



December 18, 2015

NK21-CORR-00531-12553  
NK29-CORR-00531-12978  
NK37-CORR-00531-02510

Mr. B. Torrie  
Director General, Regulatory Policy Directorate  
Canadian Nuclear Safety Commission  
P.O. Box 1046  
280 Slater Street  
Ottawa, Ontario  
K1P 5S9

Dear Mr. Torrie:

**Bruce Power Comments on CNSC REGDOC 2.2.4 Human Performance  
Management Fitness for Duty: Managing Worker Fatigue**

The purpose of this letter is to submit Bruce Power's comments with regard to the most recent version of CNSC REGDOC 2.2.4 Human Performance Management Fitness for Duty: Managing Worker Fatigue.

Fatigue management, though just one component in our complex and comprehensive program to ensure nuclear safety, has been a point of particular study and focus at Bruce Power in recent years. Internal reflection and an expert review of our fatigue management practices have helped us hone existing programs and refine our understanding of the science of worker fatigue.

They have also helped inform our review of this document, which is much improved from its initial draft and incorporates feedback from an industry workshop in January 2015 in which Bruce Power was an active participant.

However, we remain concerned the document continues to set new requirements beyond what has previously been understood as acceptable. As currently written, we believe it will inadvertently lead to licence non-compliances and potential conflict with collective agreements.

Bruce Power does not object to clarifying regulatory expectations. However, additional requirements in this document have the potential to impose significant economic burden on licensees even though the impact statement presents no evidence to indicate a need for additional controls beyond those already in place. We do support the concept of impact statements, but the one developed for this document does not fully reflect its effect on licensees, which is evident in the points made later in this letter. Given this, we suggest a true impact analysis be conducted to align with *CNSC Policy P-242 Considering Cost-Benefit Information* before this document is implemented.

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As for specific sections in the document proper, Bruce Power provides the following major comments and suggestions:

- As currently written, the final statement in Section 4.1 does not consider unplanned issues such as sickness, making it impossible for licensees to comply with the document. To avoid this issue, we recommend rephrasing the statement to read, "Staffing levels shall be sufficient such that training activities, sickness, vacation or staff turnover seldom (or rarely) lead to non-compliance with limits on hours of work and recovery periods." Staffing is certainly managed to ensure sufficient levels for planned events such as training, vacation and turnover, but illness is an unplanned reality licensees also face. For example, there was an occasion in 2013 where three of six minimum complement staff for one position called in sick. While this is a very rare occurrence, it can happen and we believe this document should provide reasonable flexibility to allow compliance with the licence requirements.
- Section 4.1 also needs additional information to recognize certified workers who are on temporary assignments to non safety-sensitive positions. For clarity, we suggest adding a statement that reads, "Certified workers on temporary assignments in positions that are not identified as safety-sensitive may be treated the same as the broad population of workers. When the certified workers are providing relief coverage during their temporary assignment, all Section 4 requirements shall apply. The licensee shall document the treatment of certified staff on temporary assignments in its governing documents."
- In Section 4.2, we recommend clarifying the second paragraph to say, "Licensees shall ensure that *scheduled* hours worked do not exceed the following limits:" This will avoid numerous non-compliances and allow licensees to maintain minimum complement on those rare occasions when stated limits are exceeded. Also in Section 4.2, we request clarification regarding the third bullet to confirm the 60 hours worked in a 7-day period refers to a set 7-day period as per current practice and not a rolling 7-day period. Altering the current requirement would significantly limit the ability of licenced staff to cover extra shifts during the majority of their shift rotation, which would further impact our ability to maintain minimum complement and vacation coverage.
- The limit of 52 hours per week on average over a 12 week period in Section 4.2 is problematic and will result in multiple non-compliances.
- The requirement for a 48 hour recovery period following a block of supernumerary 8-hour day shifts in Section 4.3 bullet 3.d.ii, prior to transition to night shifts is overly restrictive and needs to be removed from the document. This requirement would severely limit licensee's ability to cover incidents of vacation and sickness weekend night shifts.



Bruce Power is also concerned with how guidance is described in the preface of this document and in other recently-developed regulatory documents. Specifically, we believe the phrase that indicates licensees should “explain how their chosen alternate approach meets regulatory requirements” if they opt not to follow guidance is contrary to the very intent of guidance. Simply stated, if a licensee is required to meet guidance criteria, it becomes a requirement and not guidance at all. For clarity, we recommend the statement in the preface should read, “Guidance contained in this document provides information on how requirements may be met. Licensees and applicants are expected to review and consider guidance.”

Attachment 1 provides additional details of Bruce Power’s review of draft REGDOC - 2.2.4. This review, and the resulting comments, was conducted in conjunction with other licensees.

In conclusion, Bruce Power thanks the CNSC for its responsiveness to our earlier feedback and for its consideration of these additional comments. Our shared goal is excellence in nuclear safety and it’s important we take the time now to ensure this document and its impacts on licensees are fully understood before implementation.

If you require further information or have any questions regarding this submission, please contact Mr. Maury Burton, Manager, Nuclear Regulatory Affairs, at 519-361-5291.

Yours truly,

A handwritten signature in black ink, appearing to read 'FS' or similar initials, with a stylized flourish underneath.

Frank Saunders  
Vice President Nuclear Oversight and Regulatory Affairs  
Bruce Power

cc: CNSC Bruce Site Office (Letter only)  
K. Lafrenière, CNSC Ottawa  
K. Owen-Whitred, CNSC Ottawa

Attach.

**Attachment A**

**Bruce Power Comments on CNSC REGDOC 2.2.4 Human Performance  
Management Fitness for Duty: Managing Worker Fatigue**

## Bruce Power Comments on draft REGDOC 2.2.4, Fitness for Duty-Managing Worker Fatigue

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification <sup>1</sup>	Impact on Industry, if major comment
1.	<b>Impact Statement</b>	While Industry has no objections to clarifying regulatory expectations, this document potentially sets new requirements beyond what has previously been understood as acceptable. This has the potential to pose significant economic burden on the Industry when there has been no evidence presented in the impact statement that indicates a need for additional controls beyond those already in place. Statements such as “CNSC staff believe the benefits of establishing regulatory clarity, strengthening the fitness for duty regulatory framework, and ensuring worker fatigue is managed for the purposes of nuclear safety and security justify the associated transitional impacts on stakeholders” could be used to justify new requirements in every REGDOC issued. However, without a proper review of the actual impact, there is limited benefit to such impact statements.	Conduct actual cost benefit analysis to align with CNSC Policy P-242 <i>Considering Cost-Benefit Information</i> .	<b>MAJOR</b>	It is noted there were no discussions with licensees in the development of the impact statement. Therefore, it would be very difficult for the CNSC staff to assess the actual impacts on the licensees.
2.	<b>Impact Statement</b>	It is premature to speculate on a two year implementation period when consultation with industry has not occurred	Remove reference to two year implementation period	<b>Clarification</b>	
3.	<b>GENERAL</b>	The document is written such that there will be non-compliances with the licence (see comments below )	Changes to wording in certain sections need to be made to allow enough flexibility to the licensee to avoid licence non-compliances. (See details below )	<b>MAJOR</b>	

## Bruce Power Comments on draft REGDOC 2.2.4, Fitness for Duty-Managing Worker Fatigue

#	Document/ Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification <sup>1</sup>	Impact on Industry, if major comment
4.	Preface	The statement "Guidance contained in this document provides information on how requirements may be met. Licensees and applicants are expected to review and consider guidance; should they choose not to follow it, they should explain how their chosen alternate approach meets regulatory requirements" is not reasonable. Guidance is meant to be guidance. If the licensee is required to meet guidance criteria, then it is requirement, not guidance.	Revise wording to: "Guidance contained in this document provides information on how requirements may be met. Licensees and applicants are expected to review and consider guidance; should they choose not to follow it, they should explain how their chosen alternate approach meets regulatory requirements."	<b>MAJOR</b>	Guidance is meant to be guidance. If the licensee is required to meet guidance criteria (even by other means), then it becomes a requirement, not guidance.
5.	Introductory n 1.2 Scope	Regulatory certainty is sought around the statement, "The requirements and guidance in section 3 of this regulatory document apply to the population of workers who have the potential through their work activities to pose a risk to nuclear safety or security, also referred to as the broad population. Requirements and guidance in section 4 apply to a smaller subset of workers who fill safety-sensitive positions, as described in section 4.1."	Request a statement be added that says, "Workers in a refurbishment organization, working on a unit which is shut-down and fully defueled, including the vendor population supporting refurbishment, are excluded from the broad population. Similarly, workers on a unit which has been shut down, fully defueled, and is undergoing safe stating towards decommissioning, are not part of the broad population."	<b>MAJOR</b>	Request is to provide regulatory certainty. Long refurbishment periods over many years (4 units) require clarity as to the requirements, which is why we're asking for a documented exception for a specific circumstance. Likewise, decommissioning work will affect many units over a long period of time and therefore certainty of the requirements should be established up front.
6.	3.2 bullet 4	Bullet 4 does not include rest periods; we suggest that wording is added to clarify this bullet as it is included in the guidance section.	Revise wording to: i. 4. expectations related to rest periods or napping, if permitted by the licensees	<b>Clarification</b>	
7.	3.3	Section 3.3 as written is overly prescriptive and contradictory to section 3.0	Retain first sentence up to "fatigue" and add "safety sensitive and broad populations." Remove examples 1 through 5 in section 3.3	<b>MAJOR</b>	This will lead to undue administrative burden requiring extensive changes to licensees governance without any benefit on nuclear safety

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8.	3.5 second sentence	"Licensees shall review their impact on fatigue levels and safety." The sentence needs to focus on nuclear safety and security.	Revise the second sentence to read "... impact on nuclear safety and security."	Clarification	
9.	3.6	The section equates all worker fatigue to shift schedules, which is rarely the case as worker fatigue is often linked to off-work activities. This should be limited to significant events, not all events.	The schedule and hours worked are captured in Tempus for all employees, Recommend changing requirement to "when an act or omission by a worker has or may have caused or contributed to a significant event and worker fatigue is identified as a possible contributing factor, the licensee shall review and record the work schedule of workers directly involved for at least one week prior to the event."	MAJOR	Undue administrative burden with no benefit to safety. The suggested wording will adequately capture information required to prevent reoccurrence
10	3.7	Current processes facilitate assessment (e.g. self-assessment process). Licensees see no safety benefit to extending these assessments to a broader population. This should be limited to safety-sensitive positions to ensure we get maximum safety benefit from the assessment.	Suggest changing the first sentence to state, "Licensees shall conduct periodic assessments for safety-sensitive positions to:"	MAJOR	Undue administrative burden with no benefit to nuclear safety
11	4.1	Item 2 infers that all security personnel are safety sensitive, which is not the case. This is overly prescriptive	Change the start of item 2 to, "The following security personnel; designated nuclear security officers ... ' and conclude with '... unless excluded based on the results of a risk informed analysis.'	MAJOR	Undue administrative burden with no benefit to nuclear safety. The suggested changes allows licensees to adequately assess whether designated nuclear security officers and designated non-NRF are considered safety sensitive personnel
12	4.1	The statement, "Staffing levels shall be sufficient to ensure that training activities, sickness, vacation or staff turnover do not lead to non-compliance with limits on hours of work and recovery periods" is impossible	Revise wording to: "Staffing levels shall be sufficient to ensure such that training activities, sickness, vacation or staff turnover <del>do not</del> seldom (or rarely) lead to non-compliance with limits on hours of	MAJOR	While staffing can be managed to ensure sufficient levels for planned events such as training, vacation and turnover, it is impossible ensure this for unplanned issues such as sickness. For example, there was an occasion in 2013 at one of our facilities where 3 of 6 minimum complement staff called in sick. This is a very



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		to be in compliance with, in particular for sickness.	work and recovery periods.		rare occurrence. However, it does occur and there needs to be some flexibility to allow compliance with the licence requirements under such rare occurrences.
13	4.1	There should be some additional information on how certified workers on temporary assignments to non-safety sensitive positions are handled.	Add the following to section 4.1: 'Certified workers on temporary assignments in positions that are not identified as safety-sensitive may be treated the same as the broad population of workers. When the certified workers are providing relief coverage during their temporary assignment, all Section 4 requirements shall apply. The licensee shall document the treatment of certified staff on temporary assignments in their governing documents.'	MAJOR	The suggested change will address the issue of temporary assignments of certified workers.  If this is applied to all certified staff performing any role then this will lead to undue administrative burden with no safety benefit
14	4.1	The problem with this section is that it requires the same limits for all certified staff whether they are working "in the role" (e.g., in the control room) or not. For example, the fact that the person has a certificate doesn't mean that they are performing their certified role at all times, and thus the tighter restrictions are unnecessary and onerous if they are not "in the role".	Delete specific reference to 1) Certified workers as a separate case, as the requirement is already captured within 3) for most cases (ANOC's, CRSS's, Shift Managers on duty "in the role") and will be captured by 4) for the one remaining case (Senior Health Physicists. (Alternatively, the duty SHP could be specifically identified – not all SHPs at once however).  The "shall" statement "Safety-sensitive positions shall include:" is too sweeping, and allows for no graded approach or risk-informed analysis. As an example, some members of minimum shift complement	MAJOR	If the change for certified staff is not made, there is an unnecessary (not safety benefit) burden and restriction on certified staff assigned to other duties, where they are not in a safety-sensitive role for that period of time.  If the change to allow analysis is not made, unduly burdensome (without safety benefit) restrictions may be applied to other positions within the minimum shift complement.



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15	4.2	Variations in provincial and federal legislation and various collective agreements across the industry make it impossible to implement the requirements identified in item 4.	Change the limit to 56 hours on average over a period not exceeding 26 weeks. This is derived from existing collective agreements in place. This suggested change provides more protection from fatigue than an annual limit.	<b>MAJOR</b>	This restriction has the potential for significant unnecessary burden and labour unrest for some licensees. Restrictions such as those identified in item 4 in the US lead to significant 'unintended consequences.' Compliance would require significant and burdensome changes to existing shift schedules, overtime rules, and would negatively impact on ability to efficiently complete outages. No safety benefit has been identified for such a requirement (no safety problem has been identified with the current limits).
16	4.2	The statement: "Licensees shall ensure that the hours worked do not exceed the following limits:" will result in numerous non-compliances.	Revise wording to: "Licensees shall ensure that the <b>scheduled</b> hours worked do not exceed the following limits."	<b>MAJOR</b>	There will be rare occasions where staff will need to exceed these limits to maintain the minimum complement. There needs to be some flexibility to allow compliance with the licence requirements under such rare occurrences.
17	4.2	The statement: "With the exception of shift turnover, all time present at work shall be included when determining compliance with	Revise wording to: "With the exception of shift turnover and rest periods (see <b>section 4.4</b> ); all time present at work shall	<b>MAJOR</b>	Although this is partially covered in section 4.4, it would be beneficial to address rest periods in this section as well to prevent unnecessary licence non-compliances.

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		the limits in this section” does not take into consideration rest periods. In certain situations, additional staff is brought in with rotating rest periods in order to allow staff sufficient rest to manage fatigue.	be included when determining compliance with the limits in this section.”		
18	4.3	This document assumes a 3-2-2 twelve-hour rotating continental shift pattern for all licensees, though some currently use a 3-4 twelve-hour rotating continental shift pattern. Licensees who use the latter shift pattern cannot comply with the requirement regarding 4 consecutive night shifts since it does not allow overtime to be used to cover for vacation, sickness and any other absences.	CNSC needs to reevaluate the requirements for hours of work using all continental rotating shift patterns. Change requirement to include the implementation of other measures to manage fatigue e.g. NBP has a 3-4 twelve hour rotating continental shift pattern which allows for more rest time between shift sequences to offset the extended shift sequence. Needs to provide flexibility for smaller licensees.	<b>MAJOR</b>	Certain licensees cannot comply. This presents a significant operational and economic impact to certain licensees. US OPEX demonstrated that similar consequences occurred in the US industry
19	4.3	With respect to the required minimum recovery period for workers doing 8-10 hrs in any 7 day period is 36 hours: industry currently applies legislative limits to 8 and 10 hour shifts. Applying this restriction would have a significant restrictive burden to industry.	Remove the minimum recovery period for workers doing 8-10 hrs in any 7 day period is 36 hours.	<b>MAJOR</b>	Applying this restriction would have a significant restrictive burden to industry

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20	4.3	The three categories of shift schedule requirements are too complex and administratively burdensome for no safety benefit.	<ol style="list-style-type: none"> <li>1. Revise "A worker shall be given a minimum recovery period of 8 consecutive hours free from work between shifts" to "A worker shall be given a minimum recovery period of 8 consecutive hours free from work between shifts unless required to maintain minimum shift complement coverage." An exception is needed to 4.3 on practical grounds: "People normally part of a days organization (i.e., people who do not normally work shifts), required to work shift coverage, are exempt from the time off requirement for one shift sequence."</li> <li>2. Section 2 (over 10 hours and up to 12 hours) should be deleted. There is no safety benefit to this requirement, but a large administrative and complexity burden. We already have 60 hrs per week and day of rest requirements.</li> <li>3. Section 3d should be deleted. After 5 day supernumeraries (typically for training, which is low safety risk), it is preferred to bring people in for Sunday #1 shift coverage i.e. Saturday night. If that is not acceptable, revise 48 hrs to 24 hours, and in addition insert "4 or more" as follows: "a block of 4 or more supernumerary ..."</li> <li>4. Change 2<sup>nd</sup> sentence in the first paragraph under Guidance, to remove " When it encompasses the time from 2 am to 6 am and "A reduced recovery period... " should be deleted. This is not practical to implement</li> <li>5. All sections should read "for persons normally working..."</li> </ol>	MAJOR	These enhancements proposed by industry to the recovery periods minimize negative operational impacts and unnecessary administrative burden for no safety benefit

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21	4.4	Consistency with the purpose of the document	Add to the first sentence after "environment " nuclear safety and security "		
22	Glossary	Safety-sensitive positions	Wording should be revised to clarify that this requirement is up to and including the shift manager. Insert " on Shift" after "managers"	Clarification	If change is not made, it will not be clear where the requirement ends. In addition, senior manager tracking of hours of work is not performed in industry or business as a rule, and is not practical to accomplish. Ultimately, the person who "holds the licence" at the station, at any time, is the Manager or supervisor on shift.