Énergie NB Power

Point Lepreau Nuclear Generating Station
PO Box 600, Lepreau, NB
E5J 2S6

TU 06374
PICAs 24-2042

May 30, 2024

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

Dear Ms. Beaton:

Subject: NB Power Comments DIS 24-01 Proposals to Amend the Packaging and Transport of Nuclear Substances Regulations, 2015 and the Nuclear Substances and Radiation Devices Regulations & Changes to the New Brunswick Ontario Nuclear Power Plant Exclusion Regulations and the Saskatchewan Uranium Mines and Mills

The purpose of this letter is to provide NB Power's comments on the following discussion paper - DIS 24-01 Proposals to Amend the Packaging and Transport of Nuclear Substances Regulations, 2015 and the Nuclear Substances and Radiation Devices Regulations, as well as the Changes to the New Brunswick Ontario Nuclear Power Plant Exclusion Regulations and the Saskatchewan Uranium Mines and Mills (References 1 & 2).

NB Power's Point Lepreau Nuclear Generating Station (PLNGS) has collaborated with industry to review the discussion paper and proposed regulatory changes in detail. Comments are being provided (Attachments 1 & 2) recommending modifications for improving the regulatory requirements.

NB Power appreciates the opportunity to comment on this regulatory document and is prepared to clarify our comments and concerns. If you require additional information, please contact Scott Demmons at 506-659-6557 or sdemmons@nbpower.com.

../2

Sincerely,

Steve Bagshaw Digitally signed by Steve Bagshaw
Date: 2024.05.30 12:56:26 -03'00'

Steven Bagshaw
Site Vice President

SB/SD

cc. Heather Davis, Isabelle Gingras, Suraj Kandula, Moe Abdo, Alexander Mawhinney, Cheramy Thirumeny, Chloe Bridi, Mohamed Shawkat (CNSC - Ottawa)
consultation@cnsc-ccsn.gc.ca
cnsc.licensee-titulaires.ccsn@canada.ca
forms-formulaires@cnsc-ccsn.gc.ca
CNSC Site Office
Steven Bagshaw, Jason Nouwens, Krista Ward, Marlene Dewar, Amanda Gardner, Alex Bardsley, Nick Reicker, Brian Thorne, Kathleen Duguay (NBP)

References:

1. Discussion Paper *DIS 24-01 Proposals to Amend the Packaging and Transport of Nuclear Substances Regulations, 2015 and the Nuclear Substances and Radiation Devices Regulations,* April 2024.
2. Canada Gazette, Part I, Volume 158, Number 17: New Brunswick Nuclear Power Plant Exclusion Regulations (Parts I, II and III of the Canada Labour Code and the Non-smokers' Health Act, April 27, 2024.

Attachments:

1. NB Power comments on *DIS 24-01 Proposals to Amend the Packaging and Transport of Nuclear Substances Regulations, 2015 and the Nuclear Substances and Radiation Devices Regulations*
2. NB Power Comments on the Revisions to the draft changes to the New Brunswick, Ontario Nuclear Power Plant Exclusion Regulations

New Brunswick Power comments on Discussion Paper DIS-24-01- Proposals to Amend the Packaging and Transport of Nuclear Substances Regulations, 2015 and the Nuclear Substances and Radiation Devices Regulations

#	Section	Industry issue	Suggested change	Major/ Clarification	Impact on industry
0.	Overview	Industry appreciates the opportunity to comment on this discussion paper, DIS-24-01. Our commentary focuses on improving the clarity of the proposed changes for the regulatory amendments. We have also taken the opportunity to make recommendations on additional amendments as well as suggest further revisions and refinements. Following a collective review including radiation safety officers, packaging and transportation specialists, transportation of dangerous goods coordinators, and regulatory affairs personnel; licensees have identified several areas requiring clarification as well as several areas of concern. The feedback is broken into *Major* or requests for *Clarification* comments. Of note, below we highlight two themes, which are of particular importance and supported by the comments identified as Major. These include: 1. *Loss of conservatism* – there are several recommendations which appear to be contrary to the conservative decision-making approach that is a foundation of, and integrated into the Canadian nuclear industry. Industry strongly opposes any changes that will erode and/or jeopardize conservative decision-making. 2. *Inconsistencies with other regulatory regimes* – the proposed amendments overlook opportunities to align these regulations with existing international regulations. Without these amendments, these regulations will continue to impose special requirements in Canada not required internationally; consequently, this will continue to impose an undue burden on Canadian companies and reduce our competitiveness internationally; for example, the requirement of continued use of special packages not used by similar industry worldwide, with no safety benefit.			
1.	All	Where a reference to the RPRs is necessary for alignment in PTNSR or NSRDR, do not repeat dose limits, monitoring dose, etc. Simply refer to RPRs (section).	Avoid explicit re-statement of requirements documented in the RPRs. For efficiency, refer to the RPR section, as this will reduce any discrepancies as the RPRs are updated.	Clarification	
2.	5. Considerations for Potential Amendments to the Regulations and Anticipated Impacts	The CNSC should streamline the PTNSR with the IAEA Regulations and remove the 3% restriction as demonstrated by the following example: The definition of Low Specific Activity (LSA-I) material found in 5(1)(a) of the PTNSR should be harmonized with the IAEA SSR-6 Regulations definition and the 3% limit removed. It is understood the three percent by mass restriction on ores containing naturally occurring radionuclides is due to the unique situation found in Canada with ores having a significantly higher uranium concentration than other countries. However, the basis for selecting a 3% mass restriction on ores is not justified both on a radiation protection basis and activity limit. With respect to the activity limits, the definition of LSA material in the IAEA TS-G-1.1 advisory material indicates that the limit for low-specific activity material is 10^{-4} A_2/g. Based on the table below the calculated Xm value for the 16 isotopes found in the uranium decay chain is 4.44 GBq	Recommend the following revision: *5 (1) LSA material is classified as LSA-I material if it is either non-fissile material or fissile-excepted radioactive material and if it consists of* *(a) ~~ores that contain naturally occurring radionuclides with a uranium and thorium concentration not greater than 3% by mass~~ uranium and thorium ores and concentrates of such ores, and other ores containing naturally occurring radionuclides;* *(b) radioactive material for which the A_2 value is unlimited. Fissile material may be included only if excepted. ~~except for ores that contain naturally occurring radionuclides with a uranium and thorium concentration greater than 3% by mass~~;*	**MAJOR**	Variations in the regulatory regime which impose special requirements in Canada versus the rest of the world correspondingly impose undue burden on Canadian companies and reduces our competitiveness internationally. This limit requires the use of special packages not used by similar industry worldwide, with no safety benefit.

#	Section	Industry issue	Suggested change	Major/ Clarification	Impact on industry

A2	Parent Nuclide	Progeny (from footnote a of TS-R-1)
unlimited	U238	
3.00E-01	Th234	Pa234m, Pa234
6.00E-03	U234	
1.00E-03	Th230	
3.00E-03	Ra226	Rn222, Po218, Pb214, At218, Bi214, Po214
5.00E-02	Pb210	Bi210
2.00E-02	Po210	
Xm=	0.00444	TBq

The assumption is that each nuclide has a fractional activity within the mixture of 1/16 of the total because there are 16 decay products within the U238 chain. Using the formula in paragraph 404 of TS-R-1 for a mixture, the A_2 value of the mixture is 4.44 GBq (0.00444 TBq).

Hence, based on the advisory material, the limit for low-specific activity material is 10^{-4} A_2/g. So in our case:

X_m = 4.44 GBq

Low Specific Activity Material is 10^{-4} (4.44 GBq)/g = 0.444 MBq/g

Specific activity for ore is 1.5 MBq/kg per percentage ore or 0.0015 MBq/g for 1% ore. For 100% ore, the specific activity is 0.15 MBq/g. Hence, 100% ore would not exceed the low specific activity material limits found in the advisory material.

On the radiation protection side, the maximum radiation level on the external surface of a package or overpack under exclusive use is 10 mSv/h. Generally, for large volumes of uranium ore, the contact gamma dose rate is 45 µSv/h per % U_3O_8. Hence for 100% ore in a large package, the contact gamma field is about 4500 µSv/h or

#	Section	Industry issue	Suggested change	Major/ Clarification	Impact on industry
		4.5 mSv/h, below the regulatory limit for an exclusive-use shipment. In conclusion, both the activity limits and the radiation limits would allow for the transport of 100%. The 3% ore grade restriction has further impact and cost on operations. The current 3% limit of ores is not justified or warranted.			
3.	5. Considerations for Potential Amendments to the Regulations and Anticipated Impacts	There is an opportunity to better align with the IAEA regulations on the definition of LSA material and Type IP-3 requirements. The s.27(1) restriction requiring the use of Industrial Package Type IP-3 (Type IP-3) packages, unless the shipment is done as per 27(3), for the transport of Low Specific Activity (LSA) and Surface Contaminated Object (SCO) material in the PTNSR should be removed to harmonize with the IAEA SSR-6 Regulations. S.27(3) is no longer needed if s.27(1) is deleted.	Recommend deleting s.27(1) and s.(27(3).	**MAJOR**	This limit does not exist in any other national or international regulation and prevents the effective transport of LSA and SCO material across the border. All other jurisdictions in the world have safely transported LSA and SCO material in Industrial Package Type IP-1 or IP-2 packages for decades without issues. There is no reason for this more stringent restriction in Canada. This has caused difficulties for foreign consignors who follow international regulations and use Type IP-1 packages to ship LSA-I samples to Canada in non-exclusive use transportation. Once such packages arrive in Canada, they do not meet the PTNSR and cannot be shipped within Canada.
4.	6.1 Proposed amendment: align the retention period for dose records.	The records kept under s.31(2)(a) are not limited to dose records; there are many other documents that are used to describe the packaging, transport and shipping of nuclear substances. There is potential confusion with the proposed amendment regarding which records are required to be retained which could result in retaining records unnecessarily.	Clarify if all documents or just dose records are required to be retained for five years.	Clarification	
5.	6.4 Proposed amendment: clarify the regulatory intent for workplace and individual monitoring of doses to persons.	This section refers to s.5.3 which does not exist in the document.	Change “5.3” to “6.3”.	Clarification	

#	Section	Industry issue	Suggested change	Major/ Clarification	Impact on industry
6.	7.6, Proposed amendment: clarify reporting requirements for improperly classified material	This proposed amendment is not a positive clarification and will have impacts. Of note and per the IAEA regulations materials can be classified as: • Low specific activity material (LSA) • Surface contaminated object (SCO) • Special form radioactive material • Low dispersible radioactive material (not used) • Fissile material • Uranium hexafluoride Does the change have merit given the frequency of these materials being improperly classified? Considering it may at times be difficult to distinguish between LSA and SCO materials, if the material is packaged correctly does it make a difference? Please clarify the actual concern with respect to the classification of packages. A consignor may decide to use a Type A package for a material that can be transported in an excepted package. Is this material not properly classified even though the packaging used is more robust?	Clarify why this clarification is required or else delete 7.6 Proposed amendment: clarify reporting requirements for improperly classified material.	**MAJOR**	Disagree there will be no impact related to this clarification. This may require additional reporting with no safety benefit. This is an overly burdensome reporting requirement imposed on Canadian companies relative to our foreign competitors.
7.	7.6 Proposed amendment: clarify reporting requirements for improperly classified material.	Class 7 shipments may be conservatively classified to a higher level (e.g., from an exempt shipment to a Class 7 excepted package), due to limited information, statistically based sampling or survey results. Reportability of improperly classified material should only apply to items that are misclassified as being of lower risk (e.g., an excepted package with an external surface dose rate of > 5 µSv/h). Contaminated equipment and material shipped from Nuclear Class I facilities are more difficult to characterize than distinct sources or radiation devices thus it requires an element of conservatism during the classification process.	Suggested amendment to the PTNSR per s.7.6 Proposed amendment: clarify reporting requirements for improperly classified material. *"The CNSC intends to amend the PTNSR 2015 to clarify that improperly classified material is automatically reportable, if it is determined that material should be classified as a higher risk shipment."*	**MAJOR**	Conservatively classified shipments may be deemed as reportable events resulting in unnecessary reporting as there is no impact on the environment, the health and safety of persons or national security.

#	Section	Industry issue	Suggested change	Major/ Clarification	Impact on industry
8.	7.6 Proposed amendment: clarify reporting requirements for improperly classified material.	The CNSC intends to amend the PTNSR 2015 to clarify that improperly classified material is automatically reportable. • What context will this be? • Will this be automatic for administrative errors? It is unclear what the implications will be.	Suggest clarity be added to confirm reportability is only required when misclassification results or may reasonably result in a situation in which the environment, the health and safety of persons or national security is adversely affected.	**MAJOR**	Without further clarification, this could add a huge administrative burden in reporting from the Industry as the CNSC in reviewing and dispositioning these reports. It may also risk obscuring an actual safety-significant scenario.
9.	7.6 Proposed amendment: clarify reporting requirements for improperly classified material	Would an improperly classified package trigger reporting if the packaging and safety requirements for the correct classification were employed for the shipment? For example: If a package of solids was classified as LSA-I in an IP-2 container, but it is later realized to require the LSA-II classification. Would this warrant reporting?	Allow licensees to evaluate misclassifications based on safety significance. If packaging requirements are still met and important safety markings are still present, consider not requiring reporting.	**MAJOR**	As written, minor improper classifications, with no safety significance, will warrant reporting.
10.	7.6, Proposed amendment: clarify reporting requirements for improperly classified material	There are opportunities to reduce the administrative burden without compromising safety. One example we encounter is overly burdensome reporting requirements. Section 35 of the PTNSR, Dangerous Occurrence reporting should be streamlined to better align with the IAEA SSR-6 Regulations and Transport Canada, Transportation of Dangerous Goods Regulations, reporting requirements. Specifically, s.35(a) and s.35(g) should be deleted out of the PTNSR.	Recommend deleting s.35(a) and s.35(g).	**MAJOR**	Dangerous Occurrence reporting should be focused on events where the dose rate and contamination limits are not met, and not require the reporting of fender benders that have no impact on the safety of the package. This is an overly burdensome reporting requirement imposed on Canadian companies relative to our foreign competitors.
11.	7.6, Proposed amendment: clarify reporting requirements for improperly classified material	The PTNSR currently requires immediate reporting for events deemed reportable against s.35 Dangerous Occurrence. In some cases, it is not readily apparent the event/non-compliance warrants reporting thus some time is required to investigate and further interpret the regulations. Once determined reportable, the situation may already be in a safe, non-emergent state. For example: An incorrect preparation of a package where no signs of leakage was identified but the	Prescribe when immediate reporting is required for reportable transportation events, with consideration to timelines and severity of non-compliance. Alternatively, allow for licensees to determine if an immediate report is warranted. Example when warranted: shipment has been involved in an accident. Example when not warranted: shipment arrived safely at consignee location and	**MAJOR**	For cases of non-safety significant transportation events warranting reporting, making an immediate report increases the regulatory burden without certainty on intent. Specifically, these lower-safety-related events do not require intervention or aid from the CNSC.

#	Section	Industry issue	Suggested change	Major/ Clarification	Impact on industry
		shipment may still be non-compliant with the package's certification.	issues with package preparation were observed during unloading.		
12.	8.1 Adding requirement that conveyances where no person is physically present be licensed.	The proposed requirement is broad in scope and would require the consignor to be given this information in advance. The licensing requirements will increase as this technology (e.g., driverless technology) becomes more prevalent. There are existing licensing requirements for Class 7 that address the risk of a shipment such as fissile material or radiological hazard. Industry sees the CNSC needing awareness for these types of shipments but there seems to be already sufficient safety controls within PTNSR. Recognizing that Transport Canada will also have requirements for remote or driverless transport.	Further to the current PTNSR approach to transport, it is suggested to clarify that a consignor intending to engage in the transport of nuclear substances via conveyances where no person is physically present, and where it is above-excepted values then a notification issued to the CNSC similar to the "*Notification of competent authorities"* paragraphs 557-560 in IAEA SSR-6 Regulations for the Safe Transport of Radioactive Material will be acceptable.	Clarification	
13.	10.1 New and amending existing definitions:	The definition of a *spill* sounds more like a *leak*.	Is there a difference between a *leak* (in which unsealed substance is no longer contained) or a *spill* (unsealed substance escapes container onto other surfaces). Are they both *spills*?	Clarification	
14.	10.1 New and amending existing definitions:	Concern with a new definition for *uniformly distributed*. This relates to NSRDR and may also affect the interpretation of PTNSR (and IAEA SSR-6 by extension) since the same undefined terminology is used (e.g., uniformly distributed, homogeneously distributed, distributed throughout).	Clarify how *uniformly distributed* is defined. Suggest revising the definition to make it acceptable to use a factor of 10 for bulk material. (i.e., pure specific uniformly distributed activity is only possible for solutions).	**MAJOR**	Without this allowance, there is no opportunity for a sustainable processing of solid waste or other decommissioning activities.
15.	10.1 New and amending existing definitions	Concern with amending the definition for *exemption quantity*.	Seeking clarification on what will be different regarding this section's definition for	Clarification	

#	Section	Industry issue	Suggested change	Major/ Clarification	Impact on industry
			exemption quantity versus existing definition for Part (c) (i) & (ii)?		
16.	10.1 New and amending existing definitions & 10.10 Paragraph 12(1)(1), Application for Certification:	Concern with amending the definition of *radiation device*.	Suggest adding a definition for devices to avoid having equipment that is not technically devices being considered as such. For example: This will avoid sources attached to cables or other mechanisms being considered *radiation devices*, i.e., if the source is fully exposed or directly accessible when the device is not in operation it should not be considered a device.	Clarification	
17.	10.3 Paragraph 5.1(2)(b), Abandonment or Disposal:	The proposed change is unclear. • Will this require the excepting of effluent discharges from Class I nuclear facilities? • Will this require changes to existing Power Reactor Operating Licences or Waste Facility Operating Licences? • Will licence amendments be needed to include the disposal of effluents and emissions via air and water? Pending the clarification, this may lead to increased regulatory burden and/or risk of non-compliance.	Clarify what is being changed and its impact on the Industry.	Clarification	~~Confusion may lead to regulatory burden or not following the Regulations.~~
18.	10.4 Section 6, Smoke Detectors	Additional information should be included in these sections to provide guidance on disposal and identify if there are any limitations.	Suggest adding guidance for disposal and any related limitations.	Clarification	
19.	10.5 Section 7 Tritium Safety Signs	Additional information should be included in these sections to provide guidance on disposal and identify if there are any limitations.	Suggest adding guidance for disposal and any related limitations.	Clarification	
20.	10.11 Subsection 18(2), Leak Tests	S.18.1 of the NSRD indicates that a leak test is needed when a nuclear substance is used as shielding. Depleted uranium (DU) is a typical case of nuclear substance used as a shielding. Being a metal with uniformly distributed	Industry supports the move to only require leaking testing of DU shielding when there is potential damage but is seeking clarity on why leak testing of DU shielding is continuing	Clarification	

#	Section	Industry issue	Suggested change	Major/ Clarification	Impact on industry
		transuranic activity, migration of contamination to the surface is an unlikely scenario. Noting cross-contamination is possible and it will undergo decontamination practices like any material which is contaminated, it remains unclear then: 1.- Why a leak test is needed? 2.- What additional actions are required upon identifying >200 Bq from the leak test performed on the shielding, independent of the need to report?	to be required for exposure devices in consideration of the fact that they are already required to be leak tested based on radiography source's activity.		
21.	10.12 Subsection 19(1), Transfers	Can this information be transferred electronically prior to shipping, e.g., via online and/or email?	Seeking clarity on the method and timing of transferring the information.	Clarification	
22.	10.15.4 Paragraphs 31(1)(j) and (k), Subsection 31(5) Obligations of Operators	*The CNSC intends to amend subsection 31(5) by removing the term "work shift" and replacing it with a limit of 2 mSv in a 24-hour period, to reduce the risk of a worker potentially receiving a higher dose based on how their work shifts were structured.* The proposed change of ensuring exposure device operators do not exceed 2mSv in a *work shift*, to 2 mSv in 24 hours causes undue burden in radiation dose tracking.	Suggested change: Maintain the requirement as currently stated using the term *work shift*.	**MAJOR**	It is not expected that a worker would have 2 or more full shifts within a 24-hour period. The tracking of dose within 24 hours causes an undue burden on the licensee to track previous exposure when robust dosimetry programs are already in place which include controls to ensure workers do not exceed regulatory limits within a *work shift* and within the current year.
23.	NSRDR 18(1)	It is unclear whether leak testing applies to nuclear substances as shielding with any quantity, or only if the quantity is greater than or equal to 50 MBq. The work should be revised to eliminate the potential for misinterpretation.	Suggested change: *18 (1) Every licensee who possesses, uses or produces a nuclear substance of ≥50 MBq either as 1) a sealed source or 2) shielding shall, at the following times, conduct leak tests on the sealed source or shielding using instruments and procedures that enable the licensee to detect a leakage of 200 Bq or less of the nuclear substance:*	Clarification	

NB Power Comments on the Revisions to the draft changes to the New Brunswick, Ontario Nuclear Power Plant Exclusion Regulations (Parts I, II and III of the Canada Labour Code and the Non-smokers' Health Act)

#	Section	Industry issue	Suggested change	MAJOR	Impact on industry
1.	Ont. NPPE Reg. S.9(1)	The definition of Facility Fire Brigade (FFB) – concern it is not broad enough to capture the work that is inherent to the position. Suggest considering the proposed wording that is consistent with the definition of a firefighter in the Fire Protection and Prevention Act.	Suggest revision: *"Facility fire brigade means a group of employees employed to ~~respond to fires~~ undertake emergency and fire protection services at a nuclear power plant."*	**MAJOR**	The current definition of FFB is narrow and limits the refusal of dangerous work to "responding to a fire". There is a need to consider a broader definition to ensure other types of fire responses are also captured.
2.	RIAS – Issues	This is a broad statement about the consistency between Ontario and New Brunswick regarding the rights of Facility Fire Brigade (FFB) members working at nuclear power plants.	Suggest revising: *"…There is a lack of consistency between Ontario and New Brunswick regarding the rights of FFB members working at nuclear power plants to refuse dangerous work."*	Clarification	
3.	RIAS - Background	The use of the word "police officer" (twice) is not a term that the industry uses to describe their NRT officers. The current exclusion regulation uses "on-site nuclear response force" to address our NRT officers.	Suggest revising: *In 2007…the application of the Ontario OHSA to incorporate ~~police officers~~ on-site nuclear response force at nuclear power plants* *…* *This provision will align with the provision that was included for ~~police officers~~ on-site nuclear response force in 2007…*	Clarification	
4.	RIAS - Objective	This is a broad statement about the consistency between Ontario and New Brunswick regarding the rights of FFB members working at nuclear power plants.	Suggest revising: *"The objective of the proposal is to harmonize the right to refuse dangerous work of FFB members in nuclear power plants…"*	Clarification	