

APPENDIX B

Response to Public Comments on Draft Regulatory Guide DG-5026, “Fatigue Management for Nuclear Power Plant Personnel” New Regulatory Guide 5.73

The U.S. Nuclear Regulatory Commission (NRC) published a notice in the *Federal Register* (73 FR 56618) on September 29, 2008, that Draft Regulatory Guide (DG)-5026 (proposed new Regulatory Guide 5.73) was available for public comment. The public comment period ended on October 31, 2008. Fourteen organizations submitted comments, which are available in the NRC’s Agencywide Documents Access and Management System (ADAMS). The NRC has combined the comments, and the following table summarizes the NRC staff’s disposition of them.

Comments were received from the following individuals and organizations:

<p>Douglas J. Walters, Senior Director Nuclear Energy Institute (NEI) 1776 I Street, N.W., Suite 400 Washington, DC 20006-3708 ADAMS Accession No. ML083110161 and ADAMS Accession No. ML090080138</p>	<p>NEI comments also endorsed by: Entergy Nuclear Operations, Inc. ADAMS Accession No. ML083100592 Public Service Electric & Gas Co. ADAMS Accession No. ML083100591</p>	<p>Donna Alexander, Nuclear Regulatory Affairs Progress Energy 411 Fayetteville Street Mall P.O. Box 1551 Raleigh, NC 27602 ADAMS Accession No. ML083100594</p>
<p>NEI comments endorsed by: Southern Nuclear Operating Co. ADAMS Accession No. ML083050619</p>	<p>Florida Power & Light ADAMS Accession No. ML083100589 Strategic Teaming and Resources Sharing (STARS)</p>	<p>C.L. Funderburk Dominion Resources Services, Inc. 500 Dominion Boulevard Glen Allen, VA 23060 ADAMS Accession No. ML083220199</p>
<p>Northern States Power Co. (Xcel Energy) ADAMS Accession No. ML083050184 Dominion Resources Services, Inc. ADAMS Accession No. ML083220199</p>	<p>ADAMS Accession No. ML083190386</p>	<p>David Lochbaum, Director Nuclear Safety Project Union of Concerned Scientists 1825 K Street, N.W., Suite 800 Washington, DC 20006 ADAMS Accession No. ML090080163</p>
<p>Edwin D. Hill, International President International Brotherhood of Electrical Workers (IBEW) 900 Seventh Street, N.W. Washington, DC 20001 ADAMS Accession No. ML082960428</p>	<p>Mark H. Ayers, President Building and Construction Trades Dept., AFL-CIO 815 16th Street, N.W., Suite 600 Washington, DC 20006 ADAMS Accession No. ML083100595</p>	<p>AFL-CIO comment letter cosigned by: Iz Cakrane, President Associated Maintenance Contractors 510 Carnegie Center Princeton, NJ 08540 ADAMS Accession No. ML083100595</p>

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	Comment from	Comment	NRC Staff Disposition
Nuclear Energy Institute (NEI) Comments on DG-5026			
1	NEI and supporters, Progress Energy	<p><u>Regulatory Position 1—Definition of Predictive Maintenance</u></p> <p>The commenters stated, “In DG-5026, the staff proposed revising NEI 06-11, Revision E, Section 6.2, to read as follows, ‘Predictive maintenance activities that are not required by technical specifications or do not result in a change of condition or state of a structure, system, or component (SSC) are excluded from covered maintenance activities. These predictive maintenance activities include nondestructive analyses (NDE), thermography, vibration analysis, and data collection and analysis.’”</p> <p>Progress Energy expressed three concerns with the proposed wording:</p> <ol style="list-style-type: none"> 1. “Adding the words, ‘... that are not required by technical specifications ...’ is unnecessary and confusing. The source document requiring the predictive maintenance activity does not change the risk. Including technical specifications requirements as a qualifier increases the complexity of the implementation guidance without benefit. This will introduce inconsistency in application. Technical specifications vary from plant to plant. It is possible one plant would have a maintenance task as covered work while another plant with the same task would not include it as covered work simply due to the version of technical specification that the station has incorporated. These type of differences would lead to regulatory and inspection inconsistencies. 	<p>The NRC staff agrees that inconsistencies between technical specifications at different sites could result in inconsistencies in the implementation of the requirements in Subpart I, “Managing Fatigue,” of Title 10 Part 26, “Fitness for Duty [FFD] Programs,” of the <i>Code of Federal Regulations</i> (10 CFR Part 26). The NRC staff also acknowledges that the wording of Regulatory Position 1 in DG-5026 could be interpreted to mean that all predictive maintenance activities required by technical specifications would be covered maintenance activities. The staff agrees that predictive maintenance activities other than nondestructive examination (NDE), thermography, vibration analysis, and data collection and analysis may not result in a change of condition or state of a covered SSC. The staff further agrees that starting or stopping a covered SSC would be performing work under the operating category.</p> <p>However, the NRC staff believes that the definition, proposed by NEI, of maintenance activities that may be performed by individuals who are not subject to the work-hour controls required in 10 CFR 26.205, “Work Hours,” lacks precision and would be difficult to implement. Therefore, Regulatory Position 2 in the final regulatory guide clarifies the definition of excluded predictive maintenance activities as follows:</p> <p>“Predictive maintenance activities that do not result in a change of condition or state of a structure, system, or component (SSC) that a risk-informed evaluation process has shown to be significant to public health and safety may</p>

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		<p>2. Adding the words, ‘... that are not required by technical specifications...’ also implies that all activities performed per technical specifications should be considered covered work. This could include such categories as performance of reactor engineering calculations required by technical specifications, system engineering walkdowns that are performed using a preventive maintenance work order, or analyzing and trending predictive maintenance data such as pump vibration or thermography. These maintenance activities are data gathering or calculation activities ... that are non-intrusive and do not pose significant risk to public health and safety from a worker fatigue error.</p> <p>3. Predictive maintenance is not easily defined. The staff’s proposed wording removed the words, ‘such as,’ from the NEI 06-11, Revision E wording. Removal of these words implies that only the listed activities can be excluded and are not simply examples of work activities that can be excluded from covered work. Other activities such as lube oil analysis could be considered predictive maintenance.”</p> <p>The NEI and its supporting commenters stated, “Based on discussion at the October 16 public meeting on the fatigue management rule, the industry revised NEI 06-11 to clarify that activities that have not historically been defined as maintenance, that are non-intrusive, and pose low risk to the health and safety of the public are excluded from covered work.</p> <p>Industry Position: The industry’s position is included in NEI 06-11, ‘Managing</p>	<p>be excluded from covered maintenance activities. Examples of activities that may be excluded if they do not change the state or condition of these SSCs include, but are not limited to, nondestructive examination (NDE), thermography, vibration analysis, and data collection and analysis.”</p>

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		<p>Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1, Section 6.2 and is below.</p> <p>‘Work hour controls do not apply to the following individuals and activities:</p> <p>Maintenance, as defined per Part 26, does not include activities that have not historically been defined as maintenance, that are non-intrusive, and pose low risk to the health and safety of the public, such as calculations, non-destructive analysis (NDE), thermography, vibration analysis, data collection and analysis.</p> <p>Note: At times an activity requires starting or stopping a piece of equipment. The worker starting or stopping the equipment would be performing covered work under the operating category; however, the data collection activity would not be considered a covered work activity.’”</p>	
2	NEI and supporters, Progress Energy	<p><u>Regulatory Position 2—Periodic Overtime</u></p> <p>The commenters stated, “NEI revised its guidance on Periodic Overtime in Section 7.1 of NEI 06-11 in response to feedback from the October 16 public meeting on the fatigue management rule. The document now states that licensees will perform at minimum a quarterly review comparing actual work hours for covered workers to the 54-hour per week average per shift cycle criterion. Each station will document any issues it discovers during these reviews in its Corrective Action Program. (NEI).”</p> <p>Progress Energy and other commenters endorsing NEI’s changes requested that NRC endorse NEI 06-11, Revision 1,</p>	<p>The NRC reviewed the guidance in NEI 06-11, Revision 1, “Managing Personnel Fatigue at Nuclear Power Reactor Sites,” Section 7.1, “Periodic Overtime.” As described in DG-5026, the implementation guidance in Section 7.1 of NEI 06-11 introduces the concept of “periodic overtime.” The rule does not include this concept, and it is not necessary to do so. Therefore, the final regulatory guide includes an exception to the concept of “periodic overtime,” as described in NEI 06-11, Revision 1.</p> <p>The implementation guidance in Section 7.1 of NEI 06-11, Revision 1, would permit licensees to establish a schedule for a shift duration (e.g., 8-hour shifts) that includes sufficient days off to meet the minimum days off (MDO)</p>

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		<p>Section 7.1, “Periodic Overtime.”</p> <p>The commenters explained that the rule uses the shift schedule of the worker to determine minimum days off (MDO) but does not provide a precise definition of shift schedule. They stated, “NRC’s guidance in DG-0526 would implement a running average of hours worked during a work cycle to calculate minimum days off for that work cycle. This method could have unintended consequences on the continuity of supervision and emergent work activities.” The commenters argued that the revisions to NEI 06-11, Revision 1, will address NRC’s concerns with the excessive use of periodic overtime and will provide transparency to the regulator through the corrective action program.</p> <p>Industry Recommendation: “The NRC is requested to endorse the guidance provided in NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1, Section 7.1, Periodic Overtime.”</p>	<p>requirements for that shift duration but would allow licensees to assign or permit unscheduled work hours that could result in individuals working shift lengths (e.g., 10- or 12-hour shifts) that would require a greater number of days off under 10 CFR 26.205(d)(3). Although the guidance in Section 7.1 of NEI 06-11, Revision 1, describes a quarterly review process to address this concern, the NRC staff does not consider implementation of that process as meeting the requirements of the rule. Specifically, the process would allow work hours for emergent work to be excluded from consideration in the determination of the applicable MDO requirements. In addition, by allowing deviations from the MDO requirements to be controlled through quarterly reviews, the process would circumvent the waiver requirements in 10 CFR 26.207, “Waivers and Exceptions.”</p> <p>The MDO requirements in 10 CFR 26.205(d)(3) are designed to prevent cumulative fatigue while accommodating variations in workload that result from emergent work. For example, the MDO requirements for maintenance personnel on 8- and 10-hour shifts allow, on average, an extra day of work per week above a nominal 40-hour workweek. The MDO requirements for maintenance on 12-hour shifts allow, on average, an extra 1.5 days per week. In addition, the requirements allow licensees to meet the MDO requirements as an average over a period of up to 6 weeks. As a result, licensees have the flexibility to distribute these extra workdays as necessary to accommodate emergent work. As noted in the FR notice for the final rule (73 FR 16988; March 31, 2008), 10 CFR 26.205(d)(3) “accommodates a wide range of scheduling practices and short-term fluctuations in workload.” Because the requirement was intended to</p>

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			<p>accommodate fluctuations in workload within limits that prevent cumulative fatigue, the NRC staff does not endorse the guidance in Section 7.1 of NEI 06-11, Revision 1, which would permit these limits to be exceeded through the exclusion of work hours for emergent work.</p> <p>As stated in 10 CFR 26.205(d)(3), “Licensees shall ensure that individuals have, at a minimum, the number of days off specified in this paragraph.” The staff considers the appropriate means of deviating from this requirement to be the waiver process described in 10 CFR 26.207. In this regard, the staff notes that the rule permits licensees to grant waivers of the work-hour controls in 10 CFR 26.205(d)(1) through 10 CFR 26.205(d)(5)(i), including the MDO requirements of 10 CFR 26.205(d)(3). The waiver requirements in 10 CFR 26.207 are intended to ensure that deviations from the work-hour controls, including the MDO requirements, are limited to circumstances necessary to prevent or mitigate conditions adverse to safety or security. By allowing deviations from the MDO requirements to be controlled through quarterly reviews, and by using criteria unrelated to safety or security, the process described in NEI 06-11, Revision 1, will circumvent the rule’s waiver requirements.</p> <p>In accordance with the staff’s view that the guidance contained in NEI 06-11, Revision 1, does not provide an acceptable means to comply with the regulation, Regulatory Positions 4, 5 and 6 in the final regulatory guide revise the guidance that depends on the concept of “periodic overtime.” Regulatory Position 4 revises a paragraph in Section 7, “Work Hours Scheduling,” of NEI 03-11, Revision 1, which discusses periodic overtime. The staff’s</p>

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			guidance for determining the applicable MDO requirements when covered individuals or crews work unscheduled work hours is presented in Regulatory Position 5 in the final regulatory guide. Regulatory Position 6 in the final regulatory guide presents guidance the staff finds acceptable for managing work-hours transitions during a shift cycle.
3	NEI and supporters	<p><u>Regulatory Position 3—Shifts of More Than 11 Hours</u></p> <p>The commenters stated, “This position is incorporated into NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1.”</p> <p>Industry Recommendation: “Revise DG-5026 to endorse NEI 06-11, Revision 1, and eliminate this position.”</p>	The NRC staff agrees that NEI 06-11, Revision 1, incorporates the additional language recommended by the staff to address average shift durations of more than 11 hours per day. Therefore, the final regulatory guide retains the guidance NEI added in NEI 06-11, Revision 1, in Regulatory Position 5 .
4	NEI and supporters	<p><u>Regulatory Position 4—Transitions</u></p> <p>The commenters stated, “This position has been incorporated into NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1.”</p> <p>Industry Recommendation: “Revise DG-5026 to endorse NEI 06-11, Revision 1, and eliminate this position.”</p>	The NRC staff considers Section 7.3, “Transitioning onto a Shift or Between Covered Groups or into a Covered Group,” of NEI 06-11, Revision 1, to be acceptable, except for the last bullet that reads, “A minimum of 2 days off in the preceding 7-day period is acceptable for operators who have been working outage hours on 10- or 12-hour shifts before they transition to the non-outage unit as one of the two required operators working non-outage minimum days off. This does not preclude short-term relief of the non-outage unit operators as described in Section 8.3.” For the reasons discussed with respect to Comment 6 in this table, the staff does not agree that only two operators on an operating unit should remain on nonoutage work hours at a multiunit site with one or more units in an outage. Therefore, Regulatory Position 7 in the final regulatory guide clarifies the last bullet before the examples in that section as follows:

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			<p>“A minimum of 2 days off in the preceding 7-day period is acceptable for operators at a multiunit site with one or more units in an outage, if the operators have been working outage hours on 10- or 12-hour shifts before they transition to an operating unit as members of the minimum shift complement described in Section 8.3.”</p>
5	NEI and supporters	<p><u>Regulatory Position 5—Unplanned Outages, Increased Threats</u> The commenters stated, “This position has been incorporated into NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1.”</p> <p>Industry Recommendation: “Revise DG-5026 to endorse NEI 06-11, Revision 1, and eliminate this position.”</p>	<p>Because NEI 06-11, Revision 1, incorporates the additional language recommended by the NRC staff to address transitioning into and out of unplanned unit outages, unplanned security system outages, and increased threat conditions, the final regulatory guide does not retain Regulatory Position 5 from DG-5026.</p>
6	NEI and supporters, Progress Energy	<p><u>Regulatory Position 6—Eligibility for Outage Minimum Days Off</u></p> <p>The commenters stated, “The industry requests that the staff reconsiders their position on eligibility for outage minimum days off and endorses a requirement that a minimum of one reactor operator and one senior reactor operator for each operating reactor at a multi-unit station will not be eligible for outage minimum days off. Additionally, the industry will delete the 25% criteria for determining participation in outage activities from NEI 06-11.</p> <p>This position is stated in NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1, as follows:</p>	<p>The NRC staff agrees that the 25-percent criterion for determining participation in outage activities should be deleted from the final regulatory guide. However, the staff’s position remains that, at a minimum, those individuals who constitute the operator minimum shift complement, including the operator at the controls and the senior operator in the control room, as specified in 10 CFR 50.54, “Conditions of Licenses,” for the operating unit at a multiunit site should not work the longer work hours that the rule permits for outages, because these individuals’ primary duties are to ensure the safe operations of the operating unit. Regulatory Position 11 in the final regulatory guide retains the staff’s position, as described in DG-5026, with the following two additions.</p> <p>In recognition of the flexibility that the relevant regulations,</p>

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		<p>Workers Eligible to Work Outage Hours</p> <ul style="list-style-type: none"> • Covered workers at single sites working on outage activities are eligible • Covered workers at multi-unit sites with one unit in an outage that are working on outage activities are eligible • Covered workers, due to Emergency Response Organization, Fire Brigade, or Security duties, at a multi-unit sites with a unit in an outage are eligible • Covered workers at multi-unit sites that work on both outage activities and operating unit activities are eligible, with the exception described below: <p>Workers Not Eligible to Work Outage Hours</p> <p>One reactor operator assigned to the controls and one senior reactor operator assigned to the controls for each operating unit at a multi-unit station while any unit is in an outage. This does not prevent short term relief of these licensed operators by licensed operators that are eligible for outage work hours.</p> <p>Eligibility should be established on an individual or defined group basis. Eligibility should be evaluated each 15 days for each individual or defined group during the outage.</p> <p>The industry also requests that the statement of considerations for 10 CFR Part 26 be revised to reflect the Commission’s action to remove ‘solely’ from the rule.”</p>	<p>standard technical specifications, and licensees’ administrative procedures permit in addressing control room staffing, the final regulatory guide clarifies that operators who are working on an operating unit and maintaining operating work hours may perform outage activities.</p> <p>The final regulatory guide also permits operators who have been working outage hours to provide short-term relief (not to exceed 2 hours) for the operator at the controls or the senior operator in the control room of an operating unit in limited circumstances. Regulatory Position 11 in the final regulatory guide includes the following guidance:</p> <p>“An operator who has been working outage work hours and has had 2 days off in the previous 7-day period may provide relief to the operator at the controls or the senior operator in the control room, if an appropriately qualified operator who has been working nonoutage work hours is not immediately available to provide relief. If an operator who has been working outage work hours and has had 2 days off in the previous 7-day period is not immediately available, an operator who has been working outage hours may provide (1) short-term relief (up to 2 hours) for the operator at the controls or the senior operator in the control room without a waiver or (2) longer term relief (more than 2 hours) under a waiver of the MDO requirement that is applicable to the shift schedule (i.e., 8-, 10-, or 12-hour shifts) for personnel assigned to the operating unit.”</p> <p>The final regulatory guide includes additional changes to the guidance in NEI 06-11, Revision 1, in Regulatory Position 3 (i.e., a clarification that the emergency response organization’s minimum shift complement differs from the</p>

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			<p>minimum shift complement of operators) and Regulatory Position 11 (i.e., three of the examples) to ensure that the guidance conforms to the staff’s position.</p> <p>The staff disagrees that a revision to the Statement of Considerations (SOC) for the rule is necessary. NUREG-1912, “Summary and Analysis of Public Comments Received on Proposed Revision to 10 CFR Part 26, ‘Fitness for Duty Programs,’” (in press) discusses the Commission’s direction to remove “solely” from the rule.</p>
7	<p>NEI and supporters, Progress Energy</p>	<p><u>Regulatory Position 7—Reviews</u></p> <p>NEI and other industry representatives endorsing the NEI submittal, including Progress Energy, commented that the NRC’s proposed paragraph on the review of job performance data unnecessarily increases the scope of the annual review because it omits the rule’s minimum list of individuals who must be subject to review. They stated, “The rule requires job performance reviews for the following:</p> <ul style="list-style-type: none"> • Individuals whose actual work hours worked during the review period exceeded an average of 54 hours per week in any shift cycle while the individuals’ work hours are subject to the requirements of § 26.205(d)(3). • Individuals that were granted more than one waiver during the review period. • Individuals that were assessed for fatigue under § 26.211 during the review period. <p>Because it does not include a minimum list of qualifiers for the review, the proposed paragraph could be interpreted as requiring annual review of all job performance data at the</p>	<p>The NRC staff agrees that the review requirements in 10 CFR 26.205(e) specify minimum requirements for the review; therefore, this provision does not require the review of all job performance data at a station. The NRC staff also agrees that it is appropriate for the implementation guidance to include these minimum requirements. However, the staff believes that the guidance in Section 15, “Reviews,” of NEI 06-11, Revision 1, numbered paragraphs 1 and 2, could be interpreted in such a way that the conduct and scope of the review would be inconsistent with the intent of the requirement. As a result, the final regulatory guide includes a clarification to provide alternate guidance that adopts the minimum review requirements and also addresses the NRC staff’s concerns regarding the conduct and scope of the review. The following paragraphs address the staff’s specific concerns with the guidance in NEI 06-11, Revision 1, Section 15.</p> <p>NEI 06-11, Revision 1, emphasizes the review of worker performance by separating the guidance concerning review of worker job performance from the review of actual hours</p>

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		<p>station with respect to the effects of duration, frequency, and sequencing of work hours on performance.”</p> <p>NEI stated that it revised its implementation guidance, based on the NRC’s feedback, to include an emphasis on worker performance in the review. NEI requested that the NRC endorse the review requirement that is included in NEI 06-11, Revision 1, “Managing Personnel Fatigue at Nuclear Power Reactor Sites:”</p> <p>“Licensees shall:</p> <p>Review the actual work hours of covered individuals for consistency with work hours scheduling requirement objective of preventing impairment from fatigue due to duration, frequency, and sequencing of hours worked. The review should be based on information associated with fatigue, including but not limited to, the corrective action program. At a minimum, this review should address:</p> <ul style="list-style-type: none"> • Individuals whose actual hours worked during the review period exceeded an average of 54 hours per week in any shift cycle while the individuals’ work hours are subject to the non-outage days off requirements. • Individuals who were granted more than one waiver during the review period. • Individuals who were assessed for fatigue during the review period.” <p>Industry Recommendation: “Revise DG-5026 to endorse NEI 06-11, Revision 1, and eliminate this position.”</p>	<p>worked. As a result, the guidance could be interpreted to require two independent reviews. The intent of the requirement is for licensees to conduct a single review in which worker performance and actual hours worked are reviewed in an integrated assessment to identify potential correlations between actual hours worked and job performance. The objective of the review is to identify relationships between the worker’s job performance and the actual frequency, duration, or sequencing of successive shifts that might be meaningful to a licensee’s assessment of its performance regarding the performance objectives of 10 CFR 26.205(c). Accordingly, the final regulatory guide includes a clarification to NEI 06-11, Revision 1, Section 15, which replaces the guidance in numbered paragraphs 1 and 2 with a single paragraph that provides guidance consistent with the intent for a single integrated assessment.</p> <p>Further, NEI 06-11, Revision 1, limits the scope of the review of worker performance and actual work hours to “information associated with fatigue.” The NRC staff believes this guidance can be interpreted to mean that, in conducting an annual review in accordance with 10 CFR 26.205(e), a licensee need consider only information that was previously identified as contributing to or associated with fatigue (e.g., work hours or worker performance that was identified through a problem report or root cause analysis as associated with fatigue). Although the staff agrees that inclusion of such information is appropriate, limiting the review to information that has been predetermined to be associated with fatigue is inconsistent with the intent of the requirement as described in the preceding paragraph. However, the NRC is also mindful of</p>

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			<p>licensees’ need to be efficient and effective in the conduct of such reviews. In this regard, the NRC agrees with the commenters that the rule establishes a minimum scope for the review and has incorporated these minimum criteria in Regulatory Position 14 of the final regulatory guide.</p>
8	NEI and supporters	<p><u>Additional Comments—Shift Turnovers</u></p> <p>The commenters stated, “The description of shift turnovers in NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision E provides a constraint that is not required by the rule. The NEI guidance allowed the licensee to only exclude one period of shift turnover time from work hour calculations. As the industry has begun preparing schedules and procedures for implementing this rule, it has become apparent that some category of workers requires a shift turnover at the beginning and the end of the work period to safely and effectively transfer job positions. This has made it necessary to revise the industry guidance on shift turnovers to align with rule requirements.</p> <p>This section was changed to read:</p> <p><i>Shift turnover</i> Licensees may exclude shift turnover from the calculation of an individual’s work hours. Shift turnover includes only those activities that are necessary to safely transfer information and responsibilities between two or more individuals between shifts. Shift turnover activities may include, but are not limited to, discussions of the status of plant equipment, and the status of ongoing activities, such as extended tests of safety systems and components. Turnovers for supervisors may be more extensive than for workers and</p>	<p>The NRC staff accepts the portion of NEI 06-11, Revision 1, which permits licensees to exclude the time that individuals spend on shift turnover from the calculation of individuals’ work hours and one period of shift turnover from the calculation of break times between successive work periods.</p> <p>The staff agrees that the time required for security personnel to arm and disarm may be considered shift turnover activities for the calculation of work hours. Shift turnover activities specified in 10 CFR 26.205(b)(1) include “only those activities that are necessary to safely transfer information and responsibilities between two or more individuals between shifts.” The NRC’s requirements for nuclear power plant security plans effectively mandate that many security posts at nuclear power plants be staffed 24 hours a day, 7 days a week by armed security personnel. To provide continuous staffing at these posts with armed personnel, it is necessary for security personnel to arm before the beginning of their shift and disarm following the end of their shift. Therefore, the NRC considers the arming and disarming activity to be necessary to safely transfer responsibilities between security officers. As a result, the time for arming and disarming may be considered turnover.</p> <p>The staff does not agree that the activities of donning and doffing protective clothing for radiation workers fall within</p>

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		<p>will therefore may be longer. Turnover may include time necessary to prepare for specific job requirements for example arming and disarming times for security guards or donning or un-donning of protective clothing for radiation workers as necessary to support turn-over.</p> <p>Licensees may exclude either the oncoming or off going shift turnover, but not both, from the calculation of break times between successive work periods.</p> <p>Licensees may not exclude work hours worked during turnovers between individuals within a shift period due to rotations or relief within a shift. Activities that licensees may not exclude from work hours calculations also include, but are not limited to, shift holdovers to cover for late arrivals of incoming shift members; early arrivals of individuals for meetings, training, or pre-shift briefings for special evolutions; and holdovers for interviews needed for event investigations.”</p> <p>Industry Recommendation: “It is requested that the NRC endorse the revised shift turnover guidance that is included in NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1.”</p>	<p>the scope of shift turnover activities specified in 10 CFR 26.205(b)(1). Although donning and doffing protective clothing are activities necessary for individuals to perform their job duties, they are typically not required to safely transfer responsibility between shifts or to continuously staff positions that are required by NRC regulations.</p> <p>Therefore, Regulatory Position 8 in the final regulatory guide clarifies the staff’s position that arming and disarming may be considered shift turnover but deletes reference to donning and doffing protective clothing, as these activities should be considered covered work and included in the calculation of individuals’ work hours.</p>
9	NEI and supporters	<p><u>Additional Comment—Training</u></p> <p>The commenters stated, “Changes have been made to NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1 to provide reference to NEI 03-04, ‘Guideline for Plant Access Training,’ for specific training objectives that are a requirement of the rule. These</p>	<p>The NRC staff has not reviewed NEI 03-04 and, therefore, has not determined that implementation of NEI 03-04 would adequately meet the training requirements of 10 CFR Part 26. Regulatory Position 1 in the final regulatory guide provides this clarification.</p>

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		references appear in Section 1 Introduction, Section 12 Fatigue Assessments, and Section 14 Training.” Industry Recommendation: “It is requested that the NRC endorse these changes in NEI 06-11, ‘Managing Personnel Fatigue at Nuclear Power Reactor Sites,’ Revision 1.”	
10	NEI and supporters	<p><u>Additional Comment—Consideration for Enforcement Discretion</u></p> <p>The commenterst stated, “The industry has discussed with the NRC staff that the requirements of the fatigue rule and the implementation guidance will result in the need to increase staff. In some cases, such as security the nominal staffing increases expected across the industry is 20%. The time required in hiring and training of the new staff may result in challenges as the rule is implemented and could lead to an increase in the use of waivers. The industry asks the NRC to consider a period of 6 months of enforcement discretion following the implementation date of October 1, 2009 in order to facilitate transition to the new rule.”</p>	The NRC staff will evaluate specific requests for enforcement discretion that are supported by an adequate technical basis. The general request contained in this comment does not include sufficient information for the staff to complete an evaluation of the need for enforcement discretion.
Comments from the International Brotherhood of Electrical Workers (IBEW) on NEI 06-11, Revision E, dated October 2008.			
11	IBEW	<p><u>Labor-Sharing Agreements</u></p> <p>Reference in NEI 06-11: <i>Contractor/Vendor (C/V) means any company, or any individual not employed by a licensee who is providing work or services to a licensee, either by contract, purchase order, oral agreement, or other arrangement.</i></p> <p>IBEW Comment 1:</p>	Licensee employees who travel to work at another site, whether that site is operated by the individual’s employer or another licensee, are not considered to be contractor/vendor (C/V) personnel under the definition of C/V in 10 CFR 26.5, “Definitions.” As discussed in the SOC for 10 CFR 26.4, “FFD Program Applicability to Categories of Individuals,” the applicability of the rule’s requirements depends on the types of access and job duties an individual performs for a licensee or other entity who is subject to Part 26, regardless

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		<p>“Are licensee employees from one company that travel to work at another licensee company considered Contractor/Vendors? i.e., USA/STARS labor sharing program.”</p>	<p>of the individual’s employer. For clarification and to ensure consistency with the rule’s intent, Regulatory Position 10 in the final regulatory guide includes a revision of Section 8.3 of NEI 06-11, Revision 1, as follows:</p> <p>“Licensee employees and contractor/vendor personnel may go from an outage at one site to an outage at another site. When a licensee employee or contractor/vendor performs covered work for a licensee during two or more unit outages or security system outages (or a combination thereof), and the interval(s) between successive outages is less than 9 days, the receiving licensee should determine that the individual has had a 34-hour break period within the 9 days that precede the day on which the individual begins working for the receiving licensee. In addition, when the individual begins work for the receiving licensee, the licensee should ensure that the individual’s hours worked did not and will not exceed the following limits:</p> <ol style="list-style-type: none"> 1. 16 work hours in any 24-hour period 2. 26 work hours in any 48-hour period 3. 72 work hours in any 7-day period” <p>For individuals (either employees of a licensee or a C/V) who transition between sites under other circumstances, the NRC staff expects that the appropriate implementation guidance contained in Section 7.3 of NEI 06-11, Revision 1, would apply.</p>
12	IBEW	<p><u>Regulatory Position 1—Definition of Predictive Maintenance</u></p> <p>The IBEW provided three comments related to the definition</p>	<p>As discussed in the NRC staff’s response to Comment 1 in this table, the staff agrees that predictive maintenance should be considered covered work when the task changes the state or condition of SSCs that a risk-informed</p>

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	<p>of predictive maintenance in NEI 06-11, as follows:</p> <p>Reference in NEI 06-11: <i>Maintenance means, the following onsite maintenance activities: Modification, surveillance, post-maintenance testing, and corrective and preventive maintenance of SSCs that a risk-informed evaluation process has shown to be significant to public health and safety.</i></p> <p>IBEW Comment 2: “The term ‘predictive’ should be included. This term should also include work events similar to recent 2008 reactor scrams from a worker using a digital camera with a flash, inspecting electrical circuits (Indian Point) and a chemistry lab computer upgrade (Hatch).”</p> <p>Reference in NEI 06-11: <i>Work hour controls do not apply to the following individuals and activities:</i></p> <ul style="list-style-type: none"> • <i>Predictive maintenance activities that do not result in a change of condition or state of a structure, system, or component (SSC) are excluded from covered maintenance activities such as, non-destructive analysis [sic] (NDE), thermography, vibration analysis, data collection and analysis.</i> <p>IBEW Comment 7: “The IBEW disagrees with this definition for exemption. If these activities are performed with work controls on risk significant SSC the activity should be covered work. NDE radiography should be covered work due the utilization of controlled sources in work areas within the power block.”</p> <p>Reference in NEI 06-11: <i>The following tasks are examples generally considered NOT</i></p>	<p>evaluation process has shown to be significant to public health and safety. Therefore, Regulatory Position 2 in the final regulatory guide revises the guidance contained in Section 6.2, “Work Hour Controls for Covered Individuals,” of NEI 03-11, Revision 1, related to predictive maintenance.</p> <p>The staff also agrees with the commenter that (1) individuals who are directing covered predictive maintenance activities must also be subject to the work-hour controls of Subpart I of 10 CFR Part 26, and (2) the reactor scram events cited by the commenter illustrate the potential for certain maintenance activities to affect safe operations.</p> <p>With respect to NDE radiography, the NRC staff agrees that, if the NDE radiography requires a change in the state or condition of an SSC that a risk-informed evaluation process has shown to be significant to public health and safety, then the work would be considered covered work. However, the presence of a controlled source in the work area in itself would not fall within the scope of predictive maintenance activities that must be performed by individuals who are subject to the work-hour controls in 10 CFR 26.205. Therefore, the staff has not added this consideration to the final regulatory guide.</p> <p>The staff also has not added the term, “predictive,” to the definition of maintenance in NEI 06-11, Revision 1, because changing the definition of maintenance in the final regulatory guide would create an inconsistency with the definition of maintenance in 10 CFR 26.5, “Definitions.” Further, predictive maintenance is commonly understood within the nuclear power industry to fall within the scope of preventive maintenance activities. For example, NUMARC</p>

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		<p><i>directing:</i></p> <ul style="list-style-type: none"> • <i>Any work that is not operations or maintenance on risk significant SSCs</i> <p>IBEW Comment 9: “Predictive Maintenance methods should be included as risk significant SSC work.”</p>	<p>93-01, “Industry Guideline for Monitoring the Effectiveness of Maintenance of Nuclear Power Plants,” includes predictive maintenance activities as one type of preventative maintenance. Therefore, the staff considers adding the term in the final regulatory guide to be both inconsistent and unnecessary.</p>
13	IBEW	<p><u>Exclusion of Unpaid Union Business from Work Hours</u></p> <p>Reference in NEI 06-11: <i>Personal time in which an individual is on-site but is off duty (i.e., before or after his/her normally scheduled work period in which work activities are performed for the licensee) may be excluded. The individual may be reading the paper, in the on-site fitness center, eating breakfast, etc.</i></p> <p>IBEW Comment 3: “At union represented facilities, employees may be performing union business off-duty while at the facility. ‘Unpaid union business’ should be added prior to the ‘etc.’”</p>	<p>The NRC staff agrees that “unpaid union business,” like any other activity that may occur on site that is not performed for the licensee, may be considered personal time in which an individual is on site but is not performing covered work. The staff has not added the recommended phrase to the final regulatory guide because of concerns that the examples in NEI 06-11, Revision 1, may not apply to all circumstances for all licensees or other entities subject to Subpart I of 10 CFR Part 26. Adding another example would be inconsistent with the staff’s concerns as stated in Regulatory Position 15 in the final regulatory guide.</p>
14	IBEW	<p><u>Including Unpaid Work in Work-Hours Calculations</u></p> <p>Reference in NEI 06-11: <i>Verifying his/her working hours are correctly documented regardless of whether he/she is paid for the hours worked.</i></p> <p>IBEW Comment 4: “This needs explanation; IBEW does not condone working without pay for a public rule regulatory implementation guide.”</p>	<p>As discussed in the SOC for 10 CFR 26.205(b), compensation for work performed for a licensee is not a determining consideration in the calculation of an individual’s work hours under Subpart I of 10 CFR Part 26. The NRC recognizes that some personnel perform work for a licensee that falls outside their normally scheduled shift. The rule requires that these hours be included in the calculation of the individual’s work hours for the purposes of preventing and mitigating the effects of fatigue on job performance. Because the implementation guidance referenced by the commenter is consistent with the rule’s</p>

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			intent and requirements, the staff has not added an explanation in the final regulatory guide.
15	IBEW	<p><u>Reporting Fatigue-Related Concerns</u></p> <p>Reference in NEI 06-11: <i>Being aware of the total hours worked in the previous 14 days and notifying management if work hour limits will be exceeded if asked to work additional hours.</i></p> <p>IBEW Comment 5: “Are fatigue concerns appropriate to document in a Behavior Observation Program (BOP)? Is it the correct vehicle?”</p>	<p>The correct method for reporting fatigue concerns depends on the type of concern and the reporting procedures the licensee has established. If an individual is concerned that he or she is not fit to safely and competently perform his or her duties for any part of a working tour as a result of fatigue, the individual should follow the self-declaration procedures that licensees are required to establish under 10 CFR 26.203(b)(1). If an individual is concerned that a coworker may not be fit to safely and competently perform duties as a result of fatigue (or any other cause), 10 CFR 26.33, “Behavioral Observation,” requires the individual to report the concern to the personnel designated in the licensee’s FFD policy.</p> <p>10 CFR 26.29(a)(10) requires licensees to train personnel on the procedures to follow to make a self-declaration of fatigue and to report a fitness concern about a coworker. 10 CFR 26.29(a)(10) also requires licensees to ensure that individuals have the ability to initiate the appropriate actions if an individual has a concern.</p> <p>Concerns regarding licensee implementation of the fatigue management requirements of 10 CFR Part 26 should be reported and addressed through the licensee’s process(es) for the identification and resolution of safety concerns or may be reported directly to the NRC through its allegations process.</p>
16	IBEW	<p><u>Work-Hours Tracking Tool for Individuals</u></p> <p>Reference in NEI 06-11:</p>	Although 10 CFR Part 26 does not impose a requirement on individuals to track their work hours and days off, the NRC staff has not taken an exception to the guidance in

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		<p><i>Being aware of the total hours worked in the previous 14 days and notifying management if work hour limits will be exceeded if asked to work additional hours.</i></p> <p>IBEW Comment 5: “GENERAL NOTE: This guide should include a standardized tracking tool form (pocket size?) for covered and potential covered worker to assist in keeping adequate record for the ‘awareness requirement.’ Being ‘sure’ is much better than being ‘aware’ when individuals will be trained to consequences for failing the company fatigue policy.”</p>	<p>NEI 06-11, Revision 1, that suggests individuals should maintain records of their work hours and days off. However, the staff notes that responsibility for ensuring that covered workers’ work hours are controlled in accordance with the regulation rests with the licensee for whom the individual is performing covered duties. The NRC staff expects that licensees and other entities who implement this final regulatory guide will differ in the procedures and tools they develop to aid individuals in tracking the information that is required by the licensees’ or other entities’ fatigue management programs. Therefore, the final regulatory guide does not include a standardized tracking tool.</p>
17	IBEW	<p><u>Applicability of Work-Hour Controls to Quality Control/Quality Assurance Activities</u></p> <p>Reference in NEI 06-11: <i>Work hours controls do not apply to the following individuals and activities:</i></p> <ul style="list-style-type: none"> • <i>Quality control and quality assurance activities.</i> <p>IBEW Comment 6: “Individuals who are certified to do QC activities and perform rule covered work (multi-qualifications) who are a part of a work crew doing covered work, should have their work counted as covered work.”</p>	<p>The NRC staff agrees that any individual who is performing the activities specified in 10 CFR 26.4(a) must be subject to work-hour controls, including individuals who are certified to perform quality control (QC) activities. However, 10 CFR Part 26 does not currently require that individuals who are solely performing QC activities, without also performing the work activities described in 10 CFR 26.4(a), must be covered by work-hour controls. In a staff requirements memorandum (SRM) dated April 17, 2007, the Commission directed the staff to extend the rule’s work-hour requirements to cover personnel who perform QC and quality verification activities. The NRC staff is currently working to implement the SRM.</p>
18	IBEW	<p><u>Escort Qualifications</u></p> <p>The IBEW provided two comments related to the technical qualifications of individuals who are escorting C/Vs, as follows:</p> <p>Reference in NEI 06-11:</p>	<p>There is no requirement in 10 CFR Part 26 that an escort must be certified on or otherwise qualified to oversee the activities being performed by an escorted C/V. The NRC is enhancing its requirements for the technical qualifications of escorts in other rulemaking activities. Therefore, the NRC staff has not added guidance regarding the technical qualifications of escorts because it is beyond the scope of</p>

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		<p><i>Work-hour controls do not apply to the following individuals and activities:</i></p> <ul style="list-style-type: none"> • <i>Contractor/Vendors, who are not granted unescorted access (i.e., the individual is escorted), conducting work on a risk-significant system, structure, or component onsite</i> <p>IBEW Comment 8: “Clarification requested. Is the person escorting the C/V required to be certified on the activity being performed if the licensee has such qualified individuals on-staff?”</p> <p>Reference in NEI 06-11: <i>In order to grant a waiver, the licensee shall meet the following requirements:</i></p> <ol style="list-style-type: none"> 1. <i>A supervisor assesses the individual face to face and determines that there is reasonable assurance that the individual will be able to safely and competently perform his or her duties during the additional work period for which the waiver will be granted. The supervisor performing the assessment shall be trained in accordance with the requirements of §§ 26.29 and 26.203(c) and shall be qualified to oversee the work to be performed by the individual.</i> <p>IBEW Comment 17: “<i>This ties back to the Pg. 12 C/V qualification concern for oversight of work performed by C/Vs. This presents a double standard in the rule if escorted C/Vs are not required to have qualified individuals overseeing the work of the C/V on risk significant SSCs.</i>”</p>	<p>this final regulatory guide.</p> <p>Further, the activity of escorting a C/V is distinct from the activity of assessing an individual for a waiver of the work-hour controls under 10 CFR 26.207. Specifically, in the case of an escorted C/V, there is no a priori reason to believe that the individual is impaired from fatigue or may become impaired. By contrast, an individual who is being considered for a waiver of the work-hour controls will be working longer hours than the rule would otherwise permit. Therefore, there is a basis to anticipate that the individual could be subject to impairment from fatigue. Accordingly, 10 CFR 26.207(a)(1)(ii) requires that the supervisor determine that there is reasonable assurance that the individual will be able to safely and competently perform his or her duties during the additional work period. If the supervisor determines that there is a potential for fatigue-related degradations in alertness and performance to affect risk-significant functions, the rule requires the supervisor to establish controls and conditions under which the individual will be permitted to perform work, such as peer review and approval of job tasks or provisions for additional rest breaks. As described in the SOC for 10 CFR 26.207(a)(1)(ii), assessing the risks associated with the tasks that the individual will be performing and establishing appropriate controls and conditions both require detailed knowledge of the tasks to be performed by the individual working under a waiver. Because the activity of escorting a C/V and conducting a supervisory assessment are fundamentally different, the NRC staff does not agree that the rule presents a double standard.</p>
19	IBEW	<u>Role of Reactor Engineer in Fuel Movement</u>	The NRC staff agrees that directing nuclear fuel movement

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		<p>Reference in NEI 06-11: Example 3: <i>The Reactor Engineer is required by station procedures to be present during fuel movement. The Reactor Engineer’s function is to observe the fuel movement activity and provide technical recommendations to the fuel handling SRO. Is the Reactor Engineer a covered individual?</i> <i>Answer: The Reactor Engineer is not directing, they are providing technical information and observing and therefore not conducting covered work. The fuel handling SRO would be directing and is a covered individual.</i></p> <p>IBEW Comment 10: “If the Reactor Engineer would be directing where fuel rods were to be located and tracking such results, the answer should be YES, the work should be subject to fatigue provisions. Observing and not interfacing with the SRO would not be directing, and therefore, not covered work.”</p>	<p>operations is covered work under the work-hour requirements. In 10 CFR 26.5, the term “directing” is defined as “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.” However, 10 CFR 50.54(m)(2)(iv) reserves responsibility for directing fuel movement for a senior operator or a licensed fuel-handling senior operator. Therefore, a reactor engineer is prohibited, by regulation, from directing these activities. The NRC staff is not including this recommendation in the final regulatory guide because it would be inconsistent with the current regulations.</p>
20	IBEW	<p><u>Role of Reactor Engineer in Control Room</u></p> <p>Reference in NEI 06-11: Example 4: <i>The Reactor Engineer is required by station procedures to be present during reactor startup. The Reactor Engineer’s function is to provide information to the control room supervisor on the reactivity of the reactor during the approach to criticality. Is the Reactor Engineer a covered individual?</i> <i>Answer: The Reactor Engineer is not directing, they are providing technical information and therefore not conducting</i></p>	<p>The NRC staff considered the issue raised by the commenter when developing 10 CFR Part 26 and determined that performing criticality calculations, although important to public health and safety, is not within the scope of work activities that must be performed by individuals who are subject to the work-hour controls in 10 CFR 26.205. Therefore, the final regulatory guide does not include an exception, addition, or clarification to address this comment.</p>

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		<p><i>covered work. The control room supervisor would be directing and is a covered individual.</i></p> <p>IBEW Comment 11: “Is it good for nuclear safety for criticality calculations to be made while in the control room as a non-covered individual for fatigue as an outage is transferring to power operations based from this individual’s direct work via calculations to commence nuclear chain reactions?”</p>	
21	IBEW	<p><u>Emergent Training</u></p> <p>Reference in NEI 06-11: <i>Staffing levels should be sufficient so that schedules (over non-outage periods) for the covered individuals can be maintained based on vacation and emergent training demand without relying on waivers. It is expected and allowed that normal variation in the vacation demand and training demand may occasionally require additional work hours to be used. Management is responsible for understanding the total vacation, training, and workloads, and for maintaining sufficient staff to get the work done. Normal variation in the vacation demand, training demand, and emergent or extraordinary work demands will require periodic overtime. Section 15, Reviews, addresses an annual performance based assessment of the work schedule.</i></p> <p>IBEW Comment 12: “Can examples of emergent training be explained?”</p>	<p>The staff has not added examples of “emergent training” in the final regulatory guide because the staff does not agree with the concept of “periodic overtime” that is referenced in this paragraph of NEI 06-11, Revision 1. The basis for the staff’s exception to the concept of periodic overtime is discussed in the response to Comment 2 in this table. Regulatory Position 4 of the final regulatory guide includes a revision to this paragraph of NEI 06-11, Revision 1, which deletes the term “emergent training” from the guidance.</p>
22	IBEW	<p><u>Reference to “Training Weeks”</u></p> <p>Reference in NEI 06-11: <i>After hours study time “<u>during training weeks</u>” shall be</i></p>	<p>The NRC staff agrees with this comment and clarifies this sentence in Regulatory Position 9 in the final regulatory guide. Specifically, the NRC staff is revising the first sentence of the second paragraph under the heading,</p>

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		<p><i>excluded from work hour calculations.</i></p> <p>IBEW Comment 13: “Craft training is often not on specific cyclic ‘training weeks’ as operations workers are accustomed to rotate through.”</p>	<p>“Incidental duties performed off site,” in Section 8.1 of NEI 06-11, Revision 1, as follows:</p> <p>“After-hours study time that is not required by the licensee may be excluded from work-hour calculations.”</p>
23	IBEW	<p><u>After-Hours Study Time</u></p> <p>Reference in NEI 06-11: <i>Appropriate after hours study time compliments the utility provided training to ensure the learning process occurs and optimal information retention is achieved.</i></p> <p>IBEW Comment 14: “Training is not defined in the definition table. Licensees may also have built-in study time on property for self study. This sentence should be removed.”</p>	<p>The NRC staff agrees that NEI 06-11, Revision 1, does not define the term “training.” The staff is not adding a definition of training to the final regulatory guide because this term is defined in ANSI/ANS-3.1-1993, “Selection, Qualification, and Training of Personnel for Nuclear Power Plants,” which the staff has endorsed in Regulatory Guide 1.8, “Qualification and Training of Personnel for Nuclear Power Plants.” ANSI/ANS-3.1-1993 defines training as “an instructional program designed to develop or improve performance on the job.”</p> <p>The staff also agrees with the portion of this comment that suggests that onsite study time required by the licensee should be considered work hours for the purposes of calculating the maximum work hours permissible and the MDO requirements for covered workers under 10 CFR 26.205. After-hours self-study required by the licensee should also be considered work hours for calculation purposes, as discussed in the SOC for 10 CFR 26.205(d)(2).</p> <p>Neither training nor required study time is covered work, however. The hours spent in training or required study by a worker who otherwise performs covered duties should be included in the calculation of the individual’s work hours only if the individual participates in training or required study during a shift cycle that also includes hours worked</p>

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			<p>performing covered activities (see 10 CFR 26.205(b)(3)).</p> <p>If an individual voluntarily dedicates after-hours personal time to study that is not required by the licensee, those voluntary study hours should not be considered hours worked for the purposes of calculating work hours and the MDO requirements for covered workers under the rule. As defined in 10 CFR 26.205(b), work hours are “the amount of time the individuals perform duties for the licensee.” Voluntary after-hours study time does not meet this criterion. Therefore, because the sentence referenced by the commenter discusses after-hours study time that is not required by the licensee and does not conflict with the requirements for calculating work hours in 10 CFR 26.205(b)(3), the staff is not clarifying this implementation guidance in the final regulatory guide.</p>
24	IBEW	<p><u>Work Performed at Home for the Licensee</u></p> <p>Reference in NEI 06-11: Example 3: <i>What “work-related” activities may be done at home on a day off without violating the “day off” intent? For example, may an individual read procedures, catch up on administrative tasks, or study for a license requalification exam for a number of hours and still count that day as a “day off?”</i></p> <p><i>Answer: “Activities initiated by the individual (not required by the licensee)” may be performed at home on a day off and not be considered “work,” e.g., studying, reading work-related material, reading email.</i></p>	<p>10 CFR 26.205(b) requires licensees to include, in the calculation of an individual’s work hours, the amount of time the individual performs duties for the licensee. Therefore, the NRC staff agrees that, if a licensee were to downgrade an individual if he or she does not perform an activity at home on a day off, then the activity should be considered to be required by the licensee and therefore included in the calculation of the individual’s work hours. In this case, the work requirement would be implied by the licensee’s employment action. However, if the licensee rewards an individual for self-initiated activities at home, the self-initiated activities would generally not be considered covered work because the licensee did not require these activities. The NRC staff is not clarifying the example referenced by the commenter in the final regulatory guide because it is consistent with the regulation.</p>

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		<p>IBEW Comment 15: “At any such time the licensee would downgrade or reward an individual for home initiated activities on behalf of the licensee (i.e., employee evaluation) such licensee activity would be disallowed.”</p>	
25	IBEW	<p><u>Individuals’ Work-Hours Records for a Supervisory Assessment</u></p> <p>Reference in NEI 06-11: 3. <i>Supervisory assessment (Note: Shall be completed before start of waiver period.)</i></p> <ul style="list-style-type: none"> • <i>Work history for past 14 days as reported by the individual for whom the waiver is requested.</i> <p>IBEW Comment 16: “A cross check should be made to the individual reported 14 day period to licensee records for the individual.”</p>	<p>The NRC staff agrees that Section 9, “Waivers,” of NEI 06-11, Revision 1, should include a reference to a licensee’s records of the individual’s work hours over the past 14 days for individuals who are being considered for a waiver of the work-hour controls in 10 CFR 26.207(a). However, the staff is aware that there may be circumstances in which the licensee does not have access to records of the individual’s work history because the individual has not worked for a licensee who is subject to Subpart I of 10 CFR Part 26 within the past 14 days. Therefore, Regulatory Position 12 in the final regulatory guide replaces the bullet referenced by the commenter with the following:</p> <p>“Work history for the past 14 days, as reported by the individual for whom the waiver is requested and, if the individual has worked for a licensee who is subject to Subpart I of 10 CFR Part 26 over the past 14 days, as documented by that licensee.”</p>
26	IBEW	<p><u>Supervisory Qualifications for Granting Waivers</u></p> <p>Reference in NEI 06-11: <i>In order to grant a waiver, the licensee shall meet the following requirements:</i></p> <ol style="list-style-type: none"> 1. <i>A supervisor assesses the individual face to face and determines that there is reasonable assurance that the individual will be able to safely and competently perform his or her duties during the additional work period for</i> 	<p>The commenter has identified an inconsistency between NEI 06-11, Revision 1, and the requirements in 10 CFR 26.207(a)(1)(ii). Item 2 under the heading, “Granting Waivers,” in NEI 06-11, Revision 1, Section 9, should refer to a supervisor who is qualified to “direct” the work to be performed rather than to “oversee” the work to be performed. The initial phrase in item 3 under the same heading should also refer to a supervisor who is qualified to direct the work to be performed by the individual under the</p>

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		<p><i>which the waiver will be granted. The supervisor performing the assessment shall be trained in accordance with the requirements of §§ 26.29 and 26.203(c) and shall be qualified to oversee the work to be performed by the individual.</i></p> <p><i>2. If there is no supervisor on site who is qualified to oversee the work, the assessment may be performed by a supervisor who is qualified to provide oversight of the work to be performed by the individual. The Supervisor, if knowledgeable of the work activity, can be a second level supervisor or a manager in the chain of command.</i></p> <p>IBEW Comment 18: “This is confusing for the supervisor oversight requirement in #3 after reading #2 requirements. Please provide an explanation on how #3 would be implemented if no supervisor was present as described in #2.”</p>	<p>waiver. To address this inconsistency, the NRC staff is incorporating a clarification under Regulatory Position 13 of the final regulatory guide. Specifically, the final regulatory guide states the following:</p> <p>“In Section 9, under the heading ‘Granting Waivers,’ replace the phrase ‘qualified to oversee the work’ with the phrase “qualified to direct the work’ in the second sentence of numbered item 2. Replace ‘qualified to oversee’ with ‘qualified to direct’ in the first sentence of numbered item 3.”</p> <p>The SOC for 10 CFR 26.207(a)(1)(ii) explains this section of the guidance. To address situations in which no supervisor qualified to direct the work is available on site, the final rule allows for a supervisor who is qualified to provide oversight of the work to make the assessment if he or she is trained in accordance with the requirements of 10 CFR 26.29, “Training,” and 10 CFR 26.203(c). Although this individual may be less familiar with the details of how the work is to be performed, this provision of the rule prevents the substantial burden of requiring a supervisor who is qualified to direct the work to report to the site to perform the assessment.</p>
27	IBEW	<p><u>Bases for Disciplinary Actions</u></p> <p>The IBEW provided two comments related to implementation guidance in NEI 06-11 regarding conditions and considerations for taking disciplinary actions, as follows:</p> <p>Reference in NEI 06-11: <i>Individuals that exhibit chronic self-declaration that they are</i></p>	<p>The NRC staff disagrees with these comments. 10 CFR 26.27(a) requires licensees to establish a written policy and procedures to meet the general performance objectives and applicable requirements of 10 CFR Part 26. 10 CFR 26.27(b)(8) requires the written policy to describe the consequences of violating the policy for individuals who are subject to the rule. As required by 10 CFR 26.203(b)(4), licensee procedures must identify any disciplinary actions</p>

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		<p><i>not fit for duty as a result of fatigue, absent a sound medical reason, may be subject to disciplinary action.</i></p> <ul style="list-style-type: none"> • <i>Personnel are required to be fit for duty and getting sufficient rest is required to ensure a person is not subject to fatigue.</i> • <i>Persons who make choices that result in less than the sleep necessary for that person to remain alert and avoid fatigue are not meeting their obligation per this rule.</i> <p>IBEW Comment 19: “Both of these bullets need to be clear that the guidance is specific to chronic fatigue based on individuals self declaring fatigue.”</p> <p>Reference in NEI 06-11: <i>Facts to be considered in assessing disciplinary action shall include the employee’s job assignment, past work record, and work schedule.</i></p> <p>IBEW Comment 20: “Remove sentence.”</p>	<p>that a licensee may impose following an individual’s fatigue assessment and the conditions and considerations for taking those disciplinary actions. The staff views both the third and fifth paragraphs of Section 10 of NEI 06-11, Revision 1, as consistent with the regulation and the NRC’s intent. The third paragraph in Section 10 appropriately conveys management expectations that may form the basis for disciplinary action in response to individuals who frequently or repeatedly self-declare that they are not fit for duty because of fatigue without an acceptable medical explanation. The fifth paragraph in Section 10 recommends considerations for assessing disciplinary actions following a fatigue assessment. Therefore, the final regulatory guide does not include the clarification and deletion requested in the comments.</p>
28	IBEW	<p><u>Time Away from Work for Fatigue Recovery</u></p> <p>Reference in NEI 06-11: <i>Personnel subject to the fatigue assessments who refuse to be assessed will be considered fatigued and unable to perform their duties. Time away from work for fatigue management recovery shall be classified as vacation, personal time (if available), or non-paid time.</i></p> <p>IBEW Comment 21: “Remove second sentence of paragraph.”</p>	<p>The NRC staff disagrees with this comment. As discussed in the response to the previous comment in this table, 10 CFR 26.203(b)(4) requires licensee procedures to identify any disciplinary actions that a licensee may impose related to fatigue assessments and the conditions and considerations for taking those disciplinary actions. The staff views classifying time away from work as vacation, personal time, or nonpaid time as a disciplinary action in response to a refusal to be assessed for fatigue. The staff believes that the guidance in the second sentence of the last paragraph in Section 10 of NEI 06-11, Revision 1, appropriately communicates the specific nature of the</p>

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			disciplinary actions licensees may take in response to an individual’s refusal to be assessed. Therefore, the staff is not taking an exception to this implementation guidance in the final regulatory guide.
29	IBEW	<p><u>For-Cause Fatigue Assessments</u></p> <p>Reference to NEI 06-11: <i>Licensees shall ensure that fatigue assessments are applicable for all individuals in the FFD Program under the following conditions:</i></p> <p><i>1. For-Cause. In addition to any other test or determination of fitness that may be required, a fatigue assessment must be conducted in response to an observed condition of impaired individual alertness creating a reasonable suspicion that an individual is not fit to safely and competently perform his or her duties, except if the condition is observed during an individual’s break period. If the observed condition is impaired alertness with no other behaviors or physical conditions creating a reasonable suspicion of possible substance abuse, then the licensee need only conduct a fatigue assessment. If the licensee has reason to believe that the observed condition is not due to fatigue, the licensee need not conduct a fatigue assessment.</i></p> <p>IBEW Comment 22: “What are examples of observed conditions to consider a for cause fatigue assessment?”</p>	As required by 10 CFR 26.203(c)(2), individuals must receive training on and demonstrate, by passing a comprehensive examination, the ability to identify symptoms of worker fatigue. Further, 10 CFR 26.203(c) requires that individuals who perform fatigue assessments must also be trained and be capable of demonstrating this ability. As stated in the SOC for 10 CFR 26.211(b), indications of fatigue may include decreased facial tone, rubbing of eyes, and slowed speech. The SOC also states that, at the extreme, workers who have acute fatigue show symptoms that are similar to those of intoxication. For example, speech may be less precise, attention may be lacking, and normal body movements and posture may be absent. The NRC staff is not adding this information to the final regulatory guide because the staff believes that Section 14, “Training and Examination,” of NEI 06-11, Revision 1, adequately addresses the requirement to provide training on this topic. Specifically, the sixth bullet in the second set of bullets in Section 14 indicates that the training required under 10 CFR 26.203(c)(2) must ensure that workers are able to demonstrate an understanding of the symptoms of worker fatigue.
30	IBEW	<p><u>Forms for Fatigue Assessments</u></p> <p>The IBEW submitted two comments addressing documentation requirements for fatigue assessments in</p>	The NRC staff agrees that a form, checklist, or other means to aid individuals in providing complete and accurate information could facilitate performing a fatigue assessment. However, the staff does not believe that use of

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		<p>NEI 06-11, as follows:</p> <p>Reference in NEI 06-11: <i>A fatigue assessment must provide the information necessary for management decisions and actions in response to the circumstance that initiated the assessment.</i></p> <p><i>b. Individuals shall provide complete and accurate information that may be required by the licensee to address the required factors. Licensees shall limit any inquiries to only the personal information from the subject individual that may be necessary to assess the required factors.</i></p> <p>IBEW Comment 23: “A standardized form should be part of this potential regulatory implementation guide.”</p> <p>Reference in NEI 06-11: 2. <i>Assessment</i></p> <ul style="list-style-type: none"> • <i>Work history for past 14 days <u>as reported by the individual.</u></i> <p>IBEW Comment 25: “This should read ‘as reported and documented by the individual.’”</p>	<p>a standardized form is necessary to comply with the fatigue assessment provisions in 10 CFR 26.211, “Fatigue Assessments.” For this reason and the reasons discussed in response to Comment 16 in this table, the staff is not adding standardized forms to the final regulatory guide.</p> <p>In addition, although the staff does not object to the guidance in NEI 06-11, Revision 1, which suggests that individuals should maintain documentation of their work histories over the past 14 days, the staff did not intend to impose a recordkeeping burden on individuals in the rulemaking. The guidance in Section 12.6, “Assessment Process,” of NEI 06-11, Revision 1, which asks individuals to report (without documenting) their work histories for the past 14 days is consistent with the applicable requirement in 10 CFR 26.211(c)(2). Further, the staff is aware that some individuals who have not been subject to Subpart I of 10 CFR Part 26 may not have complete documentation of their work histories over the past 14 days because they are new to the industry or were not previously performing covered work. These individuals may not have been trained or otherwise informed by a licensee that documentation of their work histories for the past 14 days might be required. As a result, they would be unable to comply with guidance to both report and produce documentation of their work histories for the past 14 days. Therefore, the staff is not adding the suggested phrase, “and documented by the individual,” to the final regulatory guide.</p>
31	IBEW	<p><u>Bases for For-Cause Fatigue Assessments</u></p> <p>Reference in NEI 06-11: 1. <i>Identification of condition requiring a fatigue assessment:</i></p>	<p>The NRC staff disagrees with this comment. As required by 10 CFR 26.211(a)(1), a licensee must conduct a fatigue assessment for cause if an individual is observed to be in a condition creating a reasonable suspicion of impaired</p>

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		<ul style="list-style-type: none"> • <i>For Cause—description of observed behavior</i> <p>IBEW Comment 24: “Replace ‘behavior’ with ‘condition.’ (See pg. 43 “For-Cause”)”</p>	individual alertness. As stated in the SOC for 10 CFR 26.211(b), behaviors such as rubbing of eyes, slowed speech, speech that is less precise, and the absence of normal body movements and posture are indications of a condition of impaired alertness that may warrant a fatigue assessment. Therefore, the staff finds the wording in NEI 06-11, Revision 1, to be acceptable and has not included the recommended clarification in the final regulatory guide.
32	IBEW	<p><u>Training Outcomes</u></p> <p>Reference in NEI 06-11: <i>Workers should be able to:</i></p> <ul style="list-style-type: none"> • <i>Discuss the consequences of not following the company fatigue management policy.</i> <p>IBEW Comment 26: “<i>This consequence discussion should be well rounded and not one way. Include individual consequences from the licensee and licensee consequences from the regulator.</i>”</p>	The context of this bullet in Section 14, “Training and Examination,” of NEI 06-11, Revision 1, is a discussion of the knowledge and abilities that workers must have to ensure that they understand the consequences of failing to comply with the licensee’s fatigue management policy. Although the NRC staff does not disagree with the content of the commenter’s suggested modification, Subpart I of 10 CFR Part 26 does not require such a discussion. Therefore, the final regulatory guide does not include this recommendation.
Comments from Building and Construction Division of AFL-CIO and Associated Maintenance Contractors			
33	AFL-CIO & AMC	<p>Comment on 10 CFR Part 26, Subpart I: The commenters stated, “Reducing overtime (and therefore earning) opportunities at nuclear refueling outages will dissuade construction workers from accepting employment there if more lucrative construction opportunities within other industries are available.</p> <p>Therefore, we are concerned that the new regulations for managing personnel fatigue at nuclear power plants, set forth in Subpart I of 10 CFR Part 26, will discourage the most</p>	During the rulemaking process, the NRC considered the issues this comment raises and made a number of adjustments to the provisions in the final rule to allow longer work hours for covered maintenance personnel. However, these individuals perform important functions that may directly affect public health and safety. As a consequence, the final rule retained fatigue management requirements for this group of individuals. Because 10 CFR Part 26 codifies these requirements, the final regulatory guide does not address this comment.

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		<p>highly qualified and skilled workers from accepting job offers with contractors at nuclear power plants because of reduced earnings opportunities. We predict that the regulations will have the unintended effect of producing chronic low nuclear-returnee rates, by experienced construction workers when employment in that industry becomes a third or fourth-choice option in light of other opportunities in a booming industrial construction marketplace. As a result, nuclear contractors will likely experience a lack of available skilled labor during outages at nuclear power plants, resulting in the potential for unintended consequences such as higher rates of work-related injuries, reduced work quality and longer outage durations.”</p>	
34	AFL-CIO & AMC	<p>Comment on 10 CFR Part 26, Subpart I: The commenters stated, “We understand that Draft Regulatory Guide DG-5026 is designed to provide guidance on the implementation of the fatigue management rules of Subpart I of 10 CFR Part 26, and that this is not the forum for urging changes to the regulations. Nevertheless, we feel the Commission should be aware of our concerns with respect to the impact of the regulations and urge the Commission to reconsider application of the regulations to construction workers hired on a temporary full-time basis to perform maintenance work at nuclear stations. In addition, for these same reasons we believe that the fatigue rules need to be reexamined to the extent they are deemed to apply to construction workers during the construction phase of new nuclear power facilities once the nuclear fuel is received on site. Alternatively, the Commission, for the above reasons, should issue an exemption from the fatigue management rules, pursuant to 10 CFR Part 26, Subpart A, Section 26.9, for such construction workers when they are performing</p>	<p>The fatigue management provisions in 10 CFR Part 26 apply based on an individual’s job duties and whether the individual has unescorted access to nuclear power plant protected areas. These provisions are not based on job titles. Consequently, Subpart I of 10 CFR Part 26 does not call out “construction workers” by name, although the NRC staff expects some construction workers to be affected, as detailed below. In general, however, the potential for construction workers to be affected by the fatigue management requirements is more limited than suggested by the comment.</p> <p>The majority of construction workers building new reactors will not be subject to the fatigue management requirements of Subpart I of 10 CFR Part 26, because this portion of the rule does not apply to individuals who are constructing new reactors, unless fuel assemblies have been received at the site (see 10 CFR 26.3(c) and definitions under 10 CFR 26.5, as applicable). As reflected in the final rule’s SOC for 10 CFR 26.3(a), the 10 CFR Part 26 requirements that apply</p>

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		<p>maintenance and new construction work.</p> <p>Until there is a change in the regulations, we are requesting that the activities subject to the requirement of one day off in any seven-day period during the first 60 days of a unit outage include pre-outage activities performed by construction workers not regularly employed at the site. We suggest, therefore, that Regulatory Guide DG-5026 be modified to make clear that the first 60-day period of a unit outage includes pre-outage work by construction workers hired temporarily by licensees or by contractors of licensees to perform maintenance work related to outage activities. If the Commission believes such modification is not possible without an exemption pursuant to 10 CFR Part 26, Subpart A, Section 26.9, please treat this letter as a request for such exemption. With this clarification or exemption, such workers would be covered by the minimum days off requirements of Section 26.205(d)(4), as long as the total of pre-outage and outage activities do not exceed 60 days.”</p>	<p>to a licensee operating a nuclear power plant are not warranted during nuclear power plant construction until fuel arrives on site when radiological risks will increase. Moreover, even at sites where the fatigue management provisions are applicable (i.e., at operating reactors and at new reactor construction sites when fuel assemblies are received), construction workers will be affected only in the ways described in the following paragraphs.</p> <p>Workers of any type who are granted unescorted access to the protected areas of a nuclear power reactor are covered by 10 CFR 26.203, “General Provisions” (e.g., the workers would have to be trained with respect to identifying symptoms of worker fatigue and contributors to decreased alertness in the workplace). These general provisions apply to permanent licensee employees, temporary workers during outages, and new reactor construction workers when fuel assemblies are received, but only if the individuals have unescorted access to protected areas (see 10 CFR 26.5 for the definition of protected areas).</p> <p>A smaller subset of workers who are granted unescorted access to the protected areas of a nuclear power reactor also are subject to the work-hour controls in 10 CFR 26.205 if they perform one of the covered duties specified in 10 CFR 26.4(a)(1) through 10 CFR 26.4(a)(5). One of these covered duties is “maintenance or onsite direction of the maintenance of SSCs that a risk-informed evaluation process has shown to be significant to public health and safety.” Construction workers who perform such duties and who have been granted unescorted access will be covered by the work-hour controls.</p>

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			<p>However, with respect to any of the temporary full-time outage workers mentioned in the comment who may be affected (i.e., based on their duties and access status), it is worth noting that the NRC considered the issues raised by the comment when developing the final rule and included adjustments allowing longer work hours for individuals performing covered maintenance activities. The most notable adjustment (given the issues raised in this comment) is that 10 CFR 26.205(d)(4) relaxes the MDO requirements for individuals performing covered maintenance during the first 60 days of an outage, to a minimum of 1 day off in any 7-day period. As a result of these adjustments, the NRC staff believes that the concerns raised by the commenter have been greatly reduced.</p> <p>Because the commenter’s exemption request seeks to exempt an entire class of individuals from the 10 CFR Part 26 fatigue management requirements, the commenter is essentially requesting that the NRC revise the 10 CFR Part 26 requirements as they apply to these individuals. Such a request is more appropriately submitted through a petition for rulemaking under 10 CFR 2.802, “Petition for Rulemaking.”</p>
Comments from Dominion Resources Services on NEI 06-11 and DG-5026			
35	Dominion	<p><u>Endorsement of Revision 1 to NEI 06-11</u></p> <p>Comment: “Many times in the Draft Regulatory Guide the NRC either endorses or references Revision E of NEI 06-11, with the corresponding date and ADAMS number. Since the issue date of the Draft Regulatory Guide, the latest version of NEI 06-11 is now at revision 1.”</p>	<p>The NRC agrees with this comment and has made the requested changes throughout the final regulatory guide.</p>

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		<p>Recommendation: “It is suggested that the revision number and date for NEI 06-11 be changed in the text of the Draft Regulatory Guide to Revision 1 with the date of October 2008.”</p>	
Comments from the Union of Concerned Scientists on DG-5026 and NEI 06-11			
36	UCS	<p><u>Regulatory Position 6—Eligibility for Outage Minimum Days Off</u></p> <p>The commenter objected to industry concerns that the work hour limits for control room operators at multiple unit sites having at least one reactor operating and at least one reactor in an outage are too onerous. The commenter argued that safety should trump inconvenience and stated that the NRC staff had appropriately balanced safety and economics in the final rule. The commenter also included four enclosures supporting the need for these work hour limits. The commenter argued that these documents show the following:</p> <ul style="list-style-type: none"> • The Three Mile Island accident involved an operating reactor adjacent to a reactor in the latter stages of a refueling outage (NUREG/CR-1496). • Workers on the operating reactor at the time of the accident admitted to being too fatigued to perform assigned tasks (NUREG-0600). • Since the Three Mile Island accident, the NRC has been concerned about fatigue impairing workers’ performance and its detrimental effects on nuclear plant safety (NRC Circular No. 80-02). 	<p>The NRC staff agrees that, at a minimum, those individuals who constitute the operator minimum shift complement, including the operator at the controls and the senior operator in the control room, as specified in 10 CFR 50.54, for the operating unit at a multiunit site with one or more units in an outage should not work the longer work hours that the rule permits for outages because these individuals’ primary duties are to ensure the safe operations of the operating unit. Regulatory Position 11 in the final regulatory guide revises the guidance in NEI 06-11, Revision 1, to reflect the staff’s position.</p>

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		<ul style="list-style-type: none">Recent NRC data illustrate that human error rates are highest in the latter stages of refueling outages (Attachment 1 to NRC Information Notice 2000).	

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Additional Comments from NEI on DG-5026 to Further Support the Request for Enforcement Discretion (see Comment 10)			
37	NEI— December 24, 2008 letter	<p>NEI provided further discussion of its request (in Comment 10 in this table) for a 6-month period of enforcement discretion for the fatigue management provisions of 10 CFR Part 26. The points raised include the following:</p> <ul style="list-style-type: none"> • Additional time will be needed to finalize software packages for tracking the work-hour restrictions of the rule after publication of the final regulatory guide. NEI noted that publication of the final regulatory guide in May 2009 will allow only 4 months for making any necessary modifications before the fatigue management requirements must be implemented, there are limitations on the resources of vendors coordinating and scheduling software installation at many sites, and time will be required to test the software and train personnel to use it. • Licensees need to recruit, evaluate, and train increased staff (e.g., a 20-percent increase in security staffing across the industry) to implement the rule. <p>There may be potential schedule impacts on fall 2009 outages from the need to ensure that there are sufficient reactor operators and senior operators to maintain some operators on nonoutage hours for operating units at multiunit sites; and</p> <ul style="list-style-type: none"> • Granting a 6-month period of enforcement discretion will not adversely affect public health and safety and will allow for a more consistent implementation of the rule. 	The NRC staff is evaluating this request for enforcement discretion.
38	NEI— December 24,	NEI also recommended that, during the 6-month period of enforcement discretion, the industry working group and the	The NRC’s procedures include a process and criteria for revising regulatory guides. The questions to be answered in

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	2008, letter	NRC staff should collect lessons learned and revise NEI 06-11, “Managing Personnel Fatigue at Nuclear Power Reactor Sites,” as appropriate, to ensure more consistent implementation of the rule requirements.	<p>determining whether to revise a guide include:</p> <p>Does the current regulatory guide represent a method that is no longer acceptable for meeting the regulations?</p> <p>Would the revision improve efficiency, improve effectiveness, or reduce burden for the staff or licensees and applicants?</p> <p>If the revision is not needed to meet a new regulation, rule, or order, or is not required to adequately protect public health and safety, would the benefits of the proposed revision outweigh the costs (both agency costs and industry costs) of making the revision?</p> <p>Lessons learned from implementing the final regulatory guide would provide information to the NRC staff needed to answer these questions and determine whether a future revision is warranted.</p>