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| **To:** | Consultation (CNSC/CCSN) |
| **Subject:** | Sunil Nijhawan"s comments on REGDOC-1.1.5: License Application Guide: Small Modular Reactor Facilities |
| **Date:** | November-19-18 10:25:57 PM |
| **Attachments:** | Sunil Nijhawan comments on RegDoc 1-1-5 industry comments on SMRs.pdf |

Hello:

Please find attached my comments on REGDOC-1.1.5: License Application Guide: Small Modular Reactor Facilities. (Second round)

Regards,

Sunil Nijhawan

November 20, 2018

cnsc.consultation.ccsn@canada.ca.

Canadian Nuclear Safety Commission
P.O. Box 1046, Station B
280 Slater Street
Ottawa, Ontario
K1P 5S9

**Re. Sunil Nijhawan's comments on REGDOC-1.1.5:**
*License Application Guide: Small Modular Reactor Facilities*

***To All whom this concerns,***

I am happy to have the opportunity to provide feedback on comments received regarding *REGDOC-1.1.5, License Application Guide: Small Modular Reactor Facilities*.

1. Any attempt to treat any SMR using nuclear fission technology differently than any operating power reactor is wrong and contrary to public interests. Any attempt by CNSC to support such a request by an applicant is contrary to CNSC's mandate or justify such a decision based on a pre assessment of potential impacts on the environment or populace is beyond its true capabilities.

2. Given that the definition of a large radioactive release in Canada is the release of 100 TBq of Cs-137 and given that such a quantity of Cs-137 is contained in nuclear fuel producing no more than 200 kW of thermal energy and given that the release of Cs-137 can be as large as 1%/min from a nuclear fuel at accidental temperatures greater than 1500 C, it is absurd to exempt any nuclear power reactor of any power greater than 200 kW thermal from review under the *Impact Assessment Act* unless it can be demonstrated that the nuclear fuel in the reactor cannot over heat under any credible scenario and the containment systems are such that releases of activity to the environment cannot be greater than 100 TBq of Cs-137. This cannot be done without rigorous design reviews and accident analyses and without an environmental assessment of all phases of reactor operation. In practical terms this is impossible to design a nuclear power reactor that will not release more than the large release limit and given that materials used in reactor construction are still man made and do have finite failure potential.

3. Therefore the any proposal of exempting from environmental assessment of the so called Small Modular Reactors is without merit and contrary to the mandate of the CNSC to protect public. On the other hand such a position is consistent with the other positions in blind support of the nuclear power industry adapted by the CNSC over the last 10 years.

4. It is also impossible to understand why one would consider a 300 MWe ( ~1000 MW thermal ) reactor to be a SMALL reactor, given that reactors of that size are routinely commissioned in other countries as full scale power reactors with full scale safety assessments and environmental impact reviews. Such reactors require hundreds of personnel to operate them and are estimated to cost hundreds of millions of dollars to decommission. Remember that AECL designed an ill fated CANDU-3 which was a ~300 MWe reactor. It was never treated as a harmless entity and was given a full safety assessment and would have undergone a full environment impact assessment if it was to be built today.

5. Canada does not have facilities to enrich Uranium to feed the SMRs. Any deployment of SMRs would require environmental assessment of all phases of fuel cycle, including its transport from

where ever it will be procured from and its disposal to where ever it will be removed to. Any differentiation between a CANDU reactor at Pt. Lepreau to a smaller reactor (SMR) in Northern Ontario has no basis in fact and has no equivalence in any other jurisdiction and therefore not worthy of consideration. All power reactors should undergo the same requirements for releases during operation, releases during design basis accidents and releases under severe accidents.

6. Probabilistic arguments should not be allowed to define design criteria. The following IAEA recommendation should be incorporated within the Reg Guide: *The use of probabilistic analyses should not be considered as a substitute to a design approach based on deterministic requirements, but as a part of the process to identify potential safety enhancements and to judge their effectiveness.*

7. All correspondence from and to the CNSC, related to SMR licensing or pre licensing agreements or understandings should be available live on a daily basis to public on the CNSC website. Transparency is an important attribute in development and deployment of new nuclear reactors in Canada. We should all work together to ensure that only nuclear fission reactors that are inherently and demonstrably safe are licensed and deployed. This can only be achieved by a transparent process whereby no information is withheld from public at any stage of licensing or operation. Any applicant or any CNSC manager who wants to hide behind 'sensitive' information to deploy a reactor that can affect millions for thousands of years should be in a different business.

Sincerely,

Sunil Nijhawan, Ph.d, P.Eng.