

March 31, 2009

MEMORANDUM TO: Mark A Cunningham, Director
Division of Risk Assessment
Office of Nuclear Reactor Regulation

FROM: Sunil D. Weerakkody, Deputy Director-Fire Protection */RA/*
Division of Risk Assessment
Office of Nuclear Reactor Regulation

SUBJECT: STATUS OF COMPILING HISTORY FOR IDENTIFYING FIRE
PROTECTION HISTORICAL LESSONS

Background

In the July 29, 2008, Staff Requirement Memorandum (SRM)-071708, regarding the July 17, 2008, Fire Protection Briefing to the Commission, the Commission directed the Nuclear Regulatory Commission (NRC) staff to train appropriate staff on the important historical lessons learned from the fire protection issue resolution activities since Title 10 of the *Code of Federal Regulations* Part 50 Appendix R was established. Consequently, the NRC staff committed to complete Task Number 6, "Historical Lessons Learned from Fire Protection" of SECY-08-0171, "Plan for Stabilizing Fire Protection Regulatory Infrastructure" dated November 5, 2008. Task Number 6 consisted of the following steps:

- Compile History (Due March 31, 2009)
- Develop Lessons Learned (Due September 30, 2009)
- Develop Training on Lessons Learned (Due March 30, 2010)
- Pilot Training on Fire Protection Lessons Learned (Due March 30, 2010)
- Incorporate Lessons Learned from Pilot Training (Due June 30, 2010)

This memorandum documents the completion of the first item, Compile History.

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Method Used to Compile History

In response to the first step of this activity, the Office of Nuclear Reactor Regulation, Division of Risk Assessment (DRA) staff has compiled a list of pertinent historical documents (see enclosure). The DRA staff intends to use this compiled list, and other documents referenced in this list, to explore the historical lessons related to fire protection that could apply to future fire protection activities and other agency activities such as:

- Improving regulatory stability,
- Improving regulatory predictability,
- Reducing licensee uncertainty related to regulatory compliance, and
- Improving public confidence in complex and emerging regulatory areas.

The absence of fire events that have challenged plant safety at U.S. nuclear power plants indicates that historical efforts, although they may not have been performed in the most efficient and effective manner, have assured adequate safety.

Next Action

By the end of the third calendar quarter of 2009, DRA staff plans to develop lessons learned from the compiled historical documents list.

Enclosure:
As stated

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Historical Documents List

The documents below constitute the key regulatory documents that constitute the history of fire protection regulation for nuclear power plants in the United States. The staff expects to identify other important historical documents during the evaluation of these key documents.

Summary documents

- Regulatory Guide 1.189, Fire Protection for Nuclear Power Plants
 - This document provides one acceptable way to meet NRC fire protection requirements. In addition it provides background on fire protection regulation and references.
- Regulatory Guide 1.205 - Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants
 - Guidance for licensees adopting 10 CFR50.48(c) – NFPA 805.
- Regulatory Guide 1.191 - Fire Protection Program for Nuclear Power Plants During Decommissioning and Permanent Shutdown
 - Guidance for fire protection for plants during decommissioning and permanent shutdown.
- NUREG/BR-0361 - The Browns Ferry Nuclear Plant Fire of 1975 and the History of NRC Fire Regulations
 - This document is a summary of the Browns Ferry fire and the history of the development of fire protection regulations.
- NUREG-0050 – Recommendations Related to Browns Ferry Fire
 - A summary and recommendations of the Browns Ferry fire published in February 1976.
- NUREG-1552 – Fire Barrier Penetration Seals in Nuclear Power Plants
 - A summary of the managing of issues related to fire barrier penetration seals between fire areas.
- NUREG/CR-6728 - Risk Methods Insights Gained From Fire Incidents
 - A description of large or unusual fires at nuclear power stations.
- NUREG-1852 - Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire
 - Provides NRC review criteria for the use of operator manual actions in response to fire.

Other Relevant Documents

- Rule Related Documents
 - Draft and final rules, including statements of considerations for:
 - 10 CFR 50.48, initial issuance and all revisions
 - 10 CFR 50, Appendix R, initial issuance and all revisions
 - 10 CFR 50, Appendix A, General Design Criteria 3

ENCLOSURE

- Generic Communications
 - GL 77-02, "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance," U.S. Nuclear Regulatory Commission, Washington, DC, August 29, 1977.
 - GL 81-12, "Fire Protection Rule (45 FR 76602, November 19, 1980)," U.S. Nuclear Regulatory Commission, Washington, DC, February 20, 1981, and Clarification Letter, March 1982.
 - GL 83-33, "NRC Positions on Certain Requirements of Appendix R to 10 CFR Part 50," U.S. Nuclear Regulatory Commission, Washington, DC, October 19, 1983.
 - GL 86-10, "Implementation of Fire Protection Requirements," April 24, 1986, and Supplement 1, "Fire Endurance Test Acceptance Criteria for Fire Barrier Systems Used To Separate Redundant Safe-Shutdown Trains Within the Same Fire Area," U.S. Nuclear Regulatory Commission, Washington, DC, March 25, 1994.
 - GL 88-12, "Removal of Fire Protection Requirements from Technical Specifications," U.S. Nuclear Regulatory Commission, Washington, DC, August 2, 1988.
 - IN 99-17, "Problems Associated with Post-Fire Safe-Shutdown Circuit Analyses," U.S. Nuclear Regulatory Commission, Washington, DC, June 3, 1999.
 - GL 92-08, "Thermo-Lag 330-1 Fire Barriers," U.S. Nuclear Regulatory Commission, Washington, DC, December 17, 1992.
 - RIS 2005-30, "Clarification of Post-Fire Safe-Shutdown Circuit Regulatory Requirements," U.S. Nuclear Regulatory Commission, Washington, DC, December 20, 2005.
 - RIS 2006-10, "Regulatory Expectations with Appendix R Section III.G.2 Operator Manual Actions," U.S. Nuclear Regulatory Commission, Washington, DC, June 30, 2006.
- Commission Policy Documents
 - SECY-94-084, "Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems in Passive Plant Designs," U.S. Nuclear Regulatory Commission, Washington, DC, March 28, 1994.
 - SECY-90-016, "Evolutionary Light-Water Reactor (LWR) Certification Issues and Their Relationship to Current Regulatory Requirements," U.S. Nuclear Regulatory Commission, Washington, DC, January 12, 1990.

- SECY-98-058, "Development of a Risk-Informed, Performance-Based Regulation for Fire Protection at Nuclear Power Plants," U.S. Nuclear Regulatory Commission, Washington, DC, March 26, 1998.
- SECY-93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs," U.S. Nuclear Regulatory Commission, Washington, DC, April 2, 1993.
- SECY-04-0233, "Proposed Rulemaking—Post-Fire Operator Manual Actions," U.S. Nuclear Regulatory Commission, Washington, DC, December 22, 2004
- SECY-06-0010, "Withdraw Proposed Rulemaking - Fire Protection Program Post-Fire Operator Manual Actions," U.S. Nuclear Regulatory Commission, Washington, DC, January 12, 2006
- Fire Protection Technical Positions
 - NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)," Section 9.5.1, "Fire Protection Program," U.S. Nuclear Regulatory Commission, Washington, DC, various dates and revisions.
 - BTP SPLB 9.5-1 and Appendix A to BTP 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, Washington, DC, various dates and revisions.
- Regulatory Letters and Memoranda
 - Holahan Memo, Gary Holahan, Memo to Dennis Crutchfield, Subject: "Request for Assistance: Determine Whether Two Hot Shorts in a Multiconductor Cable Associated with a Non-Hi/Low Pressure Interface Should Be Analyzed for Fire Induced Spurious Actuation (Generic Letter 86-10, Section 5.3.1, 'Non-Hi/Low Pressure Interfaces in Ungrounded AC and DC Circuits') (AITS 205-89)," December 4, 1990.
 - Mattson Memo July 1982, Roger J. Mattson, Memo to Richard H. Vollmer, Subject: "Position Statement on Allowable Repairs for Alternative Shutdown and on the Appendix R Requirement for Time Required to Achieve Cold Shutdown," July 2, 1982.
 - Mattson Memo March 1982, Roger J. Mattson, Memo to Richard H. Vollmer, Subject: "Position Statement on Allowable Repairs for Alternative Shutdown and on the Appendix R Requirement for Time Required To Achieve Cold Shutdown," March 22, 1982.
 - Mattson Memo 1983, Roger J. Mattson, Memo to Darrel G. Eisenhut, Subject: "Task Interface Agreement #83-53 'Physical Independence of Electrical Systems,' TAC No. 51567," July 22, 1983.

- Stello Letter to Bixel, Victor Stello, Jr., Letter to David Bixel, Consumers Power Company, Subject: "Manpower Requirements for Operating Reactors, Docket No. 50-255," June 8, 1978.
- Vollmer Memo, R.H. Vollmer, Memo to Darrel G. Eisenhut, Subject: "Emergency Lighting Requirements (TIA 83-87; TAC 52308)," December 21, 1983.
- Richards Letter, S.A. Richards, Letter to J.M. Kenny, BWR Owners Group, "BWROG Appendix R Fire Protection Committee Position on SRVs and Low-Pressure Systems Used as Redundant Shutdown Systems Under Appendix R," December 12, 2000.
- EGM 98-02, "Enforcement Guidance Memorandum—Disposition of Violations of Appendix R, Sections III.G and III.L Regarding Circuit Failures," February 2, 2000.
- EGM 07-04, "Enforcement Discretion For Post-Fire Manual Actions Used as Compensatory Measures for Fire Induced Circuit Failures," June 30, 2007.
- NRC Enforcement Policy, "Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)," various revisions.