

10CFR26
Rulemaking

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PROPOSED RULE 26
(70FR 50442)

This

is a
close example
of an 8 hour (operator)
shift rotation sent to
IBEW as an almost compliance
for the new
26 rule.

11

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SECY-02

I am a Control Operator (Licensed RO) at Point Beach Nuclear Plant (PBNP). I would like to recommend a change to the proposed 10CFR26 fitness for duty rule as follows:

Change 26.199(2) current language from:

(2) Licensees shall ensure that individuals have adequate rest breaks. For the purposes of this subpart, a break is defined as an interval of time that falls between successive work periods, during which the individual does not perform any duties for the licensee other than shift turnover. At a minimum, licensees shall ensure that individuals who are subject to this section have the following breaks:

(i) A 10-hour break between successive work periods or an 8-hour break between successive work periods when a break of less than 10 hours is necessary to accommodate a crew's scheduled transition between work schedules or shifts;

(ii) A 24-hour break in any 7-day period; and

(iii) A 48-hour break in any 14-day period, except during the first 14 days of any plant outage if the individual is performing the job duties listed in paragraph (a)(1) through (a)(4) of this section.

Change 26.199(d)(2) to:

(2) Licensees shall ensure that individuals have adequate rest breaks. For the purposes of this subpart, a break is defined as an interval of time that falls between successive work periods, during which the individual does not perform any duties for the licensee other than shift turnover. At a minimum, licensees shall ensure that individuals who are subject to this section have the following breaks:

(i) A 10-hour break between successive work periods or an 8-hour break between successive work periods when a break of less than 10 hours is necessary to accommodate a crew's scheduled transition between work schedules or shifts;

(ii) A 24-hour break in any 7-day period except as permitted under (2)(iv); and

(iii) A 48-hour break in any 14-day period, except during the first 14 days of any plant outage if the individual is performing the job duties listed in paragraph (a)(1) through (a)(4) of this section.

(iv) A 24-hour break in any 8-day period if work hours scheduled under 26.199(c) is based on an 8-hour shift schedule.

The reasons for the recommended changes are Point Beach Nuclear Plant's 8-hour shift schedule includes two successive shifts of 7 days in a row. If Part 26 is issued in the current draft form, the 8-hour rotating shift schedule used at Point Beach Nuclear Plant will not comply with 26.199 (d) (2) (ii). Both the evening shift (1500-2300) and the night

shift (2300-0700) schedule seven days in a row. The following is the routine 8-hour rotating shift schedule used at Point Beach:

Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	Off	Days	Relief	Relief	Relief	Relief	Off
2	Off	Training	Training	Training	Training	Training	Off
3	Off	Off	Days	Days	Days	Days	Days
4	Days	Off	Off	Evening	Evening	Evening	Evening
5	Evening	Evening	Evening	Off	Off	Night	Night
6	Night	Night	Night	Night	Night	Off	Off

Days = 0700-1500 Watch standing duties.

Relief = Normally 0700-1500, but personnel can be assigned to Evening or Night shift for vacation coverage.

Training = 0700-1500 Classroom or simulator.

Evening = 1500-2300 Watch standing duties.

Night = 2300-0700 Watch standing duties.

The shift schedule does comply with the remaining limits in the rule (i) A 10-hour break between successive work periods, and (iii) A 48-hour break in any 14-day period. The shift schedule has been used at Point beach for years and is designed to limit impairment from fatigue due to the duration, frequency, and sequencing of successive shifts.

The Federal Register/Vol. 70, No. 165 issued Friday, August 26, 2005 discusses several items that support the recommended changes.

Page 50589 discusses 26.199(c) and it states in part "The maximum work hour and minimum break requirements that are specified in proposed 26.199(d) [work hour controls for individuals] would be intended for infrequent, temporary circumstances, and not as guidelines or limits for routine scheduling. In addition, the work hour controls in proposed 26.199(d) would not address several elements of routine schedules that can significantly affect worker fatigue, such as shift length, the number of consecutive shifts, the duration of breaks between blocks of shifts, and the direction of shift rotation." This suggests to me that there are several components to a routine shift schedule, and the maximum work hours and minimum breaks in 26.199(d) are intended for outage periods or other times where a utility may need additional personnel. The design of a routine shift schedule needs to incorporate the elements of 26.199(c). PBNP's routine 8-hour shift schedule is designed to meet those requirements.

Page 50590 discusses 26.199(d) and states in part "Proposed Sec. 26.199(d)(2) would be added to require licensees to provide adequate rest breaks for individuals who are performing the duties listed in proposed Sec. 26.199(a). This proposed requirement would be necessary to ensure that licensees provide individuals with sufficient time off between work periods (shifts) to permit the individuals to recuperate from fatigue and provide reasonable assurance that acute and cumulative fatigue does not compromise the abilities of these individuals to safely and competently perform their duties. Acute fatigue results from excessive cognitive work, especially if an individual is missing significant amounts of sleep, and is readily relieved by obtaining adequate rest and sleep.

Cumulative fatigue results from receiving inadequate amounts or poor quality sleep for successive days.”

It further states on page 50592 “Therefore, the proposed provision for a 24-hour break in any rolling 7-day period would serve both to prevent and mitigate cumulative fatigue.”

This implies to me that the 24 hour break in any 7-day period is preventing cumulative fatigue which results from receiving inadequate amounts or poor quality sleep for successive days. 8-hour shifts allow adequate amounts of sleep between shifts. An 8-hour shift allows 16 hours off-duty providing approximately 13 hours to meet personal needs, including sleep (16 hours off-duty minus an average 1.5 hours round-trip commute minus an average 0.5 hours spent in shift turnover minus 0.5 hours for preparing or buying and eating at least one meal off-shift, and minus 0.5 hours for personal hygiene). The previous estimates are based on times given on page 50591. Studies cited on page 50591 indicate 9-hours of sleep provides sufficient rest to prevent cumulative fatigue, it states in part “The only subjects in these studies who did not show any performance decrements were those permitted 9-hour sleep periods in the Van Dongen study.”. The 13 hours to meet personnel needs provided by an 8-hour shift schedule provides ample time to rest to prevent cumulative fatigue.

The recommended 24-hour break in any 8-day period in combination with a 48-hour break in any 14-day period would prevent working too many successive shifts and still allow for the 8-hour shift schedule used at PBNP.

The Federal Register also sites studies that support PBNP’s 8-hour shift duration on page 50593 it states: “The importance of long breaks is also reflected in work scheduling guidelines such as EPRI NP-6748, “Control Room Operator Alertness and Performance in Nuclear Power Plants.” With respect to the number of consecutive shifts, EPRI recommends no more than 6-7 consecutive 8-hour shifts and no more than 3-4 consecutive 12-hour shifts. With respect to the number of consecutive days off, EPRI recommends a break of at least 48 hours between any two blocks of shifts and at least one 3-4 day break every few weeks. Similarly, a panel of independent experts in fatigue and work scheduling, convened by the NRC (NUREG/CR-4248), recommended that work schedules should include no more than 7 consecutive 8-hour shifts and at least 2 consecutive days off in any 9 days and a maximum of 4 consecutive 12-hour shifts followed by no fewer than 4 days off. Proposed Sec. 26.199(d)(2)(iii) would establish a minimum break requirement that would be somewhat less stringent than these scheduling guidelines.”

The EPRI study recommends no more than 6-7 consecutive 8-hour shifts, and the NUREG recommends no more than 7 consecutive 8-hour shifts and at least 2 consecutive days off in any 9 days. PBNP’s 8-hour schedule meets both the EPRI and NUREG recommendations.

Shift schedules that must meet the guidelines of 26.199(c) have additional constraints placed on them by labor contracts, business needs, and federal law such as overtime paid after 40 hours in a week, overtime after 8 hours in a day, 40 hours/week on average, 40 hours of training in a shift cycle, 24 hours/day 7 days/week watch coverage, and the shift schedule should have a repeatable pattern to facilitate planning. All of these requirements

make it quite difficult to change a shift schedule. PBNP's schedule can be changed to meet the required rest breaks in 26.199(d)(2), but the changes do have a negative effect on the sequencing successive shifts mentioned in 26.199(c).

Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	Off	Days	Evening	Relief	Night	Relief	Off
2	Off	Training	Training	Training	Training	Training	Off
3	Off	Off	Days	Days	Days	Days	Days
4	Days	Off	Off	Evening	Evening	Evening	Evening
5	Evening	Evening	Off	Off	Off	Night	Night
6	Night	Night	Night	Night	Off	Off	Relief

The above schedule meets the rest breaks, but it requires week 1 to transition from day to evening to night shift within four days. This does not meet the intent of 26.199(c). The change also reduces the average hours to < 40hours/week, which affects many aspects of a full time employee. I am sure there is more than one way to alter this schedule to meet any one of the requirements, but I don't think you can change it to meet all of the requirements. Point Beach could start out with a clean slate, but I don't think it will be easy to meet all of the requirements and maintain an 8-hour shift schedule. I don't think the intent of the proposed change to 10CFR26 is to force all plants to accept a 12-hour shift schedule to meet the requirements, but it does appear to be an unintended consequence of the proposed rule. PBNP's 8-hour shift schedule is not perfect, but it currently meets the intent of 26.199(c). With the above suggested change to 26.199(d)(2) it will not only meet the requirements of 10CFR26, it will continue to meet the needs of the employees who work the schedule.

Sincerely,
D.M. Jurss