March 31, 2009

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

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

SUBJECT: STATUS OF DEVELOPMENT OF METRICS TO MEASURE ONGOING IMPROVEMENTS TO THE FIRE PROTECTION REGULATORY FRAMEWORK

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 provide a plan to assess the effectiveness of the ongoing improvements to the fire protection regulatory framework, using recent plant data. The Commission also stated that such a baseline could be, for example, the number and general type of all open fire protection deficiencies that were compensated and the manner of compensation used in the calendar year (CY) 2007. Consequently, the NRC staff committed to complete a task entitled "Task Number 5: Assessing Regulatory Effectiveness," in SECY 08-0171, "Plan for Stabilizing Fire Protection Regulatory Infrastructure" dated November 5, 2008. Task Number 5 consisted of the following steps:

- Determine Metric for Measuring the Effectiveness of Ongoing Fire Protection Improvements (Step 1 – Due December 31, 2008),

- Develop Metric Monitoring Methodology (Step 2 – Due March 31, 2009), and

- Collect Information and Establish Monitoring (Step 3 – Due September 30, 2009).

The staff of the Office of Nuclear Reactor Regulation (NRR), Division of Risk Assessment (DRA) completed Step 1 of the Task Number 5 in a memo dated December 31, 2008 (ADAMS accession number ML083570117). In that memorandum, the staff determined that the most meaningful measures of effectiveness of ongoing fire protection improvements are:

- Number of plant fires that occurred in prior 12 months that met the 10 CFR 50.72/73 reporting threshold normalized by the number of operating reactors (Fire Events),

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- Number of plant fire protection findings identified in prior 12 months that are classified in the Reactor Oversight Process (ROP) as Green, or Greater-than-Green (White/Yellow/Red), normalized by the number of operating reactors (Fire Protection Findings), and

- Percentage of plant fire areas that have associated compensatory measures for greater than one refueling outage (typically 18 months) (Long-Term Compensatory Measures).

Development of Metric Monitoring Methodologies

After transmitting the December 31, 2009, memorandum, the staff completed Step 2 of Task Number 5. Specifically, the NRR staff worked with NRC's Office of Nuclear Regulatory Research (RES) and the Nuclear Energy Institute (NEI) to develop metric monitoring methodologies to determine the sources of data, as well as define the roles and responsibilities with respect to organizations which are best suited to provide the data. The summary of the monitoring methods is as follows:

1. Fire Events:

   RES will establish a database for monitoring and trending the frequency of significant fires at the US nuclear power plants (NPPs). This database will include all 10CFR 50.72/73 reportable fire events for a period of at least 10 years. The database will be normalized for the number of plants being monitored. Furthermore, the database will be maintained and updated semiannually. RES will trend this data every six months on a rolling 12 month average. The first report on this metric will be issued by September 30, 2009.

2. Reactor Oversight Process (ROP) Fire Protection Findings:

   RES will establish an ROP fire protection database for monitoring and trending fire protection findings at the US NPPs. Green findings and Greater-than-Green findings will be tracked separately. This database will include all inspection fire protection ROP findings for a period of at least 9 years. The database will be normalized for the number of plants being monitored. The database will be maintained and updated semiannually. RES will trend the data every six months on a rolling 12 month average. The first report on this metric will be issued by September 30, 2009.

3. Long-term Compensatory Measures:

   The NRR/DRA staff plans to collect data for plants that have committed to adopt 10 CFR 50.48(c), National Fire Protection Association (NFPA) Standard 805 (NFPA 805), in a different process from the plants that have not. The staff plans to compile the information on long-term compensatory measures every six months.

   NFPA 805 Plants - DRA staff will obtain data from each plant license amendment request. NFPA 805 amendment requests include sufficient information to determine how many fire areas have compensatory measures in place. Specifically, Table B-3 of each LAR will provide a compliance strategy for each of the fire area. It provides information on whether a given fire area meets the Appendix R requirements or whether the licensee plans to comply

using a performance-based strategy (i.e. NFPA 805). If the licensee plans to comply using a performance-based strategy for a given fire area, then that area will be under long-term compensatory measures until the NRC staff reviews and approves the licensee's LAR. For some fire areas, the licensee will inform the NRC staff that they plan to comply by modifying the plant and provide information on the schedule for the proposed modification. In such cases, the licensee is required to maintain compensatory measures until the modifications are completed. Therefore, the proposed schedules of the modifications can be used to estimate the duration for which compensatory measures will be in place. In summary, the areas described in the amendment request as not in compliance will be considered as areas with compensatory measures in place since they will be resolved as part of the 10 CFR 50.48(c) transition process. The NRC will use this information to determine the percentage of fire areas with long-term compensatory measures. This information will only be available from plants that have submitted NFPA 805 amendment requests. Those plants that have not yet submitted will not be counted until the amendment requests are submitted. The first non-pilot NFPA 805 amendment requests are expected in the first half of CY 2010.

Non-NFPA 805 Plants - NEI has agreed to collect data on long-term compensatory actions for the plants that are not transitioning to NFPA 805. NEI will report this information to the NRC every six months. This metric monitors the percentage of plant fire areas that are under compensatory measures for a period greater than 18 months. More details regarding the NEI agreement to collect this information is included in the meeting minutes on this topic (see enclosed ADAMS accession number ML090710298). Table 1 of that document provides an example of how the percentage of fire areas under long-term compensatory measures will be estimated for these plants. The final report on this metric will be issued by September 30, 2009.

Next Step:

Step 3 of Task Number 5 is to collect information and establish monitoring. Based on agreements with NEI and RES, the NRR staff plans to evaluate the collected data, trends and insights, and report the initial metric as well as the supporting procedure by the end of September 2009.

Enclosure:
As stated

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using a performance-based strategy (i.e. NFPA 805). If the licensee plans to comply using a performance-based strategy for a given fire area, then that area will be under long-term compensatory measures until the NRC staff reviews and approves the licensee's LAR. For some fire areas, the licensee will inform the NRC staff that they plan to comply by modifying the plant and provide information on the schedule for the proposed modification. In such cases, the licensee is required to maintain compensatory measures until the modifications are completed. Therefore, the proposed schedules of the modifications can be used to estimate the duration for which compensatory measures will be in place. In summary, the areas described in the amendment request as not in compliance will be considered as areas with compensatory measures in place since they will be resolved as part of the 10 CFR 50.48(c) transition process. The NRC will use this information to determine the percentage of fire areas with long-term compensatory measures. This information will only be available from plants that have submitted NFPA 805 amendment requests. Those plants that have not yet submitted will not be counted until the amendment requests are submitted. The first non-pilot NFPA 805 amendment requests are expected in the first half of CY 2010.

Non-NFPA 805 Plants - NEI has agreed to collect data on long-term compensatory actions for the plants that are not transitioning to NFPA 805. NEI will report this information to the NRC every six months. This metric monitors the percentage of plant fire areas that are under compensatory measures for a period greater than 18 months. More details regarding the NEI agreement to collect this information is included in the meeting minutes on this topic (see enclosed ADAMS accession number ML090710298). Table 1 of that document provides an example of how the percentage of fire areas under long-term compensatory measures will be estimated for these plants. The final report on this metric will be issued by September 30, 2009.

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