

From: Paul Fillion, R2
To: Charles R. Ogle; McKenzie Thomas
Date: 12/29/03 2:18PM
Subject: McGuire Open Item Closeout

As discussed, here is my writeup for closeout of one McGuire FP open item. According to Bob Carroll, he needs input by end of this week to make report for fourth quarter which ended December 13. Since I already charged time to the report it would be advantageous if the input gets in. Noticed that "initially" was misspelled, and already corrected.

1-6

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INPUT FOR MCGUIRE INSPECTION REPORT 03-05

by
Paul J. Fillion

4OA5 Other

.01 (Closed) Unresolved Item (URI) 50-369, 370/03-07-01: Fire Suppression System for Dedicated Shutdown Areas Not in Accordance with 10 CFR 50, Appendix R, Section III.G.3

10 CFR 50, Appendix R, III.G.3 requires that a fixed fire suppression system be installed in a fire area where a dedicated shutdown system will be used to achieve post-fire safe shutdown. The NRC has interpreted this requirement to mean the fixed fire suppression system shall cover 100 percent of the area, room or zone under consideration. The NRC opened this Unresolved Item (URI) to determine whether backfit as defined by 10 CFR 50.109, Backfitting, is warranted to require the licensee to provide fire suppression capability which covers the whole area as opposed to the existing partial area coverage in certain fire areas. Inspection Report 50-369, 370/03-07 describes the suppression system in Fire Area 4, which is a room in the auxiliary building containing the nuclear service water pumps, as covering only the pump area, leaving a majority of the room area unprotected. The report alludes to other III.G.3 areas with similar partial suppression, but does not give specifics.

The inspector reviewed key historical documents to determine exactly what was initially reviewed and approved by the NRC with regard to fixed fire suppression systems in the various plant areas. The licensee's Fire Protection Review, which was transmitted to the NRC by letter dated January 31, 1979, contains a fire hazards analysis of each fire area. The fire hazards analysis makes clear statements as to which areas of the plant they have installed fixed sprinkler systems or other type of fire suppression system. The analysis contains a section within the discussion of each fire area titled "Consequences of a Fire." This section addresses the cases of installed suppression systems functioning and no suppression systems functioning. It is apparent from this section which fire areas ultimately depend on the standby shutdown system as an alternative to control room shutdown. The Fire Hazards Analysis also provides a summary of fire protection features for each elevation of the auxiliary building. In general, the January 1979 submittal matches the current Fire Hazards Analysis, although there are some differences. A few fire areas were added or combined, and two areas were changed from control room shutdown to standby shutdown system areas. The inspector considers these differences to be minor in nature and they do not substantially affect the essential concept of what was initially reviewed and approved.

Supplement No. 2 to the NRC's Safety Evaluation Report, dated March 1979, indicates that the January 1979 Fire Protection Review discussed above was received and reviewed. Safety Evaluation Report, Supplement No. 2, summarizes the entire fire protection system in Section 9.5.1 and in Appendix D. The safety evaluation discussion matches the licensee's Fire Protection Review with regard to the design and extent of the fixed suppression systems. Appendix D states: "As part of the review, we visited the plant site to examine the relationship of safety related components, systems, and structures in specific plant areas to both combustible materials and to associated fire detection and suppression systems."

One conclusion from the historical document review was that the current design of the fire protection systems as relates to this unresolved item was reviewed by the NRC in 1979 and found to be in compliance with Appendix A to Branch Technical Position APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976." Supplement No. 5 to the NRC's Safety Evaluation Report, dated April 1981, states that: the licensee committed to implement Appendix R, Section III.G, as an item to be backfitted. However, the description of water suppression systems was the same as given in Supplement No. 2. Supplement No. 5 does not state that any additional fire suppression systems would be installed to meet Appendix R, Section III.G. Except for the control room, all the Appendix R III.G.3 areas had fixed suppression, but not necessarily area wide suppression. The concept that a III.G.3 area needed to have fixed suppression covering 100 percent of the fire area as opposed to "critical areas" within the fire area may not have been clarified by the NRC until later. Supplement No. 6 to the NRC's Safety Evaluation Report, dated February 1983, was issued to specifically address the standby shutdown system and compliance with Appendix R, III. G and III.L. Description of the water suppression systems as given in Table 9.5.1 is essentially the same as in Supplement 2. Based on this review of historical licensing documentation, the potential need for full area suppression was treated as a backfit issue.

The inspector used Significance Determination Process techniques to determine the beneficial change in risk that would result from expanding the existing suppression system from partial coverage to area wide coverage. Because the Significance Determination Process results indicated no significant difference in risk between the normal suppression and degraded suppression cases, the conclusion is that backfitting to provide area wide suppression is not warranted. This analysis considered the worst case of post-fire shutdown with only the Standby Shutdown Facility available. Both the transient worksheet and the loss of nuclear service water worksheet were evaluated. Insights gained from this analysis, which focused on Fire Area 4, led to the conclusion that the same result would be obtained for any auxiliary building III.G.3 area at McGuire. This is primarily due to the small difference in initiating event likelihood between the two cases under consideration and the relatively low likelihood values. This conclusion envelops all III.G.3 areas in the plant, since the cable spreading rooms have an area wide manual misty fog type suppression system and control rooms are a generic exception to the requirement to have suppression systems.

This Unresolved Item is closed.