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FROM: DUE: 03/15/06 EDO CONTROL: G20060214
DOC DT: 02/28/06
FINAL REPLY:

Marvin S. Fertel
Nuclear Energy Institute (NEI)

TO:

Chairman Diaz

FOR SIGNATURE OF : ** PRI ** CRC NO: 06-0107

Chairman Diaz

DESC: ROUTING:

Operator Manual Actions - Industry Fire Protection Programs

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Date Printed: Mar 02, 2006 14:22

PAPER NUMBER:	LTR-06-0107	**LOGGING DATE:**	03/01/2006
ACTION OFFICE:	EDO		
AUTHOR:	Marvin Fertel		
AFFILIATION:	NEI		
ADDRESSEE:	Nils Diaz		
SUBJECT:	Operator manual actions		
ACTION:	Signature of Chairman		
DISTRIBUTION:	RF, SECY to Ack		
LETTER DATE:	02/28/2006		
ACKNOWLEDGED	No		
SPECIAL HANDLING:	Made publicly available in ADAMS via EDO/DPC		
NOTES:			
FILE LOCATION:	ADAMS		
DATE DUE:	03/17/2006	**DATE SIGNED:**	

EDO --G20060214

From: "FERTEL, Marvin" <msf@nei.org>
Date: Tue, Feb 28, 2006 4:02 PM
Subject: Operator Manual Actions

February 28, 2006

The Honorable Nils J. Diaz

Chairman

U.S. Nuclear Regulatory Commission

Mail Stop O-16 C1

Washington, DC 20555-0001

Dear Chairman Diaz:

The industry would like to propose a path forward addressing the regulatory acceptance of operator manual actions credited in industry fire protection programs without requiring the approval of potentially thousands of exemption requests. Operator manual actions are currently used and credited by licensees for responding to abnormal operating events and design basis events. These actions are specifically identified in plant operating procedures. Exemption requests and NRC pre-approvals are not required for these manual actions.

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Mail Envelope Properties (4404BA77.C9C : 11 : 19612)

Subject:	Operator Manual Actions
Creation Date:	Tue, Feb 28, 2006 4:02 PM
From:	"FERTEL, Marvin" <msf@nei.org>
Created By:	msf@nei.org

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Files	**Size**	**Date & Time**
MESSAGE	1447	Tuesday, February 28, 2006 4:02 PM
TEXT.htm	6440	
02-28-06_NRC_Operator Manual Actions Commission Letter.pdf	75636	
Mime.822	114972	

Options

Expiration Date:	None
Priority:	Standard
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Concealed Subject:	No
Security:	Standard

NUCLEAR ENERGY INSTITUTE

Marvin S. Fertel
SENIOR VICE PRESIDENT AND
CHIEF NUCLEAR OFFICER

February 28, 2006

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In a June 2002 public meeting, we provided information demonstrating that operator manual actions were previously approved for Appendix R III.G.1, III.G.2, and III.G.3 areas without formal exemption requests. These manual actions have been subject to NRC inspections for years without concerns being raised about a compliance issue. They have been documented in Safety Evaluation Reports, Inspection Reports, and docketed correspondence.

It is clear from the February 8, 2006, Staff Requirement – SECY 06-0010, that the expectation is for licensees to submit exemption requests. This memorandum articulates the Commission's concern about "...staff planning and resources to review such exemptions in a timely manner." If this approach is followed, we estimate that more than 1,500 exemption requests will be formally submitted to the NRC. We further believe the great majority of these exemption requests have no safety significance. This belief is consistent with the regulatory analysis for the proposed rulemaking that was withdrawn wherein the NRC states that, 'The results from NRC fire protection inspections to date indicate there is insufficient evidence that the generic use of these manual actions poses a safety concern."

We believe this Commission expectation will unnecessarily undermine public confidence in plant safety and NRC credibility while requiring an unnecessary expenditure of industry and NRC staff resources in preparing and reviewing exemption requests that have minimal safety significance. The NRC staff position of retroactively requiring exemption requests does not appear to be an effective and efficient use of industry and NRC staff resources, and is lacking a clear legal basis.

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We fully recognize the importance of a consistent regulatory position and practice going forward. This is fundamental to assuring safety, and for providing certainty and consistency in the regulatory process. We offer the following proposal for the regulatory treatment of operator manual actions:

1. No exemption requests should be required for existing operator manual actions that have already been accepted by NRC. NRC staff acceptance of operator manual actions as documented in Safety Evaluation Reports, Inspection Reports, or docketed in a submittal to the NRC should stand.
2. NRC should issue a Regulatory Issue Summary (RIS) articulating a resolution of the operator manual action issue and endorse the acceptance criteria provided in Enclosure 1. These criteria were developed from existing NRC guidance. The industry believes they represent adequate and sufficient criteria for demonstrating the feasibility of an operator manual action.
3. All post-fire operator manual actions will be evaluated against the acceptance criteria. These evaluations will be subject to future NRC inspections and any findings will be dispositioned in accordance with the reactor oversight process.
4. Formal exemption requests will be submitted by licensees to NRC for new manual action effective the date of the publication of the RIS. These would be reviewed against the enclosed acceptance criteria. This action would apply to plants committed to Appendix R (pre-1979) that have not submitted a letter of intent for making the transition to 50.48(c). Non-Appendix R plants, (post 1979) would not take this actions because they have been allowed to adopt manual actions using the Standard License Condition.

In conclusion, we believe the suggested approach will provide the necessary focus on those operator manual actions that are safety significant, provide a clear understanding of NRC expectations going forward, an most importantly, avoids the expenditure of industry and NRC staff resources on matters of low safety significance. We would appreciate the Commission's support to discuss this proposal with the NRC staff.

If you have any questions, please contact me at 202.739.8125; msf@nei.org.

Sincerely,

Marvin S. Fertel

Enclosure

c: The Honorable Edward McGaffigan, Jr., Commissioner, NRC
The Honorable Jeffrey S. Merrifield, Commissioner, NRC
The Honorable Gregory B. Jaczko, Commissioner, NRC
The Honorable Peter B. Lyons, Commissioner, NRC
Mr. Luis A. Reyes, Executive Director for Operations, NRC
Mr. James E. Dyer, Director, Office of Nuclear Reactor Regulation, NRC
Mr. Gary M. Holahan, Associate Director for Risk Assessment and New Projects, NRC

ENCLOSURE

ACCEPTANCE CRITERIA

MANUAL ACTIONS

I. PURPOSE

This paper provides guidance regarding the use of manual actions to equipment required for post-fire safe-shutdown.

II. INTRODUCTION

Manual actions may involve manual operation, remote manual operation, or local operation of equipment. Manual actions on equipment for the purpose of performing its required safe-shutdown function are allowed under the definition of "free of fire damage." This document provides the criteria to assure that the reliance on manual actions is appropriate. These criteria are intended to assure that the actions specified are capable of being performed, and that reliance on them is balanced within the overall safe-shutdown strategy for a given fire area.

III. RELIANCE ON MANUAL ACTIONS VS. AUTOMATIC OPERATION OF EQUIPMENT

Automatic function circuitry is a design feature provided to mitigate or limit the consequences of one or more design basis accidents. In fact, manual actions are used to respond to numerous design basis events, as well as beyond design basis events. 10CFR50 Appendix A, requires certain specific protection functions to be automatic for specific design basis events, but this still leaves many features permissible for manual operation, both for design basis events and beyond design basis events.

Section I (Introduction and Scope) of Appendix R states the following:
When considering the effects of fire, those systems associated with achieving and maintaining safe-shutdown conditions assume major importance to safety because damage to them can lead to core damage resulting from loss of coolant through boil-off.
The post-fire safe-shutdown analyses provide assurance that fire damage will not result in a condition more severe than boil-off, and that manual actions can be performed in a time frame sufficient to restore level prior to the onset of core damage. Analysis shows that fuel damage will not rapidly occur, since boil-off is a gradually progressing event. Operator training and procedures assure that the necessary system alignment(s) are capable of being made in the times required preventing such occurrence. Thus, manual actions are equivalent in mitigation capability to automatic operation.

IV. DEFINITIONS

This appendix on manual actions includes the following definitions:

Emergency Control Station: An emergency control station includes the remote shutdown panel(s), local starters, electrical distribution panels, motor-operated valve (MOV) handwheels, and other equipment locations designed for operator use or monitoring.

Free of Fire Damage: Achieved when the structure, system, or component under consideration is capable of performing its intended function during and after the postulated fire, as needed. It may perform this function automatically, by remote control (which includes manual operations and/or remote manual operations), or by local operation.

Remote Manual Operation: Operation of safe-shutdown equipment on the required safe-shutdown path using remote controls (e.g., control switches) specifically designed for this purpose from a location other than the main control room.

Manual Operation: Operation of safe-shutdown equipment on the required safe-shutdown path using the control room control devices (e.g., switches) in the event that automatic control of the equipment is either inhibited based on plant procedures or unable to function as a result of fire-induced damage.

Local Operation: Operation of safe-shutdown equipment on the required safe-shutdown path by an operator when automatic, remote manual, or manual operation are no longer available (e.g., opening of a motor operated valve using the hand wheel).

Remote Control: Plant design features that allow the operation of equipment through a combination of electrically powered control switches and relays. Remote control can typically be performed from the control room or from local control stations, including the remote shutdown panel and other locations with control capability outside the control room.

V. CRITERIA

To credit the use of manual actions to achieve post-fire safe-shutdown, certain criteria must be met. These criteria are identified below.

- There shall be sufficient time to travel to each action location and perform the action. Actions should be verified and validated by plant walkdowns using the current procedure. The action must be capable of being identified and performed in the time required to support the associated shutdown function(s) such that an unrecoverable condition does not occur. Previous action locations should be considered when sequential actions are required.

- Fire tests indicate that spurious actuations do not typically occur for 30 minutes or more, especially for thermoset cable, allowing for additional action time. For example, actions to lock out charging pumps or close PORV block valves may be considered feasible.

- There shall be a sufficient number of plant staff available to perform the required actions in the times required, based on the minimum shift staffing. The use of personnel to perform actions should not interfere with any collateral fire brigade or control room duties they may need to perform as a result of the fire. Administrative controls shall exist to ensure that the personnel necessary to perform actions are available when required, and that unexpected absences are promptly corrected. If staff augmentation consistent with the licensee's Emergency Plan Implementing Procedures is credited, then the licensee must demonstrate that un-recoverable conditions would not occur in the time period before staff augmentation is achieved.

- The action location shall be accessible. In evaluating actions and the route through the plant for performing any actions, consideration should be given to the potential effects of temperature, humidity, radiation levels, smoke, and toxic gases. Actions required in a fire area experiencing a fire, or that requires travel through a fire area experiencing a fire, may be credited if it is demonstrated that these actions are not required until the fire has been sufficiently extinguished to allow completion of necessary actions in the fire area.

  In addition, if the action required is to be performed in the fire area experiencing the fire, it must be assured that fire damage within the fire area does not prevent completion of the action. Actions taken in the fire area, or adjoining fire areas. must be reviewed for impact on personnel safety to assure that taking the action will not endanger the operator as a result of actuation/discharge of fire suppression systems (water/electrical shock, CO2/axphixiation, etc.). NOTE: NUREG-0737 II.B.2 addresses dose limitations for operators performing necessary post-accident operations in vital areas. The NUREG specifies areas that require infrequent access should be designed to limit exposures to within GDC 19 limits for the duration of the exposure, i.e., 5 REM whole body (or its equivalent to any part of the body) for the duration of the accident.

- The action locations and the access and egress path for the actions shall be lit with an 8-hour battery-backed emergency lighting. Tasks that are not required until after eight hours do not require emergency lights as there is time to establish temporary lighting. The path to and from actions required at remote buildings (such as pump house structures) does not require outdoor battery backed lights, if other lighting provisions are available (portable lights, security lighting, etc.).

- There should be indication, which is unaffected by the postulated fire, that confirms that an action is necessary and that the action, once completed, has achieved its objective. This indication is not required to be a direct reading instrument and may be a system change (level, pressure, flow, amps, temperature, etc.). Additional instrumentation may be needed to properly assess spurious operation; however, it may not be necessary to make a diagnosis of the specific spurious operation that occurred, if symptom-based plant procedures provide the appropriate guidance to respond to the situation. If pre-emptive actions will be taken to preclude spurious actuations, then event-based procedures should be provided for the situation.

- Administrative controls shall be provided to ensure that any tools, equipments, or keys required for the action shall be functional, available, and accessible. This includes consideration of self-contained breathing apparatus (SCBA) and personnel protective equipment, if required. This also includes the availability of ladders or special equipment, if these items are required for access.

- There shall be provisions for communications to allow coordination of actions with the main control room or the alternative shutdown facility, if required. The nature of the action and need for coordination with other related actions or control room, should be considered when determining the need for and the type of communications required.

- Guidance (e.g., procedures or pre-fire plan) should be provided to alert the operator as to when actions may be required in response to potential fire damage. This guidance should be provided in locations that will be accessible during and after the fire.

  The guidance may be prescriptive or symptomatic. Specific event-based procedures are required for activities not addressed in existing operating procedures (normal, abnormal, emergency) for actions as a result of fire-induced failures that cannot be readily diagnosed by the operator using means protected from the effects of fire. The "skill of the craft" should be considered when determining the level of procedural guidance to provide. Typically, plant operators should be capable of performing actions without detailed instructions.

  Detailed instructions should be readily available, if required. The guidance shall provide the level of detail required to enable plant personnel to perform the task. Personnel shall be trained and qualified, as appropriate, to perform the specified actions, in accordance with INPO's Systematic Approach to Training.

- The complexity and number of manual actions required for safe-shutdown shall be limited, such that their successful accomplishment under realistically severe conditions is ensured for a given fire scenario.

Other Types of Actions

When performing the post-fire safe-shutdown analysis, additional actions that are not credited in the post-fire safe-shutdown analysis may be identified that have a positive benefit to the safe-shutdown scenario, such as minimizing the shutdown transient or reducing commercial property damage. Since these actions are not specifically required by the Regulation or the safe-shutdown analysis, it is not necessary to provide 8-hour emergency lighting or communication for these actions.

It is also not required to specifically address the required timing for these actions.

Similarly, manual actions specified as precautionary or confirmatory backup actions (prudent, but unnecessary or redundant) for a primary mitigating technique that are not credited in the post-fire safe-shutdown analysis do not require 8-hour emergency lights, communications, or timing considerations.

VI. REFERENCES

10 CFR 50 Appendix R Fire Protection for Operating Nuclear Power Plants

NRC Inspection Procedure 71111.05, March 6, 2003

NRC Draft Regulatory Guide DG-1136, February 2005

NUREG-1778, Knowledge Base for Post-Fire Safe-Shutdown Analysis, January 2004

SECY-03-0100, Rulemaking Plan on Post-Fire Operator Manual Actions, June 17, 2003

Generic Letter 86-10

10CFR50, Appendix A

NUREG-0737

IEEE-603

10CFR50.55a "Codes and Standards"