



2018 December 17

145-CNNO-18-0039-L

Mr. Brian Torrie
Director General, Regulatory Policy Directorate
Canadian Nuclear Safety Commission
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COMPLIANCE
Regulatory Affairs

Dear Mr. Torrie:

CANADIAN NUCLEAR LABORATORIES COMMENTS ON DRAFT REGDOC-1.2.1, GUIDANCE ON DEEP GEOLOGICAL REPOSITORY SITE CHARACTERIZATION

The purpose of this letter is to provide Canadian Nuclear Laboratories (CNL) comments on *REGDOC-1.2.1, Guidance on Deep Geological Repository Site Characterization*.

The comments summarized in Attachment A represent the collective view of industry partners - CNL, Bruce Power, Ontario Power Generation, and New Brunswick Power.

CNL appreciates the opportunity to provide comments during the development of this regulatory document.

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

Yours sincerely,

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SK/mj
Attachment (1)

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ATTACHMENT A
Canadian Nuclear Laboratories Comments on Draft REGDOC-1.2.1, Guidance on Deep Geological Repository Site Characterization

| # | Document Section/ Excerpt of Section | Industry Issue | Suggested Change (if applicable) | Major Comment/ Request for Clarification | Impact on Industry, if Major Comment |
|----|---|--|---|---|---|
| 1. | General | <p>The CNSC is clear, in both the title of this draft REGDOC and in its Purpose clause, that this is a guidance-only document for a DGR's site characterization process.</p> <p>Yet this draft uses language (the "shall-should-may" convention) that is normally associated with codes, standards and REGDOCs that define requirements. The extensive use of words like "should" and "recommended" could unintentionally lead readers to confuse guidance for requirements.</p> | To ensure the intent of this guidance-only document remains clear, industry urges the CNSC to substitute the word " may " for " should " and " recommended " throughout the REGDOC. | MAJOR | Unclear guidance could lead to inefficient planning and unnecessary expenditures by potential DGR proponents. |
| 2. | General | Discussion of the siting process throughout this draft distracts from the document's intended focus on site characterization. | To keep the document's focus clearly on site characterization, industry urges the CNSC to: <ul style="list-style-type: none"> 1) Remove Section 2. 2) Remove all references to the siting process in other sections or amend where necessary to keep the focus on | Minor | |



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| | | | <p>site characterization. For example, revise:</p> <ul style="list-style-type: none"> • The last sentence of the Purpose to read, "...aspects that may be considered during the site characterization stage of the siting process for a DGR facility..." • The opening sentence of the 4th paragraph of Section 3.1 to read, , "As siting work progresses, more extensive geological information would be gathered ..." • The opening sentence of Section 3.1.1 to read, "The geological characteristics, in combination with the engineered barriers and the design of the DGR, should indicate that a DGR at the chosen site would remain safe for the entire time period of concern—for tens of thousands to millions of years." • Delete the opening sentence of Section 4: "The siting process will collect information that will | | |



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| | | | <p>eventually be included in the safety case for a DGR.</p> <ul style="list-style-type: none"> Delete the first three paragraphs of Section 6, starting the section with the sentence, “It is important for the licence applicant ...” | | |
| 3. | General | <p>Some phraseology in the document is not clearly aligned with the Class I regulations. For example, in the 3rd paragraph of <i>Section 2.3, Site characterization stage</i>, the reference to “preliminary safety assessments” at this stage could be confused with the “preliminary safety analysis report” needed for the licence to construct, per the Class I regulations. Additionally, the reference to “final safety assessment” in <i>Section 2.4, Site confirmation stage</i>, could be confused with the “final safety analysis report” needed for the licence to operate, per Class I regulations. It also suggests this is needed for the “initial licence application,” which may only be a licence to prepare the site.</p> <p>This section also refers to the possibility of sinking the shaft and constructing an Underground Research Facility. These activities are also at odds</p> | Ensure alignment with the Canadian regulatory framework. | MAJOR | Potential for proponents to be misaligned with the regulatory framework. |



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| | | with the environmental assessment process and licensing since it suggests this could happen beforehand. | | | |
| 4. | 1 | The term “several hundred metres or more below the surface” in the Introduction could lead to confusion on how deep a DGR is expected to be. | Revise the sentence to read, “A deep geological repository (DGR) is an engineered facility where radioactive waste is emplaced in a deep, stable geological formation (usually several hundred metres or more below the surface) designed to isolate and contain radioactive waste to provide the long-term isolation of nuclear substances from the biosphere.” | Clarification | |
| 5. | 1.3 | Section 1.3 on Relevant Legislation refers to both the current environmental assessment process and the new proposed legislation on impact assessment. It also speculates on the trigger for the new process. | Section 1.3 should simply refer to the current legislation or note that a new process is under review. | Minor | |
| 6. | 1.4 | The last paragraph is suggesting the CNSC should have access to applicants’ materials/data “to conduct independent research.” Such research may not be perceived as independent. | Change the last sentence to read, “Prior to a formal application being submitted, CNSC staff may also request data, results and materials from the site characterization activities in order, for example, for the CNSC to conduct independent research. ” | Minor | |

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| 7. | 3 | The 4 th paragraph, 2 nd sentence, says, "Specific criteria ... may constitute recommendations." This is not clear. | Industry suggests this sentence be removed. | Clarification | |
| 8. | 3 | The 5 th paragraph is a repeat of earlier text from Section 1.2. | Industry suggests the 5 th paragraph be deleted from Section 3. | Clarification | |
| 9. | 3.1 | A minor revision is suggested to the 2 nd bullet to clarify that future stability can only be expected or projected. | Revise the 2 nd bullet to read, "past and <u>expected/projected</u> future geological stability of the site, including orogeny, seismicity, glaciation and volcanism" | Minor | |
| 10. | 3.1.3 | Industry seeks clarification that the final sentence applies only to processes that are credible or significant. | Revise the sentence to read, "Any process that can be shown to demonstrate the potential for <u>credible and/or significant</u> radionuclide migration or retardation from the DGR engineered facility through the geological environment should be documented." | Clarification | |
| 11. | 3.1.4 | The qualification of a seismically stable region should be clarified. | Amend the first sentence to read, "The site should be located in a seismically stable region, with low potential for <u>large magnitude</u> seismic or volcanic events." | Clarification | |
| 12. | 3.2 | The section on surface environment covers aspects of environmental considerations for a waste | The relationship between section 3.2 and the impact assessment legislation should | Minor | |



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| | | management facility during the pre-closure phase of the DGR. | be clarified. | | |
| 13. | 3.2.1 | <p>This section suggests that 30 years of climate normal data are needed without any context. Also, clarification is required to acknowledge:</p> <ul style="list-style-type: none"> The term precipitation includes rain and/or snow events. Extreme and average data may not be available for a specific site so extreme and average data on a regional basis should be considered. | <p>Industry suggests the CNSC:</p> <ul style="list-style-type: none"> Make it clear that regional data address the first point. Revise the 3rd and 4th bullets to read: <ul style="list-style-type: none"> regional and local precipitation characteristics (precipitation and snow) extreme and average data on temperature, precipitation, snow, wind speed and any other relevant phenomenon for the chosen site on a regional basis. | Clarification | |
| 14. | 3.2.3 | <p>Clarity is sought on the opening sentence, which reads, "The drainage systems in the area should be assessed to determine the confining capacity of the site during the pre-closure period of the DGR facility."</p> <p>Also, data on the seasonality of regional and local water table may not be available.</p> | <p>Confirm that this applies only to surface water along with flooding and storm water management capacity.</p> <p>Revise the final bullet to read:</p> <ul style="list-style-type: none"> "regional and/or local water table characteristics, and seasonality" | Clarification | |



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| 15. | 4 | It is not clear what could be considered “known and potential for competing land-use activities at the proposed site” from the geological perspective and beyond resource potential. | The 2 nd bullet in the 2 nd paragraph should be removed since resource potential has already been addressed in this section. | Clarification | |
| 16. | 5.3 | There is a detailed list in this section of what should be in the site characterization program and it is focused on boreholes. It is unclear why these items are listed in the section on sampling and testing procedures. | Move the list to Section 3 and consider clarifying the focus on boreholes. | Clarification | |
| 17. | 6.0 | Given the document’s focus on site characterization (see comment #2), this section should address the site characterization and/or regulatory approval process for an underground research facility rather than a discussion of the attributes of URFs. | Remove the first three paragraphs of this section and clarify whether the discussion is strictly with respect to URF or, applicable to all: <ul style="list-style-type: none"> • Licence applicants’ plans for verification of site characteristics. • Early discussions with the CNSC on those plans. | Clarification | |
| 18. | References | Reference 6 supports a pretty general statement about what the site characterization program should do. It is a report from a European regulator group WENRA and this is the only place it is used. This report is about overall safety expectations for a disposal facility. Site characterization is only mentioned at a very general level (p.42) and the | Recommend deleting Reference 6 from this REGDOC since it offers no particular insight on the topic of site characterization that is not already covered by IAEA documents. | Minor | |



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| | | report does not offer any more detail than is already included in the draft REGDOC. Furthermore, much of this document is referenced to IAEA standards such as SSG-23. | | | |