

NEI 15-08 [Revision 0]

**Managing Personnel
Fatigue at
Decommissioning
Reactors**

DRAFT

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Nuclear Energy Institute

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This document was developed by the Nuclear Energy Institute (NEI) Decommissioning Task Force.

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EXECUTIVE SUMMARY

This technical report provides guidance for the management of worker fatigue at permanently shut down nuclear reactor facilities following docketing of the 10 CFR 50.82(a)(1) certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel. The guidance is based on the requirements of Generic Letter 82-12, Nuclear Power Plant Staff Working Hours, with adjustments to these specific provisions that maintain reasonable consistency with the corresponding provisions in Subpart I to 10 CFR Part 26.

This guidance is intended to assist licensees for decommissioning facilities in determining the appropriate administrative process for implementing fatigue management following permanent cessation of operations. To the extent that such provisions apply to security personnel as incorporated into the security plans, the licensee is responsible for determining what type of licensing action is submitted to the NRC for the plan change:

- Licensees who submit a security plan change that would decrease the effectiveness of the security plans must submit an application to amend the license under 10 CFR 50.90, pursuant to 10 CFR 50.54(p)(1), and receive approval prior to implementing the change.
- Licensees who submit a security plan change that does not decrease the effectiveness of the security plans are required to submit a report containing a description of each change within two months after the change is made, in accordance with 10 CFR 50.54(p)(2).

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MANAGING PERSONNEL FATIGUE AT DECOMMISSIONING REACTORS

1 INTRODUCTION

The purpose of this document is to, in the absence of applicable NRC regulations and Orders, propose guidance on appropriately managing worker fatigue at nuclear reactor facilities that are in the process of decommissioning. The requirements of 10 CFR 26, Subpart I “Managing Fatigue,” are not applicable to Part 50 licensees who have docketed the certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel pursuant to 10 CFR 50.82(a)(1). Upon docketing of these certifications, 10 CFR 50.82(a)(2) no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel.

2 DEFINITIONS

The NRC definition of decommissioning is contained within 10 CFR 50.2:

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—

(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

10 CFR 26.2 defines fatigue as:

Fatigue means the degradation in an individual's cognitive and motor functioning resulting from inadequate rest.

3 APPLICABILITY OF THE FATIGUE RULE TO DECOMMISSIONING FACILITIES

3.1 NRC REGULATIONS

Subpart I - Managing Fatigue of 10 CFR 26 (the “Fatigue Rule”) applies to those licensees specified in 10 CFR 26.201:

The requirements in this subpart apply to the licensees and other entities identified in § 26.3(a), and, if applicable, (c) and (d). The requirements in §§ 26.203 and 26.211 apply to the individuals identified in § 26.4 (a) through (c). In addition, the requirements in § 26.205 through § 26.209 apply to the individuals identified in § 26.4(a).

10 CFR 26.3(a) states:

Licenseses who are authorized to operate a nuclear power reactor under 10 CFR 50.57, and holders of a combined license under 10 CFR Part 52 after the Commission has made the finding under 10 CFR 52.103(g) shall comply with the requirements of this part, except for subpart K of this part.

Subpart I is specifically exempted from §26.3(b), which states:

Licenseses who are authorized to possess, use, or transport formula quantities of strategic special nuclear material (SSNM) under Part 70 of this chapter, and any corporation, firm, partnership, limited liability company, association, or other organization who obtains a certificate of compliance or an approved compliance plan under Part 76 of this chapter, only if the entity elects to engage in activities involving formula quantities of SSNM shall comply with the requirements of this part, except for subparts I and K of this part.

10 CFR 26.3(c) specifies that combined license applicants and holders under 10 CFR Part 52, construction permit applicants and holders under 10 CFR Part 50, and early site permit holders must implement Subpart I before the receipt of fuel assemblies.

10 CFR 26.3(d) applies to contractor or vendor fitness for duty (FFD) programs or program elements which are relied upon by licensees and other entities specified in §26.3(a) through (c) to meet the requirements of 10 CFR Part 26.

FFD program applicability to the categories of individuals specified in §26.4(a) through (c) includes only those licensees specified in §26.3(a) and, as applicable, (c). Since neither §26.3(a) nor (c) apply to the licensee which has docketed the §50.82(a)(1) certifications for a decommissioning power reactor, §26.4(a) does not apply.

Once a power reactor licensee docketed the certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel in accordance with 10 CFR 50.82(a)(1), pursuant to §50.82(a)(2), the 10 CFR part 50 license no longer authorizes operation of the reactor.

Furthermore, in SRM-COMSECY-04-0037, “Staff Requirements - COMSECY-04-0037 - Fitness-For-Duty Orders to Address Fatigue of Nuclear Facility Security Force Personnel” dated September 1, 2004, the Commission disapproved the issuance of orders concerning FFD program enhancements to address fatigue concerns for security force personnel at decommissioning reactors and instead determined that program enhancements should be pursued as a separate rulemaking activity with additional stakeholder interactions. To date, there has been no final ruling related to decommissioning sites.

Additionally, for spent fuel storage facilities §26.3 (e) states:

This part does not apply to either spent fuel storage facility licensees or non-power reactor licensees who possess, use, or transport formula quantities of irradiated Strategic Special Nuclear Material (SSNM).

3.1.1 NRC GUIDANCE

Regulatory Guide 5.73, Fatigue Management for Nuclear Power Plant Personnel, endorses the use of NEI 06-11, Managing Personnel Fatigue at Nuclear Power Reactor Sites, Revision 1, as an acceptable approach to implementing the fatigue management requirements of 10 CFR 26:

C. Regulatory Position

The NRC staff considers conformance with the guidance in Revision 1 of NEI 06-11 to be an acceptable approach to meeting the requirements of 10CFR26 related to managing fatigue at nuclear power plants, subject to the following clarifications, additions, and exceptions:

The applicability discussion in NEI 06-11 clearly states that the guidance does not apply to decommissioning facilities:

Section 2.2 Applicability

This guide applies to licensees who are authorized to operate a nuclear power reactor (under 10CFR50.57). Applicability to licensees who are transitioning from new plant construction to operations will be addressed in a future revision.

This guide does not apply to decommissioned plants, not authorized to operate.

This position was also discussed in a response from NRC staff to a related frequently asked question (FAQ)¹.

3.2 Conclusion

Based on the above, since under §50.82(a)(2) the licensee for a decommissioning facility is no longer authorized to operate a nuclear power reactor, the Fatigue Rule is no longer applicable.

4 MANAGING FATIGUE AT DECOMMISSIONING FACILITIES

4.1 Security Personnel

Appendix B to 10 CFR Part 73 specifies the minimum criteria (selection, training, equipping, testing, and qualification) that security personnel who are responsible for providing physical protection of a nuclear power reactor facility must meet.

Criteria VI.B.3(a) of Appendix B requires that individuals performing security duties demonstrate mental alertness:

Psychological qualifications. (a) Armed and unarmed individuals shall demonstrate the ability to apply good judgment, mental alertness, the capability

¹ Part 26 Subpart 1 FAQ Inquiry Response Decommissioning - ADAMS Accession Number ML13246A408

to implement instructions and assigned tasks, and possess the acuity of senses and ability of expression sufficient to permit accurate communication by written, spoken, audible, visible, or other signals required by assigned duties and responsibilities.

Additionally, licensees may have administrative requirements in their Technical Specifications to limit the work hours for personnel who perform specific duties, which would be subject to the appropriate change process, *i.e.*, §50.90.

In order to provide assurance that security personnel are mentally alert while fulfilling their assigned security-related duties, licensees should implement and maintain a program that monitors and limits work hours for these individuals.

4.1.1 Generic Letter 82-12

One acceptable method for limiting work hours is to adopt a program based on Generic Letter (GL) 82-12, Nuclear Power Plant Staff Working Hours, with site specific adjustments incorporated based on the established working shifts of the security force. While GL 82-12 only applied to operating plants, applicants for operating licenses and construction permit holders, the guidelines contained within form a framework on which to develop a work hour control program for security personnel at decommissioning facilities. The work hour limits based on GL 82-12 are revised to be consistent with corresponding limits specified in Subpart I, for example the limit of 26 hours (vice 24 hours) in any 48-hour period.

4.1.1.1 Program Outline

Plant security personnel should be adequately staffed so as to schedule and maintain acceptable shift coverage without routine heavy use of overtime. This practice should be used in conjunction with other programs such as the insider mitigation program/ behavior observation program (BOP) to recognize and respond to signs of decreased mental alertness. In the event that unforeseen problems require substantial amounts of overtime to be used, the following guidelines should be implemented in administrative procedures to ensure security personnel remain fit for duty, as related to fatigue, when performing assigned security-related job duties, and to establish formal controls to prevent unnecessary deviations from these guidelines:

1. An individual should not be permitted to work more than 16 hours straight (excluding shift turnover time).
2. An individual should not be permitted to work more than 16 hours in any 24-hour period, nor more than 26 hours in any 48-hour period, nor more than 72 hours in any seven day period (all excluding shift turnover time).

3. A break of at least ten hours should be allowed between work periods (including shift turnover time).
4. While routine use of overtime is discouraged, the use of overtime should be considered on an individual basis and not for the entire staff on shift.

These administrative procedures should also set forth a policy, the objective of which is to prevent situations where fatigue could reduce the ability of security personnel to respond to a security event. The policy should emphasize expectations for individuals to identify if they (or others) are not fit-for-duty due to fatigue, including self-monitoring and self-reporting to supervision when excessively fatigued. The policy should also be supported by fitness-for-duty training and refresher training as deemed necessary. The controls established should assure that, to the extent practicable, security personnel are not assigned to shift duties while in a fatigued condition that could significantly reduce their mental alertness or decision making ability.

4.1.1.2 Deviations

Plants should be staffed and schedules developed such that exceptions to the above guidelines are not required. In the event that special circumstances arise that may require deviation from the above guidelines, such deviations should be authorized by the site manager or their designee, or higher levels of management, with appropriate documentation of the cause.

Authorized deviations to the working hour guidelines should be documented and available for NRC review.

4.1.2 Licensee Evaluation of Changes

In evaluating changes to fatigue management provisions, licensees are required to process a change under the appropriate change process. To the extent that such provisions apply to security personnel as incorporated into the security plans, the licensee is responsible for determining what type of licensing action is submitted to the NRC for the change:

- Licensees who submit a security plan change that would decrease the effectiveness of the security plans must submit an application to amend the license under 10 CFR 50.90, pursuant to 10 CFR 50.54(p)(1), and receive approval prior to implementing the change.
- Licensees who submit a security plan change that does not decrease the effectiveness of the security plans are required to submit a report containing a description of each change within two months after the change is made, in accordance with 10 CFR 50.54(p)(2).

5 REFERENCES

Generic Letter 82-12, "Nuclear Power Plant Staff Working Hours," June 15, 1982

Regulatory Guide 5.73, "Fatigue Management for Nuclear Power Plant Personnel,"
March 2009 (ML083450028)

NEI 06-11, "Managing Personnel Fatigue at Nuclear Power Reactor Sites," Revision 1
(ML090360158)

SRM-COMSECY-04-0037, "Staff Requirements - COMSECY-04-0037 - Fitness-For-
Duty Orders to Address Fatigue of Nuclear Facility Security Force Personnel" dated
September 1, 2004 (ML042450533)