industry approach to evaluating multiple spurious operations. The proposed approach is to analyze all single spurious operations and risk-significant multiple spurious operations. The approach includes a provision that new multiple spurious operations identified through the review processes are not part of the licensing basis unless determined to be risk significant. The issue requiring further evaluation is how the ROP treats this approach to exclude initially new multiple spurious from the license basis (until determined to be risk significant).

Status: OPEN. This issue, initially identified during the November 2005 pilot-plant observation meeting, assigned action to the U.S. Nuclear Regulatory Commission (NRC) staff to review the ROP relative to treatment of newly identified multiple spurious operations prior to evaluation for risk significance.

The NRC staff presented a flowchart during the March 2006 pilot plant observation meeting that illustrated how new multiple spurious operations (identified during inspections) would be treated. (See flow chart below.) The NRC staff also conveyed the following information during the meeting:

- If the circuit issue identified by the inspector and its related omitted contributors are "greater than Green" OR "constitute a violation of defense-in-depth" or "safety margins", in spite of using an appropriate screening tool, which would constitute a minor violation. If the inspector determines that the licensee's screening tool is flawed, that would constitute a violation. Here "related contributors" are those that are associated via the same root cause, fire scenario, or fire area.

- If the circuit issue identified by the inspector and its related contributors that were also omitted are "less than Green" AND "do not constitute a violation of defense-in-depth" or "safety margins" AND the licensee has used an appropriate screening tool, no further action is warranted. However, if the inspector determines that the licensee's screening tool is flawed, that would constitute a minor violation.

The process outlined in the flowchart documents (new) unevaluated multiple spurious operations as unresolved items (URI) and proposes a risk threshold below which the multiple spurious operation is screened (a potential threshold for such "treatment" of 1 E-08/yr delta-CDF [1 E-09/yr delta LERF] was offered for discussion). Industry raised the concern that documenting all multiple spurious operations as URIs pending evaluation will create a significant cost and resource impact because all URIs require formal disposition and even those classified as minor can require 1000 hours. Industry's preference would be to not treat the new multiple spurious as a URI, but to disposition the issue within the fire probabilistic safety assessment (PSA) process. Consensus was to review the minor questions in Inspection Manual

Chapter (IMC) 0612, and suggest development of new questions if necessary such that multiple spurious operations below a certain threshold are minor and treated accordingly.

Resolution Action(s)/Action Party: OPEN. Industry and pilot-plant participants agreed to review the flowchart, IMC 0612 questions, screening thresholds and provide feedback to the NRC at the next observation meeting. The industry may also submit an frequently asked questions (FAQ) on the issue.

Associated FAQ: Planned, but not submitted.

Lesson Learned: Pending resolution of issue.

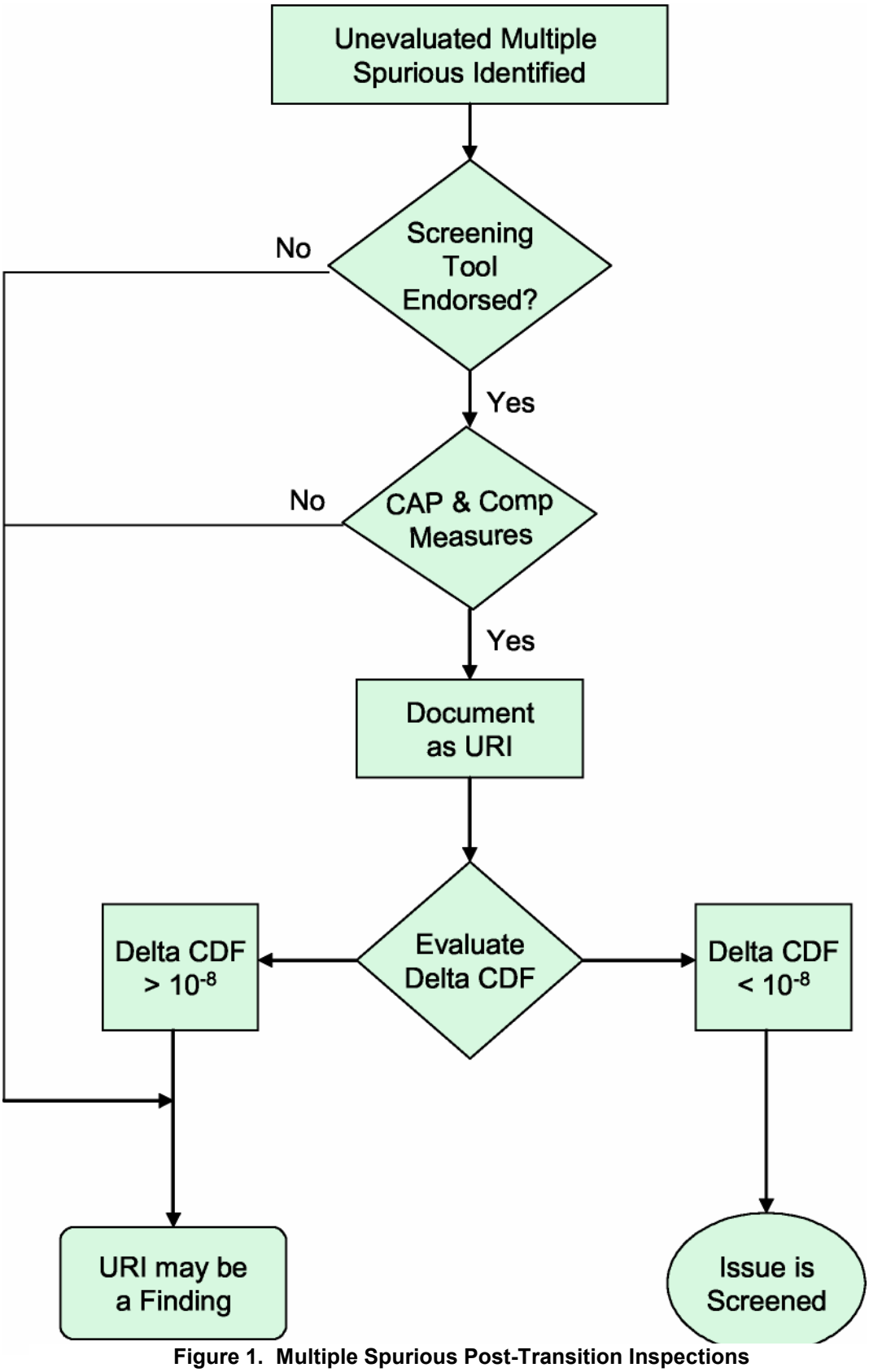

Figure 1. Multiple Spurious Post-Transition Inspections

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 2

Topic: Multiple spurious operations - screening criteria

Associated Observation Meeting Parking Lot Item(s): 2

Description: Duke Power presented its methodology for identification and analysis of multiple spurious operations during the November 2005 observation meeting. (See November 2006 Trip Report Handout Reference 4). November 2005 meeting participants held considerable discussions with regard to screening and treatment of newly identified multiple spurious operations. The Duke approach considers newly identified spurious operations as outside the license basis until risk significance is determined. One suggested approach to establishing risk significance was the use of Fussell-Vesely (F-V) risk importance criteria.

This topic arose from a more general discussion on a proposed method to perform an acceptable transition change evaluation. A fire PSA that represents the plant "going forward" (GF) would be performed, i.e., crediting any modifications/changes to be implemented as part of the transition. A comparison between this value and "ideal" fire risk if all deterministic compliance was strictly met yields fire delta-CDF (using CDF as the risk metric) = (fire-CDF-GF) minus (fire-CDF-ideal). A separate full fire PSA is not required for the fire-CDF-ideal calculation, but rather can be determined using the F-V risk importance measures (indicating the fractional contribution of fire-induced failures to the fire CDF) associated with "non-compliance" as determined from the fire-CDF-GF. The sum of these F-V values would conservatively bound the delta-CDF. Issue Summary Sheet 13 covers circumstances where relaxations are required if this bounding technique proves too conservative.

Resolution Action(s)/Action Party: CLOSED. The spurious operations evaluation methodology continues to evolve, and this specific issue was determined to be no longer relevant during the March 2006 meeting.

Associated FAQ: None.

Lesson Learned: PSA methods and application to analysis of spurious operations and plant change continue to evolve due to the experience gained in transitioning the pilot-plants to a risk-informed, performance-based fire protection programs. As the PSA methods and process output become finalized and confirmed by peer review, NEI 04-02 will be revised, as appropriate, to provide the necessary guidance for implementing/applying these methods. This issue, and its closure, proposed no specific changes to the guidance.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 3

Topic: Transition of operator manual actions (OMA) to NFPA 805 Recovery Actions

Associated Observation Meeting Parking Lot Item(s): 3

Description: NEI 04-02, Revision 1, Section 2.3.1 and Appendix B-2 discuss the direct transition of current fire protection program elements to the new risk-informed, performance-based fire protection program based on these elements previously approved by the NRC. The change evaluation process is required for transition of fire protection elements that do not meet the previous approval criteria. Specific concerns have been expressed by industry with regard to transition of OMAs currently relied on to demonstrate compliance with 10 CFR 50, Appendix R, III.G.2, and the approval of which may be explicitly or implicitly addressed in a NRC safety evaluation report (SER). Ideally, approval documentation would be via a license amendment, embedded either within or as a separate SER. The NRC has established the position that OMAs are not an acceptable method to demonstrate compliance with 10 CFR 50, Appendix R, III.G.2; do not meet the deterministic criteria of NFPA 805, Chapter 4; and therefore must be addressed via a plant change evaluation. Regulatory Guide (RG) 1.205, Section 2.3, and Regulatory Issue Summary (RIS) 2006-10 describe the NRC's position.

Considerable discussion was held during the November and March pilot-plant observation meetings regarding transition of OMAs for safe shutdown, what documentation constitutes NRC approval of those OMAs, and how to disposition those manual actions relied on to demonstrate compliance with 10 CFR 50, Appendix R, III.G.2.

Resolution Action(s)/Action Party: OPEN. Closure is pending approval of submitted FAQs that clarify the approach to transitioning OMAs to Recovery Actions. The FAQs proposes necessary changes to NEI 04-02.

Associated FAQ: 06-0001 and 06-0012

Lesson Learned: Pending final resolution of FAQ.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 4

Topic: Spurious Operations - Risk informed, performance-based treatment of high-low pressure interface components

Associated Observation Meeting Parking Lot Item(s): 4

Description: During the November 2005 observation meeting, Duke Power presented their NFPA 805, Chapter 4, methodology for transition. Included in this presentation was a discussion of the treatment of high-low pressure interface components. Duke's presentation identified that there are some differences in how NFPA 805 and NEI 00-01 define high-low pressure interface. NEI 00-01 is the circuit analysis methodology referenced in NEI 04-02. NFPA 805 establishes the requirements by reference in 10 CFR 50.48(c), and the guidance must be consistent with the standard.

Resolution Action(s)/Action Party: OPEN. Closure is pending approval of FAQ. NEI will revise NEI 04-02 as necessary to clarify that the guidance in NEI 00-01 is consistent with the definitions in NFPA 805 and meets the requirements.

Associated FAQ: FAQ 06-0006

Lesson Learned: By reference in 10 CFR 50.48(c), NFPA 805 establishes the requirements of the rule and supersedes any implementation guidance.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 5

Topic: Fire PSA Peer Review

Associated Observation Meeting Parking Lot Item(s): 5, 20, 37

Description: The Oconee fire PSA is critical path as determined during the November 2005 observation visit. The current schedule for completion of the PSA and submittal of the license amendment for adopting 10 CFR 50.48(c) and NFPA 805 would not support completion of an industry-developed fire PSA Peer Review prior to submittal. The staff position is that an endorsed fire PSA Peer Review should be completed as part of the transition prior to submittal of the license amendment.

While an ANS Fire PSA Standard is under development, and state-of-the-art guidance on performing fire PSA exists via NUREG/CR-6850 (EPRI TR-1011989), fire PSA remains (and will remain) in a state of development, rendering a "final" baseline against which to measure quality difficult. A peer review process analogous to that performed for internal event PSAs has been proposed, and is under development by NEI and the Owners Groups to coincide roughly with the issuance of the fire PSA standard. However, it is unlikely that the standard and the NEI peer review process will be completed and endorsed on a schedule that will fully support pilot-plant transition. Relief may come with the extension of enforcement discretion and Oconee may extend their pilot program for another year.

Discussion of this issue indicated that NRC oversight of the pilot-plant PSA effort would provide confidence in the quality of the PSA as part of the transition program. The pilot plants requested that the NRC perform intermediate PSA audits as the various elements of their fire PSAs are completed, rather than waiting to do a single audit during the license amendment review, to provide assurance that they are heading along the right path and provide lessons learned for non-pilot plants. The NRC agreed to accomplish this through several visits focused specifically on the fire PSA and a roll-up of these audits will substitute for an endorsed, industry-developed Fire PSA peer review for the pilot plants.

During the November 2006 pilot-plant observation visit, industry noted NRC's endorsement/non-endorsement of ANS Fire PRA standard in RG 1.200 will impact non-pilot plants. Issues may arise from a lack of endorsement

Resolution Action(s)/Action Party: OPEN. The NRC incorporated peer review guidance in RG 1.205, Section 4.3, which was discussed at the March 2006 observation meeting. The RG states that licensees should subject their fire PSA to a peer review to the extent that adequate industry guidance is available to support the transition process. Absent industry guidance, the NRC will review the quality of the PSA for acceptability.

During the March 2006 observation visit, the NRC staff was asked to identify any specific needs they may have to perform the PSA Peer Review and what documentation will be necessary or provided that will constitute the record of this review and the acceptability of the PSA.

Associated FAQ: None.

Lesson Learned: The acceptability of the quality of pilot-plant PSAs will be established via the NRC's participation and in-process review of PSA development. Until current efforts to establish fire PSA peer review standards and processes are completed, non-pilot plants transitioning to NFPA 805 may choose to have the fire PSA reviewed by an independent group against available guidance to minimize impacts to transition schedules and reduce uncertainty in fire PSA application acceptability (e.g., in change analysis). Additional lessons learned information will be provided as experience is gained with the pilot-plant reviews. Endorsement or lack of endorsement of the ANS Fire PRA standard in RG 1.200 will impact how non-pilot plants approach this issue.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 6

Topic: PSA and change evaluations for Low-Power/Shutdown (LP/SD) modes

Associated Observation Meeting Parking Lot Item(s): 6, 22

Description: During the November 2005 pilot-plant observation meeting, industry representatives indicated that any requirement for a LP/SD mode fire PSA would be a cost prohibitive. There is no current guidance/methods for performing a LP/SD fire PSA. Although LP/SD fire PSAs exist, development of a standard is in progress and NRC/EPRI are considering a joint effort to develop guidance for shutdown fire PSA. Resources are not likely to be committed by utility management, and the development of methods and performance of a LP/SD fire PSA would not support the transition schedules.

The NRC provided specific examples of LP/SD "risk" assessments that have been submitted under RG 1.174 plant change applications for licensees to consider in their NFPA 805 evaluations. The guidance in NEI 04-02 addresses LP/SD risk via the defense-in-depth approach currently used for outage management. This approach relies on the identification of high risk evolutions and key safety functions associated with those evolutions (see NEI 04-02, Rev. 1, Section 4.3.3). The meeting attendees suggested that implementing guidance for meeting 10 CFR 50.48(c) should be clarified to explicitly indicate the NRC's expectations for assessing fire risk in LP/SD modes.

Risk must also be addressed in the change evaluation process for changes that impact LP/SD modes. The plant change evaluation process required by NFPA 805 and described in NEI 04-02, does not currently address the method to be used in performing change evaluations for these operational modes.

Resolution Action(s)/Action Party: OPEN. In RG 1.205, the NRC staff accepted the approach described in NEI 04-02, Revision 1, for managing risk of LP/SD modes of operation and demonstrating that nuclear safety performance criteria are met. NEI 04-02 will be revised to address the performance of plant change evaluations for non-power modes.

Associated FAQ: Planned but not submitted.

Lesson Learned: At this time, a separate LP/SD fire PSA is not required, because there are currently no standards, methods or guidance available (although some are being considered). Until these LP/SD fire PSA methods are developed and accepted, fire risks during LP/SD modes can be managed according to established methods for outage risk management. Plants should identify high risk evolutions and key safety functions and evaluate the associated structures, systems, and components as described in the endorsed NEI 04-02.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 7

Topic: NFPA 805 Chapter 3 - Chapter 4 related requirements

Associated Observation Meeting Parking Lot Item(s): 7, 8, 9

Description: During pilot-plant efforts to transition NFPA 805 Chapter 3 requirements and further develop and implement the guidance for plant change evaluations, concerns were identified relative to the dependence of Chapter 3 fire protection design features on Chapter 4 required systems. Specifically, Chapter 3 requirements for detection, suppression, and fire barriers are dependent on these fire protection elements being required by Chapter 4. During the November 2005 observation meeting the attendees determined that there was some confusion over the application of these requirements, particularly when applying a performance-based approach. In addition, because of the dependence of Chapter 3 on the requirements of Chapter 4, the change evaluation process should establish the Chapter 4 required systems before evaluating those systems against the Chapter 3 requirements.

Resolution Action(s)/Action Party: OPEN. Pending approval of FAQs. NEI 04-02 needs to be revised to clarify the application of these requirements. The proposed revision has been submitted for industry and NRC review in two FAQs.

Associated FAQ: 06-0002 and 06-0004

Lesson Learned: Before doing Chapter 3 code compliance, determine which fire protection systems and elements are required by Chapter 4.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 8

Topic: Performance-based alternative for fire area boundary evaluation

Associated Observation Meeting Parking Lot Item(s): 10

Description: NFPA 805 includes provision for using existing engineering equivalency evaluations (i.e., GL 86-10 evaluations), but does not contain similar requirements for evaluation of fire protection features (e.g., fire barriers) using a risk-informed, performance-based approach. NFPA 805, Section 1.7, describes the general requirement for demonstrating equivalency in meeting the requirements of the standard. Section 1.7 states that alternative approaches must be approved by the Authority Having Jurisdiction (AHJ) (i.e., the NRC). The rule (10 CFR 50.48(c)(2)(vii)) requires NRC approval of performance-based approaches to demonstrating compliance with NFPA 805, Chapter 3 requirements.

A need was identified to revise NEI 04-02 to provide additional methodologies for performing engineering equivalency analyses that licensees could reference in their license amendment request.

Resolution Action(s)/Action Party: OPEN. Pending approval of FAQ. NEI developed proposed changes to NEI 04-02 to include a methodology and process for performing engineering equivalency evaluations. These changes will be presented and discussed at the October pilot-plant observation meeting. An FAQ containing the proposed changes was submitted for industry and NRC review.

Associated FAQ: 06-0008

Lesson Learned: A methodology for performing engineering equivalency evaluations, similar to current GL 86-10 evaluations, is needed for risk-informed, performance-based applications to fire protection under NFPA 805.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 9

Topic: Plant change evaluations - Preliminary risk screening

Associated Observation Meeting Parking Lot Item(s): 11

Description: NEI 04-02, Revision 1, Section 5.3.3, Appendix I, and Appendix J address the use of preliminary screening with regard to evaluation of changes to the fire protection program. Considerable discussion was held in the November 2005 observation meeting regarding the criteria to be applied in the preliminary screening process and the need for additional guidance and examples in NEI 04-02.

Early in the development of NEI 04-02, a "qualitative" approach was advocated by which plant changes which clearly would not impact risk could be dispositioned without any quantification. Ultimately, this met with resistance from the ACRS, and it was agreed that all plant changes would be processed through at least a preliminary risk screen with some minimal level of quantification (i.e., essentially a "qualitative" approach whereby changes that clearly did not increase risk, or did so at some "negligible" level, need not undergo any formal risk evaluation beyond a statement as to why any effect could be dismissed). Appendix I of NEI 04-02 listed some examples of these types of plant changes, and Progress Energy provided example evaluations at the first observation visit.

Resolution Action(s)/Action Party: CLOSED. NRC and industry agreed that this would be a "living" part of NEI 04-02, whereby examples encountered in the transition process could be added to subsequent versions of NEI 04-02 for illustrative purposes.

Associated FAQ: None submitted.

Lesson Learned: The plant change evaluation process described in NEI 04-02 will be supplemented with examples during the pilot-plant transition to clarify application of the process.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 10

Topic: Plant change evaluations - Preliminary screening criteria and form corrections.

Associated Observation Meeting Parking Lot Item(s): 12

Description: While it was originally proposed that the RG 1.174 thresholds be applied for determining "acceptable" increases in risk (measured via CDF and LERF) for NFPA 805 "self approvals" by licensees (i.e., without prior NRC review), the fact that RG 1.174 was conditioned on NRC review made adoption of equivalent thresholds untenable. Eventually, thresholds as outlined in RG 1.205, including a "grey area" where NRC review would be at NRC's discretion, were established.

NEI 04-02, Appendix I, contains the plant change evaluation form. Section 4 of this form addresses the preliminary risk screening and includes qualitative criteria. Discussion during the November 2005 observation meeting concluded that "greater than minimal" criteria should be revised to "potentially greater than minimal" when determining if more quantitative risk analysis is needed for the change. RG 1.205, Section 3.2.5, provides additional guidance with regard to risk thresholds to be applied in the plant change evaluation process, and also clarifies the terminology, such as "minimal," used in NEI 04-02, in determining the acceptability of the change and the need for NRC approval.

Resolution Action(s)/Action Party: OPEN. Pending approval of FAQs. NEI 04-02, Sections 5.3 and Appendix I will be revised to provide additional guidance on performance of preliminary screening and correct the change evaluation form with regard to applying the "potentially greater than minimal" criteria.

Associated FAQ: 06-0003

Lesson Learned: Pending final resolution of FAQ

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 11

Topic: Plant change evaluation - PSA engineer reviews of screens

Associated Observation Meeting Parking Lot Item(s): 13

Description: During the November 2005 observation meeting, considerable discussion was held regarding whether or not a PSA engineer should review the preliminary risk screening performed for plant changes. This topic is connected with some of the previous discussions regarding "qualitative" risk screening, and involved the level of licensee review, if any, by the licensee PSA staff that would be required for easily screened plant changes. The NRC advocated that all plant changes be forwarded to the plant PSA staff, such that even the most trivial could be dismissed via a simple sentence in the record. Licensees favored screening by fire protection personnel for such trivial items (using guidance developed with input from the plant PSA staff, perhaps in the form of screening questions), such that no PSA staff notification would be required.

In follow up discussions of this topic during the March 2006 observation meeting, it was determined that the interface between the PSA staff and fire protection program change evaluation screening process is plant specific and did not warrant tracking as a parking lot issue.

Resolution Action(s)/Action Party: CLOSED. No action taken.

Associated FAQ: None.

Lesson Learned: The interface between the PSA and fire protection staff during the fire protection program screening process for plant change evaluations is plant-specific, but it should ensure that all necessary communication between these respective disciplines occurs as part of the screening process.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 12

Topic: Authority having jurisdiction - NFPA Code deviations

Associated Observation Meeting Parking Lot Item(s): 14

Description: The NRC is the defacto AHJ for the purpose of determining acceptability of fire protection program elements to meet the requirements of NFPA 805 (where AHJ authority is cited in the NFPA 805 Standard). Chapter 3 of NFPA 805 references other NFPA codes that apply to administrative and design elements of the fire protection program (e.g., those that apply to suppression, detection, and water supply) that are managed day-to-day by the licensee but also contain responsibilities and requirements for AHJ approval. A compliance approach that applies the AHJ authority (as described in the NFPA Standards) as strictly meaning NRC approval could burden the NRC with reviewing fire protection system design changes and administrative procedures that implement NFPA code provisions requiring AHJ approval. Minor deviations to code compliance would also require possible NRC review. Licensees would be burdened by costs and delays associated with the review and approval process.

NFPA 805, Section 1.8 addresses “Code of Record,” which allows licensees to meet the version of the standard applicable to the fire protection element or design feature at the time it was designed or otherwise committed to the AHJ. Plants should follow the approval authorities granted by the code-of-record, with the recognition that the AHJ is the NRC as described in RG 1.205, Regulatory Position C.1.

Resolution Action(s)/Action Party: CLOSED. NRC position on AHJ was incorporated in RG 1.205. Parking Lot Item 10 (See Issue Summary Sheet No. 8 above) involves development of a process similar to the existing engineering equivalency evaluation (NFPA 805, Section 2.2.7 and GL 86-10) that will be submitted to the NRC for approval (e.g., NEI 04-02 revision) that will allow licensees similar flexibility to evaluate certain design features as adequate for the hazard.

Associated FAQ: None.

Lesson Learned: NRC is the AHJ as described in RG 1.205, but the code-of-record for a given plant fire protection feature may allow licensees certain authority to establish applicable requirements that may differ (i.e., equivalency evaluations) from the versions cited in NFPA 805.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 13

Topic: Transition baseline risk.

Associated Observation Meeting Parking Lot Item(s): 19, 24

Description: Discussion was held regarding the cumulative impact of changes to the fire protection program that occur during the transition process. These impacts are incorporated in the new baseline risk established at the completion of implementation. Related somewhat to Topics 2 and 24, this topic was raised at the first observation meeting as a spin-off of the industry's concern with how and to what extent the difference between the "going forward" and "deterministically fully compliant" risks was to be evaluated for the transition. Based on the recent NRC clarifications with respect to vital fire protection program elements, especially circuit spurious operations ("any and all, one at a time") and operator manual actions for redundant trains in the same fire area (Appendix R, III.G.2), industry is concerned as to what exactly would serve as the "deterministically fully compliant" baseline risk against which to measure the increase "going forward."

While calculating the "going forward" fire risk is relatively straightforward, doing likewise for the "deterministically fully compliant" risk could require essentially a second full fire PSA for "ideal" conditions. NRC proposed a multi-step analytic approach whereby the licensees could proceed from the most to least conservative (least to most realistic) estimate of the risk increase due to the transition, with the ability to stop the analysis at whatever step provides an estimate of an acceptable risk increase.

Resolution Action(s)/Action Party: OPEN. Pending approval of FAQs. RG 1.205, Section C.3.2.6, provides the staff position on treatment of individual and cumulative changes in risk, as well as the use of risk reductions associated with unrelated plant changes to offset increases in fire protection risks. NEI 04-02 will be updated to clarify that the baseline fire protection program risk, post-transition, will be the risk of the plant as-designed and operated according to the NRC-approved licensing basis. This position is already stated in RG 1.205. NEI 04-02 will also be revised to address screening, processing and tracking of changes.

Associated FAQ: 06-0005, 06-0014.

Lesson Learned: Pending submittal and final resolution of FAQ. Baseline fire protection risk must be established to support plant change evaluations post-transition.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 14

Topic: Regulatory position on interim guidance changes

Associated Observation Meeting Parking Lot Item(s): 16

Description: RG 1.205 endorses NEI 04-02, Revision 1. The pilot-plant implementation activities and observation meetings have identified a number of changes that are necessary to clarify, update, or revise the implementing guidance in NEI 04-02. It is expected that the need to make these types of changes will continue to be identified as pilot-plant implementation progresses. The processes for revising and reissuing these documents are not efficient nor timely enough to support the on-going transition activities. Administrative mechanisms are necessary to allow guidance changes to be accumulated (e.g., as errata) between official/approved revisions. The ability to apply interim changes to the guidance is potentially problematic because of the RG revision and approval process and the direct endorsement of a specific revision of NEI 04-02 within the RG.

At the March 2006 pilot-plant observation meeting, the industry proposed a FAQ process as a means to address this issue. The FAQ process used for the ROP performance indicators was presented as an example. The NRC staff agreed this may be a viable approach, but suggested that the utilities formally submit their requests by letter to initiate the FAQ process being established.

Resolution Action(s)/Action Party: CLOSED. By letter dated May 2, 2006, NEI submitted a letter with a draft description of the FAQ process for NRC review. The NRC responded with proposed changes in a letter to NEI dated July 12, 2006.

Associated FAQ: None. See referenced letters.

Lesson Learned: A process has been established to provide timely NRC review of needed changes to NFPA 805 implementing guidance. This guidance will be incorporated in revisions to NEI 04-02. RG 1.205 will be revised in the future, as appropriate, to endorse this revised guidance.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 15

Topic: Circuit analysis Generic Letter and RIS - Compliance issues for transition

Associated Observation Meeting Parking Lot Item(s): 17

Description: This issue has significant implications related to implementation of NFPA 805. Specifically, the circuit analysis RIS and draft Generic Letter require a level of compliance for deterministic circuit analysis (associated with current fire protection programs) that is not currently achieved by most plants. NFPA 805 risk analyses for NFPA 805 must be compared against the deterministic case (NFPA 805, Section 4.2.4.2). Licensees that plan to transition to NFPA 805 do not plan to bring their plants into compliance with the RIS and GL provisions prior to transitioning to NFPA 805.

The NRC staff presented a suggested process by which licensees could establish an “ideal” risk baseline for the compliant deterministic case.

Resolution Action(s)/Action Party: CLOSED. This issue is tied to others related to establishing the PSA baseline for the performance of plant change evaluation and other PSAs (See Issue Summary Sheets 13 and 18).

Associated FAQ: None planned.

Lesson Learned: None. Issue and associated lessons learned will be addressed through resolution of other issues/parking lot items discussed above.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 16

Topic: NEI 04-02, Appendix B, methodology changes

Associated Observation Meeting Parking Lot Item(s): 18

Description: Pilot-plant transition activities at the Oconee Nuclear Station have determined that the comparison tables of NEI 04-02, Appendix B, do not adequately communicate the compliance status and transition of current fire protection program elements to the nuclear safety performance criteria of NFPA 805. The pilot-plants and NEI will develop an alternative methodology to be incorporated in NEI 04-02. The NRC staff expressed concern that these types of issues with the existing (endorsed) guidance need to be communicated to non-pilot plants.

Resolution Action(s)/Action Party: OPEN. Pending approval of FAQ. NEI to develop alternative methods to comparison tables in NEI 04-02, Appendix B.

Associated FAQ: 06-0013

Lesson Learned: Transition activities for ONS identified that the current tabular method for transition of nuclear safety performance criteria, as described in NEI 04-02, Appendix B, is not an effective means of communicating the necessary information to demonstrate compliance with NFPA 805.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 17

Topic: Risk acceptance thresholds.

Associated Observation Meeting Parking Lot Item(s): 21

Description: There is a number of "risk acceptance" thresholds for fire PSA-related applications among various documents and programs, specifically the ROP, the significance determination process, RG 1.174 (and, by incorporation, NFPA 805), NEI 04-02 and RG 1.205. A reconciliation of these various thresholds is needed for clarity and application of transition processes.

Resolution Action(s)/Action Party: OPEN. Guidance is required before performance of change evaluations.

Associated FAQ: Planned but not submitted.

Lesson Learned: Pending final resolution of the issue.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 18

Topic: Definition for fire protection program change

Associated Observation Meeting Parking Lot Item(s): 23

Description: During the March 2006 meeting, discussion was held regarding what constitutes a change to the fire protection program. Plant changes that are not related to the fire protection program may impact the program. Fire protection systems and features may be installed for protective purposes not related to demonstrating compliance with NFPA 805. Are these systems and features within the scope of the fire protection program that is subject to evaluation under the NFPA 805-required plant evaluation change process? The discussion identified a need to better define the boundaries of the fire protection program for the purposes of configuration control and application of the change evaluation process.

Resolution Action(s)/Action Party: OPEN. Pending resolution of FAQ. Industry drafted a methodology and examples of what constitutes a fire protection program change.

Associated FAQ: 06-0005.

Lesson Learned: Pending final resolution of this issue.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 19

Topic: Tracking of Cumulative Risk from Post-Transition Plant Changes

Associated Observation Meeting Parking Lot Item(s): 15, 24

Description: Three specific items were discussed at the March observation meeting related to this topic:

Is a license amendment request needed post-transition to credit existing systems, structures, and components to lower fire risk, i.e., taking credit for these not as offsets to risk increases but purely as decreases;

If both risk increases and decreases are due to related changes, such that the net increase is <1 E-7/yr delta-CDF (<1 E-8/yr delta-LERF), the changes need not be submitted for prior NRC approval. However, if they are unrelated (e.g., one is part of the fire protection program while the other is not), then prior NRC approval is needed; and

If an initial change results in a risk increase below some threshold value, need it be tracked for future changes, or can it be exempted from future tracking? What would be the appropriate threshold value, as determined through a screening process? Clarification is needed in the implementing guidance (i.e., RG or NEI 04-02) as to whether the tracking of the impacts of these changes needs to be continued post-transition or whether tracking of cumulative impacts begins when the new baseline risk is established.

RG 1.174, used as a risk acceptance template for NFPA 805, requires that cumulative increases in risk be tracked over time, and that increases in risk attributable to "related" program changes be aggregated to determine their total impact even if separated over time. Both of these imply that, no matter how widely separated in time these increases may be, they need to be summed and measured against the original baseline, i.e., the initial "going forward" fire risk, even if a fire PSA re-baselining is periodically performed. NRC distributed a graphic to illustrate the difference between the RG 1.174 approach and another where the "going forward" fire risk is "reset" after each periodic update (essentially shifting the time axis). The latter, although somewhat simpler, is not consistent with RG 1.174. However, except for related changes, tracking of the cumulative risk increase can be accomplished by considering the total risk rather than by segregating the changes into separate entities requiring individual aggregation. However, this separate tracking must still be performed for "related" changes over the life of the plant. Screening methods were discussed to simplify this latter process, whereby risk increases of sufficiently low magnitude could be considered too small to merit retention for future tracking as part of a series of "related" changes (they would still be tracked implicitly through the total plant risk).

Resolution Action(s)/Action Party: OPEN. Pending resolution of FAQ. RG 1.205, Section C.3.2.6, provides the staff position on treatment of individual and cumulative changes in risk, as well as the use of risk reductions associated with unrelated plant changes to offset increases in fire protection risks. NEI 04-02 will be updated to clarify that the baseline fire protection program risk, post-transition, will be the risk of the plant as-designed and operated

according to the NRC-approved licensing basis. This position is already stated in RG 1.205. NEI 04-02 will also be revised to address screening, processing, and tracking of changes.

Associated FAQ: 06-0014.

Lesson Learned: Pending submittal and final resolution of FAQ. Baseline fire protection risk must be established to support plant change evaluations post-transition.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 20

Topic: Fire Zones/Compartment Definitions

Associated Observation Meeting Parking Lot Item(s): 25

Description: During the October 2006 meeting, discussion was held regarding what constitutes an acceptable Fire PRA compartment. For the purposes of Fire PRA, plants are divided into the Fire Compartments as defined in NUREG/CR-6850. Fire Compartments map fire areas and zones into compartments defined by fire damage potential. Defining many fire compartments within zones are that are not necessarily based on physical barriers or features can lead to the need to do substantial multi-compartment analysis. This is inconsistent with the guidance provided in NUREG/CR-6850 and raises concerns with the difficulty in managing and reviewing an analysis that relies on such complexities. Questions arose over impact of this approach on other tasks and level of documentation needed to justify this approach

Resolution Action(s)/Action Party: CLOSED. Industry changed approach to be consistent with NUREG/CR-6850 guidance.

Associated FAQ: None.

Lesson Learned: NUREG/CR-6850 provides adequate guidance concerning development of Fire Compartments for Fire PRA purposes.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 21

Topic: Ignition Frequency Binning Issues

Associated Observation Meeting Parking Lot Item(s): 26, 27, 28, 29

Description: NUREG/CR-6850 Task 6, "Fire Ignition Frequencies" provides a procedure for estimating fire-ignition frequencies for use in the Fire PRA. During the October 2006 meeting participants discussed definitions and boundaries associated with "binning" of different components into appropriate collections to appropriate the fire ignition frequencies correctly compartment. Specifically questions arose concerning:

a. Main control board definition: The delineation between Bin 4 (main control board) and Bin 15 (electrical panels/cabinets) has some ambiguity that could lead to inconsistent application of the guidance (Parking Lot Item 26).
b. Electrical cabinets: NUREG/CR-6950 does not provide explicit guidance on counting of plant electrical cabinets. Discussions centered on two different approaches. One that counts electrical cabinet based on physical boundaries regardless of size or length and another that counts solely based on cabinet size (Parking Lot Issue 27).
c. HEAF frequency for low voltage equipment: Counting Bin 16 equipment using the Bin 15 method can result in a fire frequency distribution for HEAF for switchgears and load centers inconsistent with industry experience (Parking Lot Item 28).
d. Miscellaneous Binning Issues: Questions arose concerning ignition county frequency for MOV motors, hydraulic actuators for valves, and transformers (Parking Lot Item 29).

Resolution Action(s)/Action Party: OPEN. Pending resolution of FAQ. Industry will provide clarification on the methodology.

Associated FAQ: 06-0016, 06-0017, 06-0018. FAQ still under consideration for parking lot item 29 (miscellaneous ignition frequency binning issues).

Lesson Learned: Pending final resolution of this issue.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 22

Topic: Transition and Post-Transition Program Management

Associated Observation Meeting Parking Lot Item(s): 30

Description: Participants of the October 2006 meeting discussed the role of 10 CFR 50.48(a) for a plant this is transitioning to NFPA 805.

Resolution Action(s)/Action Party: OPEN. Clarification information is available in the promulgation of 10 CFR 50.48(c) on July 6, 2004, (ADAMS Accession No. ML041340086). Industry will provide clarification on the issue.

Associated FAQ: FAQ planned but not submitted.

Lesson Learned: Pending final resolution of this issue.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 23

Topic: "New" Requirements in NFPA Chapter 3/Table B-1 Issues

Associated Observation Meeting Parking Lot Item(s): 32, 33, 34

Description: Participants of the November 2006 meeting discussed the 82 paragraphs of Chapter 3. Industry reports based on pilot-plant experience, that 17 paragraphs appear to be new requirements (e.g., NFPA 805 Section 3.94 requirement for suppression for the diesel fire pump). Clarification of some paragraphs may be required. Industry also noted that additional clarification/standardization of terms used in NEI 04 02 Tables B-1, B-2, and B-3 may also be necessary. Industry stipulated the table formats are not rigid (i.e., database, other report formats are acceptable).

Resolution Action(s)/Action Party: OPEN. Industry will provide clarification on the issue.

Associated FAQ: FAQs planned but not submitted.

Lesson Learned: Pending final resolution of this issue.

NFPA 805 Pilot-Plant Implementation
Issue Summary Sheet No. 24

Topic: Assessing Risk of Recovery Actions

Associated Observation Meeting Parking Lot Item(s): 35, 36

Description: Participants of the November 2006 meeting discussed assessing the risk of recover actions (operator manual actions) and the need/methods to perform/report this information as part of transition (NFPA 805 Section 4.2.4). Risk significant operator manual actions are a concern to the NRC.

Resolution Action(s)/Action Party: OPEN. Discussions held at the November 2006 meeting concerning how an ASD fire area (in particular operator manual actions) transition over. Meeting participants voiced confusion over the characterization of ASD fire areas as "deterministic," while NFPA 805 defines recovery actions as "performance-based." Industry will provide clarification on the issue.

Associated FAQ: 06-0011 and other FAQs may be required.

Lesson Learned: Pending final resolution of this issue.