



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

ACRSR-2106

November 19, 2004

The Honorable Nils J. Diaz
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: DRAFT PROPOSED RULE ON POST-FIRE OPERATOR MANUAL ACTIONS

Dear Chairman Diaz:

During the 517th meeting of the Advisory Committee on Reactor Safeguards, November 4-6, 2004, we met with representatives of the NRC staff to review the draft proposed rule on post-fire operator manual actions. Our Fire Protection Subcommittee also reviewed this matter during a meeting on October 27, 2004. During our reviews, we had the benefit of discussions with representatives of the NRC staff and the nuclear industry and interested members of the public. We also had benefit of the documents referenced.

RECOMMENDATION

The draft proposed rule should be published for public comment.

BACKGROUND

Nuclear power plant fire protection regulations and associated guidelines prescribe fire protection features that are intended to ensure that at least one means of achieving and maintaining safe shutdown conditions will remain available during or after any postulated fire. Currently, paragraph III.G.2 of Appendix R specifies three acceptable methods for protecting the safe shutdown capability of one of the redundant shutdown trains from a fire when these trains are located in the same fire area. These options are:

- a 3-hour fire barrier, or
- a 1-hour fire barrier with fire detectors and an automatic fire suppression system, or
- 20 feet of horizontal separation with no intervening combustibles and with fire detectors and an automatic fire suppression system.

During recent NRC inspections of licensee fire protection programs, the staff has identified concerns regarding licensee compliance with these requirements. Currently, licensees relying on operator manual actions which have not been reviewed and approved by NRC in accordance with 10 CFR 50.12 are considered to be in noncompliance with NRC regulations. In addition to

the compliance issue, the staff is also concerned that some unapproved operator manual actions may not be feasible. However, the staff has acknowledged that certain operator manual actions may be safe and effective when performed under appropriate conditions.

DISCUSSION

To address this issue, the staff initiated rulemaking to explicitly permit the use of operator manual actions in lieu of using physical barriers or separation to achieve and maintain safe shutdown in the event of a fire where redundant trains are located in the same fire area. The staff has also developed a draft regulatory guide that includes acceptance criteria for evaluating and demonstrating the feasibility and reliability of post-fire operator manual actions as an acceptable alternative to the physical barriers and separation.

In the proposed rule, crediting operator manual action would be predicated on the requirement that the area where the fire occurs is equipped with fire detection and automatic suppression systems. The staff contends that fire detection and automatic suppression systems are necessary to preserve the physical component of a plant's fire protection defense-in-depth.

The staff has stated that the proposed change to paragraph III.G.2 is intended to (1) maintain safety and increase public confidence, (2) provide quality and uniformity in licensee assessments and documentation, (3) reduce unnecessary regulatory burden associated with the exemption or deviation process, and (4) result in more efficient use of resources by licensees and the NRC. We agree that the draft proposed rule and the accompanying regulatory guide will be effective in meeting objectives 1 and 2.

We have been informed by nuclear industry representatives that, with the inclusion of the requirement for fire detection and automatic suppression in the proposed rule, objectives 3 and 4 are unlikely to be achieved since many exemption and/or deviation requests will continue to be required. We believe, however, that many plants will use the new rule rather than the exemption process in 10 CFR 50.12.

During our reviews, we questioned the inclusion of a provision in paragraph III.P.2 of the proposed rule which requires the consideration of security events when evaluating the feasibility of operator manual actions. We have been informed by the staff that this provision will be removed and handled separately in a manner that properly protects sensitive information. We agree with the staff's decision.

The proposed rule requires time-authenticated walkdowns of each credited operator manual actions at intervals not to exceed 12 months to demonstrate the feasibility of the action. Since some plants may be seeking credit for numerous actions, the requirement in paragraph III.P.2 (d) for repetition of such walkdowns for all credited operator manual actions may be excessive and unnecessary. An initial demonstration for each credited action combined with routine operator training may be sufficient.

Sincerely,

/RA/

Mario V. Bonaca
Chairman

Additional Comments by ACRS Member Stephen L. Rosen

I agree with the Committee's recommendation that the staff should publish the draft proposed rule for public comment. However, I believe that the staff's strategy on this issue misses an important opportunity to move the industry and agency towards a more risk-informed, performance-based approach to the control of fire risk.

As noted in the rulemaking plan attached to SECY 03-100, the staff has acknowledged that replacing a passive fire barrier or automatic suppression system with human performance activities can increase risk but for some simple operator manual actions, the risk increase associated with human performance may be minimal. The staff also stated that the introduction of feasible operator manual actions could result in a minimal increase in overall risk and has concluded (on a plant-specific basis) that the use of certain specific operator manual actions for the operation of co-located safe shutdown trains provides an adequate level of fire safety and satisfies the underlying purpose of the fire protection regulations.

I agree with the staff and I would add that each fire scenario must be evaluated on its own merits, taking into account passive features, combustibles, ventilation, detection, automatic suppression (if available), fire brigade activities and feasibility and reliability of operator manual actions.

Yet, in the draft proposed rule, the staff has chosen to take a more deterministic approach by including provisions in the rule that require that the affected fire area be equipped with suppression and detection before licensees may take credit for operator manual actions even when the operator actions are performed in other remote areas of the plant that may be unaffected by the fire.

The rule requires a time-line analysis of postulated fires. These analyses done in accordance with the regulatory guide accompanying the rule will be adequate to reveal circumstances where credit should not be granted for post-fire operator manual actions.

The staff should pursue a more risk-informed and performance based approach to the control of fire risk. The requirement for automatic fire suppression in the area of the postulated fire should be removed from the draft proposed rule.

References:

1. U.S. Nuclear Regulatory Commission, Draft Federal Register Notice, Subject: Proposed Rule, Fire Protection Program - Post-Fire Operator Manual Actions.
2. Memorandum from Catherine Haney, NRR to John T. Larkins, ACRS, Subject: Review of Post-Fire Operator Manual Actions Proposed Rule, September 20, 2004.
3. Draft Regulatory Guide DG-1136, Guidance for Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire, September 2004.

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Mario V. Bonaca
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