

NEI 06-11 Rev 2:
Alternate TABLE OF CONTENTS

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

1 INTRODUCTION AND BACKGROUND

This section would combine content from current Section 1 – Introduction and Section 4 – Fatigue Management Overview, with additional content delineated below.

1.1 Purpose of Guidance

1.2 How to Use

1.3 Background on Fatigue

This includes content from current Section 4 (1st paragraph), with additional content as follows:

- Definition of fatigue
- 3 aspects: acute fatigue, cumulative fatigue, role of circadian variations
- Indications of fatigue
- Why fatigue management is relevant to NPPs

1.4 Overview of Fatigue Management

This section includes content from current Section 4 (2nd paragraph), with additional content as follows:

- Fatigue management as part of FFD Program – Include New Graphic 1: Fatigue Management as Part of the NRC's Overall FFD Strategy; and Appendix Table 15: Other Part 26 Sections Applicable to Subpart I
- Overview of the rule's approach to fatigue management
- Role of scheduling in managing fatigue
- Responsibility of all individuals to be fit for duty and not fatigued

2 SCOPE

This section is in place of current Section 2 – Scope. Suggest reorganizing to more closely follow sequence in rule.

2.1 Application to Entities

2.2 Application to Individuals

2.2.1 Introduction to individuals subject to fatigue management

2.2.2 26.4(a) Definition and Requirements – Individuals subject to fatigue management including work hour controls

2.2.3 26.4(b) and 26.4(c) Definitions and Requirements – Individuals subject to fatigue management, not including work hour controls

Include:

- *Table 1: Subpart I Requirements for Different Categories of Individuals*
- *Table 2: Individuals Subject to Work Hour Controls*

3 DEFINITIONS

This section includes content from current Section 3 – Definitions, updated as follows:

- Suggest using rule terminology rather than defining new terms for the same concepts (e.g., “ceiling limits”, “on-line averaging”)
- Where new terms are used, suggest limiting the number used and ensuring that they are used consistently throughout the document
- Suggest distinguishing between terms defined in the rule and those developed by NEI

Include:

- *Table 3: Terms Relevant to Fatigue Management (could substitute in place of text).*

4 POLICY and PROCEDURES

This section includes content from current Section 5 – Policy and Procedures, with some additional content delineated below.

4.1 Policy

4.2 Procedures

Suggest including a more accurate description of licensee choice of using MDO or the maximum average work hours alternative. Specifically, state that the licensee has a choice of MDO or the maximum average work hours alternative for both normal operations and outage conditions, and that licensees must state which method is used.

5 MANAGING FATIGUE – GENERAL

This section includes content from current Section 6 – Managing Fatigue – General Population, with some additional content delineated below.

5.1 Individuals Subject to Fatigue Management

5.2 Requirements

Suggest including requirements for behavioral observation & self-declaration, with reference to Section 14, Self Declarations.

6 WORK HOUR CONTROLS

This section includes portions of current Section 7 – Work Hour Controls, with significant additional content and changes delineated below.

6.1 Individuals Subject to Work Hour Controls

This section includes content from current Section 7.1 – Individuals Subject to Work Hour Controls, with additional information as follows:

- Repeat 26.4(a) definition

- Include details on “covered” duties, including definitions of maintenance, directing, etc.
- Include current Section 8.2 – Miscellaneous Interpretations

6.2 Work Hour Scheduling Requirements and Principles (26.205(c))

This section would be new and covers materials not addressed with sufficient detail in current document.

- Discussion of role of scheduling to address circadian variations, and what licensees can do to address the scheduling performance objective
- Include those portions of current Section 20 – Considerations for Fatigue Management that relate to scheduling

6.3 Work Hour Controls

This section would be new and provides an introduction to the work hour controls, drawing on materials from various current sections.

6.3.1 Introduction to controls

- Two basic strategies - limits on work hours and requirements for rest breaks
- Basic requirement is to maintain compliance with work hour controls at all times, including through transitions

6.3.2 Specific requirements

- Work hour limits
- Rest breaks
- Minimum days off (“MDO”)/maximum average work hours alternative

6.3.2 Details on Work Hour Controls

This section covers the parameters that affect how controls are applied, including:

- Rolling versus sequential limits and requirements
- The unit interval for determining compliance (hours, days, shift schedule, etc.)
- Contingency of MDOs on duties/plant status/etc.
- Also relevant information from current Section 7.2 – General Work Hour Requirements

6.4 Compliance

This section would include content from current Section 7.3, which uses the term “Deviations.” Suggest revising the material to clarify that the licensee is the agent responsible for ensuring compliance with the rule’s requirements, rather than implying that the worker is responsible for evaluating whether he or she is in compliance.

7 COUNTING WORK HOURS AND BREAK TIME

This section would be new and provides an introduction to counting hours and days in a schedule to determine compliance. The emphasis here is on the mechanics of the process so the reader has a foundation to understand the application of specific requirements in subsequent sections.

7.1 Review of Terms

This section reviews terms related to schedules and what constitutes work: work period, work shift, shift cycle, shift schedule, etc.

7.2 Describe the Process for Evaluating a Schedule

This section orients the reader to how schedules are structured and gives some general strategies for reading them.

7.3 Details on Counting Work Hours

This section includes those parts of current Section 8 – Special Circumstances and Interpretations that address work hours, and covers details such as:

- Exclusions and inclusions from the work hours that must be counted
- Definition of “beginning or resuming” work subject to work hour controls
- How shift turnover is addressed for both work hour limits and rest break requirements

7.4 Details on Counting Days Off

This section includes those parts of current Section 8 – Special Circumstances and Interpretations that address days off, and covers details such as:

- Definition of what constitutes a “day off”
- How the applicable minimum days off for different shift schedules are determined

8 APPLICATION OF WORK HOUR LIMITS AND REST BREAK REQUIREMENTS

This section focuses on the actual “how to” of applying work hour limits and rest break requirements. It includes content from current Section 7.2 – General Work Hour Requirements and Section 7.4 – Application of Ceiling and Break Limits, with some expanded content relative to the mechanics of applying a limit (e.g., the importance of doing a look-back for the duration of the calculation period to assess compliance at a given time.)

8.1 Applying Work Hour Limits

8.2 Applying Rest Break Requirements

9 APPLICATION OF MDO AND/OR MAXIMUM AVERAGE WORK HOURS (MAWH) ALTERNATIVE (current version uses the term “on-line averaging” for “maximum average work hours” alternative)

This section covers the process of applying MDO or maximum average work hours (MAWH) alternative. It includes content from current Sections 7.5 – Unit On-line Work Hour Controls and 7.6 – Unit Outage, Security System Outage or Increased Threat Condition Work Hour Controls, with some expanded content relative to the mechanics of applying the limit and the choice between the two approaches.

9.1 Introduction

This section would be new and describes:

- The two approaches to managing cumulative fatigue: MDO and maximum average work hours alternative
- The option for licensees to elect which approach they will use in different circumstances, as documented in their procedures

9.2 Minimum Days Off (MDO) Method

9.2.1 Definition

This section includes:

- Specifications (# days off, time period, successive vs rolling)
- How the requirement varies (by duties, shift duration, plant condition)

9.2.2 Applying MDO alternative during normal operations (current version uses term “on-line”)

9.2.3 Details on applying MDO requirements

This section includes details such as:

- How to address individuals who are performing work in two job categories
- Those portions that relate to MDOs from current Section 20 – Considerations for Fatigue Management

9.2.4 Outage conditions

This section includes:

- How MDO requirements for outage conditions differ from normal operations and why
- Types of outages
- Reference to minimum shift complement at multi-unit sites (defined in Section 6.1 above)
- Extension of MDOs under outage

9.3 Maximum Average Work Hours (MAWH) (current version uses term “On-line Averaging”) Method

9.3.1 Definition

This section includes:

- Specifications (averaging period, rolling average, etc.)

9.3.2 Applying Maximum Average Work Hours during Normal Operations

9.3.3 Details on calculating Maximum Average Work Hours

This section includes:

- Definition of averaging period and how it rolls
- How to address work hours bridging a calendar day
- How to address partial work weeks and partial averaging periods
- How to begin and end an averaging period

9.3.4 Outage conditions

This section describes the option for using either the MDO or MAWH alternatives during outages and the procedural requirements thereof.

10 EXAMPLES OF APPLYING ALL WORK HOUR CONTROLS

This new section would include portions of current Section 7 – Work Hour Controls and steps through examples of applying all of the requirements simultaneously to show a complete picture of how to comply with requirements.

Include:

- *Table 4: Work Hour Controls – Normal Operations*
- *Table 5: Work Hour Controls – Outages*
- *New Table A-1: Applying Each Control – Work Hour Limits and Rest Break Requirements*
- *New Table A-2: Applying Each Control – MDOs and 54-Hr Alternative*

11 TRANSITIONS

This new section focuses on transitions, and includes portions of Sections 7.5 – Unit On-line Work Hour Controls and 7.6 – Unit Outage, Security System Outage or Increased Threat Condition Work Hour Controls, as detailed below.

11.1 Types of Transitions

11.2 Requirement: Maintain Compliance through Transitions

This section steps through the various types of transitions and indicates how to maintain compliance – parts of current Section 7.5.1.1 – Calculating Work Hours Using MDO method; Section 7.6.2.1 – Calculating Work Hours Using On-line Averaging Method; and Section 7.6.2 – Calculating Work Hours During Unit Outages.

Include:

- *New Table A-3: Transitions Out of Outage*

12 EXCEPTIONS

This new section would include those portions related to exceptions in current Section 8.1 – Impacting Calculations

Include:

- *Table 9: Waivers and Exceptions to Work Hour Controls, with highlight on exceptions*

13 WAIVERS

This section would include content from current Section 9 – Waivers, with some minor additions described below.

13.1 Introduction

This section was not included in the current version; it includes a statement that waivers should not be common.

13.2 Applicability

13.3 The Waiver Process

This section includes the content from Section 9.2 – Waiver Process, with additional information added, including: the basis/justification for a waiver; the supervisory assessment; and the requirement to document, report, and review waivers. The section clarifies that supervisory assessments share similarities with but are distinct from fatigue assessments, with a cross-reference to Table 12 in Section 15.

Include:

- *Table 8: Waiver Process*
- *Table 9: Waivers and Exceptions to Work Hour Controls, with highlight on waivers*
- *Table 13: Work Hour Control Effectiveness Review Process*

14 SELF-DECLARATIONS

This section is drawn from current Section 11 – Self-declaration.

14.1 Applicability and General Provisions

14.2 Self-Declarations during Extended Work Hours under a Waiver

Include:

- *Table 10: Self-declaration Process*

15 FATIGUE ASSESSMENTS

This section includes content from current Section 10 – Fatigue Assessments, with some changes. In particular, this section would address only fatigue assessments, not supervisory assessments for waivers. The introduction clarifies the differences between them.

15.1 Introduction

15.2 Fatigue Assessment Attributes

15.3 Circumstances Requiring a Fatigue Assessment

15.4 Conditions for Conducting a Fatigue Assessment

15.5 Required Information

15.6 Documentation

15.7 Process for Conducting a Fatigue Assessment

Include:

- *Table 11: Fatigue Assessment Process*
- *Table 12: “Supervisory Assessment of Fitness” for Waivers vs “Fatigue Assessment”*

16 TRAINING AND EXAMINATIONS

Retain the contents of current Section 12 – Training and Examinations.

17 RECORDS

This section includes content from current Section 14 – Records.

Include:

- *Table 14: Documents, Reports, Reviews Required under Subpart I, with highlight on record-keeping requirements*

18 REVIEWS

This section would include content from current Section 13 – Reviews, with some additional material as described below.

18.1 Annual Work Hour Control Effectiveness Review

18.1.1 Content of Annual Review

18.1.2 Documentation and follow-up

18.2 Annual Summary of Fatigue Assessments

This topic is not included in the current version.

Include:

- *Table 13: Work Hour Control Effectiveness Review Process*
- *Table 14: Documents, Reports, Reviews Required under Subpart I, with highlight on review requirements*

19 REPORTING

This section would include content from current Section 15 – Reporting.

19.1 Annual Reporting Requirements

19.2 Incident Reporting Requirements

Include:

- *Table 14: Documents, Reports, Reviews Required under Subpart I, with highlight on reporting requirements*

20 AUDITS

This section includes content from current Section 16 – Audits.

20.1 Conduct and Timing of Audits

This section combines Section 16.1 – Conduct of Audits and Section 16.3 – Timing of Audits.

22.2 Addressing Audit Results

Include:

- *Table 14: Documents, Reports, Reviews Required under Subpart I, with highlight on audit requirements*

21 PERSONNEL ACTIONS

This section includes content from current Section 17 – Personnel Actions.

22 EXAMPLES

This section includes content from current Section 19 – Examples.

23 REFERENCES and RESOURCES

This section includes content from current Section 18 – References and Resources.

General Principles for the Guidance Materials:

- 1) Provide references to the sections of the rule applicable to the text
- 2) Use rule terminology; avoid redefining existing rule terminology into new terms unless the new term is used throughout the entire industry and does not have inaccurate connotations
- 3) Ensure any added terminology is defined clearly and used consistently throughout the document