



2015 December 18

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

COMPLIANCE
Regulatory Affairs
145-CNNO-15-0021-L

Dear Mr. Torrie:

COMMENTS ON PROPOSED REGDOC-2.2.4, FITNESS FOR DUTY: MANAGING WORKER FATIGUE

CNL has reviewed the proposed REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue* and has met with industry partners, Ontario Power Generation, Bruce Power, and New Brunswick Power to discuss issues, challenges, and the impact of the changes in the regulations.

CNL’s version of the combined comments on the regulations is provided in Attachment A.

It is our position that the proposed REGDOC would cause significant issues for CNL, with no real justification presented to validate the issue of worker fatigue. To comply with this document, CNL will have to increase its staffing levels substantially. The timeline required to increase staffing levels of qualified Operators, qualified Supervisors, and certified Senior Reactor Shift Engineers (SRSE) would not be feasible within the remaining period of operation of the NRU reactor. Attempting to meet this requirement over the next two years would impose significant economic burden on CNL.

Furthermore, shift work schedule, which follows industry standards, would be void. Every five weeks, workers are scheduled to work 3 night shifts and then have 48 hours off work to recover. As stated above, NRU would have to increase existing staffing levels of qualified Operators, qualified Supervisors, and certified SRSEs. The biggest issue would be certified SRSEs; currently they are the lowest in number and the timeline required for certification is several years. With the announcement of NRU ending operation in 2018, CNL would not have enough time to increase the number of certified SRSEs. Other impacts would be the significant time required to hire and train additional staff, and the associated financial implications for CNL.

The above noted concerns with respect to reactor shift scheduling are also applicable to the CNL security program.

There are several other major concerns and these are provided in Attachment A. In addition, there are comments on the regulations where revisions are required for clarity.

Canadian Nuclear Laboratories

Laboratoires Nucléaires Canadiens

Chalk River Laboratories
286 Plant Road
Chalk River, Ontario
Canada K0J 1J0

Laboratoires de Chalk River
286, rue Plant
Chalk River (Ontario)
Canada K0J 1J0

Telephone: 613-584-3311
Toll Free: 1-866-513-2325

Téléphone: 613-584-3311
Sans frais: 1-866-513-2325



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If you require further information or have any questions regarding this submission, please contact me as below.

Yours sincerely,

S. Karivelil, Manager
Regulatory Affairs
Phone: 613-584-3311, ext. 45090
Email: solly.karivelil@cnl.ca

SK/jmh

Attachment (1)

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|----|----------------------|----------------------|--------------|-------------|
| c. | L. Ethier (CNSC) | Consultations (CNSC) | | |
| | S.K. Cotnam | K. Daniels | J.D. Garrick | M. Karam |
| | K. Kehler | H. Khartabil | S. Mistry | D. Murphy |
| | S. Needham | W.S. Pilkington | L. Schryer | C.E. Taylor |
| | >CR CNSC Site Office | >CR Licensing | >SRC | |



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Attachment A
Industry Comments on Proposed 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	Impact on Industry, if Major Comment
1.	Impact Statement	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 potential to pose significant economic burden on industry when there has been no evidence presented in the impact statement that indicates that there is a need for additional controls beyond what are 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 no really analysis of the impact in the impact statement. As such, there is no benefit to even preparing such impact statements as they don’t evaluate all of the impacts.	Conduct actual cost benefit analysis to align with CNSC Policy P-242 <i>Considering Cost-Benefit Information</i> .	MAJOR	It is noted that 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.



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2.	Impact Statement	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.	Clarification	
3.	General	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).		
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."	MAJOR	Guidance is meant to be guidance, if the licensee is required to meet guidance criteria (even by other means), then it is a requirement, not guidance.
5.	1.2	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.	Request a statement for clarity be added, that "Workers in a refurbishment organization, working on a unit which is shut-down and fully defueled, including the vendor	MAJOR	Request is to provide regulatory certainty. Long refurbishment periods over many years (4 units) require clarity as to the requirements, which is why we are asking for a documented exception



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		Requirements and guidance in section 4 apply to a smaller subset of workers who fill safety-sensitive positions, as described in section 4.1.	population supporting refurbishment, are excluded from the broad population. Similarly, workers on a unit which has been shutdown, fully defueled, and is undergoing safe stating towards decommissioning, are not part of the broad population.”		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.	Section 3.2, bullet 4, Page 4, guidance-first bullet	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. Page 4 guidance first bullet refers to naps. Reference to napping possibly being permitted during a work shift will raise expectations that this is considered permissible. Industry position is that napping is not permitted, as it negatively impacts on plant and personnel safety.	Revise wording to: i. 4. expectations related to rest periods, if permitted by the licensees Add a fifth bullet: ii. 5. The process should address regular schedules that allow for a scheduled period of restorative sleep if permitted by the licensees. Delete iii. “or naps” on first bullet, page 4 guidance	MAJOR	Reference to napping possibly being permitted during a work shift will raise expectations that this is considered permissible. Industry position is that napping is not permitted, as it negatively impacts on plant and personnel safety.
7.	3.3	Section 3.3 as written is overly prescriptive and is contradictory to section 3.0.	Retain first sentence up to “fatigue” and add “safety sensitive and broad populations”.	MAJOR	This will lead to undue administrative burden requiring extensive changes to licensees governance without any benefit on



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			Remove examples 1 through 5 in section 3.3.		nuclear safety.
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	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.



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		safety sensitive positions to ensure we get maximum safety benefit from the assessment.			
11.	4.1	Section 4.1, item 2, infers that all security personnel are safety sensitive, which is not the case. This is overly prescriptive.	In 4. 1, item 2, add at the end of the sentence "...unless excluded based on the results of a risk informed analysis". Change item 2 to "The following security personnel; designated nuclear security officers..."	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 to be in compliance with, particularly for sickness.	Revise wording to: "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.	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 rare occurrence however, it does occur, 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 that	Add the following to section 4.1:	MAJOR	The suggested change will ensure that the issue and handling of



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		are on temporary assignments to non-safety sensitive positions are handled.	Certified workers that are 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.		temporary assignments of certified workers is covered. 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	<p>Identification of safety-sensitive positions: Licensees shall identify safety-sensitive positions through a documented, risk-informed analysis.</p> <p>Safety-sensitive positions shall include:</p> <ul style="list-style-type: none"> i. certified workers ii. the following security personnel: nuclear security officers, onsite nuclear response force (NRF) members, and designated non-NRF personnel iii. positions that are part of the minimum 	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	MAJOR	<p>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.</p> <p>If the change to allow analysis is not made, unduly burdensome (without safety benefit) restrictions may be</p>



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		<p>staff complement at high-power reactor facilities unless excluded based on the results of the risk-informed analysis</p> <p>iv. any other positions identified via the risk-informed analysis performed by the licensee</p> <p>Licensees shall list all safety-sensitive positions in their governing documents. 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.</p> <p><u>Guidance</u></p> <p>The risk-informed analysis to identify workers who fill safety-sensitive positions should consider risks related to the following:</p> <ul style="list-style-type: none"> • tasks of the worker during normal and emergency operating conditions • nature of equipment and material that the worker handles or could handle • actions assigned to the workgroup that could directly cause or contribute to a significant incident or could result in an inadequate response to a significant incident 	<p>unnecessary and onerous if they are not “in the role”.</p> <p>Delete specific reference to</p> <p>1) Certified workers as a separate case, as the requirement is already captured within 3) for most cases (ANO’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.)</p> <p>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 (e.g., the Shift Advisor Technical, the Shift Resource Coordinator, members of the off-site survey team) may,</p>		<p>applied to other positions within the minimum shift complement.</p>



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			<p>through analysis, be shown to not be in a safety sensitive position. Instead, it should be revised to say “Safety-sensitive positions shall include the following, unless documented as not safety sensitive through documented risk-informed analysis”.</p> <p>If the change requested in section 1.2 around refurbishment and decommissioning workers is accepted, the same wording could be included here for consistency.</p>		
15.	4.2	<p>Variations in provincial and federal legislation and various collective agreements across the industry make it impossible to implement the requirements identified in item 4.</p>	<p>Change the limit to 56 hours on average over a period not exceeding 26 weeks. This is derived from existing labour agreement/collective agreement in place. This suggested change provides more protection from fatigue than an annual limit.</p>	MAJOR	<p>This restriction has the potential for significant unnecessary burden and labour unrest. Restrictions such as identified in item 4 in the US lead to significant “unintended consequences”.</p> <p>Compliance would require significant and burdensome changes to existing shift schedules, overtime rules, and would negatively impact on the ability to efficiently complete</p>



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					outages. No safety benefit has been identified for such a requirement (no safety problem has been identified with the current limits).
16.	4.2	Requirement for the 60 hours in 7 day period for safety significant positions is an issue for CNL and NBP given current staffing levels and shift schedules	Change requirement to; 1. 60 hours over xxx weeks on average – See US OPEX	MAJOR	Cannot comply to requirement.
17.	4.2 Items 3 and 4	There is no margin in the limits provided which does not allow the licensees to set administrative limits.	Change the limits to xxx to allow for administrative limits.	MAJOR	At least one licensee cannot comply with these requirements.
18.	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 scheduled hours worked do not exceed the following limits:”	MAJOR	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.
19.	4.2	The statement: “With the exception of shift turnover, all time present at work shall be included when determining compliance with 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.	Revise wording to: “With the exception of shift turnover and rest periods (see section 4.4); all time present at work shall be included when determining compliance with the limits in this section.”	MAJOR	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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20.	4.3	This document assumes a 3-2-2 twelve rotating continental shift pattern for all licensees. Some licensees currently use a 3-4 twelve hour rotating continental shift pattern. The licensees who use a 3-4 twelve hour rotating continental shift pattern cannot comply the requirement to do 4 consecutive night shifts shall not be exceeded cannot comply as 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, for example, 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.	MAJOR	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.
21.	4.3	With respect to the requirement of 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.	MAJOR	Applying this restriction would have a significant restrictive burden to industry.
22.	4.3	A normal work schedule should include 3 or fewer 12 hrs nights. The document assumes a 3-2-2 twelve rotating	Remove	MAJOR	See above.



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		<p>continental shift pattern for all licensees. Some licensees currently use a 3-4 twelve hour rotating continental shift pattern. The licensees who use a 3-4 twelve hour rotating continental shift pattern cannot comply with the requirement for a normal work schedule should include 3 or fewer 12 hrs.</p>			
23.	4.3	<p>The three categories of shift schedule requirements are too complex and administratively burdensome for no safety benefit.</p> <p>c) a minimum recovery period of 72 hours shall follow a block of 3 or more consecutive night shifts</p> <p>d) prior to the transition to night shifts:</p> <p>i. a minimum recovery period of 48 hours shall follow a block of 3 or 4 consecutive day shifts</p> <p>ii. a minimum recovery period of 48 hours shall follow a block of supernumerary 8-hour day shifts</p> <p><u>Guidance</u> A worker should normally be given 11 consecutive hours free from work between shifts. A reduced recovery period of 8 hours should only occur when it</p>	<p>1. Revise “A worker shall be given a minimum recovery period of 8 consecutive hours free from work between shifts” to Revise “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.”</p> <p>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</p>	MAJOR	<p>These enhancements proposed by industry to the recovery periods minimize negative operational impacts and unnecessary administrative burden for no safety benefit.</p>



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		<p>encompasses the time from 2 a.m. to 6 a.m. and when a worker returns to a normal schedule following a shift exceeding 12 hours.</p> <p>For persons working shifts from 8 to 10 hours:</p> <ul style="list-style-type: none"> • a minimum recovery period of 36 hours should occur in any 7-day period • the direction of shift rotation should be clockwise <p>For persons working shifts over 10 hours and up to 12 hours:</p> <ul style="list-style-type: none"> • a normal work schedule should include 3 or fewer consecutive 12-hour night shifts. • if day shifts are followed by night shifts on consecutive calendar days, a limit of 2 night shifts should apply (e.g., 2 day shifts followed by 2 night shifts followed by 48 hours off). • the following deviations from recovery periods following a block of consecutive shifts may be applied: <ul style="list-style-type: none"> ○ the minimum recovery period following a block of two night shifts may be reduced to 24 hours when a worker is transitioning to a 	<p>exempt from the time off requirement for one shift sequence.”</p> <p>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.</p> <p>3. Section 3d should be deleted. After 5 day supernumeries (typically for training, which is low safety risk), it is preferred to bring people in for Sunday #1 shift coverage, that is, 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...”</p> <p>4. Change 2nd sentence in the first paragraph under</p>		



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		<p>sequence of classroom training on days</p> <ul style="list-style-type: none"> ○ to maintain minimum staff complement, the requirement for 72 hours off following a block of 3 or more 12-hour night shifts may be reduced to 48 hours off once every three months per worker ○ recovery periods following a block of consecutive shifts may be reduced occasionally to enable night shift workers to attend important meetings during the day. 	<p>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.</p> <p>5. All sections should read ‘for persons normally working...’</p>		
24.	4.3(3)(c) Guidance	<p>Recovery periods</p> <p>A minimum recovery period of 72 hours shall follow a block of 3 or more consecutive night shifts. CNL cannot comply with this for their staff shift rotation.</p>	<p>Change recovery period ‘to 48 hours following a block of 3 or more consecutive night shifts’.</p>	<p>MAJOR</p>	<p>CNL’s shift work schedule, which follows industry standards, would be void. Every 5 weeks workers are scheduled to work 3 night shifts then have 48 hours off to recover. The fifth week is used for training.</p>
25.	4.3(3)(d) Bullet (i)	<p>Recovery periods</p> <p>A minimum recovery period of 48 hours shall follow a block of 3 or 4 consecutive day shifts. CNL cannot comply with this for their staff shift rotation.</p>	<p>48 hours shall follow a block of 3 or 4 consecutive day shifts.</p>	<p>MAJOR</p>	<p>This would mean no overtime between end of shift Sunday evening and start of shift Wednesday night.</p>
26.	4.4	<p>Consistency with the purpose of the document.</p>	<p>Add to the first sentence after ‘environment’ nuclear safety</p>		



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			and security.		
27.	Appendix	52 hours over 12 weeks averaged. See previous comment on sections 4.2 and 4.3.	See previous comment on sections 4.2 and 4.3.	MAJOR	See previous comment on sections 4.2 and 4.3.
28.	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.