

August 20, 2003

MEMORANDUM TO: Sunil Weerakkody, Chief
Fire Protection Engineering and Special Projects Section
Plant Systems Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation
Division of Systems Safety and Analysis

FROM: Phillip M. Qualls, Fire Protection Engineer/**RA**
Fire Protection Engineering and Special Projects Section
Plant Systems Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

SUBJECT: WHITE PAPER ON ALTERNATIVE FIRE PROTECTION
COMPENSATORY MEASURES

The purpose of this memorandum is to clarify a concern raised by the Nuclear Energy Institute (NEI) regarding fire protection compensatory measures.

The NEI conveyed to the NRC that there is lack of understanding on the part of the industry about how fire watches may be utilized as a compensatory measure. For example, licensees may use fire watches as a compensatory measure while other measures may be more appropriate or use fire watches inappropriately. The Information Notice 97-48, "Inadequate or Inappropriate Interim Fire Protection Compensatory Measures," dated July 9, 1997 provided some guidance to the licensee on this subject. The attached white paper clarifies this issue further.

Please let me know if you have any questions.

Attachment: As stated

Contact: Phillip M. Qualls
NRR/DSSA/SPLB
415-1849
E-mail: pmq@nrc.gov

August 20, 2003

MEMORANDUM TO: Sunil Weerakkody, Chief
Fire Protection Engineering and Special Projects Section
Plant Systems Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation
Division of Systems Safety and Analysis

FROM: Phillip M. Qualls, Fire Protection Engineer/**RA**
Fire Protection Engineering and Special Projects Section
Plant Systems Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

SUBJECT: WHITE PAPER ON ALTERNATIVE FIRE PROTECTION
COMPENSATORY MEASURES

The purpose of this memorandum is to clarify a concern raised by the Nuclear Energy Institute (NEI) regarding fire protection compensatory measures.

The NEI conveyed to the NRC that there is lack of understanding on the part of the industry about how fire watches may be utilized as a compensatory measure. For example, licensees may use fire watches as a compensatory measure while other measures may be more appropriate or use fire watches inappropriately. The Information Notice 97-48, "Inadequate or Inappropriate Interim Fire Protection Compensatory Measures," dated July 9, 1997 provided some guidance to the licensee on this subject. The attached white paper clarifies this issue further.

Please let me know if you have any questions.

Attachment: As stated

Contact: Phillip M. Qualls
NRR/DSSA/SPLB
415-1849
E-mail: pmq@nrc.gov

DISTRIBUTION: SPLB R/F JHannon SBlack MJohnson DCoe
SRichards CMarschall COgle JRogge LJulio

DOCUMENT NAME: G:\SPLB\SECTIONB - WEERAKKODY\QUALLS\MEMO_WHITE_PAPER.WPD

OFFICE	SPLB:DSSA:NRR		SC:NRR:SPLB		BC:NRR:SPLB	
NAME	PQualls		SWeerakkody		JHannon	
DATE	08/20/03		08/20/03		08/20/03	

OFFICIAL RECORD COPY

WHITE PAPER ON ALTERNATIVE FIRE PROTECTION COMPENSATORY MEASURES

Background

The Nuclear Energy Institute (NEI) conveyed to the NRC that there is lack of understanding on the part of the industry about how fire watches may be utilized as a compensatory measure. For example, licensees may use fire watches as a compensatory measure while other measures may be more appropriate or use fire watches inappropriately. The Information Notice 97-48 "Inadequate or Inappropriate Interim Fire Protection Compensatory Measures" dated July 9, 1997 provided some guidance to the licensee on this subject. The intent of this white paper is to clarify this issue further.

Summary of Regulatory Framework on Compensatory Measures

Fire watches are often required by a licensee's approved fire protection program but may not be the optimal compensatory measure. Information Notice 97-48, "Inadequate or Inappropriate Interim Fire Protection Compensatory Measures," dated July 9, 1997 provides background on the use of compensatory measures. It discusses example situations in which fire watches were used inappropriately, and provides overall guidance on the proper use of fire watches as an interim fire protection compensatory measure.

At the time of licensing, compensatory measures were incorporated into fire protection technical specifications for each licensee. This meant that changes to compensatory measures required NRC review and approval.

Generic Letter 86-10, "Implementation of Fire Protection Requirements," dated April 24, 1986, specified a process for revising the operating license condition to allow licensee's to remove compensatory measures from the fire protection technical specifications and to place them into the approved fire protection plan (FPP). With very few exceptions, nuclear power plants have adopted the standard license condition for fire protection provided in Generic Letter 86-10, which states:

"Fire Protection

(Name of Licensee) shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility (or as described in submittals dated

_____) and as approved in the SER dated _____ (and Supplements dated _____) subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire."

ATTACHMENT

Additional Clarifications of Guidance related to Fire Watches

Currently most licensees have adopted this license condition and removed the fire protection compensatory measures from technical specifications and placed them into the approved FPP in accordance with guidance provided in Generic Letter 88-12, "Removal of Fire Protection Requirements from Technical Specifications" dated August 2, 1988.

Licensees that have this license condition may make changes to the approved FPP provided that those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. As noted in Information Notice 97-48, a licensee needs to have compensatory measures for degraded and inoperable conditions. A licensee may, however, decide that a compensatory measure other than a fire watch is the preferred measure and may make changes in accordance with the plant's operating license condition.

For these licensees, when fire watches may not be the optimal interim compensatory measure for degraded or inoperable plant fire protection features or degraded or inoperable conditions associated with post-fire safe-shutdown capability, the compensatory measure may be changed to an alternate, appropriate action or combination thereof (e.g., additional administrative controls, interim strategies, interim plant operational measures, temporary detection or suppression systems) provided the change is in accordance with the license condition. Any change made to the approved FPP shall be documented to demonstrate that it would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. Any change to the FPP must be retained as a record pursuant to 10 CFR 50.48 (a) and is subject to inspection by the NRC in the reactor oversight process.

One area where alternate compensatory measures may be preferred are the current issues involving manual actions used to meet Section III.G.2 of 10 CFR Part 50, Appendix R. 10 CFR Part 50, Appendix R, Section III.G.2 provides certain methods to ensure that redundant safe shutdown trains, located within the same fire area, remain free of fire damage. Manual actions are not one of the options listed (pending rulemaking). As discussed in a public meeting on June 20, 2002 (ADAMS Accession ML 0219804480) numerous licensees have chosen to implement manual actions in lieu of one of the specified III.G.2 methods. In fact, inspections have found that manual actions are often incorporated into a procedure because of potential damage to the cables or controls of a component required for safe shutdown. Inspection Procedure 71111.05, Fire Protection dated March 6, 2003, provides screening criteria to determine if a licensee manual action, in lieu of one of the required methods, would be a Green finding or should be evaluated further using the Significance Determination Process.

Once the licensee or NRC inspector identifies that a manual action is used in lieu of a required III.G.2 fire barrier, the licensee should put in place a compensatory measure in accordance with the approved FPP for that facility. The typical FPP for a plant requires an hourly fire watch tour for a missing or damaged fire barrier. Properly analyzed and implemented manual actions which meet the criteria of Inspection Procedure 71111.05 and additional actions or a combination thereof as discussed above could serve as interim measures (pending rulemaking) which provide a safety benefit greater than having hourly fire watch tours for uninstalled or

missing fire barriers. The licensee would have to perform an evaluation to show that the manual action is not an adverse affect on the ability to achieve safe shutdown when compared to the hourly fire watch tour as a compensatory measure while corrective actions are taken in accordance with the licensee's corrective action program.