Appendix C-7

Fire Protection Inspector
Technical Proficiency
Training and Qualification Journal

Table of Contents

Introduction

This new appendix establishes the program for initial qualification of fire protection inspectors through formal training courses, individual study activities (ISAs), and on-the-job training (OJT).

In the future, one member of the inspection team for all fire protection triennial inspections will be required to be qualified to this standard. Before imposing this requirement, there will be a phase-in period to allow inspectors time to complete this training.

Individuals should be given credit for previous experience and training when completing the requirements outlined in this appendix. Section 05.02 of IMC1245 provides additional information on alternate methods for meeting a program requirement.

Appendix D-3 of Inspector Manual Chapter 1245 provides a list of additional courses and on-the-job training that inspectors may wish to consider in order to gain more skills in specific areas of fire protection.

Required Training Courses:

1. Fire Protection for Power Plants (E-113)
2. IMC 0609 Appendix F Fire Protection Significance Determination Process (SDP) Training (P-108)
3. EPRI Fire Modeling Course
4. Post Fire Safe Shut Down Analysis*
5. Circuit Analysis*

* These two courses are currently under development. Until then, it is expected that individuals will substitute courses from outside vendors for them. The Chief of the Fire Protection Branch within NRR is available to be consulted on the acceptability of a particular course.

Fire Protection Inspector Individual Study Activities

Fire Protection Individual Study Activity

TOPIC: **(**ISA-FP-1) Deterministic Fire Protection Regulations

PURPOSE: The purpose of this activity is to become familiar with the most important "deterministic" (non-risk-informed or "traditional") fire protection regulations and the NRC generic communications that have been issued to help clarify regulatory expectations and positions on deterministic fire protection.

COMPETENCY AREA: TECHNICAL AREA EXPERTISE

LEVEL OF EFFORT: 24 hours

REFERENCES:

1. 10 CFR Part 50, Appendix A, General Design Criterion (GDC 3): "Fire Protection"
2. 10 CFR 50.48, "Fire Protection"
3. 10 CFR Part 50 Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979"
4. Branch Technical Position APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants" May 1, 1976
5. Appendix A to Branch Technical Position APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants" August 23, 1976
6. Branch Technical Position CMEB 9.5-1, "Guidelines for Fire Protection for Nuclear power Plants, Rev 3, July 1981
7. NRC Memo Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance, June 20 1977, ML073120507
8. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, 9.5.1, Fire Protection Program"
9. GL 86-10 "Implementation of Fire Protection Requirements" April 24, 1986
10. RG 1.189, "Fire Protection for Nuclear Power Plants" Revision 1, March 2007
11. SECY 08-0093, "Resolution of Issues Related to Fire-Induced Circuit Failures"

EVALUATION CRITERIA: At the completion of this activity, you should have a clear understanding of the regulatory history of deterministic nuclear power plant fire protection as well as the relationship among the various key documents by which the NRC has clarified their deterministic expectations and positions. Specifically, you should be able to do the following:

1. Describe the concept of defense-in-depth as it relates to fire protection.
2. Describe what a licensee's fire protection program must do.
3. Describe what a licensee's current licensing basis is.
4. Describe what "design basis" means with regard to a structure, system, or component of a facility.
5. Determine which Branch Technical Position/Regulation is used as a basis for a plant's Fire Protection Program.

TASKS: The activities listed below shall be performed under the guidance of a subject matter expert.

1. Review the references and develop an understanding sufficient to meet the evaluation criteria.
2. Discuss the evaluation criteria with a subject matter expert.
3. Obtain a licensee's Final Safety Analyses Report and determine which Branch Technical Position/Regulation applies to the plants fire protection program.

DOCUMENTATION: Fire Protection Inspector Technical Proficiency-Level Signature Card Item ISA-FP-1.

Fire Protection Individual Study Activity

TOPIC: **(**ISA-FP-2) Fire Modeling

PURPOSE: The purpose of this activity is to become familiar with the fire modeling techniques used in Fire protection.

COMPETENCY AREA: TECHNICAL AREA EXPERTISE

LEVEL OF EFFORT: 40 hours

REFERENCES:

1. NUREG-1805, “Fire Dynamics Tools," December 2004 (includes CD with spreadsheets that should be exercised)
2. NUREG-1824 (EPRI TR-1011999), “Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications,” January 2006
3. NUREG/CR-6850 (EPRI TR-1011989), “FPRA Methodology for Nuclear Power Facilities," September 2005

EVALUATION CRITERIA: At the completion of this activity, you should have a clear understanding of the fire modeling techniques used in Fire protection. Specifically, you should be able to do the following:

1. Describe the difference between a Zone Model and a Field Model.
2. Describe the general limitations of the five fire models described in NUREG-1824.
3. Describe how a fire model can be used in a fire hazard analyses.

TASKS: The activities listed below shall be performed under the guidance of a subject matter expert.

1. Review the references and develop an understanding sufficient to meet the evaluation criteria.
2. Discuss the evaluation criteria with a subject matter expert.
3. Develop a scenario on your own, or use an example that is part of the fire model documentation, change the input parameters to see how these changes affect the output from the model. For example, changing the heat release rate of the fire, the geometry, or changing the ventilation from natural to forced ventilation.

DOCUMENTATION: Fire Protection Inspector Technical Proficiency-Level Signature Card Item ISA-FP-2.

Fire Protection Individual Study Activity

TOPIC: **(**ISA-FP-3) NFPA 805 Current Risk-Informed Regulations

PURPOSE: The purpose of this activity is to become familiar with the risk-informed, performance-based regulation, NFPA 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," that licensees must meet to demonstrate if adopting or maintaining a performance-based Fire Protection Program (FPP) under 10 CFR 50.48(c), "Fire Protection: National Fire Protection Association Standard NFPA 805."

COMPETENCY AREA: TECHNICAL AREA EXPERTISE

LEVEL OF EFFORT: 16 hours

REFERENCES:

1. 10 CFR 50.48(c), "Fire Protection: NFPA 805"
2. NFPA 805, 2001 Edition, "Performance-Based Standard for FP for Light Water Reactor Electric Generating Plants"
3 Reg Guide 1.205 "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants", May 2006
4. NEI 04-02 "Guidance for Implementing A Risk-informed, performance-based Fire Protection Program Under 10 CFR 50.48(c)", Revision 1, September 2005
5. NEI 00-01 "Guidance for Post Fire Safe Shutdown Analysis" Revision 1, January 2005

EVALUATION CRITERIA: At the completion of this activity, you should have a clear understanding of the NRC's role in evaluating the adequacy with which a licensee adopts and maintains compliance with 10 CFR §50.48(c) through adherence to NFPA 805.

TASKS: The activities listed below shall be performed under the guidance of a subject matter expert.

1. Review the references and develop an understanding sufficient to meet the evaluation criteria.
2. Discuss the evaluation criteria with a subject matter expert.
3. Outline the process by which a licensee converts their fire protection program from a traditional/deterministic program to one based on NFPA 805. Note: Additional insights into different fire protection programs can be gained by inspecting an NFPA 805 plant as well as a pre-1979 and post 1979 plant.

DOCUMENTATION: Fire Protection Inspector Technical Proficiency-Level Signature Card Item ISA-FP-3

Fire Protection Inspector On-the-Job Activity

Fire Protection Inspector On-the-Job Activity

TOPIC (OJT-FP-1) Participate in Regional Fire Protection Inspection

PURPOSE The purpose of this activity is to acquaint you with the fire protection inspection process.

COMPETENCY AREAS TECHNICAL AREA EXPERTISE

LEVEL OF EFFORT 40 hours

ACTIVITY Accompany a team of regional Inspectors during a fire protection inspection

EVALUATION CRITERIA At the completion of this activity, you should understand the regional fire protection inspection process. Specifically, you should be able to do the following:

1. Discuss the objectives of the triennial fire protection Inspection.
2. Discuss the criteria used in choosing the fire areas or zones for inspection.
3. Discuss the regulatory requirements and licensing basis against which post fire safe shutdown capability is assessed.

TASKS The activities listed below shall be performed under the guidance of a subject matter expert.

1. Discuss the evaluation criteria with a subject matter expert.
2. Prior to the inspection obtain any documents the team leader deems necessary. See Section 71111.05-06 of the triennial inspection procedure.
3. Participate with the inspection team leader and the Regional SRA in the selection process of determining which fire areas or zones are to be inspected in this particular inspection.
4. Any other task given by the inspection team leader.

DOCUMENTATION: Fire Protection Inspector Technical Proficiency-Level Signature Card Item OJT-FP-1.

Fire Protection Inspector Technical Proficiency-Level Signature Card and Certification

Inspector Name:_____	**Employee Initials/ Date**	**Supervisor's Signature/ Date**
Training Courses for Fire Protection Inspector Qualification		
Fire Protection for Power Plants (E-113)		
MC 0609 Appendix F Fire Protection Significance Determination Process (SDP) Training (P-108)		
Circuit Analysis		
Post Fire Safe Shut Down Analysis		
EPRI Fire Modeling Course		
Individual Study Activities		
ISA-1 Fire Protection Inspector: Deterministic Fire Protection Regulations/Generic Communications		
ISA-2 Fire Protection Inspector: Fire Modeling		
ISA-3 Fire Protection Inspector: NFPA805 Current Risk Informed Regulations		
On-the-Job Training Activity		
OJT-1 Fire protection Inspector: Participate in Regional Fire Protection Inspection		

Supervisor's signature indicates successful completion of all required courses and activities listed in this training standard.

Supervisor's Signature _____ Date: _____

Form 1: Fire Protection Inspector Technical Proficiency Level Equivalency Justification

Inspector Name:_____	**Identify equivalent training and experience for which the inspector is to be given credit**
Training Courses for Fire Protection Inspector Qualification	
Fire Protection for Power Plants (E-113)	
MC 0609 Appendix F Fire Protection Significance Determination Process (SDP) Training (P-108)	
Circuit Analysis	
Post Fire Safe Shut Down Analysis	
EPRI Fire Modeling Course	
Individual Study Activities	
ISA-1 Fire Protection Inspector: Deterministic Fire Protection Regulations/Generic Communications	
ISA-2 Fire Protection Inspector: Fire Hazards Analysis and Fire Modeling	
ISA-3 Fire Protection Inspector: NFPA805 Current Risk Informed Regulations	
On-the-Job Training Activity	
OJT-1 Fire protection Inspector: Participate in Regional Fire Protection Inspection	

Supervisor's Recommendation Signature/Date_____

Division Director's Approval Signature/Date_____

Copies to: Inspector
Human Resources Office
Supervisor

Revision History Sheet for IMC 1245 Appendix C7

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	07/08/09 CN 09-017	Initial issuance. Completed 4 year historical CN search	None	N/A	ML091590710