



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

March 19, 2009

Mr. R. W. Borchardt
Executive Director for Operations
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: DRAFT FINAL REGULATORY GUIDE 5.73, "FATIGUE MANAGEMENT OF NUCLEAR POWER PLANT PERSONNEL"

Dear Mr. Borchardt:

During the 560th meeting of the Advisory Committee on Reactor Safeguards, March 5-7, 2009, we reviewed the Draft Final Regulatory Guide 5.73, "Fatigue Management for Nuclear Power Plant Personnel." Our Subcommittee on Reliability and Probabilistic Risk Assessment also reviewed this matter on March 3, 2009. During these reviews, we had the benefit of discussions with representatives of the NRC staff, the Nuclear Energy Institute (NEI), the Professional Reactor Operator Society, and the International Brotherhood of Electrical Workers. We also had the benefit of the referenced documents.

CONCLUSIONS AND RECOMMENDATIONS

1. Regulatory Guide 5.73 should be issued as final.
2. Elements of 10 CFR Part 26 Subpart I and Regulatory Guide 5.73 may make it difficult for licensees to achieve desired personnel performance during outages. Scheduling strategies that focus too strongly on prescriptive criteria may disrupt shift teams or inadvertently introduce stress that counteracts the desired fatigue management objectives.
3. The staff should track industry pilot applications of the guidance and confirm that practical outage work schedules can effectively manage personnel fatigue, promote stable work teams, and support efficient transitions between power operation and outage conditions.

BACKGROUND

Regulatory Guide 5.73 describes an acceptable method for complying with NRC regulations for managing personnel fatigue at nuclear power plants. Those regulations are specified in 10 CFR Part 26 and were published in final form on March 31, 2008. Licensees are required to implement the fatigue management programs in Subpart I, "Managing Fatigue," of 10 CFR Part 26 before October 1, 2009.

Regulatory Guide 5.73 was issued for public comment in draft form as DG-5026 on September 29, 2008. Numerous comments were received from licensees, industry organizations, labor groups, and the public. The current version of this Guide reflects incorporation of public comments, as appropriate. The staff currently plans to issue Regulatory Guide 5.73 in its final form in May 2009.

DISCUSSION

Regulatory Guide 5.73 endorses, with certain clarifications, additions, and exceptions, the guidance in NEI document NEI 06-11, Revision 1, "Managing Personnel Fatigue at Nuclear Power Reactor Sites." This Guide contains two substantive exceptions to the guidance in NEI 06-11 for implementation of the work-hour controls established in Subpart I of 10 CFR Part 26.

Regulatory position five takes exception to the NEI guidance regarding the applicability of minimum days off (MDO) requirements during occasional periods of increased work hours (periodic overtime). The staff is concerned that this process could result in individuals working shift durations that would require a greater number of days off, compared with their normal established shift schedule. The NEI guidance does not contain provisions for those additional days off, and approvals for periodic overtime work hour extensions would not necessarily require a formal waiver according to the process described in 10 CFR Part 26. The licensee would instead monitor the work scheduling process through quarterly reviews and, as necessary, the plant corrective action program. Regulatory Guide 5.73 specifies that the actual hours worked by an individual determine the MDO requirements, regardless of the nominal workday hours for the respective shift cycle. We concur with this position.

Regulatory position 11 takes exception to the NEI guidance regarding acceptable methods for meeting MDO and licensed reactor operator staffing requirements at multiunit sites when one or more units are in an outage. The NEI guidance recommends that normal work hour controls would apply for only one Reactor Operator (RO) and one Senior Reactor Operator (SRO) at each operating reactor. Outage work hour controls would apply for all other covered personnel at the site. Regulatory Guide 5.73 specifies minimum staffing requirements for the operating reactors. Normal work hour controls apply for the ROs and SROs who satisfy those requirements, although individuals are permitted to work on outage-related activities within their normal work hour limitations. Outage work hour controls apply for all other covered personnel, including unlicensed operations, maintenance, and security personnel who may share work assignments between the operating and outage units, and licensed ROs and SROs who have primary responsibility for the outage units.

Industry representatives have noted specific elements of 10 CFR Part 26 Subpart I and the interpretations in Regulatory Guide 5.73 that may make it difficult to achieve optimal personnel performance during outages. For example, the defined starting time for an outage may limit personnel availability for critical pre-planning and preparatory activities. The requirements for licensed ROs and SROs at the operating units may cause deviations from normal shift routines or disruptions of established work groups that introduce sources of stress which counteract the desired fatigue management objectives. Transitions between shift schedules for power operation and outage conditions may cause additional disruptions.

It is difficult to assess the human performance benefits or potential drawbacks of various conceptual scheduling strategies before licensees develop practical programs that demonstrate how they propose to comply with the regulations. Regulatory Guide 5.73 should stimulate development of those schedules and should promote productive dialogue to resolve potentially

conflicting priorities. The industry has indicated that pilot applications are currently in progress to develop scheduling and time management programs for normal plant operations and near-term outages. The staff should track these pilot applications and confirm that personnel schedules achieve the desired fatigue management goals while maintaining shift teams and promoting stable work hour controls throughout all plant operating modes.

We note that the fundamental objective of 10 CFR Part 26 is to ensure that all personnel at each nuclear power plant site remain vigilant and capable of assuring plant safety and security. The rule may need to be revisited if application of Regulatory Guide 5.73 proves counter to this objective.

Sincerely,

/RA/

Mario V. Bonaca
Chairman

References:

1. Draft Final Regulatory Guide 5.73 (draft issued for public comment as DG-5026, September 2008), "Fatigue Management for Nuclear Power Plant Personnel," dated March 2009 (ML083450028)
2. 73 FR 16988, "10 CFR Part 26, Fitness for Duty Programs, Final Rule," Federal Register, Volume 73, p. 16988, March 31, 2008
3. Nuclear Energy Institute, "Managing Personnel Fatigue at Nuclear Power Reactor Sites," Report NEI 06-11, Revision 1, Washington, DC, October 2008

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ACRS Staff

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