LESSONS LEARNED FROM THE PILOT LICENSE AMENDMENT REQUEST REVIEWS

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High-Level Goals

- Share lessons learned (today)
- Enhance quality of non-pilot LARs (1-3 year goal)
- Achieve regulatory stability (>3 year goal)

Remarks

- Issues presented are resulting from pilot LAR reviews and additional staff deliberations.
- Issues presented are “draft” for discussion.
- Staff and industry encouraged to discuss views.
- There will be a formal public comment period, followed by ACRS, and CRGR reviews.

Remarks (contd.)

- Process to establish clarity is being managed:
  - Reg Guide Update
  - Standard Review Plan
  - Inspection Procedures
  - Inspector Qualifications
  - Post LAR Site Audit Plan
  - Temporary Instruction?

NFPA 805 Program Update & Status of LAR Reviews

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NFPA 805 Program Status

- NFPA 805 Infrastructure Development
  - Tools for Licensees
  - Tools for NRC Reviewers
  - Tools for NRC Inspectors
- LAR Review Status
  - Pilot Reviews
  - Non-Pilot Enforcement Discretion Extensions

Tools for Licensees

- NFPA 805, 2001 Edition
- Regulatory Guide 1.205 Revision
  - NEI Guidance
    - 04-02, Rev. 2 Endorsement
    - 00-01, Rev. 2 Endorsement?
  - NUREG Updates
    - NUREG-1824 Publication, May 2007
    - NUREG/CR-6850 Updates (FAQs)

Tools for Reviewers

- Piloting
  - Draft Acceptance Review Criteria
  - Draft Standard Review Plan
- Develop
  - LAR Site Visit Plan

Tools for the Inspectors

- Complete
  - Interim Triennial Procedure
- Draft
  - Post Transition Triennial Procedure
- Develop
  - Technical Instruction (Post Transition Site Audits)
  - Annual & Quarterly Procedures
  - Inspector Qualification Program
  - Training Modules

Pilot LAR Reviews

- Received LARs (June 2, 2008)
  - Oconee Partial Submittal
    - Supplemental Submittal due October 31, 2008
- Acceptance Reviews
  - Harris - September 26, 2008
    - Supplemental due November 15, 2008
  - Oconee - November 28, 2008
- Conduct Safety Evaluation
- Develop Draft RAIs
- Conduct a Site Visit
- Send Formal RAIs
- Complete Safety Evaluation
- Management/OGC/ACRS Reviews

Non-Pilot LAR Submittals

- Enforcement Discretion Extensions
  - Six months past both LAR approvals
  - Case-By-Case Requests
  - Substantial Non-PRA Progress
    - Compile for Onsite Review
      - List of non-compliances and the related comp measures
      - Document comp measure OMAs as feasible and reliable
    - Submit with Request
      - Description of the physical modifications performed, if any, to address existing risk-significant fire protection issues
      - Status report of the transition

NFPA 805 Program Status

QUESTIONS?

Issues Affecting Regulatory Guidance

LESSONS LEARNED FROM THE NFPA 805 PILOT LAR REVIEWS
NRC Public Meeting, October 3, 2008

Issues

- Licensee Self-Approval of Changes to the Fire Protection Program
- Fire Protection License Condition for NFPA 805 Plants
- Required Risk Assessments
- Carry Over of Existing Exemptions
- Recovery Action versus OMA

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LICENSEE SELF-APPROVAL OF CHANGES TO THE FPP

Licensee Self-Approval of FPP Changes

- **Subject to FP license condition (criteria; reporting)**
- **Plant change evaluation required – assess adequacy of**
  - Change in risk
  - Defense-in-depth
  - Safety margins
- **Adequate process is required**
  - Acceptable base fire PRA (as-built, as-operated and maintained plant)
  - Fire PRA model update process
  - Appropriate fire PRA model scope, technical adequacy, level of detail (for each application)
  - Limited to methods NRC has approved
- **Minor changes to Chapter 3 requirements**
  - Self-approval not granted yet (FAQ-8 not resolved)

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FIRE PROTECTION LICENSE CONDITION FOR NFPA 805 PLANTS

RG 1.205 Version (current)

(Name of Licensee) shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c) as specified in the licensee amendment request dated _____ and as approved in the safety evaluation report dated _____ (and supplements dated _____). Except where NRC (AHJ) approval for changes or deviations is required by 10 CFR 50.48(c) and NFPA 805, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a), 10 CFR 50.48(c), and the following:

(a) Prior NRC review and approval is not required for a change that results in a net decrease in risk for both CDF and LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the change evaluation.

(b) Prior NRC review and approval is not required if the change results in a net calculated risk increase less than 1E-7/yr for CDF and less than 1E-8/yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the change evaluation. Change reports need not be submitted to the NRC for these changes.

(c) Where the calculated plant change risk increase is $<$1E-6/yr, but $\geq$1E-7/yr for CDF or $<$1E-7/yr, but $\geq$1E-8/yr for LERF, the licensee must submit a summary description of the change to the NRC following completion of the change evaluation. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. If the NRC does not object to the change within 90 days, the licensee may proceed with implementation of the proposed change.

FPP License Condition for NFPA 805 Plants

- **Add new sentence in first paragraph:**
- **Risk assessment approach, methods, and data shall**
  - Be appropriate for the nature and scope of the change being evaluated,
  - Be based on the as-built and as-operated and maintained plant, and
  - Reflect the operating experience at the plant.
- **The risk assessment of the change will use methods previously approved by the NRC**

FPP License Condition for NFPA 805 Plants

- **Remove intermediate risk range**
  - (c) Where the calculated plant change risk increase is <1E-6/yr, but ≥1E-7/yr for CDF or <1E-7/yr, but ≥1E-8/yr for LERF, the licensee must submit a summary description of the change to the NRC following completion of the change evaluation. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. If the NRC does not object to the change within 90 days, the licensee may proceed with implementation of the proposed change.
- **Keep lower risk threshold for self-approval:**
  - <1E-7 CDF and <1E-8 LERF
  - (helps address the cumulative risk issue – NFPA 805 2.4.4.1)

FPP License Condition for NFPA 805 Plants

- **Modify reporting requirement: Licensee submit periodic report (10 CFR 50.4)**
  - Similar to 50.59 reporting
  - Intervals not to exceed 24 months
  - Brief description of all self-approved changes
  - Summary of risk-informed evaluation of each
- **Remove current open-ended wording:**
  - If the NRC does not object to the change within 90 days, the licensee may proceed with implementation of the proposed change.

FPP License Condition for NFPA 805 Plants

- **Note: RG 1.205 already has guidance on what to include in the report:**
  - summary of the change evaluation
  - assumptions
  - description of programmatic control elements in place that support the analysis
  - ΔCDF/ ΔLERF, including the change in individual parameters used to calculate the ΔCDF/ ΔLERF
  - effect of the change on safety margin
  - effect of the change on defense-in-depth

FPP License Condition for NFPA 805 Plants

- **Clearly capture license commitments important to transition:**
  - The licensee shall implement the following modifications to its facility to complete transition to full compliance with 10 CFR 50.48(c) by {date}:
    (a)
    (b)
    (c)
  - The licensee shall maintain compensatory measures until completion of the modifications delineated above

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REQUIRED RISK ASSESSMENTS

Required Risk Assessments

- **Risk assessments in NFPA 805:**
  - Plant Change Evaluations
    - (NFPA 805 Section 2.4.4)
  - Additional risk associated with recovery actions
    - (NFPA 805 Section 4.2.4)
  - Fire Risk Evaluations
    - (NFPA 805 Section 4.2.4.2)

Required Risk Assessments

- **Plant Change Evaluations (NFPA 805 Section 2.4.4)**
  - Changes to a previously approved FPP shall be evaluated with a plant change evaluation.
- **Draft SRP excerpts:**
  - The staff will identify in the LAR all FPP non-compliances (based on current deterministic requirements) that the licensee does not intend to bring into compliance. For each individual noncompliant item, the staff will confirm the licensee has provided a plant change evaluation which includes the following:
    - Change in CDF and LERF comparing the non-compliant configuration to a fully compliant configuration
    - Defense-in-depth evaluation
    - Safety margin evaluation
  - In addition, the staff will confirm the licensee has provided the cumulative change in CDF and LERF due to all non-compliances

Required Risk Assessments

- **Additional recovery action risk (NFPA 805 Section 4.2.4)**
  - When the use of recovery actions has resulted in the use of this approach, the additional risk presented by their use shall be evaluated.
- **Draft SRP excerpts:**
  - The staff will evaluate the licensee's risk assessment of recovery actions when used in lieu of deterministic requirements in NFPA 4.2.3.
  - Definition of "recovery" in NFPA 805 would exclude actions taken in the control room or the "primary control station" of the equipment being operated.
  - DRAFT NRC staff position – "primary control station" includes safe-shutdown panels, alternate shutdown panels, and transfer panels where actions to transfer control from the control room to the alternate location take place.

Required Risk Assessments

- **Fire Risk Evaluations (NFPA 805 Section 4.2.4.2)**
  - Integrated assessment of the acceptability of risk, defense-in-depth, and safety margins.
  - Compare the risk associated with implementation of the deterministic requirements with the proposed alternative.
  - Difference in risk shall meet the risk acceptance criteria
- **Draft SRP excerpt:**
  - The staff will evaluate the licensee's [fire risk evaluation] to ensure that the change in risk is acceptable based on RG 1.174 acceptance guidelines and that defense-in-depth and safety margins remain acceptable.

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CARRY OVER OF EXISTING EXEMPTIONS

Existing Exemptions

- NRC position: existing exemptions remain valid after transition to NFPA 805 as indicated in Section 3.1 of the standard, if not otherwise revoked by the NRC as part of the initial approval to transition to NFPA 805. (10 CFR 50.48(c) SOC, 69 FR 33550)
- RG 1.205 reflects this position regarding exemptions to NPFA 805 Chapter 3 requirements. (RG 1.205 §2.4)
- Licensee must provide **documentation** of existing exemption and **show it is still valid**

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RECOVERY ACTION VERSUS OMA

Recovery Action vs. OMA

- **Ensure use of terms “OMA” and “recovery actions” are used properly**
  - In NRC guidance document (e.g., RG and SRP)
  - In LARs

Recovery Action vs. OMA (summary)

Recovery Action	Operator Manual Action
• activities to achieve the nuclear safety performance criteria	• actions to achieve and maintain post-fire hot shutdown
• outside of the main control room or the primary control station(s)	• outside the main control room
• including the replacement or modification of components	• not including "repairs."

CONCLUSION

- **Self-Approval**
  - PRA quality, methods approved
- **License Condition**
  - Remove 90 days for NRC to request review
  - Remove self-approval above 1E-7
  - Add periodic reporting (like 50.59)
- **Required Risk Assessments**
  - Clarify that there are 3 in NFPA 805
- **Carry Over of Existing Exemptions**
  - Reviewed for validity
- **Recovery Action versus OMA**
  - Definition may provide some relief in area of alternate shutdown panels

Draft Acceptance Review Checklist

LESSONS LEARNED FROM THE NFPA 805 PILOT LAR REVIEWS
NRC Public Meeting, October 3, 2008

Topics

- **Overview of LIC-109**
- **Acceptance Review Matrix for NFPA 805**
  - Attached to draft SRP

LIC-109, "Acceptance Review Procedures"

- NRR Office Instruction, issued 5/2/08
- Objectives:
  - Promote submission of acceptable Requested Licensing Actions (RLAs);
  - Provide general guidance to NRC staff, licensees, and the public defining acceptable RLAs;
  - Allow effective application of NRC resources in reviewing RLAs;
  - Promote consistency in performing acceptance reviews;
  - Establish acceptance review process as integral part of effective licensing review;
  - Establish the priority of acceptance reviews and define time frames for completion;
  - Reduce unnecessary delays in the review of RLAs; and
  - Ensure effective internal and external communications.

LIC-109, "Acceptance Review Procedures"

- Provides guidance on acceptance reviews of RLAs.
  - **Establishment of scheduling and resources for the acceptance review;**
  - **Review of the application for administrative and technical sufficiency;**
  - **Resolution of any informational insufficiencies; and**
  - **Implementation and documentation of results.**

LIC-109, "Acceptance Review Procedures"

- **Acceptance Review Results**
  - 3.2.1 Unacceptable With No Opportunity To Supplement
    - **Significant deficiencies that impede completion of the acceptance review**
    - **RLA should be returned to the licensee or applicant as unacceptable for review, pursuant to 10 CFR 2.101.**
  - 3.2.2 Unacceptable With Opportunity To Supplement
    - **Submittal not acceptable for review**
    - **PM and the technical staff discuss the information insufficiencies**
    - **Determine that information insufficiencies are too great for RAI process**
  - 3.2.3 Acceptable for Review
    - **Acceptable for review as submitted; or,**
    - **Informational needs not significant and can be addressed via RAIs**

Draft SRP Information

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Topics

- SRP Table of Contents
- Relation to other SRP Chapters
- Selected SRP Highlights
- SER Template

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STANDARD REVIEW PLAN TABLE OF CONTENTS

SRP Table of Contents

I. AREAS OF REVIEW
II. ACCEPTANCE CRITERIA
III. REVIEW PROCEDURE
IV. EVALUATION FINDINGS
V. IMPLEMENTATION
VI. REFERENCES
VII. ATTACHMENT
Acceptance Review Matrix

SRP Table of Contents
III. Review Procedure

III.1 General Review of LAR

III.1.1 License Condition Changes

…

III.1.10 NFPA 805 Frequently Asked Questions (FAQs)

III.2 Fundamental FPP Elements and Minimum Design Requirements

III.3 Nuclear Safety Performance Criteria

III.3.1 Transition and Implementation

III.3.2 Specific Compliance with NFPA 805 by Fire Area

III.3.3 Non-Power Operational Modes

SRP Table of Contents
III. Review Procedure

III.4 Radioactive release performance criteria

III.5 Risk assessments/plant change evaluations

III.6 Monitoring program

III.7 Documentation, configuration control, and QA

III.8 Additional LAR information

- III.8.1 Generic Issue Resolution
- III.8.2 Requests for NRC Staff Review of Elements of Uncertain Status

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RELATION TO OTHER SRP CHAPTERS

Relation to other SRP Chapters

- **Other SRP Sections interface with this Section as follows:**
  - SRP Section 9.5.1, “Fire Protection Program”
  - SRP Section 19.1, “Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities”
  - SRP Section 19.2, “Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance”

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SELECTED SRP HIGHLIGHTS

Selected SRP Highlights

III.1.1.1 Modifications – The staff will ensure that the license condition:

- **Lists any plant modifications necessary to implement the RI/PB FPP**
- **Includes:**
  - A description of the modification
  - The schedule for implementation
  - Justification, including compensatory measures until the modification is completed, for the acceptability of the schedule.

- **Note: Regulatory Issue Summary (RIS) 2005-07, "Compensatory Measures to Satisfy the Fire Protection Program Requirements," dated April 19, 2005, provides guidance on compensatory measures acceptable to the NRC.**

Selected SRP Highlights

III.1.1.2 Self-Approval of Certain FPP Changes

- **As allowed by revised license condition for NFPA 805 implementation**
- **Plant change evaluation is required for any change to the approved FPP; assess impact of the change on:**
  - Risk
  - Defense-in-depth
  - Safety margins
- **The NRC staff will review the licensee's process for self-approving changes**
  - Adequate processes in place to ensure acceptable PRA quality is maintained after transition
  - Adequate processes in place to ensure that the defense-in-depth and safety margins are appropriately addressed
  - Self-approval will be limited to methods that NRC has approved

Selected SRP Highlights

III.3.1 Transition and Implementation

- **The staff will ensure that the licensee used a systematic approach to transitioning the post-fire safe-shutdown analysis to the new requirements in Chapter 2 of NFPA 805**
  - Section 1.5 of NFPA 805 establishes nuclear safety performance criteria
  - Chapter 4 of NFPA 805 provides the methodology to determine the fire protection systems and features required to achieve the performance criteria outlined in Section 1.5.
- **The staff will review the LAR to determine whether the nuclear safety performance criteria have been met consistent with the requirements in NFPA 805**
- **The staff will ensure licensee compliance with applicable requirements for:**
  - Reliance on feed and bleed
  - Equivalent protection for existing cables

Selected SRP Highlights

III.3.2 Specific Compliance with NFPA 805 by Fire Area

- **The NRC staff will:**
  - Ensure that each fire area has been evaluated and determined to comply with the requirements of NFPA 805
  - Verify that each fire area either:
    - Meets NFPA 805 paragraph 4.2.3 deterministic requirements
    - Employs performance-based methods NFPA 805 paragraph 4.2.4
    - Employs risk-informed or performance-based alternatives to compliance with NFPA 805 pursuant to 10 CFR 50.48(c)(4)
  - Ensure that the appropriate risk assessments and plant change evaluations have been performed for each fire area as necessary and that the results are acceptable.

Selected SRP Highlights

III.3.3 Non-Power Operational Modes

- **The staff will review the licensee's treatment of fires during non-power operations**

III.4 Radioactive Release Performance Criteria

- **The staff will verify that the licensee's LAR documents that radiation release to any unrestricted area due to the direct effects of fire protection activities … remains as low as reasonable achievable**

Selected SRP Highlights

III.5 Risk Assessments and Plant Change Evaluations

- **NFPA 805 requires risk assessments to be performed in several instances:**
  - Plant Change Evaluations (NFPA 805 Section 2.4.4)
  - Additional risk associated with recovery actions (NFPA 805 Section 4.2.4)
  - Fire Risk Evaluations (NFPA 805 Section 4.2.4.2)
- **The NRC staff will review the risk assessments and plant change evaluations associated with the licensee's planned transition to a RI/PB FPP**
- **The staff will also review the licensee's risk assessment and plant change evaluation process to be used after implementation of the approved RI/PB FPP**

Selected SRP Highlights

III.5.1 Fire PRA Technical Adequacy

- **The staff will confirm the licensee has provided an evaluation of the technical adequacy of its fire PRA model**
  - Consistent with RG 1.200
  - Assessment against the requirements of the ASME/ANS PRA standard
- **The staff will review, as applicable, the maintenance and update process for the PRA model, using SRP Section 19.1**
  - For assuring the PRA model is maintained and updated to reflect the as-built, as-operated and maintained plant, and operating experience of the plant.
- **The staff will review the licensee's assessment of the technical adequacy of the PRA model used for plant change evaluations required to transition to a RI/PB FPP and for any types of changes the licensee will be allowed to self-approve after implementation of the approved RI/PB FPP**

Selected SRP Highlights

III.5.6 Cumulative Risk

- **When more than one change is proposed, additional requirements shall apply [NFPA 805 Section 2.4.4.1]**
  - If previous changes have increased risk but have met the acceptance criteria, the cumulative effect of those changes shall be evaluated
  - If more than one plant change is combined into a group for the purposes of evaluating acceptable risk, the evaluation of each individual change shall be performed along with the evaluation of combined changes
- **Proposed changes that require NRC review and approval:**
  - NRC staff will verify that the licensee has evaluated the cumulative effect of changes to the approved FPP as applicable
- **Self-approval of changes**
  - NRC staff will verify that the proposed license condition:
    - Limits the risk increase from any individual change
    - Provides for periodic reporting of self-approved changes

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SAFETY EVALUATION REPORT TEMPLATE

SER Template

- Under development
- Will closely align to the SRP table of contents

CONCLUSION

- **New SRP 9.5.1b for NFPA 805:**
  - Table of Contents parallels pilot plant submittals
  - Provides review guidance to NRC staff
  - Incorporates lessons-learned from pilot plants
  - Includes LAR acceptance review matrix
  - Will be issued for public comment (near future)