

Hunt, Jane

Subject: FW: CNSC Consultation on RD-327 and GD-327 (Criticality Safety)

From: Hunt, Neale

Sent: March 2, 2010 4:29 PM

To: Khan, Atika

Cc: Gierszewski, Paul; Ion, Mihaela; Russell, Sean; Hunt, Neale

Subject: CNSC Consultation on RD-327 and GD-327 (Criticality Safety)

Hello Atika

As requested by Paul, I have reviewed the CNSC draft documents "RD-327 Nuclear Criticality Safety" and "GD-327 Guidance for Nuclear Criticality Safety".

I have only a few comments.

- 1) Section 1.0 of RD-327 says that the document "provides requirements for the prevention of criticality accidents in the handling, storage, processing and transportation of fissionable material". This would seem to encompass work under the NWMO mandate; however, detailed reading of both the RD-327 and GD-327 documents indicates that they have been written from the viewpoint of criticality management for **new** fuel.

It would therefore be helpful if the documents be generalized to consider criticality safety for both new and spent fuel.

- 2) Following on from my comment above, consider a hypothetical deep geologic repository that accepts spent natural uranium CANDU fuel. Consider also that the licensee has documented that criticality cannot be achieved for any fuel configuration with light water as a moderator (which is the case for this fuel type). For this situation, there is no need for the requirements of RD-327 to apply; however, I'm having difficulty finding adequate "exclusionary" clauses. For example:

- Section 2.1.1.3 of RD-327 specifies that the hypothetical facility would be categorized as having a "Large Quantity of Fissionable Material";
- Section 2.1.1.4 (2) requires that facilities involved in activities with "Large Quantities of Fissionable Materials" develop and maintain "a full scope program";
- Section 12 describes what a "full scope program" is; however, there doesn't seem to be text (or criteria) that could be applied to exclude the hypothetical facility from meeting the requirements in this instance.

It would therefore be helpful if RD-327 included more statements to clarify when specific requirements need not be addressed.

- 3) Section 1.0 of RD-327 specifies that the focus of the requirements is on ensuring "nuclear criticality safety during the construction, operation, or decommissioning of the licensed facility".

This language is silent on criticality safety after the facility is "abandoned". For an underground repository abandonment would mean sealing the repository with large amounts of spent fuel in storage.

It would therefore be helpful if the expectations for criticality safety post abandonment are clarified.

That's it.

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Neale