VALIDATE THE EFFECTIVENESS OF THE REGULATORY INFRASTRUCTURE RELATED TO FIRE-INDUCED CIRCUIT FAILURES AND OPERATOR MANUAL ACTIONS

CORNERSTONE: MITIGATING SYSTEMS

2515/181-01 OBJECTIVES

The objective of this temporary instruction (TI) is to gather information to assess the effectiveness of the regulatory infrastructure in the areas of fire induced circuit failure and operator manual actions to mitigate fire-induced spurious actuations.

2515/181-02 APPLICABILITY

This TI applies to two operating nuclear power reactor licensees that are maintaining their current fire protection program and are not transitioning to National Fire Protection Association (NFPA) 805. Representative sites will be selected to support the Nuclear Regulatory Commission's (NRC's) timeline for validating the regulatory infrastructure. The Office of Nuclear Reactor Regulation (NRR) will coordinate with Regional offices to identify these representative sites. This TI will be performed in conjunction with the initial site visit for a triennial fire protection inspection.

2515/181-03 BACKGROUND

Commission Paper SECY 09-0161, "Closing Fire Protection Issues—Semiannual Update," (Agencywide Documents Access and Management System (ADAMS), Accession Number ML092750183) provides the latest version of the Fire Protection Stabilization Plan (Stabilization Plan).

Task 3 of the Stabilization Plan is titled "Stabilize Regulatory Infrastructure To Resolve Fire-Induced Circuit Failure Issue." Task 3 includes a step called, "Staff to establish a method to validate the disposition of circuit issues."

Task 4 of the Stabilization Plan is titled, "Stabilize Regulatory Infrastructure to Resolve Post-Fire Operator Manual Action (OMA) Issues." Task 4 includes a step called, "Staff to develop a plan to validate the effectiveness of the closure of OMA issues for utilities which are not transitioning to National Fire Protection Association Standard (NFPA) 805 and which do not have an active licensing action."

This TI supports completion of the steps in Task 3 and Task 4 indicated above.

As part of the closure of OMA issues, the Nuclear Regulatory Commission (NRC) issued Enforcement Guidance Memorandum (EGM) 07-004, "Enforcement Discretion for Post-Fire Manual Actions Used as Compensatory Measures for Fire-Induced Circuit Failures." As stated

in this EGM, licensees had until March 6, 2009, to come into compliance with fire protection regulations for single spurious actuations due to fire-induced failures.

A licensee who has OMAs for multiple fire-induced spurious actuations and is not transitioning to NFPA 805 may receive enforcement discretion under EGM 09-002. Enforcement discretion is limited to three years from the date of issuance of Regulatory Guide (RG) 1.189, Rev. 2. RG 1.189, Rev. 2 was issued on November 2, 2009. Six months following the issuance of RG 1.189, Rev.2, May 2, 2010, licensees must identify noncompliances related to multiple fire induced circuit faults, place the noncompliances into their corrective action program and implement compensatory measures for the noncompliances. Three years following the issuance of RG 1.189, Rev. 2, November 2, 2012 licensees must complete the corrective actions associated with noncompliant multiple fire induced circuit faults.

This TI is intended to verify that the regulatory infrastructure is sufficient for licensees to achieve compliance in the areas of fire induced circuit failure and post-fire operator manual actions for spurious actuations due to fire-induced failures.

2515/181-04 INSPECTION REQUIREMENTS AND GUIDANCE

04.01 Licensee Notification. The licensee should be notified of this TI as part of the normal notification process that is conducted in support of IP 71111.05T, "Fire Protection (Triennial)." The notification letter required by IP 71111.05T should be modified as follows:

a. The following paragraph should be added to the cover letter (Attachment 1 to IP 71111.05T): "The NRC is assessing the effectiveness of the regulatory infrastructure in the areas of fire induced circuit failure and operator manual actions to mitigate fire-induced spurious actuations. In support of this assessment, Temporary Instruction (TI) 2515/181 is being performed at two operating nuclear power reactor licensees that are maintaining their current fire protection program and are not transitioning to National Fire Protection Association (NFPA) 805. Representative sites are being selected to support the NRC's timeline for validating the regulatory infrastructure, and [Selected Nuclear Power Station] was selected as one of these sites."

b. The following items should be added to the requested supporting documentation list (Enclosure 1 to IP 71111.05T):

    1. General information needed to support completion of the TI:

        (a) List of protected equipment required for safe shutdown.
        (b) Cable routing for equipment required for safe shutdown.
        (c) List of protected equipment important for safe shutdown.
        (d) Cable routing for equipment important for safe shutdown.

    2. Analyses the licensee performed in support of their evaluation regarding the close out of noncompliances associated with EGM 07-004, which may include the following:

        (a) List of identified single spurious fire-induced circuit failure configurations.
        (b) List of corrective actions for single spurious fire-induced circuit failures.

(c) List of single spurious actuations evaluated and the results of the evaluations.

3. Analyses the licensee performed in support of their evaluation regarding the close out of noncompliances associated with EGM 09-002, which may include the following:

(a) List of identified multiple spurious fire-induced circuit failure configurations.
(b) List of corrective actions for multiple spurious fire-induced circuit failures.
(c) List of single spurious actuations evaluated and the results of the evaluations.
(d) List of generic multiple spurious actuations that have been screened out.
(e) Documented results of Expert Panel Review of multiple spurious actuations and the existing safe shutdown analysis.

04.02 Inspection Requirements.

The three acceptable methods that meet the requirement for maintaining one of the redundant trains in the same fire area, outside of primary containment, free of fire damage are based on the combination of physical barriers, spatial separation, and fire detection and automatic suppression systems. These methods are described in 10 CFR Part 50 Appendix R, Section III.G. The following inspection requirements are to assure that the guidance in Regulatory Guide 1.189, Revision 2, and other resources are sufficient to assure that licensees fully implement III.G.

Review a representative sampling of single and multiple spurious issues throughout the plant to determine the following:

a. Determine if the licensee is using guidance from Regulatory Guide 1.189 Rev. 2 and NEI 00-01, Rev. 2, “Guidance for Post Fire Safe Shutdown Analysis” to successfully address single and multiple spurious issues in a way that meets regulations. This includes equipment required for safe shutdown and equipment important for safe shutdown.

b. Evaluate the adequacy of the licensee’s method for determining that the redundant trains of safe shutdown equipment do not rely on operator manual actions.

c. Evaluate the adequacy of the licensee’s method for determining if redundant trains of safe shutdown equipment are made inoperable or nonfunctional due to single or multiple spurious actuations.

d. Evaluate the adequacy of the licensee’s multiple spurious actuation evaluation in accordance with Regulatory Guide 1.189 and NEI 00-01 for alternative or dedicated shutdown areas.

2515/181-05 REPORTING REQUIREMENTS

Inspectors should be able to briefly describe the information reviewed and any findings in Section 4OA5, “Other,” of the inspection report. The report should provide a summary that the

inspection was completed and should address the results of the specific inspection requirements listed above.

Regional fire protection branch chiefs should inform Daniel Frumkin via email (Daniel.Frumkin@nrc.gov) of completion of the above inspection activities and provide him with the number of the inspection report containing the required information.

2515/181-06 COMPLETION SCHEDULE

This TI will be completed no later than December 31, 2010.

2515/181-07 EXPIRATION

This TI will expire on March 31, 2011.

2515/181-08 CONTACTS

For technical support regarding the performance of this TI and emergent issues, contact Daniel Frumkin (NRR/DRA/AFPB) at 301-415-2280 or Daniel.Frumkin@nrc.gov. For administrative, reporting, or documentation questions, contact Jeremy Bowen at 301-415-3471 or Jeremy.Bowen@nrc.gov.

2515/181-09 STATISTICAL DATA REPORTING

All direct inspection effort expended on this TI is to be charged to 2515/181 for reporting by the Human Resources Management System with an IPE code of TI.

2515/181-10 ORIGINATING ORGANIZATION INFORMATION

10.01 Organizational Responsibility. This TI was initiated by the Office of Nuclear Reactor Regulation, Division of Risk Assessment, Fire Protection Branch (NRR/DRA/AFPB).

10.02 Resource Estimate. This TI will be performed in conjunction with the initial site visit for a triennial fire protection inspection. The effort to perform this survey is estimated to be 72 hours per site and will be performed by two inspectors separate from the triennial fire protection inspection team.

10.03 Training. No specialized training is needed to perform inspection requirements in this TI beyond basic training for inspectors (specified in IMC 1245, “Inspector Qualifications”). However, if technical support is needed during the inspection, contact the AFPB technical contact stated in Section 08 of this TI.

2515/181-11 REFERENCES

Regulatory Guide 1.189, Revision 2, “Fire Protection for Nuclear Power Plants”

NUREG-1852, “Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire”

NEI 00-01, Revision 2, “Guidance for Post Fire Safe Shutdown Analysis” (ML091770265)

EGM 07-004, “Enforcement Discretion for Post-Fire Manual Actions Used as Compensatory Measures for Fire-Induced Circuit Failures”

EGM 09-002, “Enforcement Discretion for Fire Induced Circuit Faults” (ML090300446)

Revision History for TI 2515/181

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	04/14/10 CN 10-011	Initial issuance.	N/A	N/A	ML101040023