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Table 1: Subpart I Requirements for Different Categories of Individuals **

[See rule for details - table provides only general summary of rule]

Sub-section	Category of Individual	Subpart I Coverage	Note
26.4(a)	<p>All persons granted unescorted access to nuclear power reactor protected areas (including contractors/vendors) by the licensees in Sec. 26.3(a) and, as applicable, (c), and who perform the following duties:</p> <p>(1) Operating or onsite directing the operation of systems and components that a risk-informed evaluation process has shown to be significant to public health and safety</p> <p>(2) Performing health physics or chemistry duties as part of onsite emergency response organization minimum shift complement</p> <p>(3) Performing duties of fire brigade member responsible for understanding effects of fire and fire suppressants on safe shutdown capability</p> <p>(4) Maintaining or onsite directing or performing quality inspections of the maintenance of SSCs that a risk-informed evaluation process has shown to be significant to public health and safety</p> <p>(5) Performing security duties as an armed security force officer, alarm station operator, response team leader, or watchperson (security personnel)</p>	<p>26.203 - General provisions</p> <p>26.205 - Work hours</p> <p>26.207 - Waivers and exceptions</p> <p>26.209 - Self-declarations</p> <p>26.211 - Fatigue assessments</p>	This is the full fatigue management program, including work hour controls, waivers and exceptions, and self-declaration procedures when working under a waiver.
26.4(b)	Persons granted unescorted access to nuclear power reactor protected areas by the licensees in Sec. 26.3(a) and, as applicable, (c) and who do not perform the duties described in 26.4(a)	<p>26.203 - General provisions</p> <p>26.211 - Fatigue assessments</p>	Does not include work hour controls (26.205-209), but does include requirements for self-declaration procedures applicable to all individuals under Subpart I
26.4(c)	Persons who are required by a licensee in Sec. 26.3(a) and, as applicable, (c) to physically report to the licensee's Technical Support Center or Emergency Operations Facility by licensee emergency plans and procedures	<p>26.203 - General provisions</p> <p>26.211 - Fatigue assessments</p>	Does not include work hour controls (26.205-209), but does include requirements for self-declaration procedures applicable to all individuals under Subpart I

**** NOTE: these requirements apply only to operational NPPs**

Table 2: Individuals Subject to Work Hour Controls (26.205(a))

[See rule for details - table provides only general summary of rule]

Sub-section	Individuals*	Duties	Note
26.4(a)(1)	Operators	All persons with unescorted access operating or onsite directing the operation of systems and components that a risk-informed evaluation process has shown to be significant to public health and safety	
26.4(a)(2)	Health Physics or Chemistry Staff	All persons with unescorted access performing health physics or chemistry duties required as a member of onsite emergency response organization minimum shift complement	Not necessarily all health physics or chemistry staff – only those who are part of onsite emergency minimum shift complement
26.4(a)(3)	Fire Brigade Members	All persons with unescorted access performing duties of fire brigade member responsible for understanding effects of fire and fire suppressants on safe shutdown capability	Not necessarily all fire brigade members – only those specifically responsible for understanding the effects of fire and fire suppressants on safe shutdown capability
26.4(a)(4)	Maintenance	All persons with unescorted access maintaining or onsite directing or performing quality inspections of the maintenance of SSCs that a risk-informed evaluation process has shown to be significant to public health and safety	See asterisk note below
26.4(a)(5)	Security Personnel	All persons with unescorted access performing security duties as an armed security force officer, alarm station operator, response team leader, or watchperson	Does not include security staff solely performing administrative duties

*** Note: Contractors, if performing the listed duties, are also covered. This includes maintenance contractors.**

Table 3: Terms Relevant to Fatigue Management

<p>Acute fatigue means fatigue from causes (e.g., restricted sleep, sustained wakefulness, task demands) occurring within the past 24 hours.</p> <p>Alertness means the ability to remain awake and sustain attention.</p> <p>Averaging Period means the 1- to 6-week period over which an individual's per week average work hours are to be calculated; this per week average is not to exceed 54 hours. The averaging period is set by the licensee and may range from 1 week to 6 weeks, with a specified beginning and ending time of day and day of week. The averaging period advances by 7 consecutive calendar days at the finish of every averaging period.</p> <p>Break – see Rest Break</p> <p>Calculated work hours – see Work Hours</p> <p>Calculation period means the period of time used to calculate whether a particular work hour control requirement is met.</p> <p>Call-in means coming to the site to perform unscheduled work.</p> <p>Circadian variation in alertness and performance means the increases and decreases in alertness and cognitive/motor functioning caused by human physiological processes (e.g., body temperature, release of hormones) that vary on an approximately 24-hour cycle.</p> <p>Covered individual means an individual subject to work hour controls. Any individual granted unescorted access to a nuclear power plant's protected area that performs covered work.</p> <p>Covered work means the following:</p> <ul style="list-style-type: none"> • Operating or on-site directing of the operation of systems and components that a risk-informed evaluation process has shown to be significant to public health and safety; • Performing maintenance or on-site directing or performing quality inspections of the maintenance of structures, systems, and components (SSCs) that a risk-informed evaluation process has shown to be significant to public health and safety; • Performing Health Physics or Chemistry duties required as a member of the on-site emergency response organization minimum shift complement; • Performing the duties of a Fire Brigade member who is responsible for understanding the effects of fire and fire suppressants on safe shutdown capability; and • Performing security duties as an armed security force officer, alarm station operator, response team leader, or watchperson, hereinafter referred to as security personnel. <p>Crew means a group of workers that are scheduled on the same shift and work together.</p> <p>Cumulative fatigue means the increase in fatigue over consecutive sleep-wake periods resulting from inadequate rest.</p> <p>Directing means the exercise of control over a work activity by an individual who is directly involved in the execution of the work activity, and either makes technical decisions for that activity without subsequent technical review, or is ultimately responsible for the correct performance of that work activity.</p> <p>Eight (8)-hour shift schedule means a schedule that averages not more than 9 hours per workday over the entire shift cycle. <i>[Used for MDO calculations]</i></p> <p>Fatigue means the degradation in an individual's cognitive and motor functioning resulting from inadequate rest.</p> <p>Incidental duties means unscheduled work activities, required by the licensee, performed off-site.</p> <p>Increased threat condition means an increase in the protective measure level, relative to the lowest protective measure level applicable to the site during the previous 60 days, as promulgated by</p>

an NRC Advisory.

Maintenance means, for the purposes of Sec. 26.4(a)(4), the following onsite maintenance activities: Modification, surveillance, post-maintenance testing, and corrective and preventive maintenance. Predictive maintenance activities that do not result in a change of condition or state of a risk-significant SSC may be excluded from covered maintenance activities. Examples include: nondestructive examination, thermography, vibration analysis, and data collection and analysis.

Maximum Average Work Hours (MAWH) is a method for managing cumulative fatigue that establishes a limit of 54 work hours per week that an individual may average over the licensee-defined averaging period of 1 to 6 weeks.

Minimum Days Off (MDO) is a method for managing cumulative fatigue that establishes the minimum number of days off that an individual is required to have during a given period of time. The required number of days off varies by plant operating status, shift schedule, and job duties.

Nominal means the limited flexibility that is permitted in meeting a scheduled due date for completing a recurrent activity that is required under this part, such as the nominal 12-month frequency required for FFD refresher training in Sec. 26.29(c)(2) and the nominal 12-month frequency required for certain audits in Sec. 26.41(c)(1). Completing a recurrent activity at a nominal frequency means that the activity may be completed within a period that is 25 percent longer or shorter than the period required in this part. The next scheduled due date would be no later than the current scheduled due date plus the required frequency for completing the activity.

On-site means within the owner controlled area of the nuclear power plant.

Off-site means any area not considered on-site.

Protected area has the same meaning as in Sec. 73.2(g) of this chapter [Title 10]: An area encompassed by physical barriers and to which access is controlled.

Rest Break means an interval of time that falls between successive work periods during which the individual does not perform any duties for the licensee. One period of shift turnover either at the beginning or the end of the shift can be considered as part of the break, but not both. Rest break requirements are one form of work hour controls.

Risk-informed evaluation process means an evaluation based on a probabilistic risk analysis approach such as the Maintenance Rule (50.65(a)(4)) or other similar process.

Safety-related structures, systems, and components (SSCs) mean, for the purposes of this part, those structures, systems, and components that are relied on to remain functional during and following design basis events to ensure the integrity of the reactor coolant pressure boundary, the capability to shut down the reactor and maintain it in a safe shutdown condition, or the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the guidelines in 10 CFR 50.34(a)(1).

Security personnel means armed security force officers, alarm station operators, response team leaders, and watchpersons.

Shift cycle means a series of consecutive work shifts and days off that is planned by the licensee or other entity to repeat regularly, thereby constituting a continuous shift schedule.

Ten (10)-hour shift schedule means a schedule that averages more than 9 hours, but not more than 11 hours, per workday over the entire shift cycle. [Used for MDO calculations]

Twelve (12)-hour shift schedule means a schedule that averages more than 11 hours, but not more than 13 hours, per workday over the entire shift cycle. [Used for MDO calculations]

Work day means a calendar day during which an individual starts a work shift.

Work hours means the amount of time an individual works performing duties for the licensee.

Work hour controls are the work hour limits and rest break requirements in 10 CFR 26.205.

Work hour limits are the specific limits placed on the number of hours an individual can work within certain periods of time (24-hour, 48-hour, and 7-day). For example, the work hour limit for a 24-hour rolling period is 16 hours. Work hour limits are one form of work hour controls.

Table 4: Work Hour Controls – Normal Operations

[See rule for details - table provides only general summary of rule]

Sub-section	Item	Controls for Individuals Performing Duties Subject to Work Hour Controls	Note
26.205(d)(1)	Work hour limits	<p>Ensure that the individual's work hours do not exceed:</p> <ul style="list-style-type: none"> • 16 hours in any 24-hour period • 26 hours in any 48-hour period • 72 hours in any 7-day period 	<ul style="list-style-type: none"> • Rolling limits • 7-day period can be calculated as 168 hours or 7 calendar days
26.205(d)(2)	Rest break requirements	<p>Ensure that the individual has at minimum:</p> <ul style="list-style-type: none"> • 10-hour break between successive work periods <ul style="list-style-type: none"> ◦ May use 8-hour break when needed to accommodate scheduled crew shift transition and transition between work schedules • 34-hour break in any 9-day period 	<ul style="list-style-type: none"> • Rest break is the interval of time between successive work periods during which individual does not perform any duties for licensee • Break time may include one period of shift turnover (at either the beginning or end of a shift), but not both • 9-day period can be calculated as 216 hours or 9 calendar days
26.205(d)(3)	Minimum days off	<p>If using the MDO method, ensure that the individual has at minimum the following days off per week averaged over shift cycle:</p> <ul style="list-style-type: none"> • 8-hr shift schedule: 1 day off/week avg. • 10-hr shift schedule: 2 days off/week avg. • 12-hr shift schedule: per week: <ul style="list-style-type: none"> ◦ 2.5 days off avg. for those performing duties listed in 26.4(a)(1)-(3) [ops/HP-chem/fire brigade] ◦ 2 days off avg. for those performing duties listed in 26.4(a)(4) [maintenance and quality inspections of maintenance] ◦ 3 days off avg. for those performing duties listed in 26.4(a)(5) [security] 	<ul style="list-style-type: none"> • Day off defined as: a calendar day during which individual does not start work shift • Duration of shift cycle may not exceed 6 weeks for purpose of calculating days off • Shift cycle may not be less than 1 week [RG 5.73] • Days off per week average is calculated as: (# days off in shift cycle) divided by (# weeks in shift cycle)
26.205(d)(7)	Maximum Average Work Hours (MAWH) Alternative to MDOs	<p>If using the maximum average work hours (MAWH) method, ensure that individuals work no more than a weekly average of 54 hours</p> <ul style="list-style-type: none"> • Averaged over period up to 6 weeks • Averaging period advances by 7 consecutive calendar days at finish of every averaging period 	<p>For shifts that span 2 calendar days, either:</p> <ul style="list-style-type: none"> • Count all hours worked as if they were worked on the day the shift started, or • Count hours on calendar days they were actually worked
26.205(d)(8)	State Alternative Used	Clearly state in the FFD policy and procedures which requirements are being applied during both operations and outages: MDO or MAWH requirements	

Table 5: Work Hour Controls – Outages

[See rule for details - table provides only general summary of rule]

Sub-section	Item	Controls for Individuals Performing Duties Subject to Work Hour Controls	Note
26.205(d)(1)	Individual work hours	Ensure that the individual's work hours do not exceed: <ul style="list-style-type: none"> • 16 hours in any 24-hour period • 26 hours in any 48-hour period • 72 hours in any 7-day period 	Rolling limits 7-day period can be calculated as 168 hours or 7 calendar days
26.205(d)(2)	Rest break requirements	Ensure that the individual has at minimum: <ul style="list-style-type: none"> • 10-hour break between successive work periods <ul style="list-style-type: none"> ◦ May use 8-hour break between work periods when break of less than 10 hours is needed to accommodate scheduled crew shift transition and transition between work schedules • 34-hour break in any 9-day period 	A rest break is the interval of time between successive work periods during which the individual does not perform any duties for licensee Break time may include one period of shift turnover (at either the beginning or end of a shift), but not both 9-day period may be calculated as 216 hrs or 9 calendar days
26.205(d)(4)	Unit outage – minimum days off – operations, HP/chem, fire brigade	If using the MDO method, ensure that the individuals working on outage activities and performing duties listed in 26.4(a)(1)-(3) [operations, HP/chem., fire brigade] have at minimum the following days off: <ul style="list-style-type: none"> • 3 days off each successive 15-day period 	Requirement applies for the <u>first 60 days</u> of a unit outage Requirement applies to successive 15-day periods (i.e., non-rolling) Applies only to individuals working on outage activities
26.205(d)(4)	Unit outage – minimum days off – maintenance and quality inspections of maintenance	If using the MDO method, ensure that the individuals working on outage activities and performing duties listed in 26.4(a)(4) [maintenance and quality inspections of maintenance] have at minimum the following days off: <ul style="list-style-type: none"> • 1 day off in any 7-day period 	Requirement applies for the <u>first 60 days</u> of a unit outage Requirement applies to rolling 7-day periods Applies only to individuals working on outage activities
26.205(d)(5)	Unit outage, security system outage, or increased threat condition – minimum days off – security	If using the MDO method, ensure that the individuals performing duties listed in 26.4(a)(5) [security] have at minimum the following days off: <ul style="list-style-type: none"> • For unit outage (planned or unplanned) or for planned security system outage: 4 days off each successive 15-day period • For unplanned security system outage or increased threat condition: no minimum days off are required 	Requirement applies for the <u>first 60 days</u> of a unit outage, security system outage, or increased threat condition Requirement applies to successive 15-day periods (i.e., non-rolling) Applies only to individuals working on outage activities
26.205(d)(6)	Extension of outage/threat condition requirements	If using the MDO method, the outage/increased threat MDO requirements may be extended on an individual basis in 7-day increments beyond the 60-day limit	For each non-overlapping 7-day period during an outage or increased threat condition in which the individual did not work more than 48 hrs Applies only to individuals working on outage activities

<i>Sub-section</i>	<i>Item</i>	<i>Controls for Individuals Performing Duties Subject to Work Hour Controls</i>	<i>Note</i>
26.205(d)(7)	Maximum Average Work Hours (MAWH) Alternative to MDOs	<p>If using the maximum average work hours (MAWH) method, ensure that the individuals work no more than a weekly average of 54 hours</p> <ul style="list-style-type: none"> • Averaged over a period up to 6 weeks • Averaging period advances by 7 consecutive calendar days at finish of every averaging period 	<p>For shifts that span 2 calendar days, licensee can either:</p> <ul style="list-style-type: none"> • Count all hours worked as if they were worked on the day the shift started, or • Count hours on calendar days they were actually worked <p>But must specify which approach will be used in FFD procedures</p>
26.205(d)(8)	State Alternative Used	Clearly state in the FFD policy and procedures which requirements are being applied during both operations and outages: MDO or MAWH requirements	

**Table 6: Minimum Shift Complement During Outage –
From Reg Guide 5.73**

<http://www.nrc.gov/reactors/operating/ops-experience/fitness-for-duty-programs/faqs/manage-fatigue.html>

Minimum Number of Individuals Per Shift Working Nonoutage Schedules for Onsite Staffing of Operating Nuclear Power Units during Outages								
Number of operating nuclear power units ¹	Position	Two-unit Site		Three-unit Site				
		One Control Room	Two Control Rooms	Two control rooms				Three Control Rooms
				Single Control Room Unit In Outage <i>(Note: Correction from "Storage" in web link)</i>	Single Control Room Unit and One Unit Served by Dual Control Room In Outage	One of the Units Served by Dual Control Room in Outage	Two Units Served by Dual Control Room in Outage	
One	Senior Operator	2	2		2		2	2
	Operator	2	2		2		2	2
Two	Senior Operator			2		3		3
	Operator			2		4		4

¹ For the purpose of this table, a nuclear power unit is considered to be operating when it is connected to the grid.

Table 7: What to Include/Exclude When Calculating Work Hours

[See rule for details - table provides only general summary of rule]

Sub-section	Item	Must Include	May Exclude
26.205(b)	Performing duties for licensee	Must include amount of time individual performs duties for the licensee, including from off-site locations in some circumstances (see below 26.205(b)(5))	May exclude off-hours voluntary study time, as long as it is not required or performed for the licensee (<i>from Reg Guide 5.73</i>)
26.205(b)(1)	Shift Turnover	<p>Must include (examples; not exhaustive list):</p> <ul style="list-style-type: none"> • Hours worked during turnovers between individuals within a shift period due to rotations or relief within a shift • Shift holdovers to cover for late arrivals of incoming shift members • Early arrivals for meetings, training, or pre-shift briefings for special evolutions • Holdovers for interviews needed for event investigations 	<p>May exclude:</p> <ul style="list-style-type: none"> • Those activities necessary to safely transfer information and responsibilities between shifts • Arming and disarming for security personnel (<i>from Reg Guide 5.73</i>)
26.205(b)(2)	Within-shift break and rest periods	Must include break or rest periods during which there is no reasonable opportunity & accommodation for restorative sleep, such as most lunch breaks	May exclude that portion of a break or rest period during which there is reasonable opportunity and accommodation for restorative sleep
26.205(b)(3)	Beginning or resuming duties subject to work hour controls	Must include (count) all hours performing duties for the licensee, including hours worked on duties that are not subject to work hour controls if the individual performs any covered duties during the calculation period	The hours worked before the beginning or resumption of covered work are not subject to work hour controls themselves, even though they must be included in the count once covered work is begun or resumed
26.205(b)(4)	Unannounced emergency preparedness exercises and drills	Must include hours spent preparing for the exercises and drills, but only if the individual also performs covered duties during the calculation period	May exclude from calculation the unscheduled work hours to participate in the actual conduct of such exercises or drills
26.205(b)(5)	Incidental duties performed off site	Separate unscheduled phone calls that together exceed the nominal 30 minutes (e.g., 2 phone calls of 20 min. each, 2 hours apart) must be included as a separate work period or as part of a previous or upcoming work shift.	<p>May exclude unscheduled work performed off site if total duration does not exceed nominal 30 min. during any single break period</p> <p>This work also does not constitute “work periods” or “work shifts” when calculating rest breaks or MDOs</p>
(From NRC)	Travel time	Must include travel time in cases	May exclude travel time if:

<i>Sub-section</i>	<i>Item</i>	<i>Must Include</i>	<i>May Exclude</i>
<i>Guidance)</i>		<p>where:</p> <ul style="list-style-type: none"> • The individual is performing work for the licensee • The travel is not the individual's regular commute 	<ul style="list-style-type: none"> • The individual is not performing work for the licensee • The travel is part of the individual's regular commute
26.207(b)	Force-on-force tactical exercises exception	Must include hours spent preparing for the exercises and drills, but only if the individual also performs covered duties during the calculation period	May exclude shifts worked by security personnel during the actual conduct of NRC-evaluated force-on-force tactical exercises when calculating individual's number of days off (as per MDO requirements, or when calculating weekly average hours worked (as per the MAWH requirements)

Table 8: Waiver Process

[See rule for details - table provides only general summary of rule]

Sub-section	Waiver Requirement	Note
26.207(a)	Licensee may grant a waiver to any work hour controls listed in Sec. 26.205(d)(1) through (d)(5)(i)	In cases where more than one work hour control is affected, each control must be waived explicitly
26.207(a)(1)(i)	To grant waiver, a determination must be made that the waiver is necessary to mitigate or prevent a condition adverse to safety, or necessary to maintain site security	The determination must be made by: <ul style="list-style-type: none"> - an operations shift manager, for conditions adverse to safety, - a security shift manager, for conditions necessary to maintain site security, - or a site senior-level manager with requisite signature authority, for either condition
26.207(a)(1)(ii)	To grant waiver, a determination must be made that there is reasonable assurance the individual <u>will be</u> able to safely and competently perform his/her duties during the additional work period under waiver	The determination must be made by a supervisor assessing the individual face to face. The supervisor must be: <ul style="list-style-type: none"> - trained under Sec. 26.29 and Sec. 26.203(c), and - qualified to direct the work, or if none available on site, then one qualified to provide oversight of the work The assessment must address at minimum: <ul style="list-style-type: none"> - potential for acute and cumulative fatigue, considering work history for at least past 14 days - potential for circadian degradations in alertness and performance considering time of day - potential for fatigue to affect risk-significant functions - whether controls or conditions must be established
26.207(a)(2)	To extent practicable, waivers should be used only to address circumstances that could not have been reasonably controlled	Waiver is not intended for use to address inadequate staffing or work planning, or other circumstances a licensee could reasonably foresee (see FRN, p.17147)
26.207(a)(3)	Timing of face-to-face supervisory assessment must support a valid assessment of potential for worker fatigue during period of time covered by waiver	In all cases, the face-to-face assessment may not be performed more than 4 hours before beginning work under the waiver
26.203(d)(3) & 26.207(a)(4)	Licensees must document individual waivers granted	Each work hour control that is waived must be documented The documentation must describe the basis for the waiver, including: <ul style="list-style-type: none"> - a description of circumstances requiring the waiver - a statement of the scope of work and time period for which waiver approved - the bases for the determinations in 26.207(a)(1)(i) and (ii)
26.203(e)(1) & 26.203(e)(2)	Include summaries of waivers granted and corrective actions taken in the Annual FFD Program Performance Report (26.717)	Provide a summary report of waivers from the previous calendar year for each nuclear power plant, as well as a summary report of corrective actions, if any, resulting from the analyses of waiver data

Table 9: Waivers and Exceptions to Work Hour Controls

[See rule for details - table provides only general summary of rule]

<i>Sub-section</i>	<i>Type of Waiver or Exception</i>	<i>Relevant to Which Individuals</i>	<i>Requirements Affected</i>	<i>Implementation Details</i>
26.207(a)	Licensee waiver of work hour controls	All individuals subject to work hour controls	26.205(d)(1) through (d)(5)(i) – work hour control requirements	Waiver of requirements: Continue to count/calculate work hours; requirements are waived for specific limits as detailed in waiver
26.207(b)	NRC-evaluated force-on-force tactical exercises exception	All security personnel (not just those taking part in exercise)	26.205(d)(3) – Minimum days off	Affects work hour calculation: May exclude shifts worked during the actual conduct of these exercises when calculating individual's number days off (as per MDO requirements, or when calculating weekly average hours worked (as per the MAWH requirements)
26.207(c)	Common defense and security exception	All security personnel	26.205, or any specified subset thereof – i.e., work hour scheduling and control requirements	Exception to work hour controls: When informed in writing by NRC, specified requirements need not be met for the duration of the period defined by NRC
26.207(d)	Plant emergency exception	All individuals subject to work hour controls	26.205(c) and (d) – work hour scheduling and work hour controls	Exception to work hour controls: These requirements do not need to be met during declared emergencies, as defined in licensee's emergency plan
26.205(b)(4)	Unannounced emergency preparedness exercises or drills	Individuals participating in actual conduct of exercises or drill	26.205(d) – work hour control requirements	Affects work hour calculation: Unscheduled work hours performed while participating in the actual conduct of exercises or drills may be excluded from work hour counts/calculations

Table 10: Self-declaration Process

[See rule for details - table provides only general summary of rule]

Sub-section	Self-declaration Requirement	Note
26.203(b)(1)	<p>Establish written procedure to follow when an individual makes a self-declaration that he/she is not fit to safely and competently perform duties for any part of a working tour as a result of fatigue, including:</p> <ul style="list-style-type: none"> • Individual's rights and responsibilities • Requirements for controls and conditions • Process to follow if individual disagrees with results of fatigue assessment 	<p>Applies to all individuals who have unescorted access to nuclear power plant protected areas -- not just the categories of workers who are subject to work hour controls</p> <p>Self-declaration must be formalized, not a simple statement of being "tired"</p>
26.209(a)	<p>Take immediate action in case of a self-declaration while the individual is performing or being assessed for work under a waiver:</p> <ul style="list-style-type: none"> • Immediately stop individual from performing duties listed in Sec. 26.4(a) • Exception: if individual is required to perform covered duties, based on other requirements of Title 10 CFR, then immediately take action to relieve individual 	<p>Applies only to self-declaration by individuals performing covered work under a waiver, or being considered for work under a waiver</p>
26.211(a)(2)	<p>Conduct a fatigue assessment</p> <ul style="list-style-type: none"> • Exception: if the individual is required or permitted to take a rest break of at least 10 hours, then a fatigue assessment is not required 	<p>Required in response to self-declaration to supervisor that individual is not fit to safely and competently perform duties for any part of a working tour because of fatigue</p>
26.209(b)	<p>Subsequent to self-declaration:</p> <ul style="list-style-type: none"> • Individual may be reassigned to duties other than those listed in Sec. 26.4(a) if results of fatigue assessment indicate individual can safely and competently perform those other duties • Individual must be permitted or required to take a break of at least 10 hours prior to returning to covered work 	<p>Applies only to self-declaration by individuals performing covered work under a waiver, or being considered for work under a waiver</p>
26.211(a)(4)	<p>Conduct followup fatigue assessment in cases when individual is returned to performing any duties following a break of less than 10 hours</p>	<p>Individual must be reassessed for fatigue and the need for controls and conditions must be determined before the individual can resume duties</p>

Table 11: Fatigue Assessment Process

[See rule for details - table provides only general summary of rule]

Sub-section	Fatigue Assessment Requirement	Note
26.203(b)(3)	Develop procedure for Fatigue Assessments	Applies to individuals performing duties listed in Sec. 26.4(a)-(c), i.e., all individuals subject to Subpart I
26.203(b)(4)	Develop procedure for disciplinary actions following a Fatigue Assessment	Must include conditions & considerations for taking those disciplinary actions
26.211(a)	Conduct Fatigue Assessment under the following conditions: - for cause - self-declaration - post-event - followup	For cause: in cases of an observed condition of impaired alertness, creating a reasonable suspicion, except during a break period Self-declaration: in cases of self-declaration unless the individual is permitted or required a rest break of at least 10 hours Post-event: in cases where post-event drug and alcohol testing is required Followup: if a previous Fatigue Assessment was conducted for cause or due to a self-declaration, and if the individual is being returned to duty after a rest break of less than 10 hours; the need for controls and conditions must be assessed before permitting the individual to resume any duties
26.211(b)	Ensure persons conducting the Fatigue Assessment are trained and not subject to conflicts of interest	Fatigue Assessment must be conducted face to face Supervisors and FFD program personnel conducting Fatigue Assessments must be trained under Sec. 26.29 and 26.203(c) For cause and post-event: the person conducting the assessment must be free of conflicts of interest, such as having approved a waiver prior to the event; see 26.211(b)(1) & (2) for details
26.211(c)	Ensure Fatigue Assessment provides information necessary for management decisions and actions	The assessment must address: - acute and cumulative fatigue - circadian variations in alertness and performance The inquiry must be limited to relevant information; the Individual must provide complete and accurate information
26.211(d)	Licensee may not conclude that fatigue has not or will not degrade individual's performance solely on the basis that the individual did not exceed work hour control requirements	
26.211(e)	Determine and implement controls and conditions necessary to resume duties	Controls and conditions may include such things as: a rest break; peer-review and approval of job tasks; or assignment to job tasks that are non-repetitive (see SOC p.17153)
26.203(d)(5)& 26.211(f)	Document Fatigue Assessment results	Must document the reasons for and results of any Fatigue Assessment conducted, the circumstances, and the controls and conditions implemented
26.203(d)(5)& 26.211(g)	Prepare annual summary report	Prepare the annual summary report of Fatigue Assessments conducted for covered individuals during the previous calendar year at each NPP site; see 26.211(g)(1)-(4) for details

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

[See rule for details - table provides only general summary of rule]

Item	Supervisory Assessment of Fitness for Waivers – 26.207(a)(1)(ii)	Fatigue Assessment – 26.211
Purpose	<ul style="list-style-type: none"> Assess individual for a waiver 	<ul style="list-style-type: none"> Following these conditions: <ul style="list-style-type: none"> For cause self-declaration post-event followup (before return to duty in certain specified cases) See 26.211(a)(1)-(4) for specific details
Who can perform	<ul style="list-style-type: none"> Supervisor trained and qualified to direct or oversee work 	<ul style="list-style-type: none"> Trained supervisor or trained FFD program personnel with <i>no conflict of interest</i>
How	<ul style="list-style-type: none"> Face-to-face 	<ul style="list-style-type: none"> Face-to-face Requires accurate info from worker and constrains licensee to ask only pertinent questions
Timing	<ul style="list-style-type: none"> Not more than 4 hours before the individual begins performing any work under the waiver 	<ul style="list-style-type: none"> Depends on the triggering condition Post-event fatigue assessment must occur as soon as practical after event
Scope	<ul style="list-style-type: none"> Acute & cumulative fatigue, circadian variations Whether already fatigued Whether <u>will be</u> fatigued by end of period waiver covers 	<ul style="list-style-type: none"> Acute & cumulative fatigue, circadian variations Not to be determined solely by compliance status with work hour controls

Table 13: Work Hour Control Effectiveness Review Process

[See rule for details - table provides only general summary of rule]

Sub-section	Review Requirement	Purpose	Note
26.205(e)	Conduct work hour control effectiveness reviews once per calendar year	Evaluate the effectiveness of control of work hours of individuals subject to the work hour control requirements	Include in the review any plant or security system outages or increased threat conditions that occurred since the last review Review must be completed within 30 days of the end of the review period
26.205(e)(1)	Review actual work hours and performance of certain covered individuals for consistency with scheduling requirements of 26.205(c)	Review actual hours worked and worker performance to examine if licensee scheduling practices meet objective of preventing impairment from fatigue due to duration, frequency, or sequencing of shifts (26.205(c))	At minimum, review must include individuals: (i) whose actual hours worked exceeded an average of 54 hours per week: <ul style="list-style-type: none"> • in any shift cycle with covered work subject to 26.205(d)(3) MDOs, or • in any averaging period up to 6 weeks (as per licensee averaging period) for covered work subject to 26.205(d)(7) (ii) who were granted more than one waiver (iii) who were assessed for fatigue while being considered for a waiver under 26.211 [Fatigue assessment]
26.205(e)(2)	Review individuals' hours worked and waivers under which work was performed	Evaluate staffing adequacy for all jobs subject to work hour controls	Only waivers under which work was performed must be reviewed; if waiver was granted but not utilized, it does not need to be included in the review
26.205(e)(3)	Document the methods used to conduct the review and the results of the review	Provide basis for evaluation and corrective action	
26.205(e)(4)	Record, trend, and correct, under the corrective action program, any problems identified	Address problems identified in maintaining control of work hours consistent with specific requirements as well as performance objectives of Part 26	

Table 14: Documents, Reports, and Reviews Required under Subpart I

[See rule for details - table provides only general summary of rule]

Item	Sub-section	Type of Document, Report, Review	Description
1	26.203(a)	Policy on Fatigue Management	Written policy for the management of fatigue for all persons subject to FFD Program Include as part of the written FFD policy required under 26.27
2	26.203(b)(1)	Procedure for Self-declaration	Written procedure describing the process to follow when an individual makes a self-declaration that he/she is not fit to safely and competently perform duties as a result of fatigue; see details in 26.203(b)(1)(ii)-(iii)
3	26.203(b)(2)	Procedure on Work Hour Controls	Written procedure describing the process for implementing work hour controls under Sec. 26.205
4	26.203(b)(3)	Procedure for Fatigue Assessments	Written procedure describing the process for conducting fatigue assessments under Sec. 26.211
5	26.203(b)(4) & 26.77(b)(2)	Procedure for Disciplinary Actions	Written description of the disciplinary actions and the conditions and considerations that may be imposed following a fatigue assessment
6	26.203(c)	Additions to FFD Training Program	Addition of specific knowledge and abilities (KAs) on fatigue management to the FFD training requirements under Sec. 26.29(a); see details of KAs to be included in 26.203(c)(1)-(2)
7	26.203(c)	Additions to Comprehensive FFD Examination	Addition of specific KAs on fatigue management to the FFD comprehensive examination requirements under Sec. 26.29(b); see details of KAs in 26.203(c)(1)-(2)
8	26.203(d)(1)	Records of work hours	Records of work hours of individuals subject to Sec. 26.205 must be created and retained for 3 years or until completion of all legal proceedings
9	26.203(d)(2)	Records of shift schedules & shift cycles	Records of shift schedules & shift cycles of individuals subject to Sec. 26.205 must be created and retained for 3 years or until completion of all legal proceedings
10	26.203(d)(3) & 26.207(a)(4)	Documentation of waivers	Documentation of waivers granted under Sec. 26.207, including bases for granting the waiver, must be created

Item	Sub-section	Type of Document, Report, Review	Description
11	26.203(d)(4) & 26.205(e)(3)-(4)	Documentation of work hour reviews (effectiveness reviews)	Documentation of work hour reviews required under Section 26.205(e), including methods used, results, problems, and trends and corrective actions
12	26.203(d)(5) & 26.211(f)	Documentation of fatigue assessments	Documentation of the results of any fatigue assessment conducted, including circumstances and controls and conditions implemented
13	26.203(d)(5) & 26.211(g)	Annual Summary of Fatigue Assessments	Annual summary report of fatigue assessments conducted during the previous calendar year for any individual identified in Sec. 26.4(a)-(c); required for each NPP site; see 26.211(g)(1)-(4) for details
14	26.203(e)(1) & 26.717	Addition to Annual FFD Program Performance Report: Summary of Waivers of Work Hour Controls	A summary of waivers from the previous calendar year for each NPP site; see 26.203(e)(1)(i)-(iii) for details, included in the Annual FFD Program Performance Report
15	26.203(e)(2) & 26.717	Addition to Annual FFD Program Performance Report: Corrective Actions Summary	A summary of the corrective actions, if any, resulting from the analyses of waiver data, included in the Annual FFD Program Performance Report
16	26.203(f)	Addition to Audit process	An audit of the management of worker fatigue is part of the FFD audit requirements in Sec. 26.41
17	26.205(d)(8)	Policy and Procedure Regarding Use of MDOs and/or 54-hr Alternative	The FFD policy and procedures should state which alternative the licensee is complying with: MDO or maximum average work hour (MAWH) requirements
18	26.719	Significant FFD policy violations or programmatic failures	Violations of Subpart I or failures of a licensee's Fatigue Management Program are reported according to the procedures in 26.719 (Note that this requirement is not specifically referenced in Subpart I)

Table 15: Other Part 26 Sections Applicable to Fatigue Management

[See rule for details - table provides only general summary of rule]

Part 26 Section	Notes on Connection to Subpart I
26.1 Purpose	States purpose of Part 26
26.3 Scope – entities	Referenced explicitly in several sections of Subpart I ; provides definitions of entities subject to Subpart I requirements
26.4 Applicability – individuals	Referenced explicitly in several sections of Subpart I ; provides definitions of individuals subject to specific Subpart I requirements
26.5 Definitions	Provides definitions for terms used in Subpart I
26.9 Specific exemptions	States that the Commission may allow exemptions
26.21 FFD program	States general licensee duty to establish, implement, and maintain FFD program
26.23 Performance objectives	Includes performance objectives related to managing the effects of fatigue and degraded alertness: 26.23(b) & (e)
26.27 Written policy and procedures	Referenced explicitly in Sec. 26.203(a) and (b) ; policy and procedures required under Subpart I are to be included as part of those specified in 26.27
26.29 Training	Referenced explicitly in Sec. 26.203(c) ; training and comprehensive examination required under Subpart I are to be included as part of those specified in 26.29
26.33 Behavioral observation	Impairment from fatigue is included as behavior to be detected
26.35 Employee assistance program	Provides for employee assistance program, which would include individuals subject to Subpart I
26.37 Protection of information	Provides protection of information, including information gathered under Subpart I
26.39 Review process for FFD policy violations	Provides process for policy violation review, including those under Subpart I
26.41 Audits and corrective action	Referenced explicitly in Sec. 26.203(f) ; licensees shall audit the management of worker fatigue as required by 26.41
26.77 Management actions regarding possible impairment	Specifically addresses observed behavior or physical condition resulting from fatigue
26.189 Determination of fitness	Provides process for determining fitness, including possible impairment from fatigue; requires that determination be performed by a physician and/or MRO with the necessary clinical expertise

Part 26 Section	Notes on Connection to Subpart I
26.711 Recordkeeping and reporting general provisions	Provides general provisions for recordkeeping and reporting that apply to the recordkeeping and reporting specified in Subpart I
26.713 Recordkeeping requirements for licensees and other entities	Provides retention requirements for licensee and other entities that apply to recordkeeping and reporting specified in Subpart I
26.717 FFD program performance data	Referenced explicitly in Sec. 26.203(e) ; program performance data requirements specified in Subpart I are to be included as part of those specified in 26.717
26.719 Reporting requirements	Provides reporting requirements for significant policy violations and programmatic failures, and indications of programmatic weakness tracked under corrective action, including for Subpart I
26.821 Inspections	Provides for NRC inspection of licensees for purposes of Part 26, including Subpart I
26.823 Violations	Addresses violations of Part 26, including Subpart I

Table A-1: Applying Each Control – Work Hour Limits and Rest Break Requirements

Information needed to apply each work hour limit and rest break requirement

6 hrs in 24	26 hrs in 48	72 hrs in 7-day/168-hr	10 hr rest break	34-hr rest break in 9-day/216-hr
covered workers	All covered workers	All covered workers	All covered workers	All covered workers
At all times individual is performing covered work for licensee	At all times individual is performing covered work for licensee	At all times individual is performing covered work for licensee	Before the start of a work period in which individual is performing covered work for licensee	At all times individual is performing covered work for licensee
work hours	26 work hours	72 work hours	10 rest break hours [continuous 10-hr break]	34 rest break hours [continuous 34 hour break]
	None	None	An 8-hour rest break is allowed when needed to accommodate scheduled crew shift transitions	None
hours	48 hours	7 days or 168 hours	The time between the end of one work period and the start of the next work period	9 days or 216 hours
ing	Rolling	Rolling	Sequential	Rolling
calculation It has no designated starting time relative to the calendar or clock, it continues through work hours and breaks and ends 48 hours after it starts.	The calculation period has no designated starting or ending time relative to the calendar or clock, it continues through work hours and breaks and ends 48 hours after it starts.	- If using a 7-day period, the calculation period starts at 12 am of a calendar day, and ends at 11:59 pm 7 calendar days later - If using 168-hour period, the calculation period has no designated starting or ending	The calculation period begins at the end of one work period and ends at the start of the next (subsequent) work period. For individuals starting or resuming covered work,	- If using a 9-day period, the calculation period starts at 12 am of a calendar day, and ends at 11:59 pm 9 calendar days later. - If using a 216-hour period, the calculation period has no designated starting or

Topic	16 hrs in 24	26 hrs in 48	72 hrs in 7-day/168-hr	10 hr rest break	34-hr rest break in 9-day/216-hr
	<p>hours after it starts.</p> <p>For individuals starting or resuming covered work, the 24-hr calculation period begins 24 hours before the start of covered work.</p>	<p>For individuals starting or resuming covered work, the calculation period begins 48 hours before the start of covered work.</p>	<p>time relative to the calendar or clock. It continues through work hours and breaks and ends 168 hours after it starts.</p> <p>For individuals starting or resuming covered work, the calculation period begins 7 days or 168 hours before the start of covered work.</p>	<p>the calculation period begins at the end of the previous work period.</p>	<p>ending time relative to the calendar or clock. It continues through work hours and breaks and ends 216 hours after it starts.</p> <p>For individuals starting or resuming covered work, the calculation period begins 9 days or 216 hours before the start of covered work.</p>
By what increments does the calculation period move?	It rolls in hour-by-hour increments	It rolls in hour-by-hour increments	<p>- If using 7-day period, it rolls in day-by-day increments</p> <p>- If using 168-hour period, it rolls in hour-by-hour increments</p>	<p>It moves sequentially from break period to break period.</p>	<p>- If using 9-day period, it rolls in day-by-day increments</p> <p>- If using 216-hour period, it rolls in hour-by-hour increments</p>

New Table A-2: Applying Each Control – MDO and Maximum Average Work Hours Requirements
Information needed to apply either MDO or the Maximum Average Work Hours requirements

Topic	MDO – Normal Operations	MDO – Outage Conditions – Ops, HP/Chem, Fire Brigade	MDO – Outage Conditions – Maintenance and Quality Inspections	MDO – Outage Conditions – Security	54-hr Alternative
To whom does it apply?	All covered workers. To determine specific number days off required, determine both individual's duties as well as applicable shift schedule (based on average hours worked per day over shift cycle)	All covered workers performing duties listed in 26.4(a)(1)-(3)	All covered workers performing duties listed in 26.4(a)(4)	All covered workers performing duties listed in 26.4(a)(5)	All covered workers, irrespective of duties or shift schedule
When does it apply?	At all times the individual is performing covered work for the licensee during normal operations	At all times the individual is performing covered work for the licensee under outage conditions; some exceptions for operators at multi-unit sites	At all times the individual is performing covered work for the licensee under outage conditions	At all times the individual is performing covered work for the licensee under outage conditions	At all times the individual is performing covered work for the licensee
What is the limit or value to track?	Days off (defined as a calendar day during which individual does not start a work shift), as follows: <ul style="list-style-type: none"> 8-hr shift schedule: 1 day off/week avg. 10-hr shift schedule: 2 days off/week avg. 12-hr shift schedule: per week: <ul style="list-style-type: none"> 2.5 days off avg. for those performing duties listed in 26.4(a)(1)-(3) [ops/HP- 	3 days off (defined as a calendar day during which individual does not start a work shift) in each successive 15-day period	1 day off (defined as a calendar day during which individual does not start a work shift) in any 7-day period	4 days off (defined as a calendar day during which individual does not start a work shift) in each successive 15-day period for unit outages (planned or unplanned) or for planned security system outages.	Average may not exceed 54 work hours per week over the rolling averaging period.

Topic	MDO – Normal Operations	MDO – Outage Conditions – Ops, HP/Chem, Fire Brigade	MDO – Outage Conditions – Maintenance and Quality Inspections	MDO – Outage Conditions – Security	54-hr Alternative
	<p>chem/fire brigade]</p> <ul style="list-style-type: none"> o 2 days off avg. for those performing duties listed in 26.4(a)(4) [maintenance] <p>3 days off avg. for those performing duties listed in 26.4(a)(5) [security]</p>				
<p>Specific exceptions to the limit or value of this requirement [Note-this is an exception to the limit or value of the control, not the exceptions to the calculation of work hours specified in 26.205(b) and 26.20(d)(7)(II)]</p>	<p>No MDOs are required for individuals working for the licensee for a period of less than one week.</p> <p>If a shift cycle during normal operations is cut short due to the unit transitioning into an outage or increased threat condition, MDO requirements are considered met if an individual's scheduled days off during the truncated period would have provided the required days off for the shift cycle.</p> <p>To accommodate a change in shift schedules, the licensee may end a shift cycle and start a new one. MDO requirements and compliance of individuals working the shortened shift</p>	<p>No MDOs are required for individuals working for the licensee for a period of less than one week.</p> <p>Some exceptions for operators at multi-unit sites.</p> <p>The 60-day period during which these MDO requirements apply may be extended for each individual in 7-day increments for each non-overlapping 7-day period the individual has worked not more than 48 hours.during the outage.</p>	<p>No MDOs are required for individuals working for the licensee for a period of less than one week.</p> <p>The 60-day period during which these MDO requirements apply may be extended for each individual in 7-day increments for each non-overlapping 7-day period the individual has worked not more than 48 hours.during the outage.</p>	<p>No MDOs are required for individuals working for the licensee for a period of less than one week.</p> <p>During the first 60 days of an unplanned security system outage or increased threat condition: no minimum days off are required</p> <p>The 60-day period during which these MDO requirements apply may be extended for each individual in 7-day increments for each non-overlapping 7-day period the individual has worked not more than 48 hours.during the outage.</p>	<p>During the first 60 days of an unplanned security system outage or increased threat condition: the maximum average work hour limits need not be met.</p>

Topic	MDO – Normal Operations	MDO – Outage Conditions – Ops, HP/Chem, Fire Brigade	MDO – Outage Conditions – Maintenance and Quality Inspections	MDO – Outage Conditions – Security	54-hr Alternative
	cycle maybe determined by looking back a period that is equal in length to the shift cycle the individual was working before the change (e.g., the past 6 weeks).				
What is its calculation period?	Shift cycle, which is set by the licensee, cannot be less than one week nor exceed 6 weeks, but can vary within these limits.	15-day period	7-day period	15-day period	Averaging period, which cannot exceed 6 weeks, and is defined in days
How does the calculation period move?	Sequential	Sequential	Rolling	Sequential	Rolling
What/when is the beginning and end of the calculation period?	The calculation period starts at the beginning of the shift cycle and ends at the end of the shift cycle; days off per week average is calculated as: (# days off in shift cycle) divided by (# weeks in shift cycle).	The calculation period starts at the beginning of each 15-day period and ends at the end of the 15-day period.	The calculation period starts at the beginning of each 7-day period and ends at the end of the 7-day period.	The calculation period starts at the beginning of each 15-day period and ends at the end of the 15-day period.	The calculation period starts on the first day of averaging period and ends on the last day of the averaging period. Licensee must specify the time of day the averaging period starts and stops. Note that for shifts that span 2 calendar days, licensee can either: <ul style="list-style-type: none"> Count all hours worked as if they were worked on the day the shift started, or Count hours on calendar days they were actually worked
By what increments does the calculation period move?	By shift cycle	By 15-day period	Day-by-day	By 15-day period	By 7 consecutive calendar days (i.e., rolling weeks)

New Table A-3: Transitions Out of Outage

<i>Control</i>	<i>Outage</i>	<i>Operations</i>
No more than 16 hrs worked in 24 hrs	Must remain in compliance through outage	Look back and roll forward without interruption—no difference across transition
No more than 26 hrs worked in 48 hrs	Must remain in compliance through outage	Look back and roll forward without interruption— no difference across transition
No more than 72 hrs worked in 7-days/168 hours	Must remain in compliance through outage	Look back and roll forward without interruption— no difference across transition
10 hour break between successive work periods	Must remain in compliance through outage	Look back and then move forward to next break without interruption— no difference across transition
34 hours break in any 9-day period	Must remain in compliance through outage	Look back and roll forward without interruption— no difference across transition
Minimum Days Off (MDO) to MDO	Must be in compliance with outage requirements throughout and at time of transition out of outage	New shift cycle starts at point of transition; no look back.
MDO during outage to Maximum Average Work Hour (MAWH) requirements during normal operations	Must be in compliance with outage requirements throughout and at time of transition out of outage	Establish fixed initial averaging period after the transition, then roll forward in 7-day increments. Continue to roll forward by 7-day increments.
MAWH during outage to MAWH during normal operations	Must remain in compliance through outage	No difference across transition, continue to roll forward by 7-day increments, maintaining compliance throughout.
MAWH during outage to MDO during normal operations [Note: this is an unlikely sequence; it is included for completeness.]	Must be in compliance with MAWH requirements throughout and at time of transition out of outage, adjusting the last averaging period as a partial period, if necessary.	Continue to roll forward by 7-day periods to evaluate MAWH compliance until final 7-day period prior to transition is evaluated. This means for purpose of MAWH, the hours worked after transition out of outage will be evaluated until the full averaging period has been evaluated. New shift cycle for MDOs starts at point of transition; no look back.

New Graph 1: Fatigue Management as Part of the NRC's Overall FFD Strategy



