

Fifth Stakeholder Meeting for the Development of a Proposed Worker Fatigue Rule



**August 22, 2002
Rockville, MD**

Agenda

- 8:30-8:45** Introductions and Opening Remarks
- 8:45-9:15** Overview and status of proposed revision of Part 26
- 9:15-9:45** Status of backfit and regulatory analysis
- 9:45-10:15** Proposed scope - HP and emergency response functions
- 10:15-10:30** Break
- 10:30-11:00** Proposed scope - security functions
- 11:00-11:30** Proposed scope - maintenance functions
- 11:30-12:30** Lunch
- 12:30- 2:00** Scheduling controls
- 1:45-2:00** Break
- 2:00-3:00** Monitoring fatigue management program performance
- 3:00-3:30** Meeting Summary and Future Schedule

Issue Paper
Work Hour Limits
August 22, 2002

Issue: In early discussions issues related fatigue and work hour limits the industry identified the work hour limits as the most important issue. All other discussion can only be meaningful based on the work hour limits being considered. Industry discussion of who should be covered, process for granting exemptions, and program management are based on the limits listed in this paper.

Background:

1. Generic Letter 82-12 work hour limits are:

"...The objective is to have operating personnel work a nominal 8-hour day, 40-hour week while the plant is operating. However, in the event that unforeseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance or major plant modifications, on a temporary basis, the following guidelines shall be followed:

- a. An individual should not be permitted to work more than 16 hours straight (excluding shift turnover time).

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

- c. A break of at least eight hours should be allowed between work periods (including shift turnover time)."

2. In Feb 14, 2000 comments on a petition for rulemaking NEI said rulemaking was not required, in part, because the GL 82-12 limits were adequate and appropriately implemented by the industry.
3. SECY-01-0113 issued in June 2001 clearly recommends to the Commission a rulemaking approach that would consider a reduction the GL 82-12 limits.
4. NEI's Aug 17, 2001 letter to Chairman Meserve requested the Commission consider:
"...Retain the current work hour guidelines as the point at which proactive management attention to the potential for fatigue is required..."
5. In public meetings the industry has consistently resisted discussion of lower work-hour limits. At one point the NRC staff proposed the following limits as straw man for new work-hour limits:

10 hours between shifts,
14 hour maximum shift duration and
60 hours per 7 day period limit.

6. At the June 5, 2002 stakeholder meeting the NRC staff stated they would consider working from the GL-82 12 limits.
7. At the July 17, 2002 stakeholder meeting several alternatives were offered that would expand work-hour limits for outages to include allowing scheduling beyond 72 hours a week, to wit, 14 twelve-hour days with one day off, followed by an additional 14 days with two days off.

Position:

After listening to all the arguments, professional opinions and alternate proposals, the original industry position is fundamentally sound and defensible. We therefore support the following limits, which form the bases for industry discussions or related issue:

- a. During operations, nominal work scheduled for operations personnel will be a 42-hour week ($168/4 = 42$, for a 12-hour shift).
- b. During outages, work can be scheduled for up to 72 hours per week, with a minimum of 10 hours off between shifts.
- c. An individual should not be permitted to work more than 16 hours in any 24-hour period.
- d. An individual should not be permitted to work more than 26 hours in any 48-hour period. (2 hours added to solve problem with 12 hour shifts and does not seem to be a problem to the NRC staff).
- e. An individual should not be permitted to work more than 72 hours in any 7-day period.
- f. These limits do not include shift turnover time.
- g. An individual should not be permitted to work with less than 8 hours off duty between work periods.

Regulatory and Backfit Analyses of the Proposed Worker Fatigue Rulemaking

David Goldin
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8/22/02

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Attachment 4

Technical Support Contractor

◆ S. Cohen & Associates (SC&A, Inc.)

- Prime Contractor
- Has more than two decades experience supporting NRC rulemaking initiatives as a Technical Support and/or Regulatory Analysis Contractor.

◆ The Wexford Group

- Subcontractor
- The expertise of Dr. Gerald Kruger in the field of worker fatigue led to the selection of the Wexford Group for the SC&A team to support this proposed rulemaking.

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Overview of the Regulatory and Backfit Analyses

- ◆ Background
- ◆ Regulatory Objectives
- ◆ Alternatives
- ◆ Cost Benefit Analysis of Alternatives
- ◆ Implementation Issues
- ◆ Backfit Considerations
- ◆ Paperwork Reduction Act
- ◆ Compatibility of Agreement State Regulations
- ◆ Small Business Regulatory Enforcement Flexibility Act

Purpose of Regulatory & Backfit Analyses in NRC Rulemakings

- ◆ The heart of a regulatory analysis is the identification of alternative means of accomplishing the objectives of the rulemaking and the evaluation of the costs and benefits associated with each alternative.

Regulatory Objectives

- ◆ The primary objective of the proposed rulemaking is to resolve the issue raised by a Petition for Rulemaking. The Petition, submitted by a licensed Senior Reactor Operator, proposes that clear and specific working hour limitations are necessary to assure that personnel whose jobs affect the safe operation of nuclear power plants are not working while so fatigued that their performance is jeopardized.

Regulatory Objectives (continued)

- ◆ The NRC staff has recommended that the Petition be granted, in part, in order to provide:
 - A uniform level of assurance that personnel fatigue does not adversely affect public health and safety;
 - A clearer understanding of expectations;
 - A consistent and clear basis to increase the efficiency of NRC's licensing and enforcement; and
 - Increased confidence on the part of the public.

Alternatives

- ◆ The Regulatory Analysis will define a set of options addressing the following areas:
 - Scope of Personnel Covered
 - Hours of Service Limits
 - Additional Elements of Fatigue Management
 - Program Monitoring

Cost Benefit Analysis of Alternatives

- ◆ The NRC's guidance for performing a Regulatory Analysis identifies a number of attributes that could be important. For this rulemaking the following attributes will need to be evaluated:
 - Public Health & Safety
 - ◆ (Reduction of Risk)
 - Industry Costs
 - ◆ (Implementation, Annual)
 - NRC Costs
 - ◆ (Implementation, Monitoring)

Cost Benefit Analysis of Alternatives (continued)

- ◆ In evaluating the costs and benefits of the alternatives, the baseline for comparison will be the No Action Alternative.
- ◆ At this point, we envision that the impacts on Public Health & Safety will be evaluated using performance estimates derived from the scientific literature on worker fatigue and changes in Core Damage Frequencies estimated in existing probabilistic risk studies.

Implementation Issues

- ◆ Availability of Personnel
- ◆ Existing Union Agreements
- ◆ Development and Implementation Time for Fatigue Management Programs

Backfit Considerations

- ◆ It should be emphasized that the Backfit Analysis is an integral part of the Regulatory Analysis. That is, the Regulatory Analysis provides the information needed to address the nine factors set forth in 10 CFR 50.109.
 1. State the specific objectives the backfit is designed to achieve.
 2. General description of the activities that would be required of licensees to implement the backfit.
 3. Potential changes in the risk to the public from the accidental off-site release of radioactive material.

Backfit Considerations (continued)

4. Potential impact on radiological exposure of facility personnel.
5. Implementation and continuing costs associated with the backfit.
6. Potential safety impact of changes in plant or operational complexity.
7. Estimated resource burden on the NRC and the availability of those resources.
8. The potential impact of differences in facility type, design, or age.
9. Whether the backfit is interim or final.

Paperwork Reduction Act

- ◆ This is an assessment of the recordkeeping and reporting burdens associated with the proposed rulemaking and the necessity of imposing the burden.

Compatibility of Agreement State Regulations

- ◆ Given that the proposed rule only addresses worker fatigue at nuclear power plants, Agreement State compatibility is not an issue.

Small Business Regulatory Enforcement Fairness Act

- ◆ Evaluates whether or not the proposed regulations will have an adverse impact on small business. Since the facilities covered by the proposed rulemaking are not small businesses, we anticipate that a simple negative declaration will be sufficient.

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